WAR file format (Sun)

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In software engineering, a **WAR** file (or **W**eb application **AR**chive[1]) is a JAR file used to distribute a collection of JavaServer Pages, Java Servlets, Java classes, XML files, tag libraries, static Web pages (HTML and related files) and other resources that together constitute a Web application.

Web ARchive	
Filename extension	`.war`
Developed by	Sun Microsystems
Container for	JSP, Java Servlet

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Content and structure

A WAR file may be digitally signed in the same way as a JAR file in order to allow others to determine what source the code came from.

There are special files and directories within a WAR file.

The /WEB-INF directory in the WAR file contains a file named web.xml which defines the structure of the web application. If the web application is only serving JSP files, the web.xml file is not strictly necessary. If the web application uses servlets, then the servlet container uses web.xml to ascertain to which servlet a URL request will be routed. web.xml is also used to define context variables which can be referenced within the servlets and it is used to define environmental dependencies which the deployer is expected to set up. An example of this is a dependency on a mail session used to send email. The servlet container is responsible for providing this service. Advantages of WAR files**:**

- easy development, testing and deployment
- the version of the deployed application is easily identified
- all Java EE containers support .WAR files

One disadvantage of web deployment using WAR files in very dynamic environments is that minor changes cannot be made during runtime. Any change whatsoever requires regenerating and redeploying the entire WAR file.

The following sample *web.xml* file demonstrates how a servlet is declared and associated.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE web-app
    PUBLIC "-//Sun Microsystems, Inc.//DTD Web Application 2.2//EN"
    "http://java.sun.com/j2ee/dtds/web-app_2_2.dtd">

<web-app>
    <servlet>
        <servlet-name>HelloServlet</servlet-name>
        <servlet-class>mypackage.HelloServlet</servlet-class>
    </servlet>
```

```
    <servlet-mapping>
        <servlet-name>HelloServlet</servlet-name>
        <url-pattern>/HelloServlet</url-pattern>
    </servlet-mapping>

    <resource-ref>
        <description>
            Resource reference to a factory for javax.mail.Session
            instances that may be used for sending electronic mail messages,
            preconfigured to connect to the appropriate SMTP server.
        </description>
        <res-ref-name>mail/Session</res-ref-name>
        <res-type>javax.mail.Session</res-type>
        <res-auth>Container</res-auth>
    </resource-ref>
</web-app>
```

The /WEB-INF/classes directory is on the ClassLoader's classpath. This is where .class files are loaded from when the web application is executing. Any JAR files placed in the /WEB-INF/lib directory will also be placed on the ClassLoader's classpath.

See also

Related file formats:

- EAR (file format)
- JAR (file format)
- EXE (file format)

References

1. **^** http://java.sun.com/developer/technicalArticles/Servlets/servletapi/

External links

- Oracle Java EE 7 Tutorial: Packaging Web Archives (http://docs.oracle.com/javaee/7/tutorial /doc/packaging003.htm)
- Oracle Java EE 6 Tutorial: Web Modules (http://docs.oracle.com/javaee/6/tutorial/doc/bnadx.html)
- Oracle Java EE 5 Tutorial: Web Modules (http://docs.oracle.com/javaee/5/tutorial/doc/bnadx.html)
- Sun Microsystems: XML Schema for the Servlet 2.5 Web ARchive (WAR) File (http://java.sun.com/xml/ns/javaee /web-app_2_5.xsd)
- Sun Microsystems: XML Schema for the Servlet 2.4 Web ARchive (WAR) File (http://java.sun.com/xml/ns /j2ee/web-app_2_4.xsd)
- JSR 154: Java Servlet 2.4 Specification (http://jcp.org/en/jsr/detail?id=154)

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