Servlet API

The javax.servlet and javax.servlet.http packages represent interfaces and classes for servlet api.

The **javax.servlet** package contains many interfaces and classes that are used by the servlet or web container. These are not specific to any protocol.

The **javax.servlet.http** package contains interfaces and classes that are responsible for http requests only.

### Interfaces in javax.servlet package

1. Servlet
2. ServletRequest
3. ServletResponse
4. RequestDispatcher
5. ServletConfig
6. ServletContext
7. SingleThreadModel
8. Filter
9. FilterConfig
10. FilterChain
11. ServletRequestListener
12. ServletRequestAttributeListener
13. ServletContextListener
14. ServletContextAttributeListener

# Servlet Interface

**Servlet interface provides** commonbehaviorto all the servlets.Servlet interface defines methods that all servlets must implement.

Servlet interface needs to be implemented for creating any servlet (either directly or indirectly). It provides 3 life cycle methods that are used to initialize the servlet, to service the requests, and to destroy the servlet and 2 non-life cycle methods.

### Methods of Servlet interface

There are 5 methods in Servlet interface. The init, service and destroy are the life cycle methods of servlet. These are invoked by the web container.

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| **Method** | **Description** |
| **public void init(ServletConfig config)** | initializes the servlet. It is the life cycle method of servlet and invoked by the web container only once. |
| **public void service(ServletRequest request,ServletResponse response)** | provides response for the incoming request. It is invoked at each request by the web container. |
| **public void destroy()** | is invoked only once and indicates that servlet is being destroyed. |
| **public ServletConfig getServletConfig()** | returns the object of ServletConfig. |
| **public String getServletInfo()** | returns information about servlet such as writer, copyright, version etc. |

1. **import** java.io.\*;
2. **import** javax.servlet.\*;
4. **public** **class** First **implements** Servlet{
5. ServletConfig config=**null**;
7. **public** **void** init(ServletConfig config){
8. **this**.config=config;
9. System.out.println("servlet is initialized");
10. }
12. **public** **void** service(ServletRequest req,ServletResponse res)
13. **throws** IOException,ServletException{
15. res.setContentType("text/html");
17. PrintWriter out=res.getWriter();
18. out.print("<html><body>");
19. out.print("<b>hello simple servlet</b>");
20. out.print("</body></html>");
21. }
22. **public** **void** destroy(){System.out.println("servlet is destroyed");}
23. **public** ServletConfig getServletConfig(){**return** config;}
24. **public** String getServletInfo(){**return** "copyright 2007-1010";}
25. }

# GenericServlet class

**GenericServlet** class implements **Servlet**, **ServletConfig** and **Serializable** interfaces. It provides the implementation of all the methods of these interfaces except the service method.

Methods of GenericServlet class

1. **public void init(ServletConfig config)** is used to initialize the servlet.
2. **public abstract void service(ServletRequest request, ServletResponse response)** provides service for the incoming request. It is invoked at each time when user requests for a servlet.
3. **public void destroy()** is invoked only once throughout the life cycle and indicates that servlet is being destroyed.
4. **public ServletConfig getServletConfig()** returns the object of ServletConfig.
5. **public String getServletInfo()** returns information about servlet such as writer, copyright, version etc.
6. **public void init()** it is a convenient method for the servlet programmers, now there is no need to call super.init(config)
7. **public ServletContext getServletContext()** returns the object of ServletContext.
8. **public String getInitParameter(String name)** returns the parameter value for the given parameter name.
9. **public Enumeration getInitParameterNames()** returns all the parameters defined in the web.xml file.
10. **public String getServletName()** returns the name of the servlet object.
11. **public void log(String msg)** writes the given message in the servlet log file.
12. **public void log(String msg,Throwable t)** writes the explanatory message in the servlet log file and a stack trace.
13. **import** java.io.\*;
14. **import** javax.servlet.\*;
16. **public** **class** First **extends** GenericServlet{
17. **public** **void** service(ServletRequest req,ServletResponse res)
18. **throws** IOException,ServletException{
20. res.setContentType("text/html");
22. PrintWriter out=res.getWriter();
23. out.print("<html><body>");
24. out.print("<b>hello generic servlet</b>");
25. out.print("</body></html>");
27. }
28. }

# HttpServlet class

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| The HttpServlet class extends the GenericServlet class and implements Serializable interface. |

### Methods of HttpServlet class

1. **public void service(ServletRequest req,ServletResponse res)** dispatches the request to the protected service method by converting the request and response object into http type.
2. **protected void service(HttpServletRequest req, HttpServletResponse res)** receives the request from the service method, and dispatches the request to the doXXX() method depending on the incoming http request type.
3. **protected void doGet(HttpServletRequest req, HttpServletResponse res)** handles the GET request. It is invoked by the web container.
4. **protected void doPost(HttpServletRequest req, HttpServletResponse res)** handles the POST request. It is invoked by the web container.
5. **protected void doHead(HttpServletRequest req, HttpServletResponse res)** handles the HEAD request. It is invoked by the web container.
6. **protected void doOptions(HttpServletRequest req, HttpServletResponse res)** handles the OPTIONS request. It is invoked by the web container.
7. **protected void doPut(HttpServletRequest req, HttpServletResponse res)** handles the PUT request. It is invoked by the web container.
8. **protected void doTrace(HttpServletRequest req, HttpServletResponse res)** handles the TRACE request. It is invoked by the web container.
9. **protected void doDelete(HttpServletRequest req, HttpServletResponse res)** handles the DELETE request. It is invoked by the web container.
10. **protected long getLastModified(HttpServletRequest req)** returns the time when HttpServletRequest was last modified since midnight January 1, 1970 GMT.