

# 웹 애플리케이션 개발환경 구축

## 개발환경 구축 순서

1. <https://tomcat.apache.org/download-80.cgi> 접속
2. Download – Tomcat 8 선택 후 8.0.48 버전 다운로드
3. D 드라이브의 dev 폴더 생성 후 압축 풀기
4. 이클립스에 설치한 톰캣의 경로로 런타임 등록
5. 테스트 서버 생성 후 실행
6. 정상 start up 확인

## 아파치-톰캣 서버 버전 별 지원정보 확인

### Apache Tomcat

[Home](#)  
[Taglibs](#)  
[Maven Plugin](#)

### Download

Which version?

[Tomcat 9](#)  
[Tomcat 8](#)  
[Tomcat 7](#)  
[Tomcat Connectors](#)  
[Tomcat Native](#)  
[Taglibs](#)  
[Archives](#)

### Documentation

[Tomcat 9.0](#)  
[Tomcat 8.5](#)  
[Tomcat 8.0](#)  
[Tomcat 7.0](#)  
[Tomcat Connectors](#)  
[Tomcat Native](#)  
[Wiki](#)  
[Migration Guide](#)  
[Presentations](#)

### Apache Tomcat Versions

Apache Tomcat® is an open source software implementation of the Java Servlet and JavaServer Pages technologies. Different versions of Apache Tomcat are available for different versions of the Servlet and JSP specifications. The mapping between the specifications and the respective Apache Tomcat versions is:

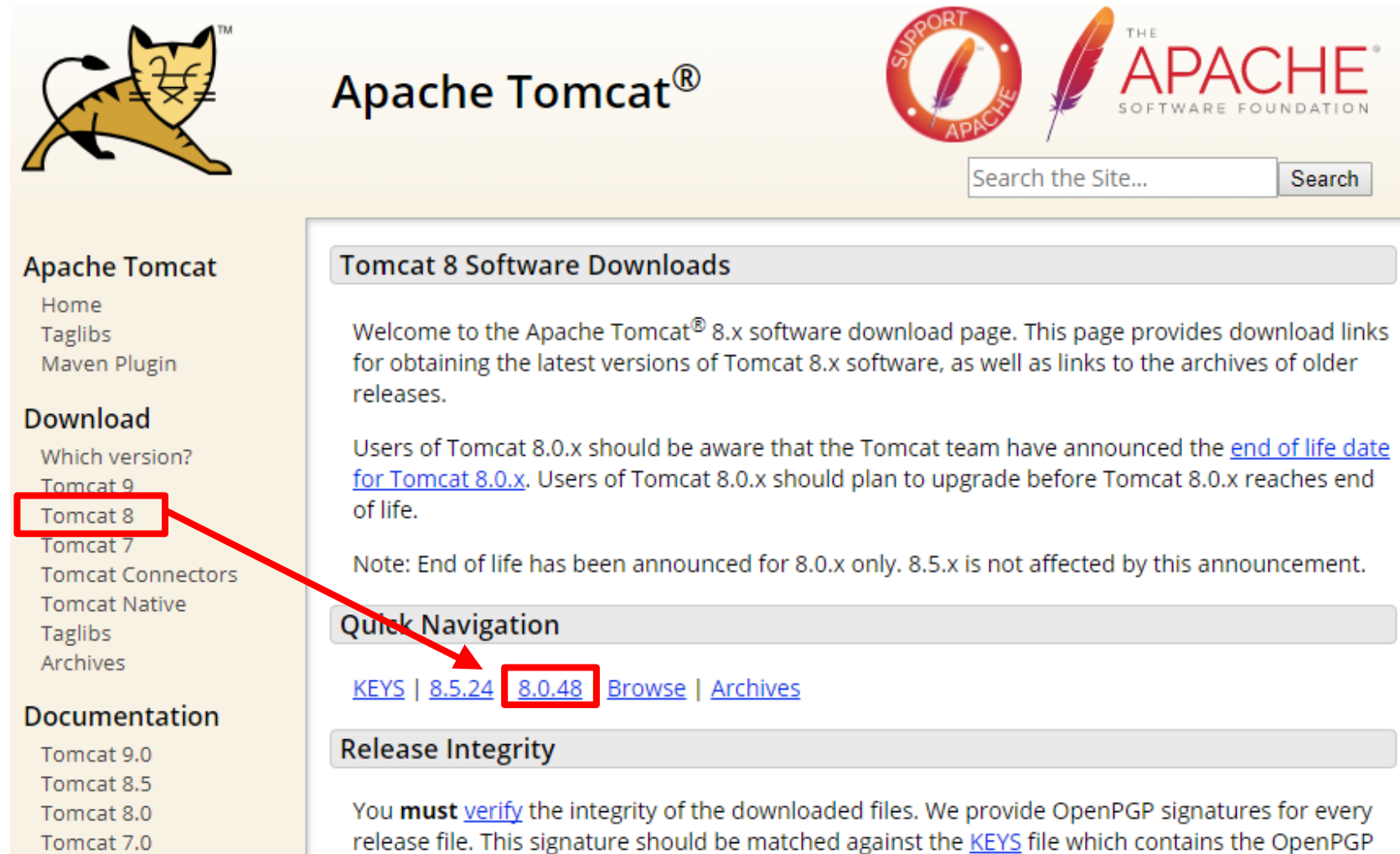
Servlet Spec	JSP Spec	EL Spec	WebSocket Spec	JASPIC Spec	Apache Tomcat Version	Latest Released Version	Supported Java Versions
4.0	2.3	3.0	1.1	1.1	9.0.x	9.0.2 (beta)	8 and later
3.1	2.3	3.0	1.1	1.1	8.5.x	8.5.24	7 and later
3.1	2.3	3.0	1.1	N/A	8.0.x (superseded)	8.0.48 (superseded)	7 and later
3.0	2.2	2.2	1.1	N/A	7.0.x	7.0.82	6 and later (7 and later for WebSocket)
2.5	2.1	2.1	N/A	N/A	6.0.x (archived)	6.0.53 (archived)	5 and later
2.4	2.0	N/A	N/A	N/A	5.5.x (archived)	5.5.36 (archived)	1.4 and later
2.3	1.2	N/A	N/A	N/A	4.1.x (archived)	4.1.40 (archived)	1.3 and later
2.2	1.1	N/A	N/A	N/A	3.3.x (archived)	3.3.2 (archived)	1.1 and later

## 아파치-톰캣 서버 버전 별 지원정보 확인

톰캣 버전	최신 버전	최소 Java 버전	서블릿 버전	JSP 버전
9.0.X	9.0.2(beta)	Java 8	4.0	2.3
8.5.X	8.5.24	Java 7	3.1	2.3
<b>8.0.X</b>	<b>8.0.48</b>	<b>Java 7</b>	<b>3.1</b>	<b>2.3</b>
7.0.X	7.0.82	Java 6	3.0	2.2
6.0.X	6.0.53	Java 5	2.5	2.1

8.5.X 버전과 8.0.X 버전의 차이는 **JASPIC 1.1** (자바 인증 서비스 인터페이스) Spec의 지원 유무이며 다른 부분은 동일하다.

## 아파치-톰캣 서버 설치



The screenshot shows the Apache Tomcat website. On the left is a navigation menu with sections: Apache Tomcat (Home, Taglibs, Maven Plugin), Download (Which version?, Tomcat 9, Tomcat 8, Tomcat 7, Tomcat Connectors, Tomcat Native, Taglibs, Archives), and Documentation (Tomcat 9.0, Tomcat 8.5, Tomcat 8.0, Tomcat 7.0). The 'Tomcat 8' link in the Download section is highlighted with a red box, and a red arrow points from it to the '8.0.48' link in the Quick Navigation section. The main content area is titled 'Tomcat 8 Software Downloads' and contains a welcome message, a notice about the end of life for Tomcat 8.0.x, and a note about the end of life announcement. The Quick Navigation section includes links for KEYS, 8.5.24, 8.0.48, Browse, and Archives. The Release Integrity section mentions verifying the integrity of downloaded files.

**Apache Tomcat**  
Home  
Taglibs  
Maven Plugin

**Download**  
Which version?  
Tomcat 9  
**Tomcat 8**  
Tomcat 7  
Tomcat Connectors  
Tomcat Native  
Taglibs  
Archives

**Documentation**  
Tomcat 9.0  
Tomcat 8.5  
Tomcat 8.0  
Tomcat 7.0

**Tomcat 8 Software Downloads**

Welcome to the Apache Tomcat® 8.x software download page. This page provides download links for obtaining the latest versions of Tomcat 8.x software, as well as links to the archives of older releases.

Users of Tomcat 8.0.x should be aware that the Tomcat team have announced the [end of life date for Tomcat 8.0.x](#). Users of Tomcat 8.0.x should plan to upgrade before Tomcat 8.0.x reaches end of life.

Note: End of life has been announced for 8.0.x only. 8.5.x is not affected by this announcement.

**Quick Navigation**  
[KEYS](#) | [8.5.24](#) | **[8.0.48](#)** | [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

## 아파치-톰캣 서버 설치

### Tomcat-8.0.48 다운 받기

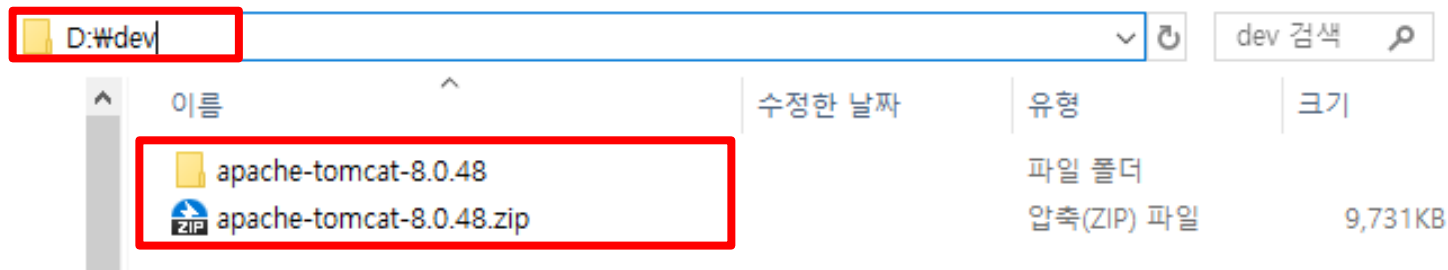
8.0.48

Please see the [README](#) file for packaging information. It explains what ev

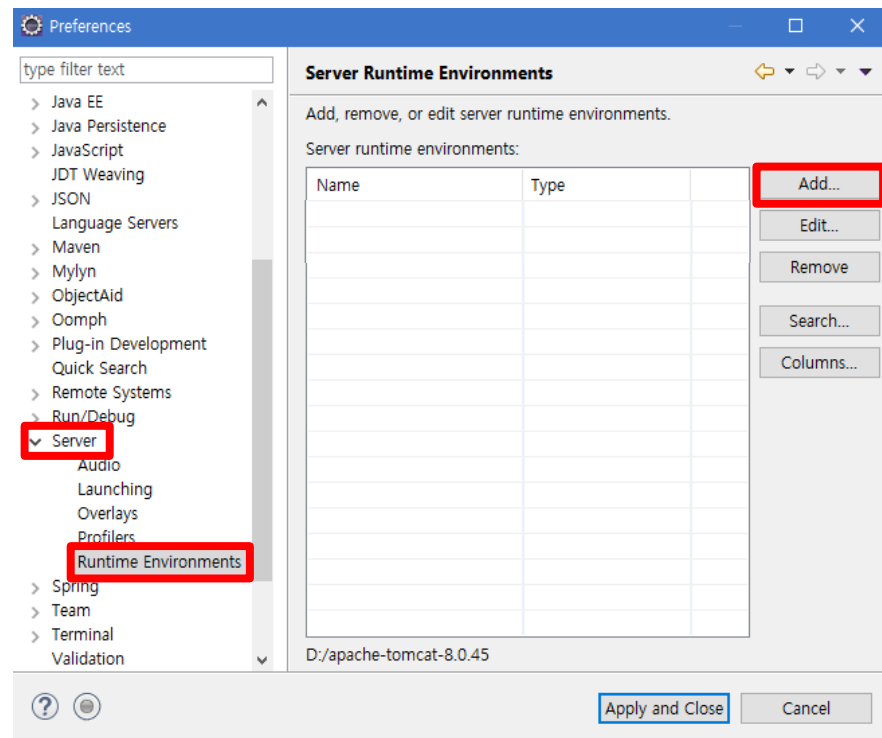
#### Binary Distributions

- Core:
  - [zip \(pgp, md5, sha1\)](#)
  - [tar.gz \(pgp, md5, sha1\)](#)
  - [32-bit Windows zip \(pgp, md5, sha1\)](#)

### D드라이브의 dev 폴더를 생성하여 Tomcat-8.0.48 압축 풀기

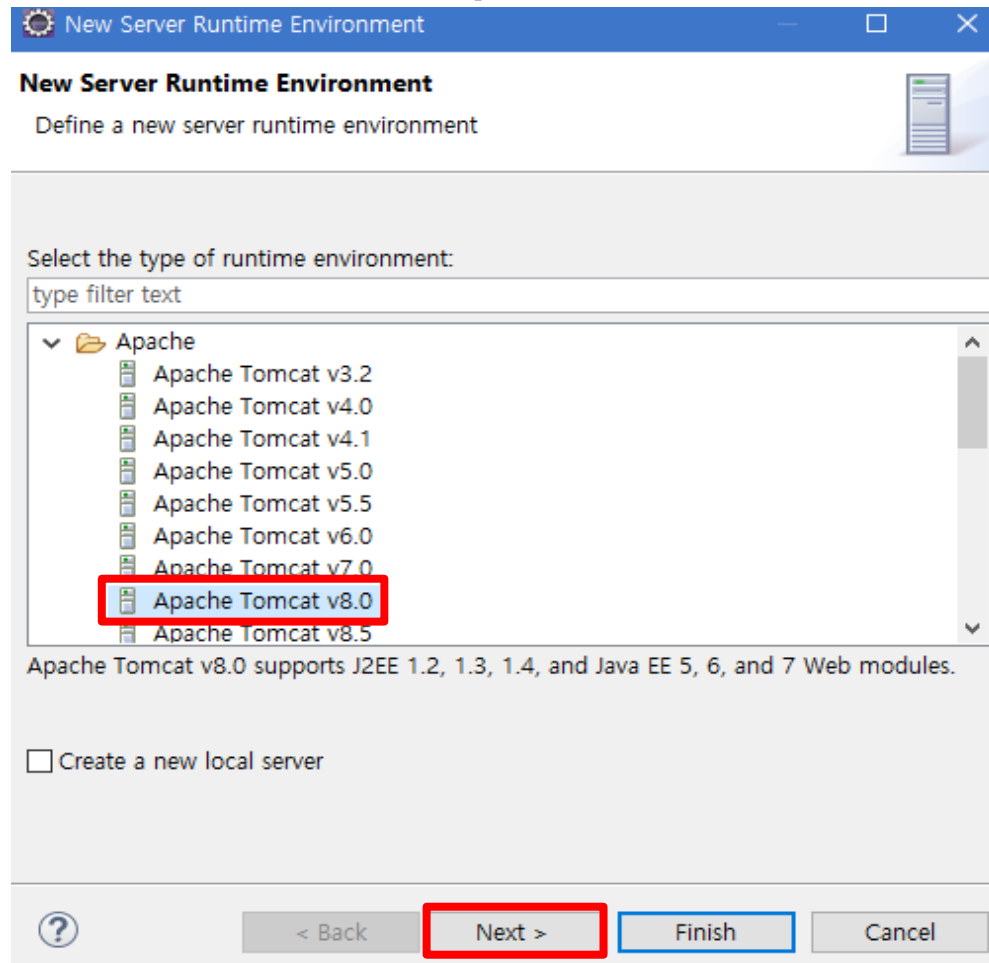


이클립스 상단의 [ Window ] – [ Preferences ] 선택 후  
[ Server ] – [ Runtime Environments ] – [ Add... ] 선택



## 아파치-톰캣 서버 구성하기

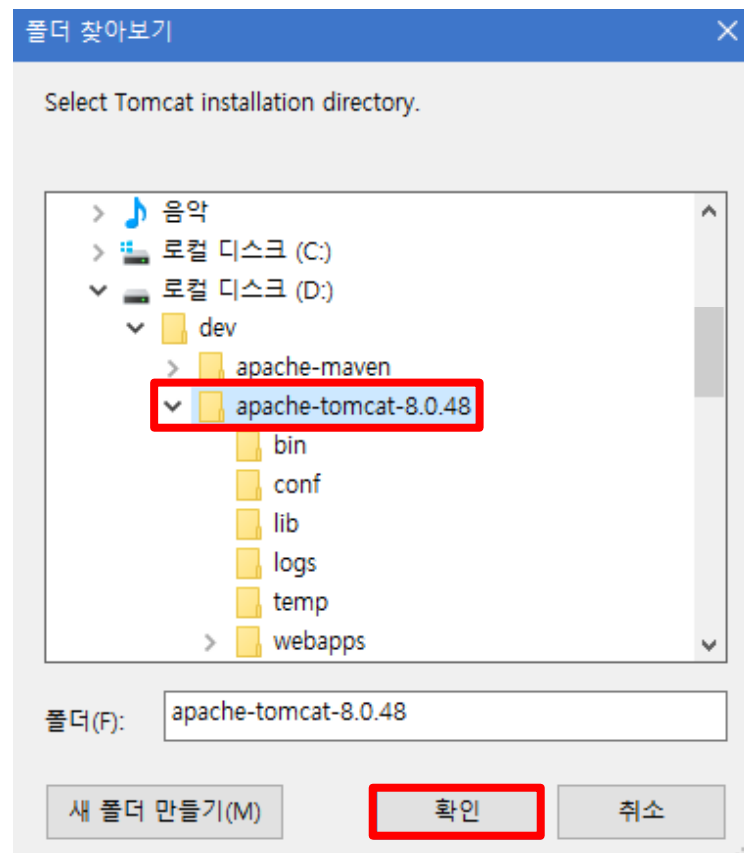
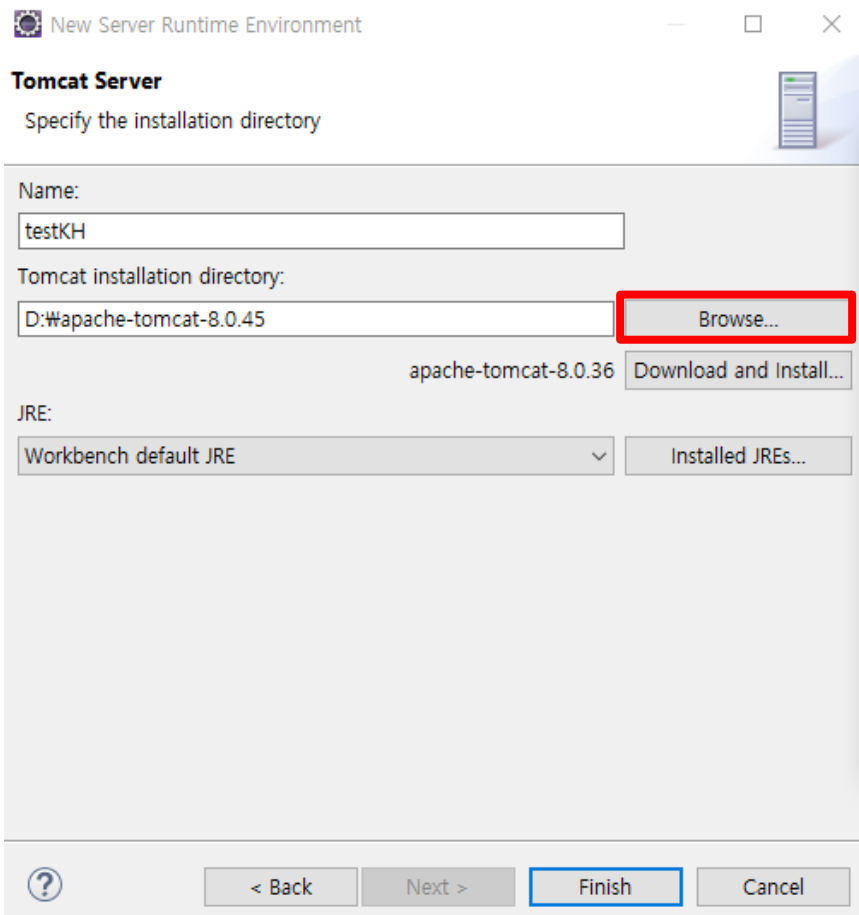
New Server Environment 에서 Apache Tomcat v8.0 선택 후 [ Next ]



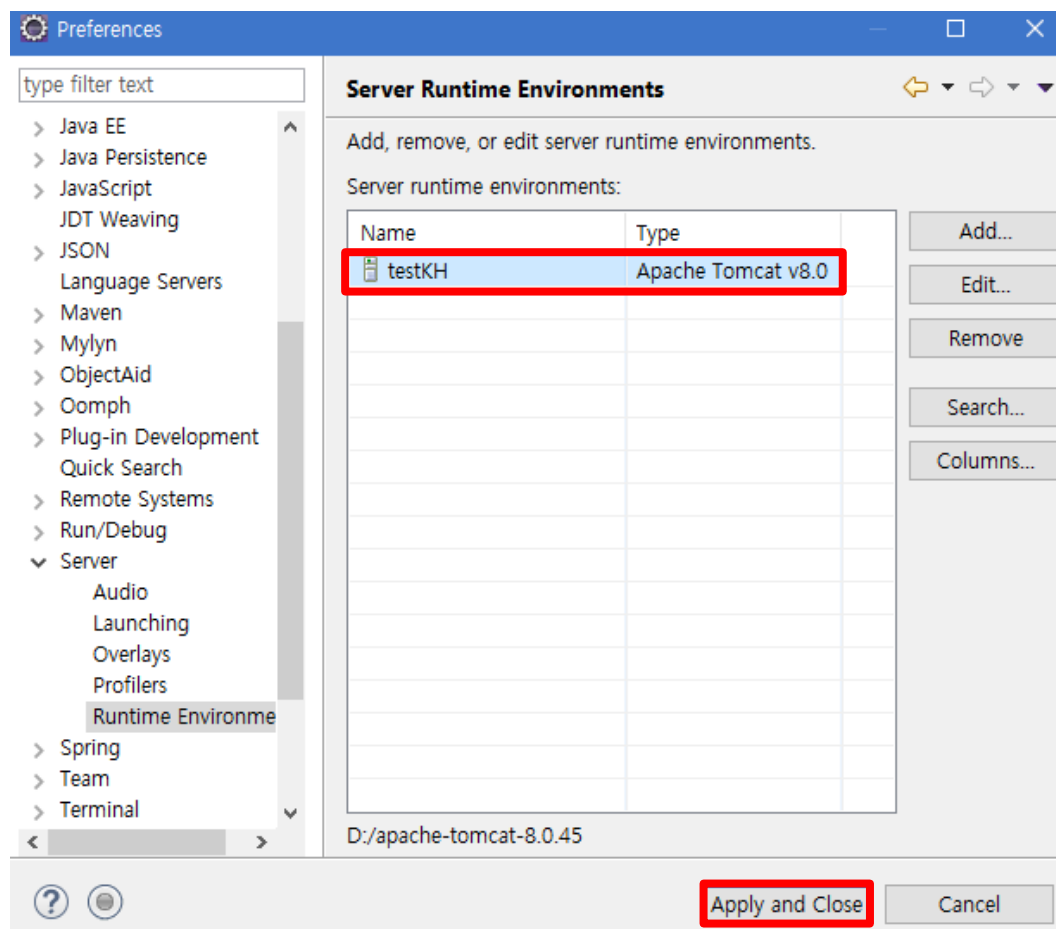


## 아파치-톰캣 서버 구성하기

[ Browse... ] 선택하여 Apache-tomcat 설치 경로 등록

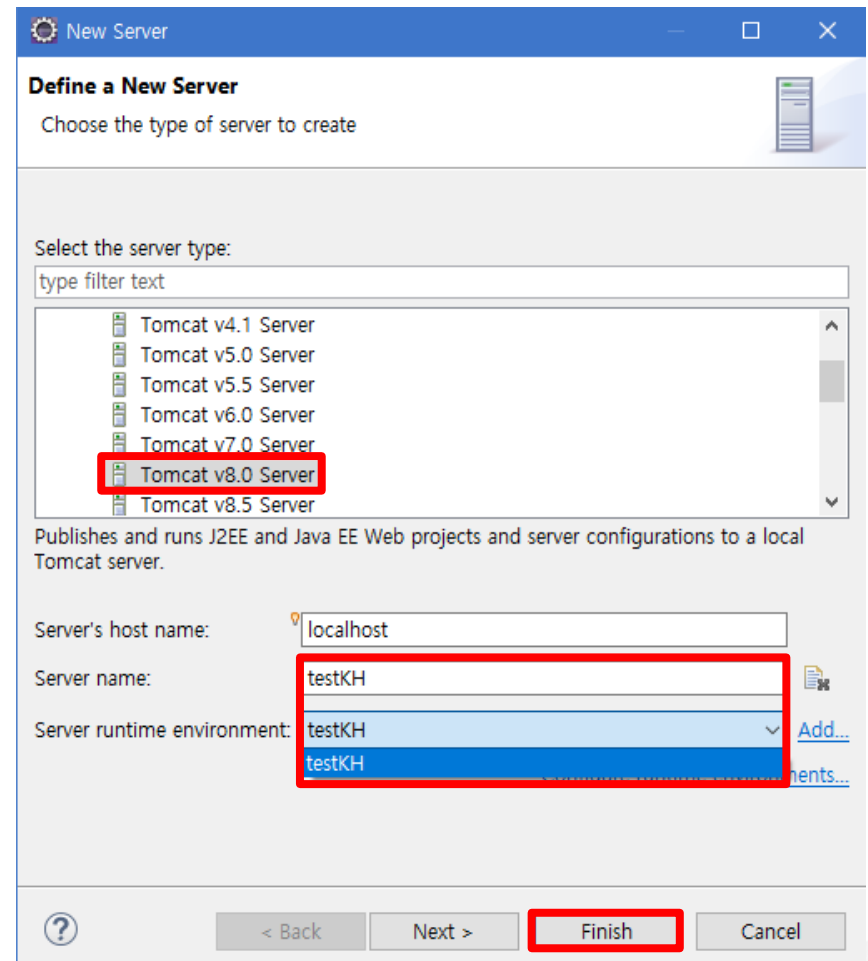
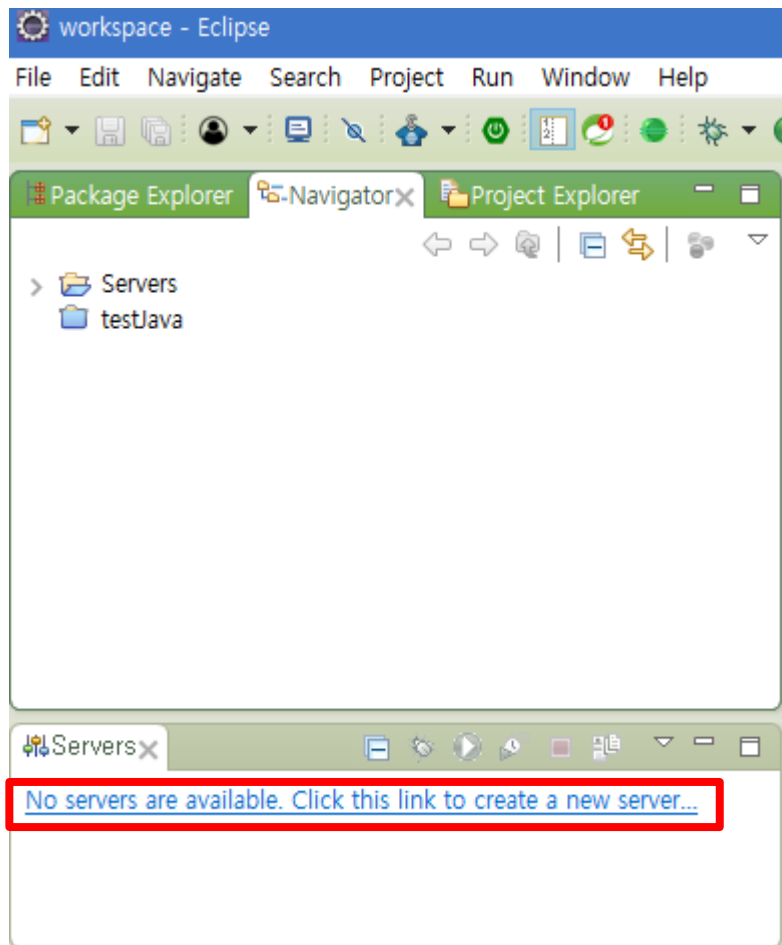


Server Runtime Environments 의 등록 정보를 확인 후 [ Apply and Close ]



## 아파치-톰캣 서버 등록하기

Servers 설정에서 new Server 클릭 후, 이미 만들어 둔 환경을 선택하고 Finish



## 아파치-톰캣 서버 등록하기

생성된 서버를 더블 클릭하여 서버 설정 변경

**Overview**

**General Information**  
Specify the host name and other common settings.

Server name: testKH  
Host name: localhost  
Runtime Environment: testKH  
Configuration path: /Servers/testKH-config [Browse...]  
[Open launch configuration](#)

**Server Locations**  
Specify the server path (i.e. catalina.base) and deploy path. Server must be published with no modules present to make changes.

☒ Use workspace metadata (does not modify Tomcat installation)  
☐ Use Tomcat installation (takes control of Tomcat installation)  
☐ Use custom location (does not modify Tomcat installation)

Server path: .metadata#.plugins#org.eclipse.wst.server.core#tmp1 [Browse...]  
[Set deploy path to the default value \(currently set\)](#)  
Deploy path: wtpwebapps [Browse...]

**Server Options**  
Enter settings for the server.

☒ **Serve modules without publishing**  
☐ Publish module contexts to separate XML files  
☒ Modules auto reload by default  
☐ Enable security  
☐ Enable Tomcat debug logging (not supported by this Tomcat version)

**Ports**  
Modify the server ports.

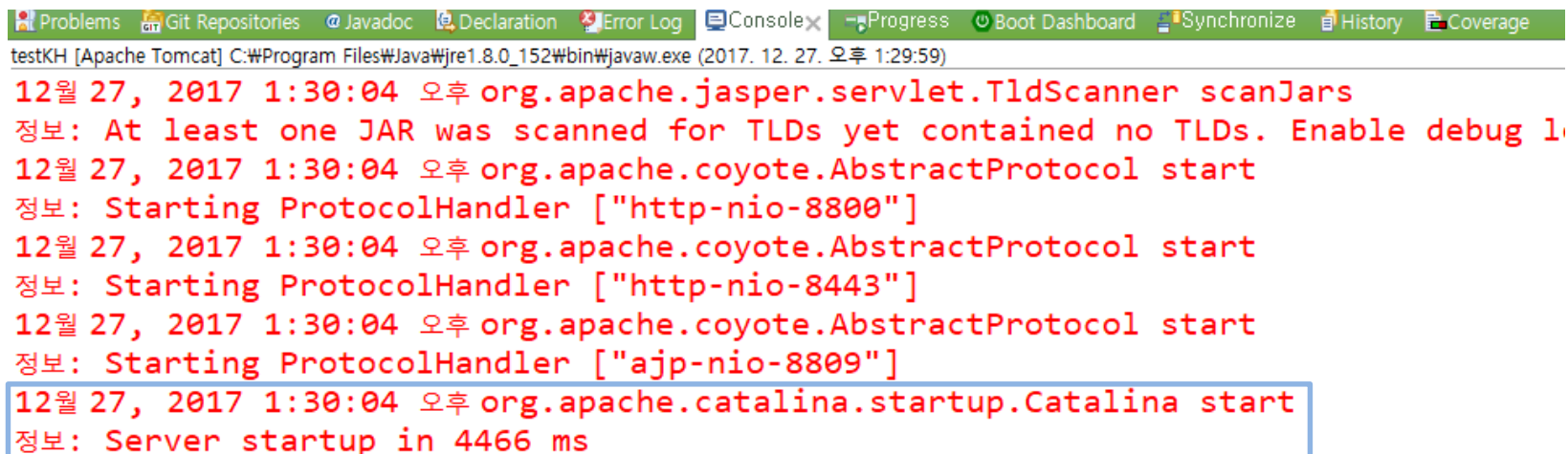
Port Name	Port Number
Tomcat admin port	8805
HTTP/1.1	8800
SSL	8443
AJP/1.3	8809

**서버 접속에 사용할 Port 번호 변경**

Tomcat이 제공하는 기본 폴더 경로가 아닌  
본인이 생성한 Project 를 최상위 폴더 경로로 인식

## 아파치-톰캣 서버 등록하기

Server가 정상 구동 되는지 확인



The screenshot shows an IDE console window with the following tabs: Problems, Git Repositories, Javadoc, Declaration, Error Log, Console, Progress, Boot Dashboard, Synchronize, History, and Coverage. The console output is as follows:

```
testKH [Apache Tomcat] C:\Program Files\Java\jre1.8.0_152\bin\javaw.exe (2017. 12. 27. 오후 1:29:59)
12월 27, 2017 1:30:04 오후 org.apache.jasper.servlet.TldScanner scanJars
정보: At least one JAR was scanned for TLDs yet contained no TLDs. Enable debug logging to see this message.
12월 27, 2017 1:30:04 오후 org.apache.coyote.AbstractProtocol start
정보: Starting ProtocolHandler ["http-nio-8800"]
12월 27, 2017 1:30:04 오후 org.apache.coyote.AbstractProtocol start
정보: Starting ProtocolHandler ["http-nio-8443"]
12월 27, 2017 1:30:04 오후 org.apache.coyote.AbstractProtocol start
정보: Starting ProtocolHandler ["ajp-nio-8809"]
12월 27, 2017 1:30:04 오후 org.apache.catalina.startup.Catalina start
정보: Server startup in 4466 ms
```

## 톰캣 관련 참고사항 - Directory

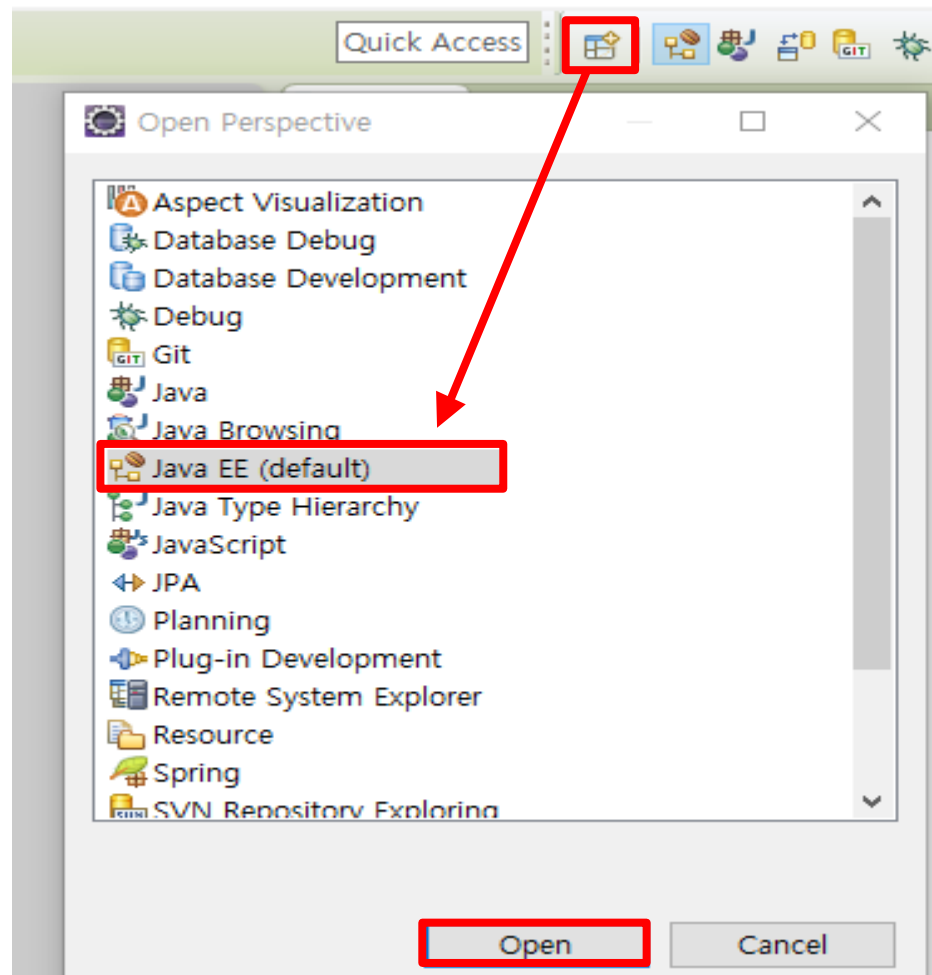
종류	설명
bin	톰캣을 실행하고 종료시키는 스크립트 파일(bat, sh)이 위치
conf	server.xml, web.xml 등 설정파일이 위치
lib	톰캣을 실행하는데 필요한 라이브러리파일(.jar)위치
logs	톰캣 로그파일이 위치
temp	톰캣이 실행되는 동안 임시파일이 위치
webapps	웹 어플리케이션 위치, 웹 어플리케이션이 저장되는 위치
work	톰캣이 실행되는 동안 사용되는 작업파일이 위치

## 톰캣 관련 참고사항 - 환경설정

종류	설명
web.xml	웹 어플리케이션에 대한 설정 파일 (배포서술자 DD : Deployment Descriptor)
server.xml	메인 환경설정파일, Service, Connector, Host 등 설정
catalina.policy	보안정책설정파일, JVM에 의해서 웹어플리케이션에 강제적으로 보안정책 권한을 설정
catalina.properties	서버를 시작할때 검색하는 서버 설정 공유로더, jar등의 공유 정보
tomcat-users.xml	사용자 권한과 인증번호를 설정, 톰캣 관리자를 사용할 때 활용되는 정보로서 기본적으로 주석처리,
logging.properties	톰캣인스턴스의 로깅설정 파일, 기본적으로 4가지 로그 파일 설정
context.xml	세션, 쿠키 저장경로를 지정하는 설정파일

## 이클립스 환경 설정

이클립스의 구동환경을 Java EE 로 변경





## 이클립스 환경 설정

웹 애플리케이션 구현 시 생성해야 할 파일의 바로가기를 생성한다.

The screenshot illustrates the process of configuring Eclipse IDE shortcuts for web development. The 'Window' menu is open, and 'Customize Perspective...' is selected. The 'Customize Perspective - Java' dialog is shown with the 'Shortcuts' tab active. A red arrow points from the 'Customize Perspective...' menu item to the 'Shortcuts' tab in the dialog.

**Window Menu:**

- Window
- Help
- New Window
- Editor
- Appearance
- Show View
- Perspective
- Navigation
- Preferences

**Customize Perspective - Java Dialog:**

- Tool Bar Visibility
- Menu Visibility
- Action Set Availability
- Shortcuts

Select the shortcuts that you want to see added as cascade items to the following submenu. The selections made will only affect the current perspective (Java).

Submenus:

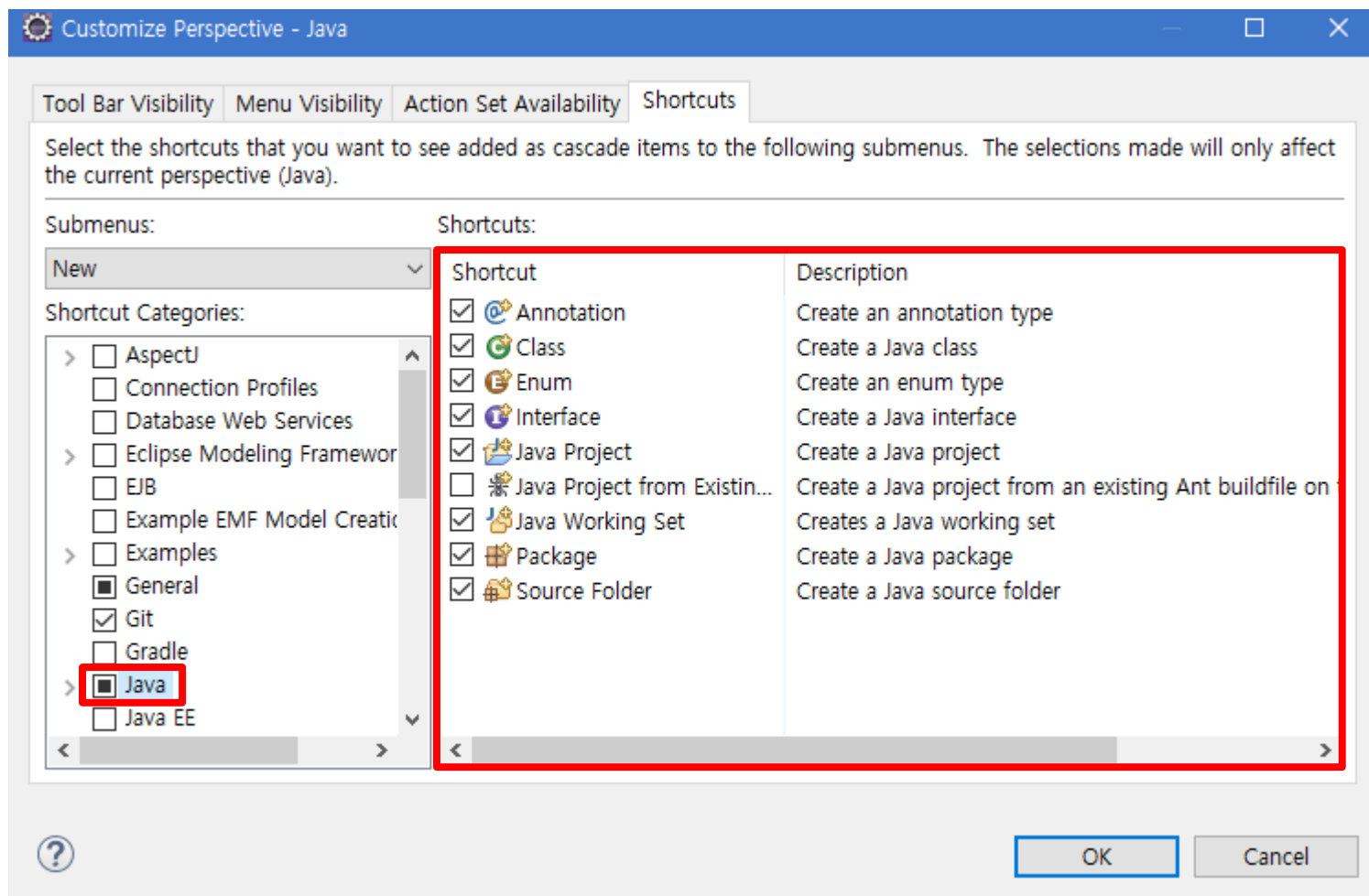
- New
- Shortcut Categories:
- Plug-in Development
- Remote System Explorer
- Server
- Spring
- Spring Boot
- SQL Development
- SVN
- Tasks
- User Assistance
- Web
- Web Services
- XML

Shortcuts:

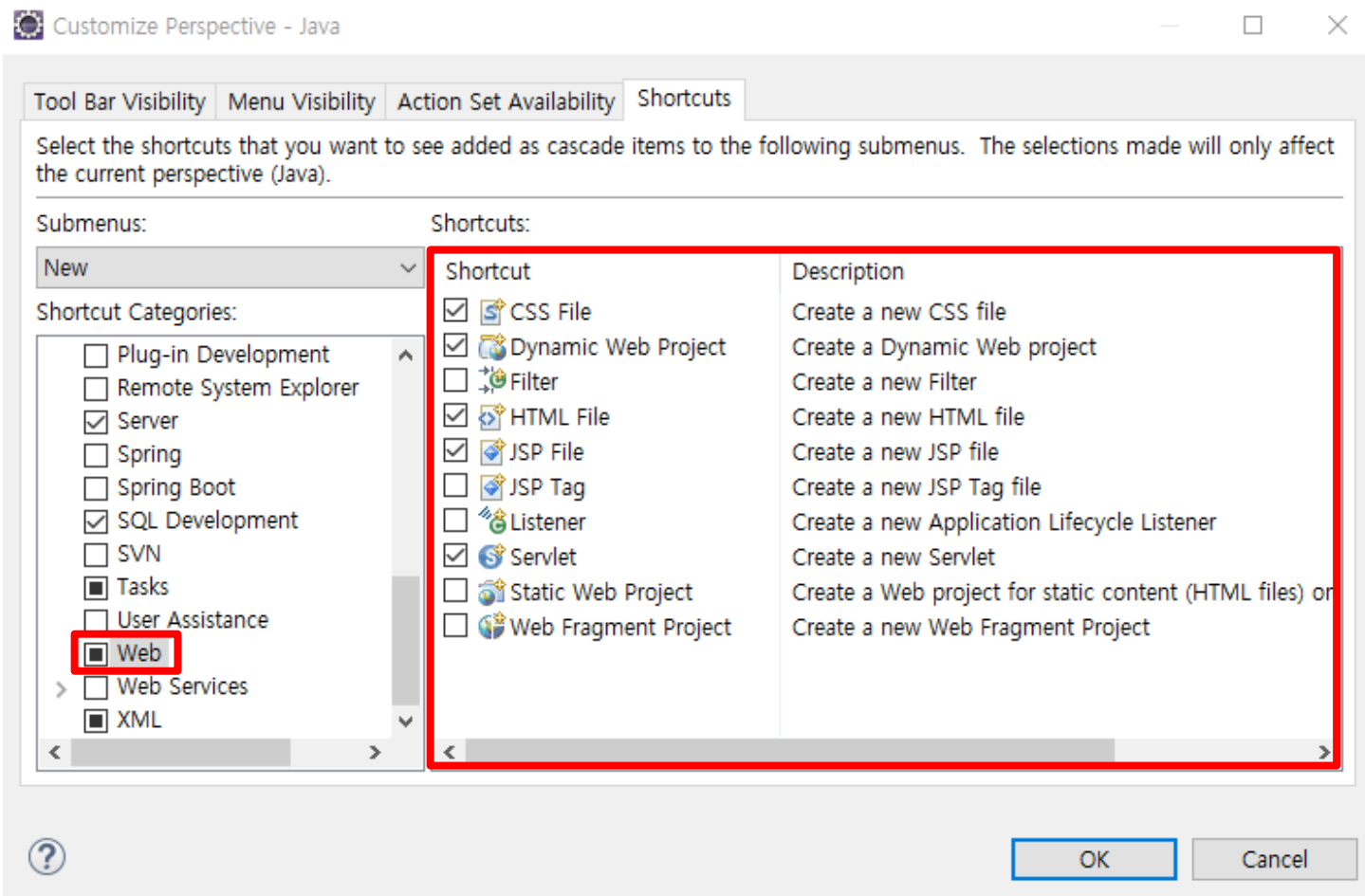
Shortcut	Description
<input checked="" type="checkbox"/> CSS File	Create a new CSS file
<input checked="" type="checkbox"/> Dynamic Web Project	Create a Dynamic Web project
<input type="checkbox"/> Filter	Create a new Filter
<input checked="" type="checkbox"/> HTML File	Create a new HTML file
<input checked="" type="checkbox"/> JSP File	Create a new JSP file
<input type="checkbox"/> JSP Tag	Create a new JSP Tag file
<input type="checkbox"/> Listener	Create a new Application Lifecycle Listener
<input checked="" type="checkbox"/> Servlet	Create a new Servlet
<input type="checkbox"/> Static Web Project	Create a Web project for static content (HTML files) on
<input type="checkbox"/> Web Fragment Project	Create a new Web Fragment Project

OK Cancel

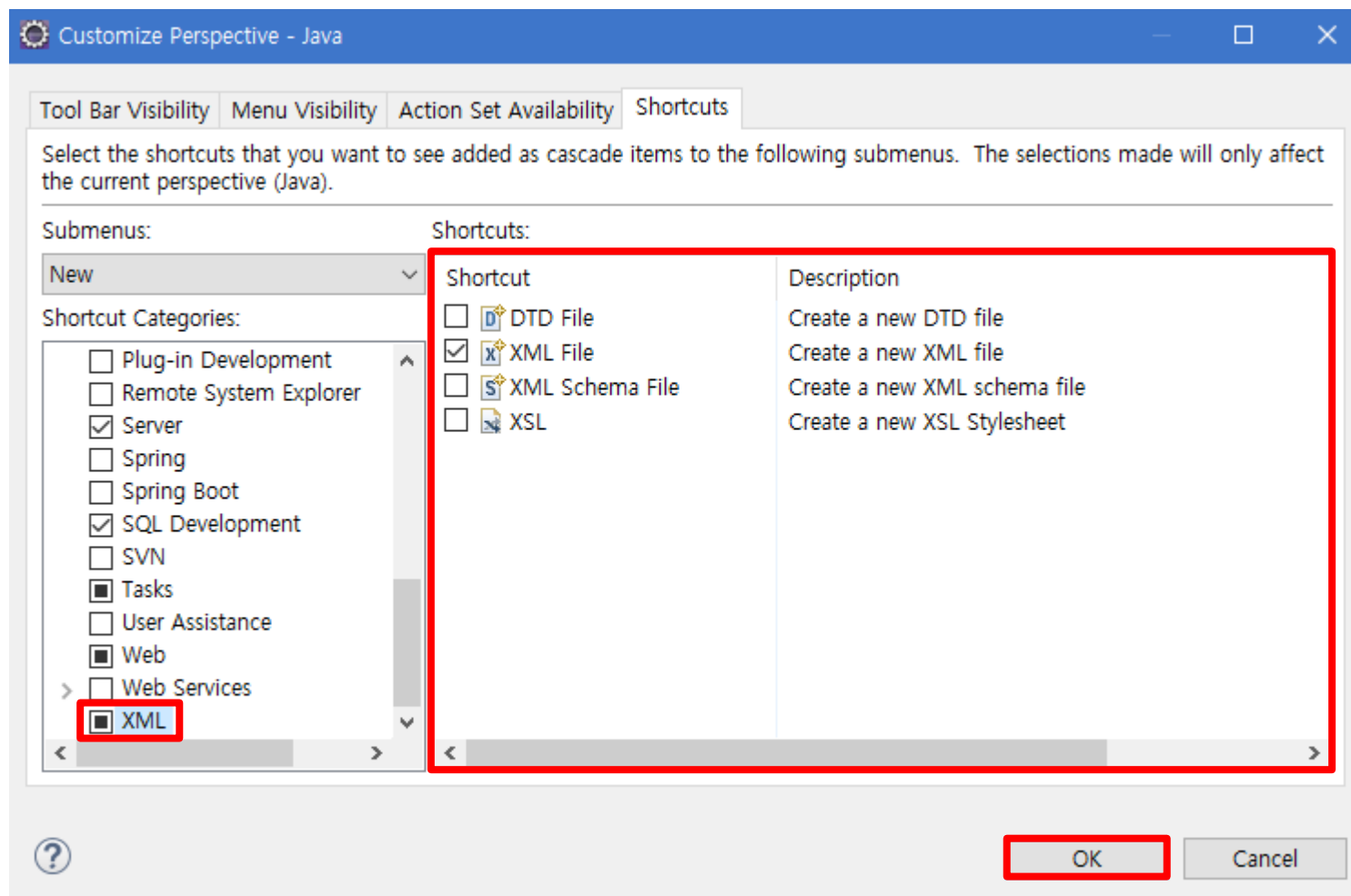
## 이클립스 환경 설정



## 이클립스 환경 설정

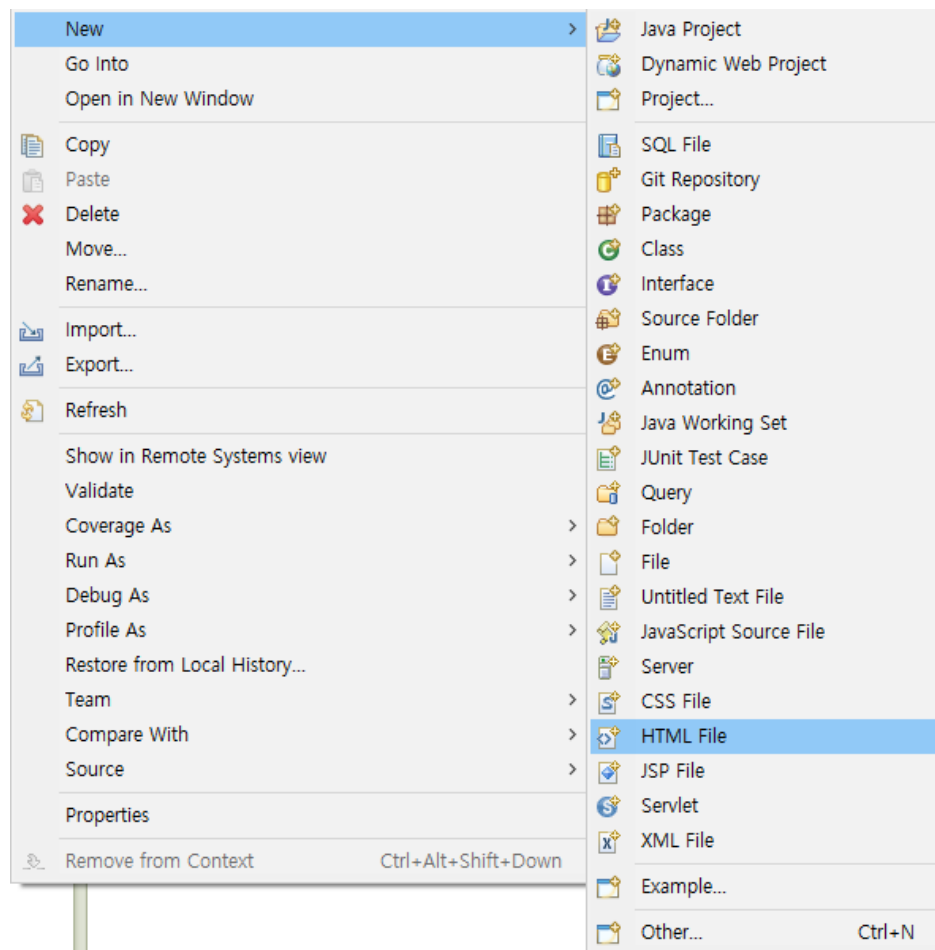


## 이클립스 환경 설정



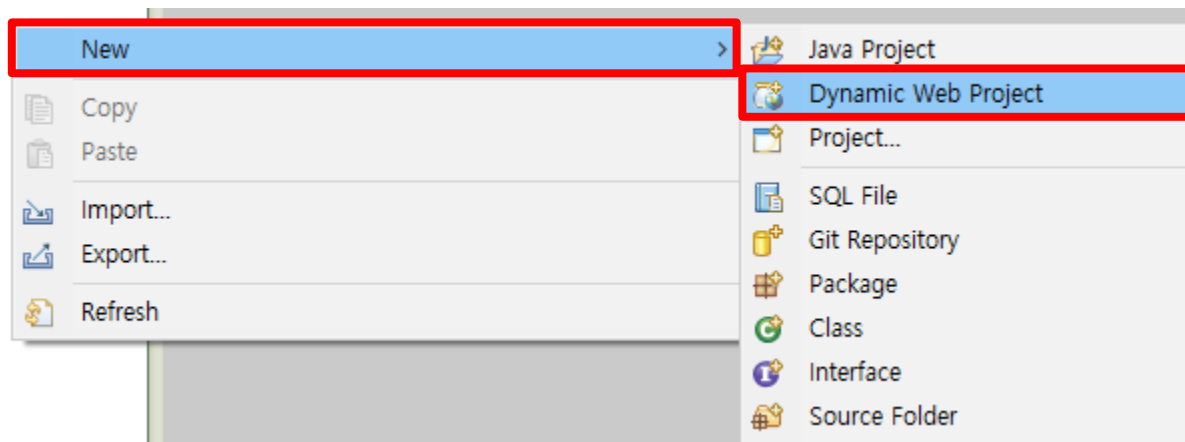
## 이클립스 환경 설정

우클릭하여 [ New ] 메뉴 접근 시  
다음과 같이 나오면 완료된 것이다.



## Web Project 서버에 등록하기

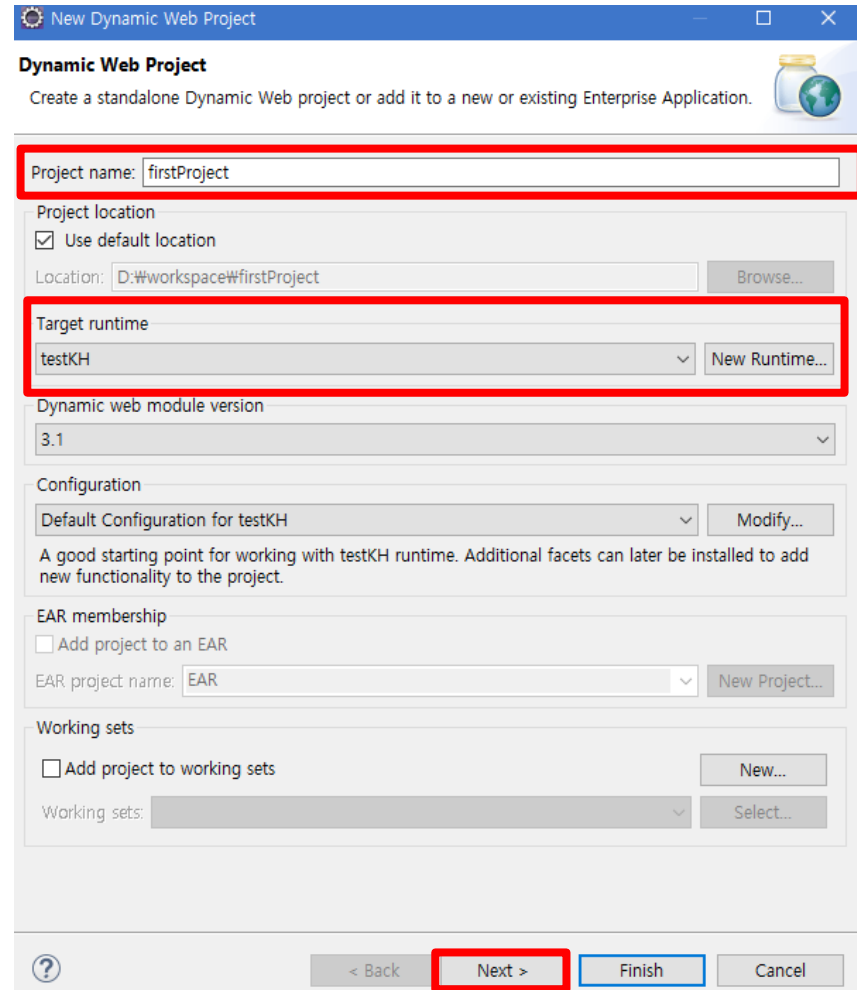
[ New ] – [ Dynamic Web Project ] 생성



## Web Project 서버에 등록하기

1. 프로젝트 이름을 설정

2. Target runtime 을 이전에 생성한 서버로 설정 후 [ Next ] 클릭



New Dynamic Web Project

**Dynamic Web Project**  
Create a standalone Dynamic Web project or add it to a new or existing Enterprise Application.

Project name: firstProject

Project location  
☒ Use default location  
Location: D:\workspace\firstProject Browse...

Target runtime  
testKH New Runtime...

Dynamic web module version  
3.1

Configuration  
Default Configuration for testKH Modify...  
A good starting point for working with testKH runtime. Additional facets can later be installed to add new functionality to the project.

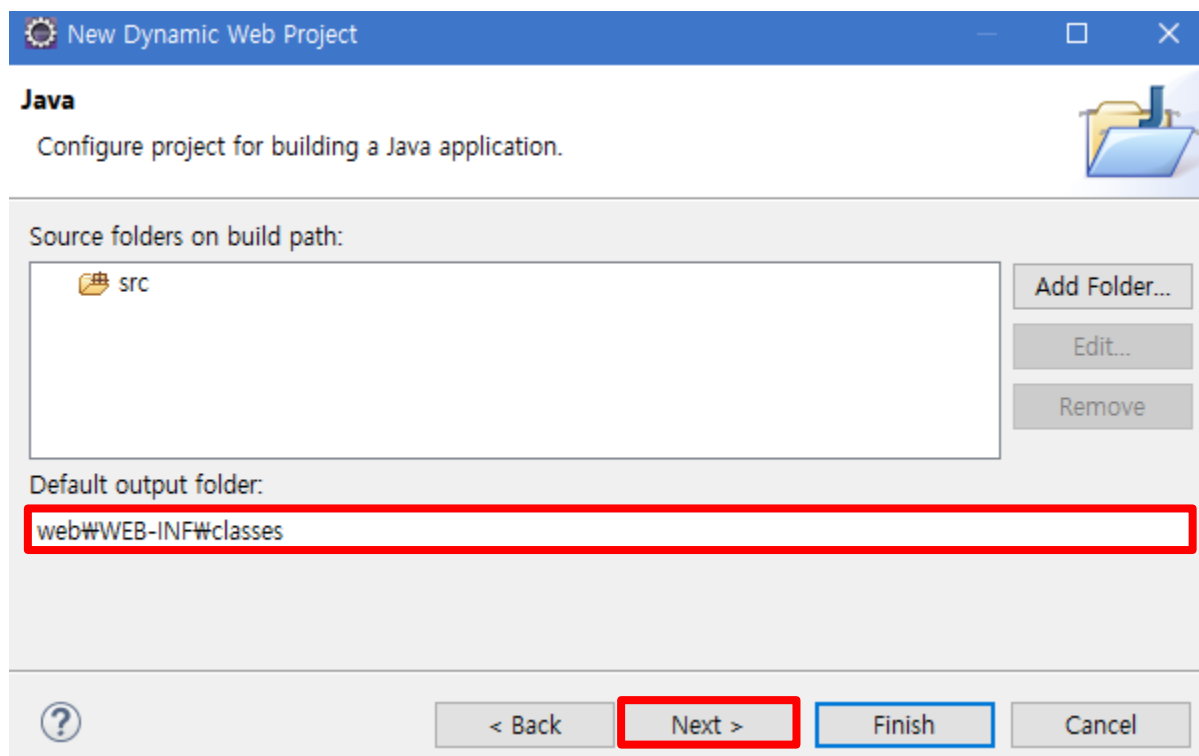
EAR membership  
☐ Add project to an EAR  
EAR project name: EAR New Project...

Working sets  
☐ Add project to working sets New...  
Working sets: Select...

< Back Next > Finish Cancel

## Web Project 서버에 등록하기

source 폴더의 위치를 web\WEB-INF\classes 로 설정 후 [ Next ]





## Web Project 서버에 등록하기

Context root의 이름을 웹 서버를 호출할 별칭으로 변경,

Content Directory 를 web으로 변경,

체크박스를 체크하여 웹 프로젝트 기본 설정 파일인 web.xml 생성 [ Finish ]

New Dynamic Web Project

**Web Module**  
Configure web module settings.

Context root: first

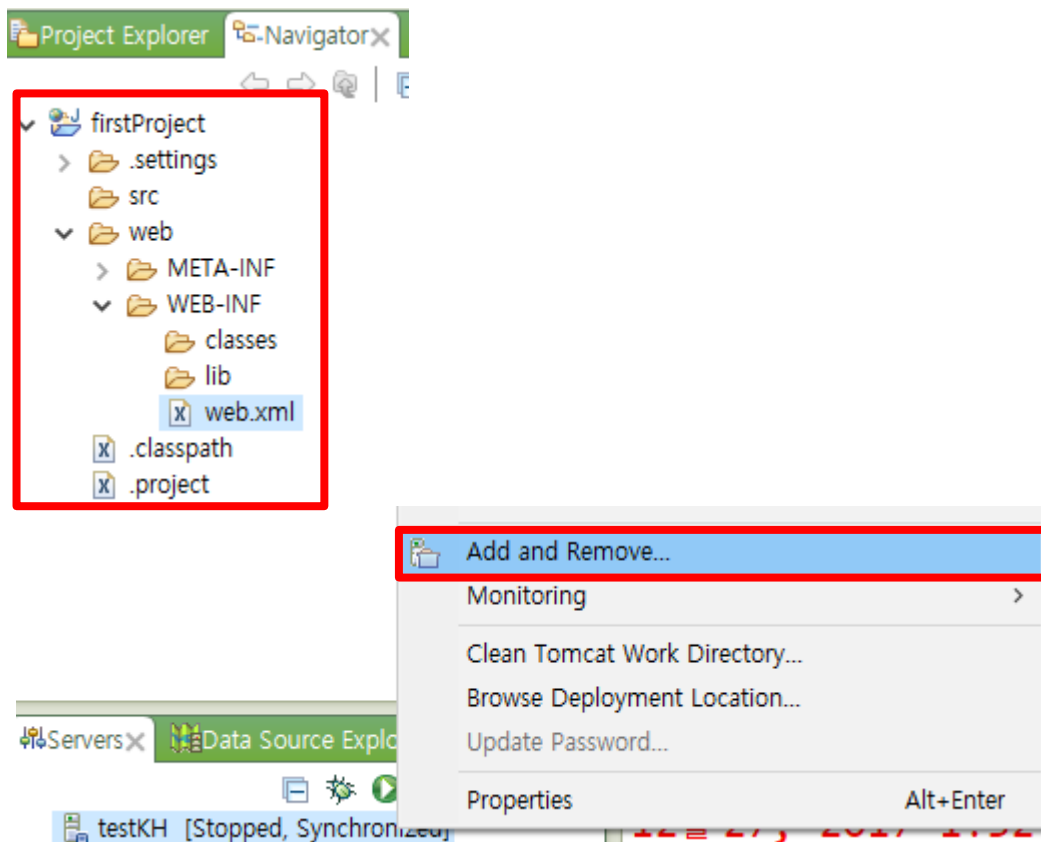
Content directory: web

☒ Generate web.xml deployment descriptor

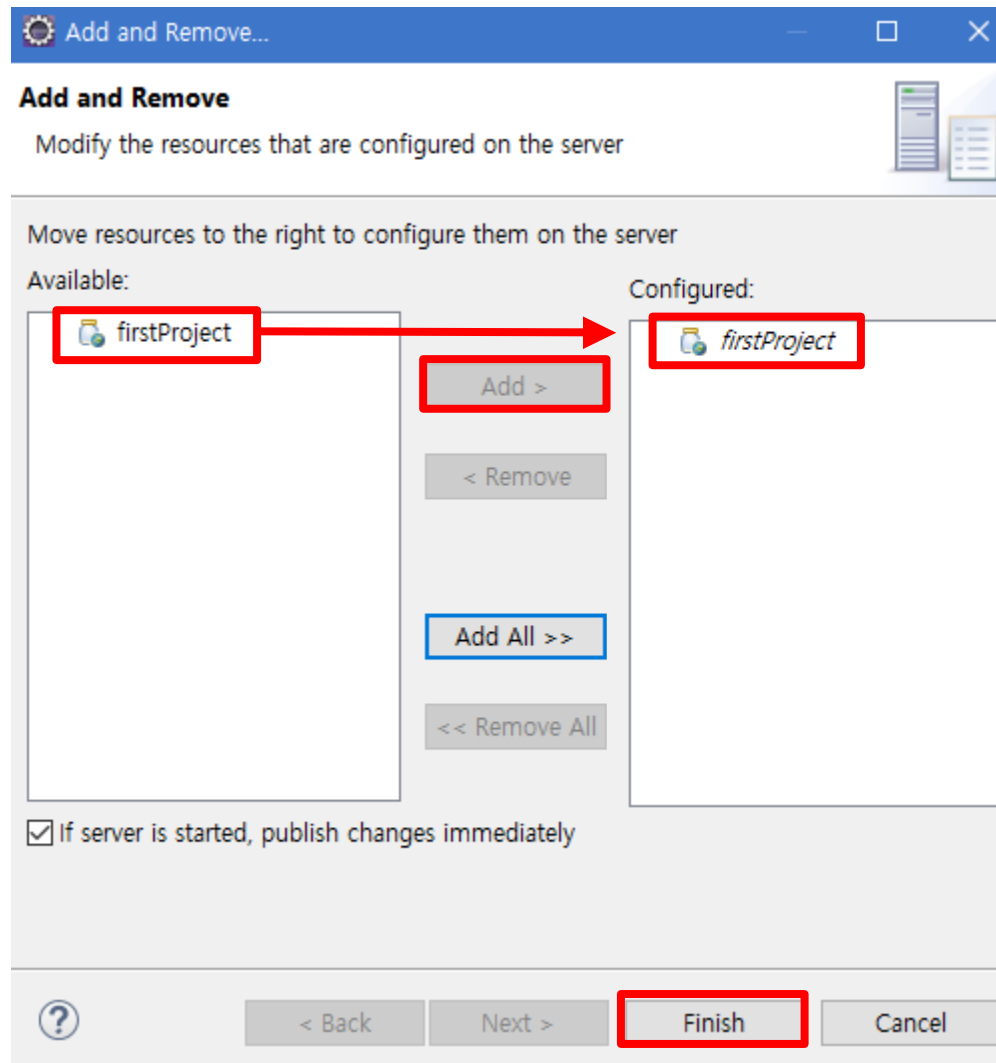
< Back Next > **Finish** Cancel

## Web Project 서버에 등록하기

Web 프로젝트가 생성된 것을 확인하고, 서버 우 클릭하여 해당 프로젝트 추가

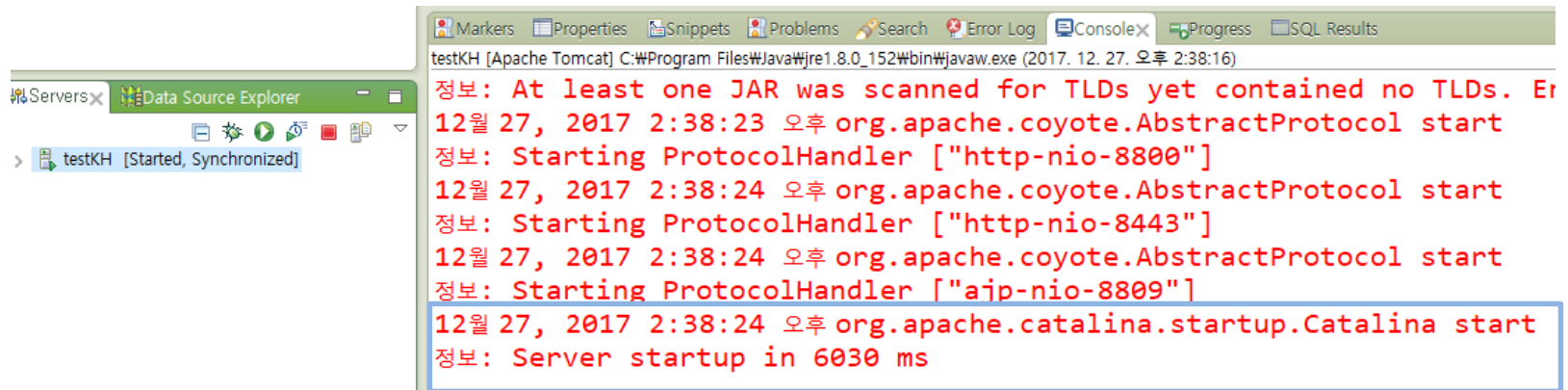


## Web Project 서버에 등록하기



## Web Project 서버에 등록하기

서버 재 기동하여 실행 확인



The screenshot shows an IDE interface with a 'Servers' tab on the left and a 'Console' tab on the right. The 'Servers' tab shows a server named 'testKH' with the status '[Started, Synchronized]'. The 'Console' tab displays the following output:

```
testKH [Apache Tomcat] C:\Program Files\Java\jre1.8.0_152\bin\javaw.exe (2017. 12. 27. 오후 2:38:16)
정보: At least one JAR was scanned for TLDs yet contained no TLDs. Er
12월 27, 2017 2:38:23 오후 org.apache.coyote.AbstractProtocol start
정보: Starting ProtocolHandler ["http-nio-8800"]
12월 27, 2017 2:38:24 오후 org.apache.coyote.AbstractProtocol start
정보: Starting ProtocolHandler ["http-nio-8443"]
12월 27, 2017 2:38:24 오후 org.apache.coyote.AbstractProtocol start
정보: Starting ProtocolHandler ["ajp-nio-8809"]
12월 27, 2017 2:38:24 오후 org.apache.catalina.startup.Catalina start
정보: Server startup in 6030 ms
```