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Calling ASP.NET Web API service in a cross domain using jQuery ajax

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In this video we will discuss, **how to call an ASP.NET Web API service in a cross domain using jQuery ajax**. This is continuation to **Part 13**, please watch **Part 13** from **ASP.NET Web API tutorial** before proceeding.

What is same origin policy

Browsers allow a web page to make AJAX requests only with in the same domain. Browser security prevents a web page from making AJAX requests to another domain. This is called same origin policy.

The following 2 URLs have the same origin

http://localhost:1234/api/employees

http://localhost:1234/Employees.html

The following 2 URLs have different origins, because they have different port numbers (1234 v/s 5678)

http://localhost:1234/api/employees

http://localhost:5678/Employees.html

The following 2 URLs have different origins, because they have different domains (.com v/s .net)

http://pragimtech.com/api/employees

http://pragimtech.net/Employees.html

The following 2 URLs have different origins, because they have different schemes (http v/s https)

https://pragimtech.com/api/employees

http://pragimtech.net/Employees.html

To prove browsers does not allow cross domain ajax requests, let's add a new web forms project to EmployeeService solution. Name it ClientApplication. Add an HTML page. Name it HtmlPage1.html. Copy and paste the following HTML and jQuery code.

```
<!DOCTYPE html>
```

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```

<html>
<head>
<title></title>
<meta charset="utf-8" />
<script src="Scripts/jquery-1.10.2.js"></script>
<script type="text/javascript">
$(document).ready(function () {
    var ulEmployees = $('#ulEmployees');

    $('#btn').click(function () {
        $.ajax({
            type: 'GET',
            // Make sure to change the port number to
            // where you have the employee service
            // running on your local machine
            url: 'http://localhost:23258/api/Employees',
            dataType: 'json',
            success: function (data) {
                ulEmployees.empty();
                $.each(data, function (index, val) {
                    var fullName = val.FirstName + ' ' + val.LastName;
                    ulEmployees.append('<li>' + fullName + '</li>');
                });
            }
        });
    });

    $('#btnClear').click(function () {
        ulEmployees.empty();
    });
});
</script>
</head>
<body>
<input id="btn" type="button" value="Get All Employees" />
<input id="btnClear" type="button" value="Clear" />
<ul id="ulEmployees"></ul>
</body>
</html>

```

When you click **"Get All Employees"** button on **"HtmlPage1.html"** page, you get the following error. To see the error launch browser tools and click on the console tab.

XMLHttpRequest cannot load http://localhost:23258/api/Employees. No 'Access-Control-Allow-Origin' header is present on the requested resource. Origin 'http://localhost:6293' is therefore not allowed access.

On the other hand when you click **"Get All Employees"** button on **"Employees.html"** page that is present in the same project as the ASP.NET Web API Service, that employee data is displayed without any problem.

So this proves, browsers does not allow cross domain ajax requests. There are 2 ways to get around this problem

- Using JSONP (JSON with Padding)
- Enabling CORS (Cross Origin Resource Sharing)

In this video let's use JSONP to overcome the browser cross-domain restriction. In our next video we will discuss enabling CORS.

So what is JSONP and what does it do?

JSONP stands for JSON with Padding. All JSONP does is wraps the data in a function. So for example, if you have the following JSON object

```

{
  "FirstName" : "Mark",
  "LastName" : "Hastings",
  "Gender" : "Male",
}

```

JSONP will wrap the data in a function as shown below

```

CallbackFunction({
  "FirstName" : "Mark",
  "LastName" : "Hastings",
}

```

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```
"Gender" : "Male",
})
```

Browsers allow to consume JavaScript that is present in a different domain but not data. Since the data is wrapped in a JavaScript function, this can be consumed by a web page that is present in a different domain.

Steps to make ASP.NET Web API Service to return JSONP formatted data and consume it from a cross domain ajax request

Step 1 : To support JSONP format, execute the following command using NuGet Package Manager Console which installs WebApiContrib.Formatting.Jsonp package.
[Install-Package WebApiContrib.Formatting.Jsonp](#)

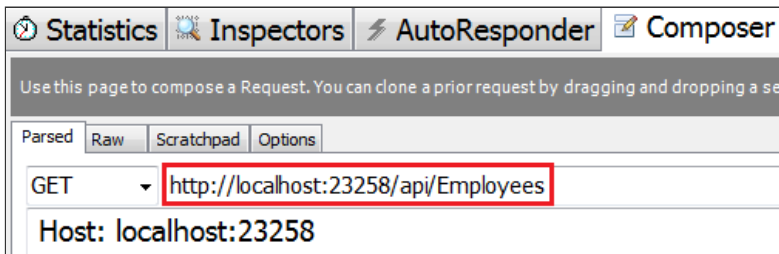
Step 2 : Include the following 2 lines of code in Register() method of WebApiConfig class in WebApiConfig.cs file in App_Start folder

```
var jsonpFormatter = new
JsonpMediaTypeFormatter(config.Formatters.JsonFormatter);
config.Formatters.Insert(0, jsonpFormatter);
```

Step 3 : In the ClientApplication, set the dataType option of the jQuery ajax function to jsonp
 dataType: 'jsonp'

Testing the ASP.NET Web API Service using fiddler

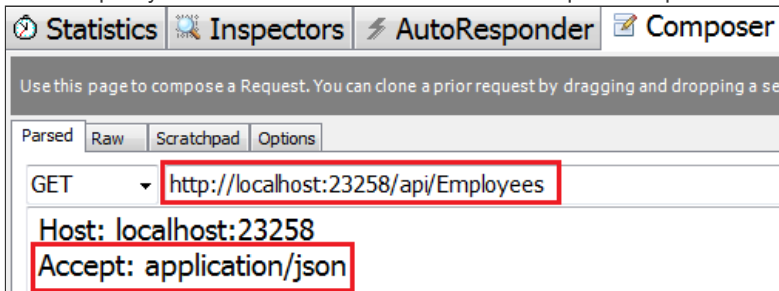
Notice in fiddler we have just specified the URL of the Web API service without Accept header and callback function in the URI



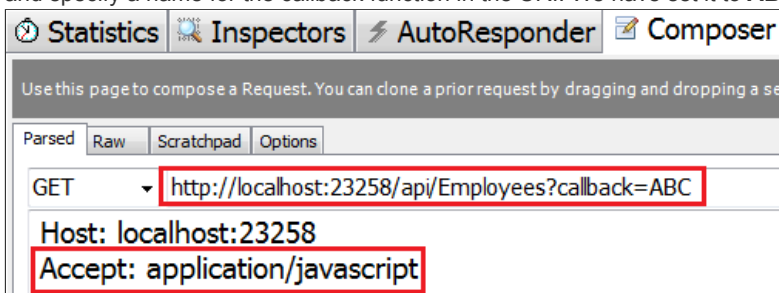
The above request results in the following error

A callback parameter was not provided in the request URI

If you want JSON data back, set **Accept** header to **application/json** and there is no need to specify the callback function in the URI. The request completes successfully.



If you want JSONP formatted data back, set **Accept** header to **application/javascript** and specify a name for the callback function in the URI. We have set it to **ABC**.



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4 comments:



ashutosh porwal September 21, 2016 at 11:37 PM

Hi Venkat.

I am getting this error : "Attempt by security transparent method 'System.Web.Http.GlobalConfiguration.get_Configuration()' to access security critical type 'System.Web.Http.HttpConfiguration' failed."

while trying to call service cross domain.

[Reply](#)



ashutosh porwal September 22, 2016 at 10:41 PM

It resolved by installing 'Install-Package Microsoft.AspNet.WebApi -IncludePrerelease'

[Reply](#)



Raj July 16, 2017 at 9:39 AM

it have error of cross domain remains it is not working properly error at run time resolve it plz

[Reply](#)



Jayadev NK November 25, 2017 at 9:58 PM

Hi, Is Cross Domain issue is a browser specific one? The data is not displayed on Chrome but worked fine in IE with out CORS or JasoP for me?

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