Java Servlets 3.0

Lesson 9: Multipart File Upload

Lesson Objective

- In this lesson, we will learn:
  - Introduction to Multipart File Upload
  - Use of Multipart Config in Servlets

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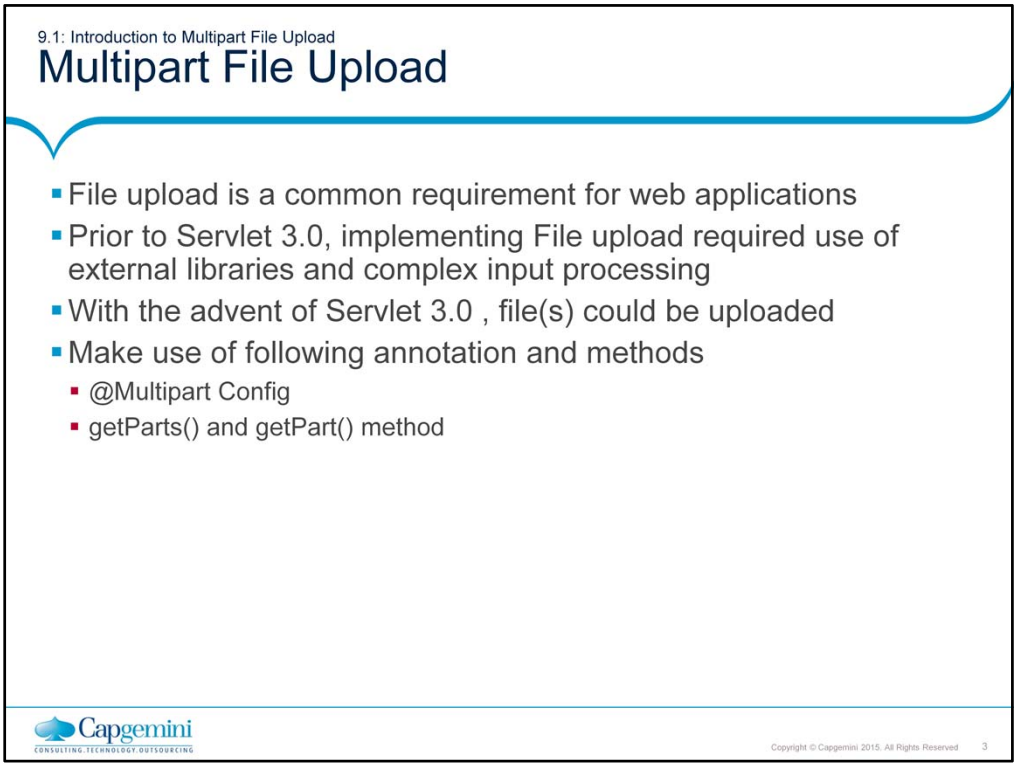
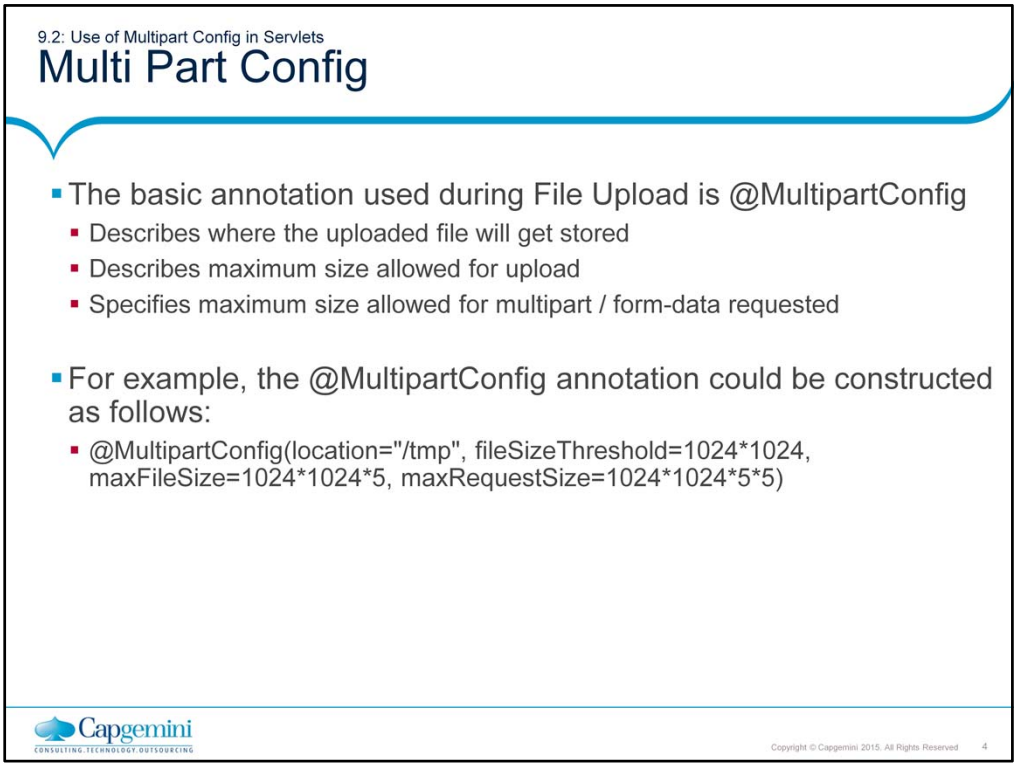
Lesson Objectives:
This lesson introduces Multipart File Upload. The lesson contents are:
Lesson 09: Multipart File Upload
9.1: Introduction to Multipart File Upload
9.2: Use of Multipart Config in Servlets



Multipart File Upload:

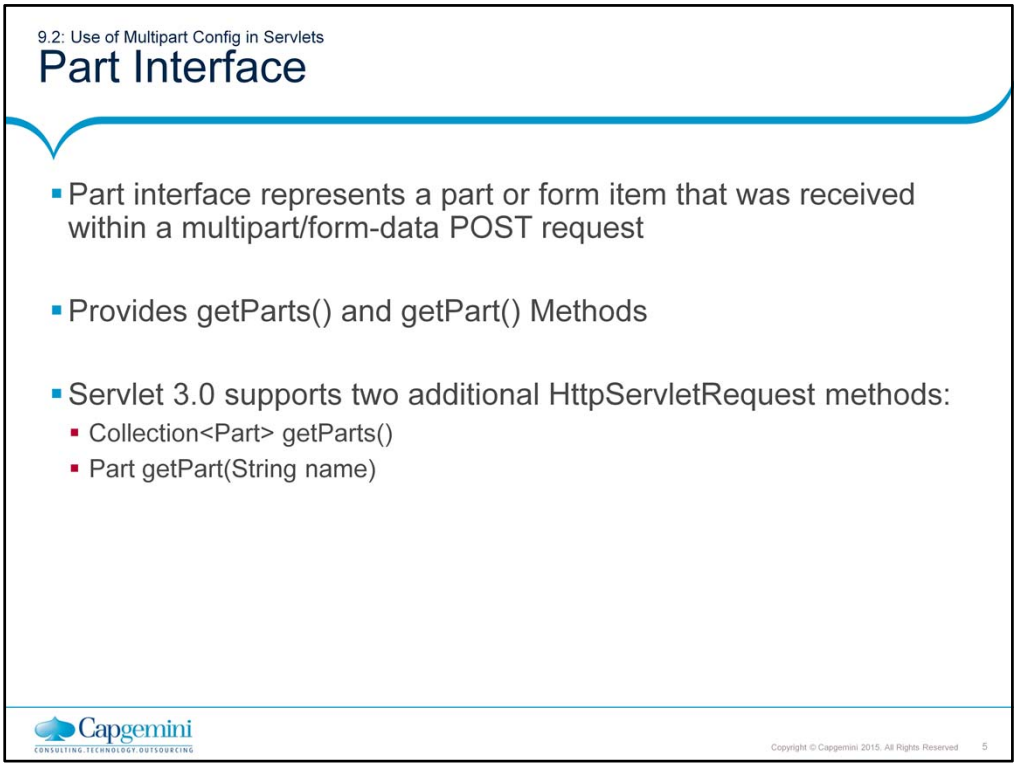
File uploading is now a common requirement for web applications.

It has now become easier since Servlet 3.0



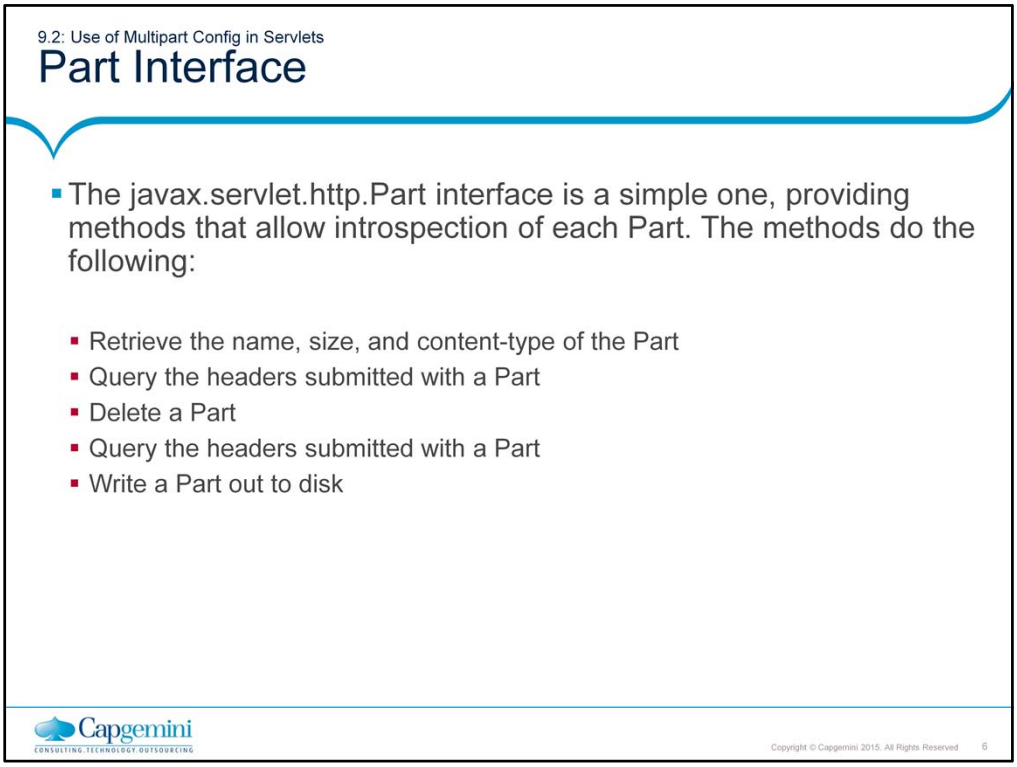
The @MultipartConfig annotation supports the following optional attributes:

location: An absolute path to a directory on the file system. The location attribute does not support a path relative to the application context. This location is used to store files temporarily while the parts are processed or when the size of the file exceeds the specifiedfileSizeThreshold setting. The default location is "".
fileSizeThreshold: The file size in bytes after which the file will be temporarily stored on disk. The default size is 0 bytes.
MaxFileSize: The maximum size allowed for uploaded files, in bytes. If the size of any uploaded file is greater than this size, the web container will throw an exception (IllegalStateException). The default size is unlimited.
maxRequestSize: The maximum size allowed for a multipart/form-data request, in bytes. The web container will throw an exception if the overall size of all uploaded files exceeds this threshold. The default size is unlimited.

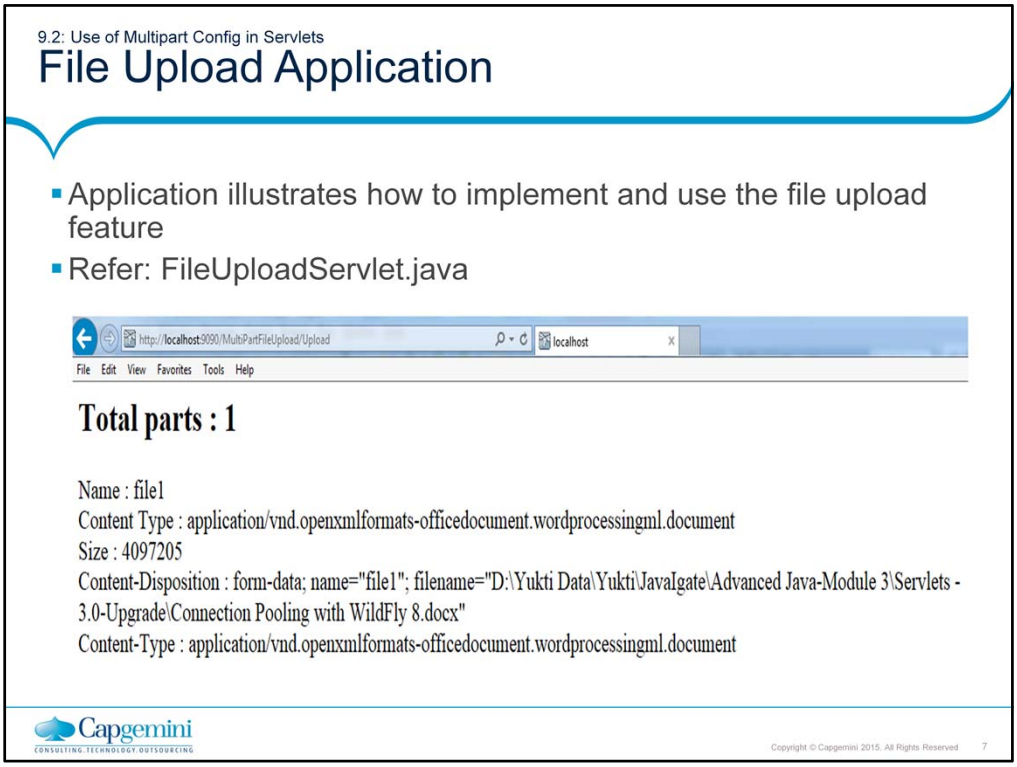


Part interface is now a part of javax.servlet.http package, and used to represent data received within a multipart / form – data.
Some important methods are getInputStream(), write(String fileName) that we can use to read and write file.

The request.getParts() method returns collections of all Part objects. If there are more than one input of type file, multiple Part objects are returned. Since Part objects are named, the getPart(String name) method can be used to access a particular Part. Alternatively, the getParts() method, which returns an Iterable<Part>, can be used to get an Iterator over all the Part objects.

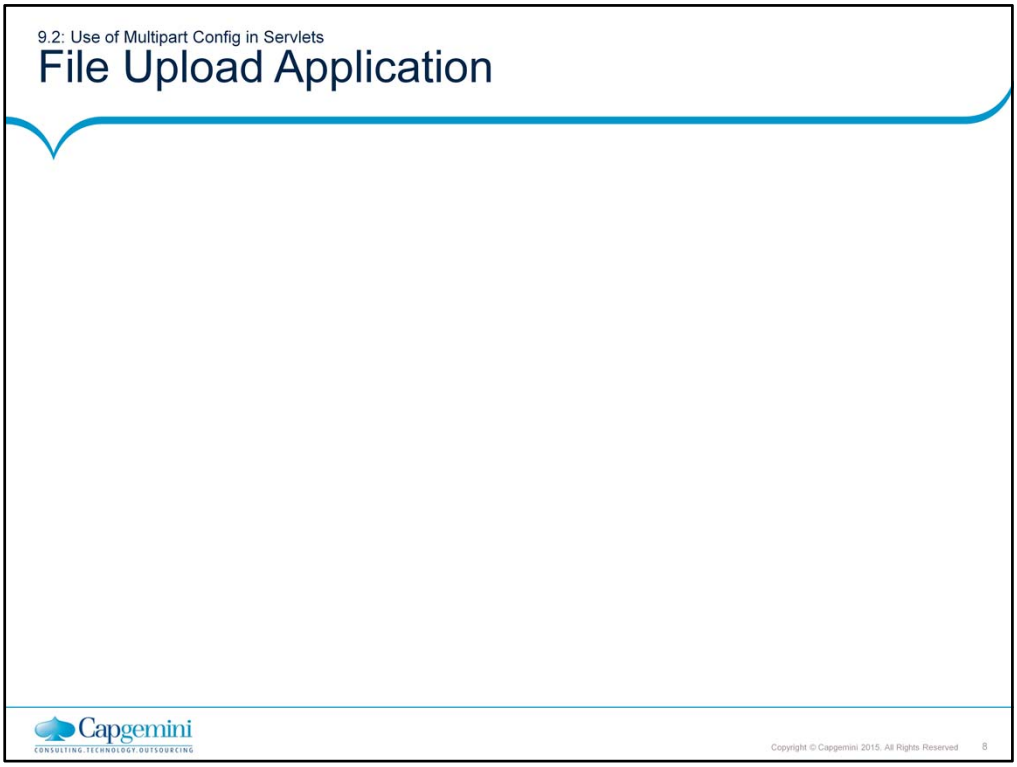


For example, the Part interface provides the write(String filename) method to write the file with the specified name. The file can then be saved in the directory specified with the location attribute of the @MultipartConfig annotation or, in the case of the file-upload example, in the location specified by the Destination field in the form.

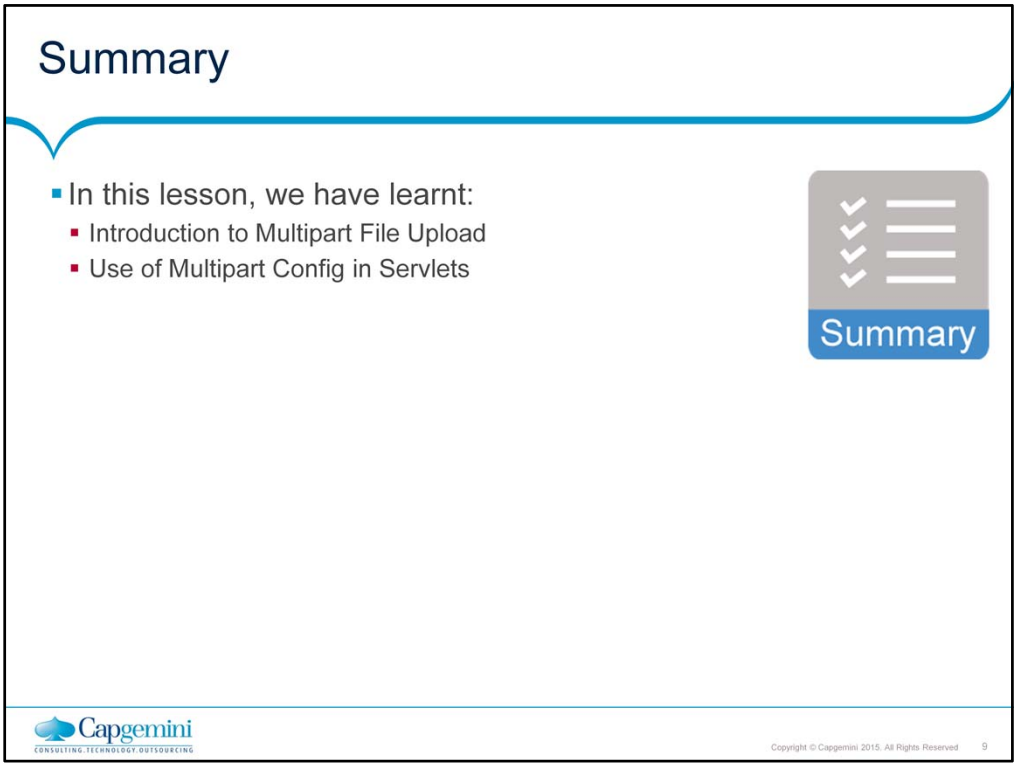


The input type as file, enables a user to browse the local file system to select the file. When the file is selected, it is sent to the server as a part of a POST request. During this process two mandatory restrictions are applied to the form with input type file:
The enctype attribute must be set to a value of multipart/form-data.
Its method must be POST.

When the form is specified in this manner, the entire request is sent to the server in encoded form. The servlet then handles the request to process the incoming file data and to extract a file from the stream. The destination is the path to the location where the file will be saved on your computer. Pressing the Upload button at the bottom of the form posts the data to the servlet, which saves the file in the specified destination.



A POST request method is used when the client needs to send data to the server as part of the request, such as when uploading a file or submitting a completed form. In contrast, a GET request method sends a URL and headers only to the server, whereas POST requests also include a message body. This allows arbitrary-length data of any type to be sent to the server. A header field in the POST request usually indicates the message body's Internet media type.
When submitting a form, the browser streams the content in, combining all parts, with each part representing a field of a form. Parts are named after the input elements and are separated from each other with string delimiters named boundary.
This is what submitted data from the file-upload form looks like, after selecting sample.txt as the file that will be uploaded to the tmp-directory on the local file system:



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Review Question

- Question 1: Which of the following attribute can be used to specify maximum size allowed for uploaded files, in bytes?
  - Option 1: fileSizeThreshold
  - Option 2: MaxFileSize
  - Option 3: maxRequestSize
  - Option 4: locationsize

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Review Question

- Question 2: Where is the file stored after uploading?
  - Option 1: Stored in current working directory
  - Option 2: Directory as that of where server is installed
  - Option 3: Path specified given in location attribute of @MultipartConfig annotation
  - Option 4: Can specify any arbitrary location on server

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