AngularJS File Upload using $http post and FormData

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This is my fifth article on file upload operations and second in AngularJS category. My previous article on AngularJS file upload used the native XMLHttpRequest() to post multiple files to a Web API controller class. However, I received few requests from developers asking me to share an example on AngularJS file upload using $http. Therefore, here I am going to show you how to use AngularJS $http service and FormData to post multiple files to a Web API controller for upload.

As you know, AngularJS *$http* is a service that provides functionalities to receive (get) and send (post) information to a remote HTTP server. Therefore, it's a valid request, I must find a solution, and this is it.

Note: Since I am using FormData in my example here, I want you to know, that Internet Explorer 9 and its previous versions does not work with FormData.

Related: AngularJS Multiple File Upload using XMLHttpRequest and Web API

Web API controller

This example uses a Web API controller to upload files. I have already created the controller before and I want you to check it. Click the below link and follow the steps to create the API.

The Web API Controller with the File Upload Procedure

What am I Doing in this Example?

I'll first create a Custom *directive* in the scope. Why do I need a directive? An AngularJS directive attaches a special behavior to an HTML element, via the element's *attribute, name, classes* etc. Please read the AngularJS doc to learn more about directives.

AngularJS built-in *ng-model* directive do not work with file input element. In-addition, we need a (event) listener that will help us track any changes in the elements behavior, for example, selecting files. To overcome this drawback, I'll create a *custom* directive to listen to any change that occurs in the element. We can achieve this via the directives *link* option.

The Markup

```
<!DOCTYPE html>
<html>
<head>
  <title>AngularJS File Upoad Example with $http and FormData</title>
  <script src="http://ajax.googleapis.com/ajax/libs/angularjs/1.4.4/angular.min.js"></script>
</head>

<body ng-app="fupApp">
    <div ng-controller="fupController">

        <input type="file" id="file1" name="file" multiple
            ng-files="getTheFiles($files)" />

        <input type="button" ng-click="uploadFiles()" value="Upload" />
    </div>
</body>
```

I have attached an attribute called *ng-files* to the file input element. Now, I must create a directive in the controller matching the attribute, to get access to the file input element. The attribute has a function named *getTheFiles()* with a parameter *$files*. I'll initialize the parameter $files in my directive and later call the function *getTheFiles()* using the controller's scope, along with *$files* parameter.

The Directive and Controller

```
<script>
    angular.module('fupApp', [])
        .directive('ngFiles', ['$parse', function ($parse) {

            function fn_link(scope, element, attrs) {
                var onChange = $parse(attrs.ngFiles);
                element.on('change', function (event) {
                    onChange(scope, { $files: event.target.files });
                });
            };

            return {
                link: fn_link
            }
        } ])
        .controller('fupController', function ($scope, $http) {

            var formdata = new FormData();
            $scope.getTheFiles = function ($files) {
                angular.forEach($files, function (value, key) {
                    formdata.append(key, value);
                });
```

```
            };

            // NOW UPLOAD THE FILES.
            $scope.uploadFiles = function () {

                var request = {
                    method: 'POST',
                    url: '/api/fileupload/',
                    data: formdata,
                    headers: {
                        'Content-Type': undefined
                    }
                };

                // SEND THE FILES.
                $http(request)
                    .success(function (d) {
                        alert(d);
                    })
                    .error(function () {
                    });
            }
        });
</script>
</html>
```

I'll divide the above script into two parts to explain. The first part is my directive with a name *ngFiles* (matching the file input attribute *ng-files* and the second part is the controller.

The Custom Directive "ngFiles"

The directive has the *link* option that takes a function.

link: function (scope, elm, attrs) { ... }

I have explicitly defined a function for the link and named it *fn_link*. The purpose of using the link option is to capture any changes that occur in the file input element. Now, how do we get the values? The answer is AngularJS *$parse* service. Usually, a $parse takes an expression and returns a function and our link option, also, needs a function to return. The parsed function *onChange* will have two parameters. The first parameter is the scope and the second will add the files details in *$files* variable through the *event* object.

The Controller

Now, we will access the files in our controller using *getTheFiles()* function. Its parameter $files will provide all the file details. Angular will call this function immediately when you select the files from a folder. The *change* callback in our directive will trigger this event. You can check the details of the selected files in your browser console.

```
$scope.getTheFiles = function ($files) {
    console.log($files);
};
```

The information that you gather in this function will help you do some verification check on each file. I am not doing any verification check, however you can. You can check and allow specific file types only for upload or you can sum up the total size and check if it does not exceed the permissible limit etc.

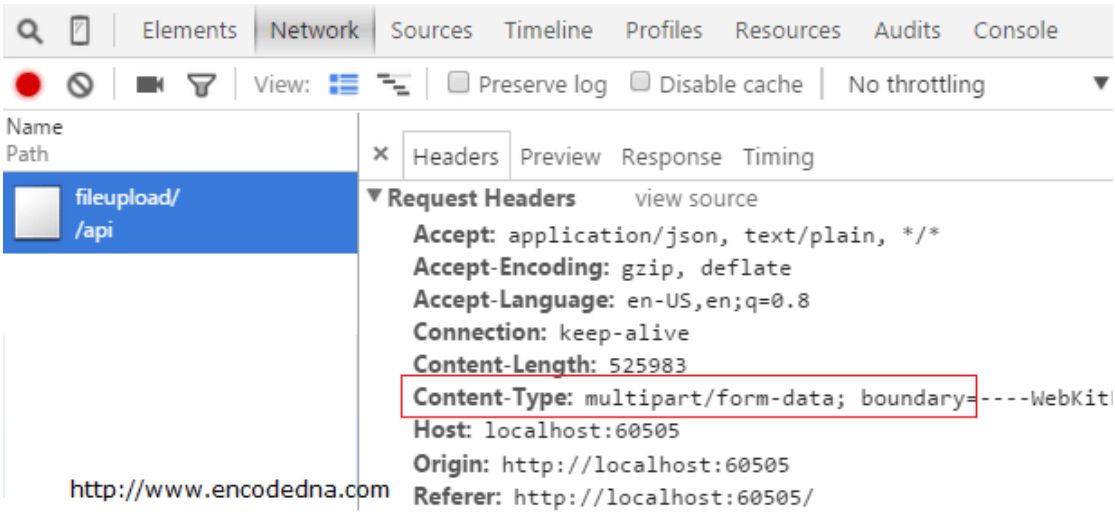
```
console.log($files[0].type);
```

Once I get the details, I'll run a loop using *angular.forEach()* to extract each file and save it in a *FormData()* object. The FormData object will provide the data to the $http service (using *data* property).

```
console.log(key + ' ' + value.name);
```

The second function *uploadFiles* in the controller is called when you click the upload *button* on the page. I have declared a variable *request* to accumulate all the information, before passing it to the $http service.

I have set the $http *header* as *'Content-Type': undefined*. The browser will set the type to *multipart/form-data*. You can confirm this by checking your browser's *Developer Tools*. If you are using Chrome, then press "Ctrl+Shift+I" keys to open developer tools. Choose the *Network* tab (second from left) to open it. Do this after you have uploaded the files. See the image.



If everything goes well according to your execution plan, $http service will send the files to your Web API controller class and it will do the rest.

That is it folks. If you have any queries, please leave a message below.

Thanks for reading.

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About Me

I am Arun Banik. I live in Mumbai (formerly Bombay), the financial capital of India.

EncodeDna.com is an effort to present good, useful articles and codes for programmers, web developers, database designers and beginners. The articles and codes are kept simple and to the point.

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