logical ADVANTAGE

CHARLOTTE TECH TALKS

Authentication Using Tokens for AngularJS, OWIN, ASP.NET Web API & Identity

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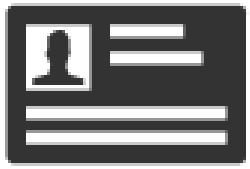
Authentication



Who You Are

Authentication

Cookie-Based

Pros

- Decades-Old & Widely Used
- Default for New Projects

Cons

- Man-In-The-Middle (MITHM)
- Cross-Site Scripting (XSS)
- Cross-Site Request Forgery (CSRF)

Token-Based

Pros

- Stateless & Scalable Servers
- Mobile Friendly
- Pass Authentication To Other Applications
- Extra Security

Cons

- Cross-Site Scripting (XSS)

- https://scotch.io/tutorials/the-ins-and-outs-of-token-based-authentication
- http://sitr.us/2011/08/26/cookies-are-bad-for-you.html

Authentication

Cookie-Based

Pros

- Decades-Old & Widely Used
- Existing Server App Support

Cons

- Man-In-The-Middle (MITHM)
- Cross-Site Scripting (XSS)
- Cross-Site Request Forgery (CSRF)

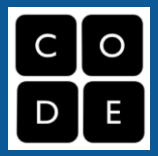
Token-Based

Pros

- Stateless & Scalable Servers
- Mobile Friendly
- Cross-Domain / Cross-Origin Resource Sharing (CORS) AJAX
- Decoupled Token Generation
- CSRF Protected
- CDN Asset Hosting
- Improved Performance
- Standard-based JWT

- https://auth0.com/blog/2014/01/07/angularjs-authentication-with-cookies-vs-token/

Token-Based Authentication



DEMO

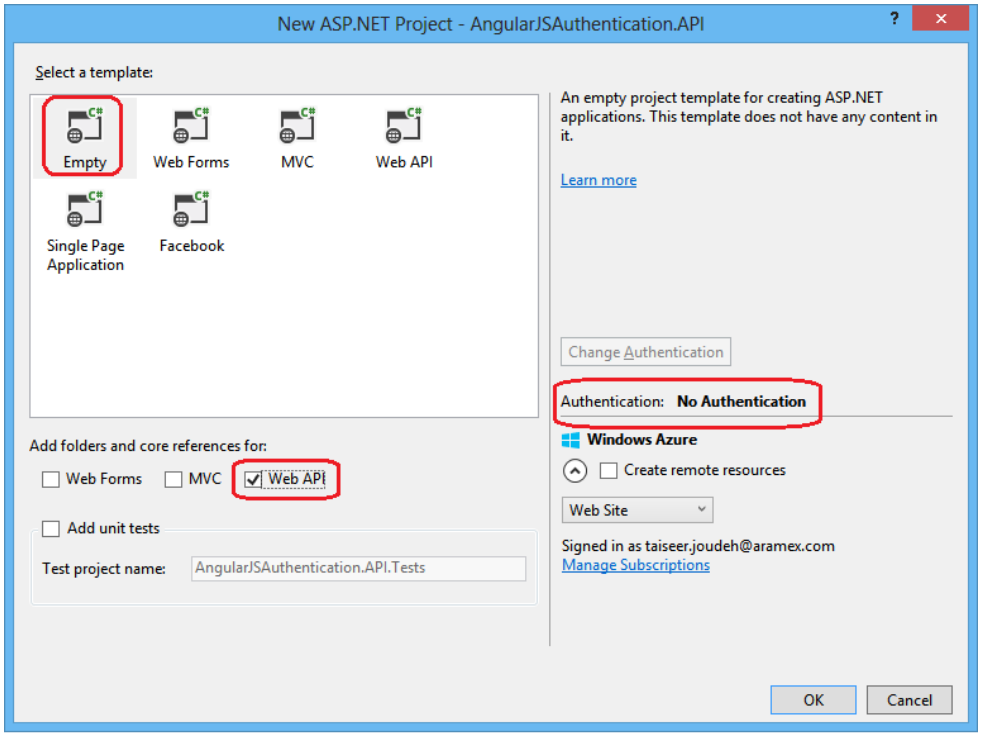
Demo

Code based on the online tutorial, "Token Based Authentication using ASP.NET Web API 2, Owin, and Identity" by Taiseer Joudeh, MVP.

- http://bitoftech.net/2014/06/01/token-based-authentication-asp-net-web-api-2-owin-asp-net-identity/

Lightweight Solutions & Projects

Less is more.



NuGet Packages

The magical number 7.

Microsoft.AspNet.WebApi

Microsoft.AspNet.WebApi.Owin

Microsoft.Owin.Host.SystemWeb

Microsoft.Owin.Security.OAuth

Microsoft.Owin.Cors

*Microsoft.AspNet.Identity.Owin

*Microsoft.AspNet.Identity.EntityFramework

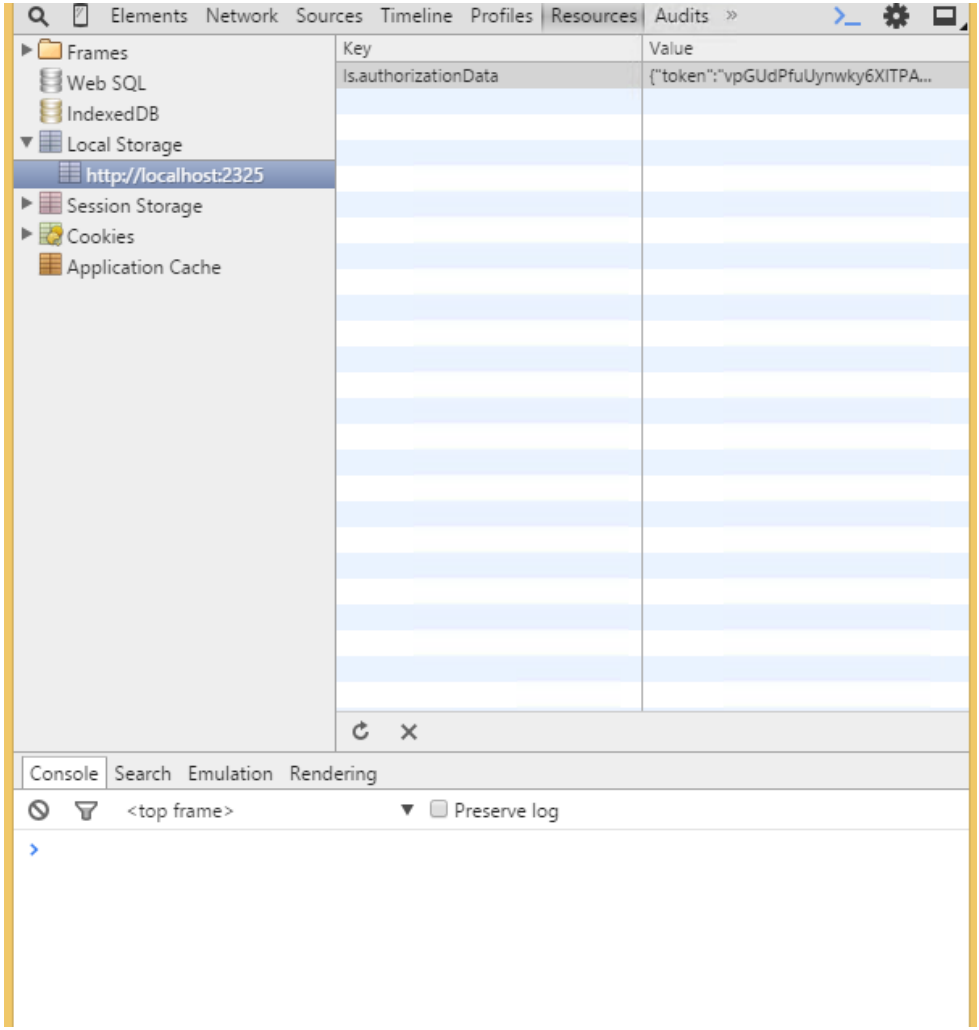
*Authentication API Project Only

Example Token

It is JSON.

Local Storage

Other options include JavaScript or a Cookie.



AngularJS Service

Move along, nothing to see here.

sService.js

```
'use strict';
app.factory('ordersService', ['$http', 'ngAuthSettings', function ($http, ngA

    var serviceBase = ngAuthSettings.apiServiceBaseUri;

    var ordersServiceFactory = {};

    var _getOrders = function () {

        return $http.get(serviceBase + 'api/orders').then(function (results)
            return results;
        });
    };

    ordersServiceFactory.getOrders = _getOrders;

    return ordersServiceFactory;

}]);
```


AngularJS Interceptor

Pre- and post-processing.

nterceptorService.j

```
'use strict';
app.factory('authInterceptorService', ['$q', '$injector','$location', 'localS

    var authInterceptorServiceFactory = {};
    var $http;

    var _request = function (config) {

        config.headers = config.headers || {};

        var authData = localStorageService.get('authorizationData');
        if (authData) {
            config.headers.Authorization = 'Bearer ' + authData.token;
        }

        return config;
    }

    var _responseError = function (rejection) {
        var deferred = $q.defer();
        if (rejection.status === 401) {
            var authService = $injector.get('authService');
            authService.refreshToken().then(function (response) {
                _retryHttpRequest(rejection.config, deferred);
            }, function () {
                authService.logOut();
                $location.path('/login');
                deferred.reject(rejection);
            });
        } else {
            deferred.reject(rejection);
        }
        return deferred.promise;
    }

    var _retryHttpRequest = function (config, deferred) {
        $http = $http || $injector.get('$http');
        $http(config).then(function (response) {
```


ASP.NET Web API Controller

You shall not pass!

ctedController.cs

```
larJSAuthentication.ResourceServer | AngularJSAuthentication.ResourceServer. | Get()
1  using System;
2  using System.Collections.Generic;
3  using System.Linq;
4  using System.Net;
5  using System.Net.Http;
6  using System.Security.Claims;
7  using System.Web.Http;
8
9  namespace AngularJSAuthentication.ResourceServer.Controllers
0  {
1      [Authorize]
2      [RoutePrefix("api/protected")]
           0 references | Mark A. Wilson, 134 days ago | 1 change
3      public class ProtectedController : ApiController
4      {
5          [Route("")]
               0 references | Mark A. Wilson, 134 days ago | 1 change
6          public IEnumerable<object> Get()
7          {
8              var identity = User.Identity as ClaimsIdentity;
9
0              return identity.Claims.Select(c => new
1              {
2                  Type = c.Type,
3                  Value = c.Value
4              });
5          }
6      }
7  }
```


Shared MachineKey

Do not use the same keys for dev & prod.

config

```
<?xml version="1.0" encoding="utf-8"?>

<!--
  For more information on how to configure your ASP.NET application, please v
  http://go.microsoft.com/fwlink/?LinkId=301879
  -->
<configuration>
  <configSections>
    <section name="entityFramework" type="System.Data.Entity.Internal.ConfigF

  <!-- For more information on Entity Framework configuration, visit http://g
  <appSettings />
  <connectionStrings>
    <add name="AuthContext" connectionString="Data Source=.;Initial Catalog=A
  </connectionStrings>
  <system.web>
    <compilation debug="true" targetFramework="4.5" />
    <httpRuntime targetFramework="4.5" />
    <machineKey
      decryption="AES"
      decryptionKey="88274072DD5AC1FB6CED8281B34CDC6E79DD7223243A527D46C09CF6
      validation="SHA1"
      validationKey="A970D0E3C36AA17C43C5DB225C778B3392BAED4D7089C6AAF76E3D42
  </system.web>
  <runtime>
    <assemblyBinding xmlns="urn:schemas-microsoft-com:asm.v1">
      <dependentAssembly>
        <assemblyIdentity name="Microsoft.Owin" publicKeyToken="31bf3856ad364
        <bindingRedirect oldVersion="0.0.0.0-3.0.1.0" newVersion="3.0.1.0" />
      </dependentAssembly>
      <dependentAssembly>
        <assemblyIdentity name="Microsoft.Owin.Security.OAuth" publicKeyToken
        <bindingRedirect oldVersion="0.0.0.0-3.0.1.0" newVersion="3.0.1.0" />
      </dependentAssembly>
      <dependentAssembly>
        <assemblyIdentity name="Microsoft.Owin.Security.Cookies" publicKeyTok
```


Demo

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- http://bitoftech.net/2014/06/01/token-based-authentication-asp-net-web-api-2-owin-asp-net-identity/

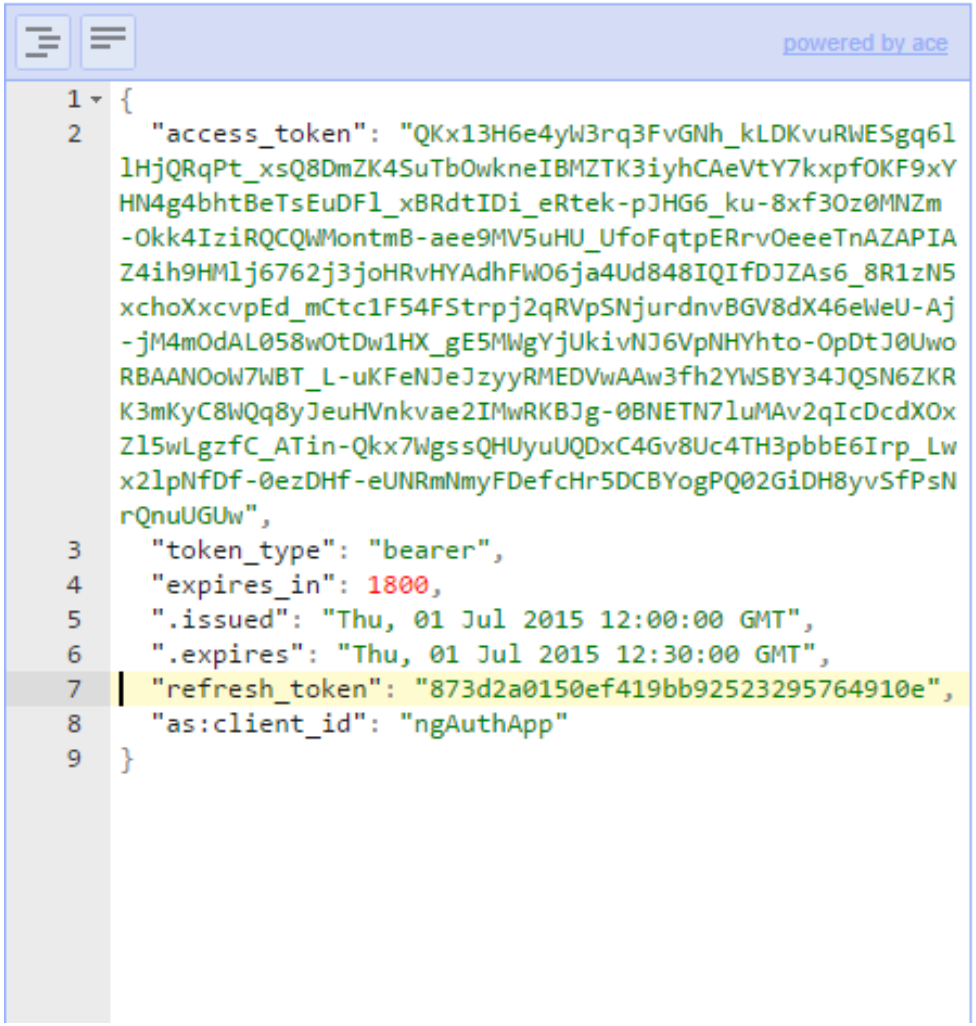
Lessons Learned

- Use HTTPS over TLS/SSL!
- Forms Authentication
- Third-Party Logins (Facebook, Twitter, etc.)
- Custom Grant Type
- Entity Framework
- [Public-facing] Production Ready?
  - Auth0.com
  - OAuth.io
  - Thinktecture IdentityServer
  - DotNetOpenAuth
  - Spring Social for .NET
  - etc.

OAuth Refresh Tokens

Example Token

It is a GUID.



Lessons Learned

Pros

- Updating access token content.
- Maintaining authenticated users list.
- Revoking access from authenticated users.
- Prompting to login multiple times not necessary.

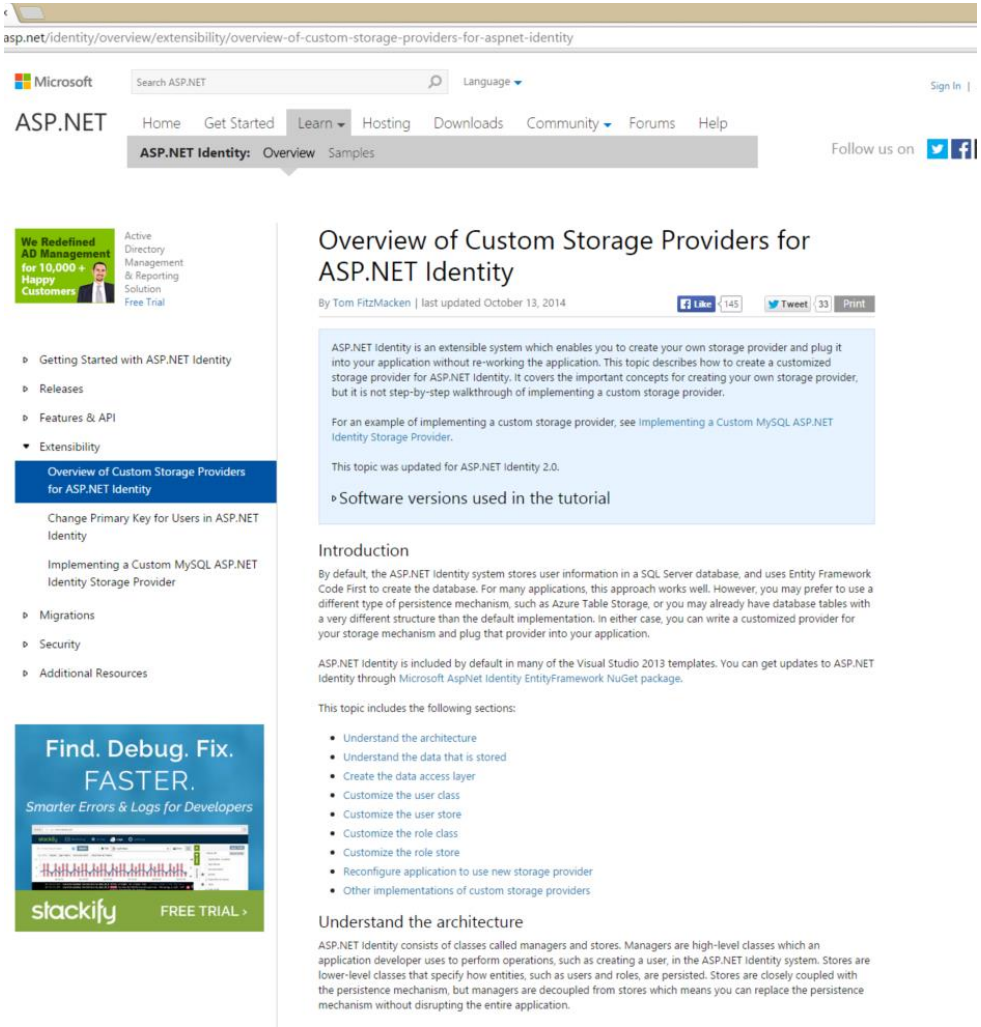
Cons

- Adding a lot of complexity.
- Using third-party logins?

Custom ASP.NET Identity Provider

Custom Provider

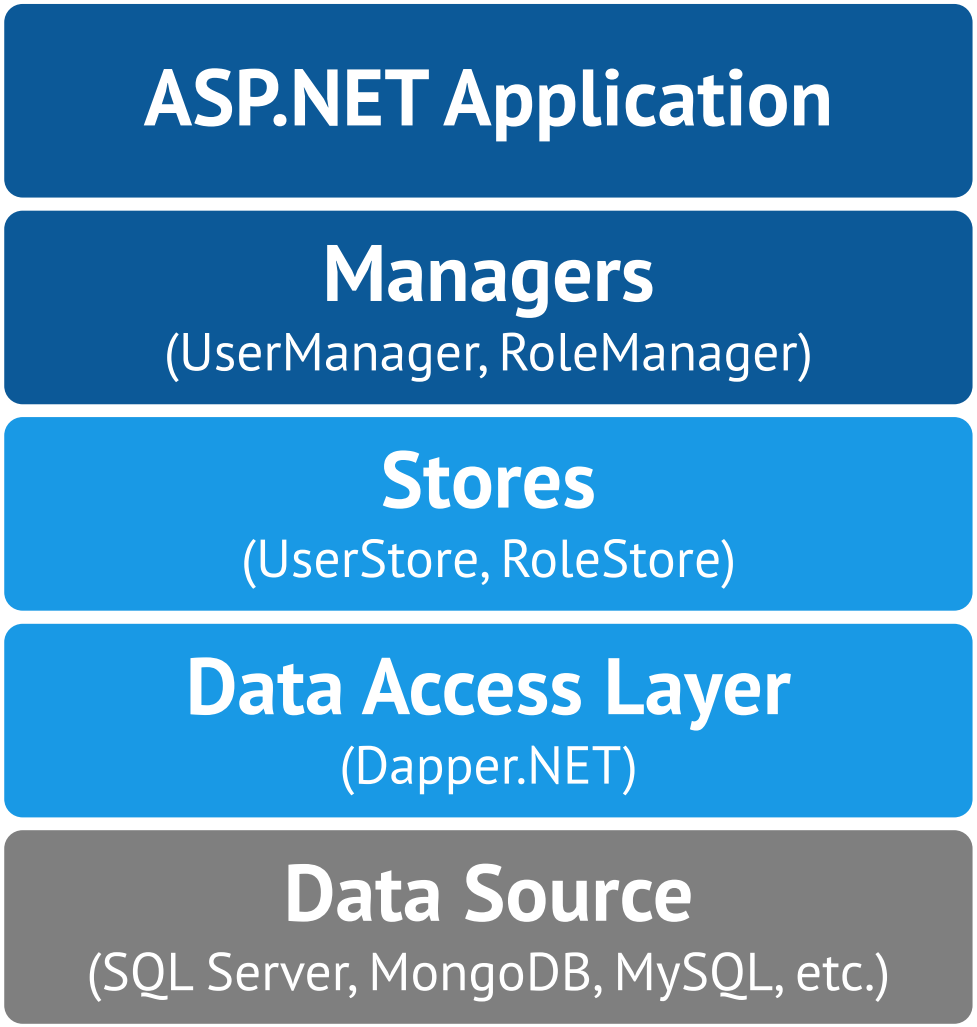
For when you want something other than Entity Framework or a GUID primary key.



- http://www.asp.net/identity/overview/extensibility/overview-of-custom-storage-providers-for-aspnet-identity

Architecture

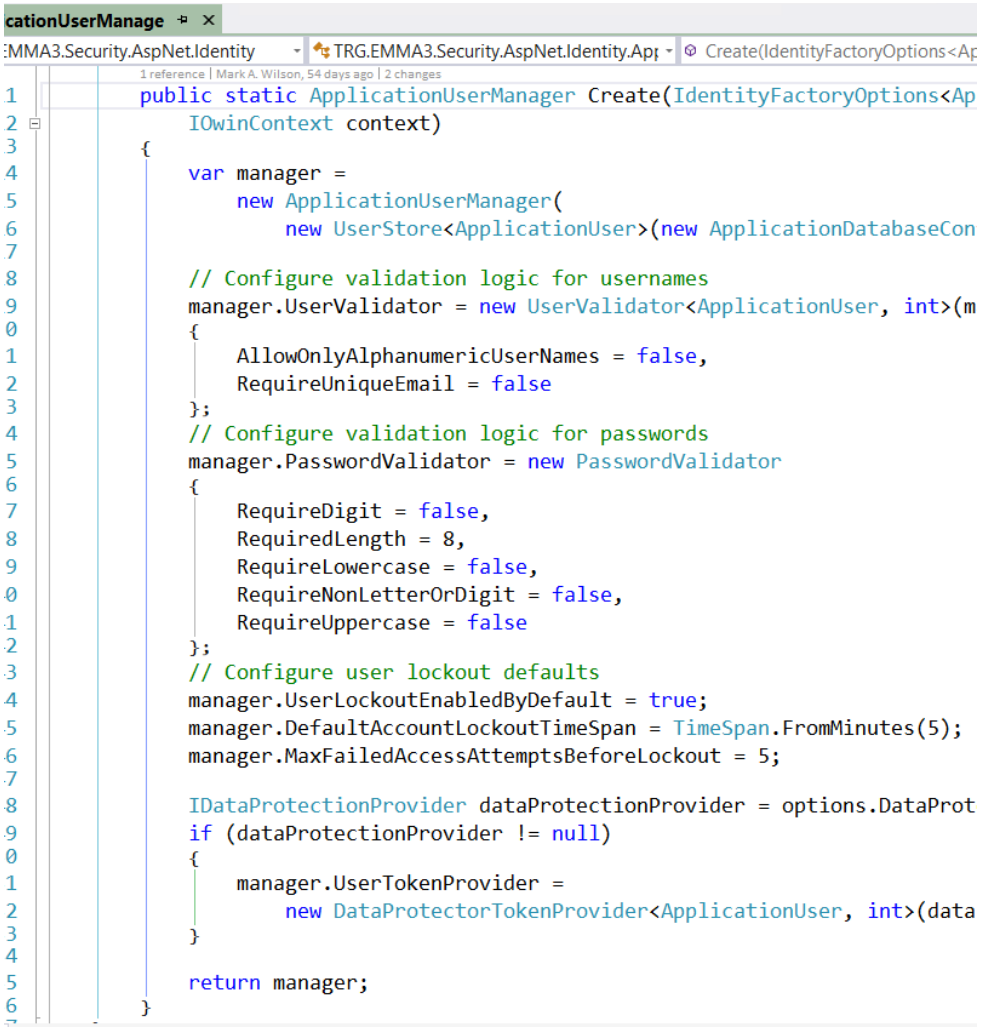
Your application interacts with the managers, and stores interact with the data access layer.



- http://www.asp.net/identity/overview/extensibility/overview-of-custom-storage-providers-for-aspnet-identity

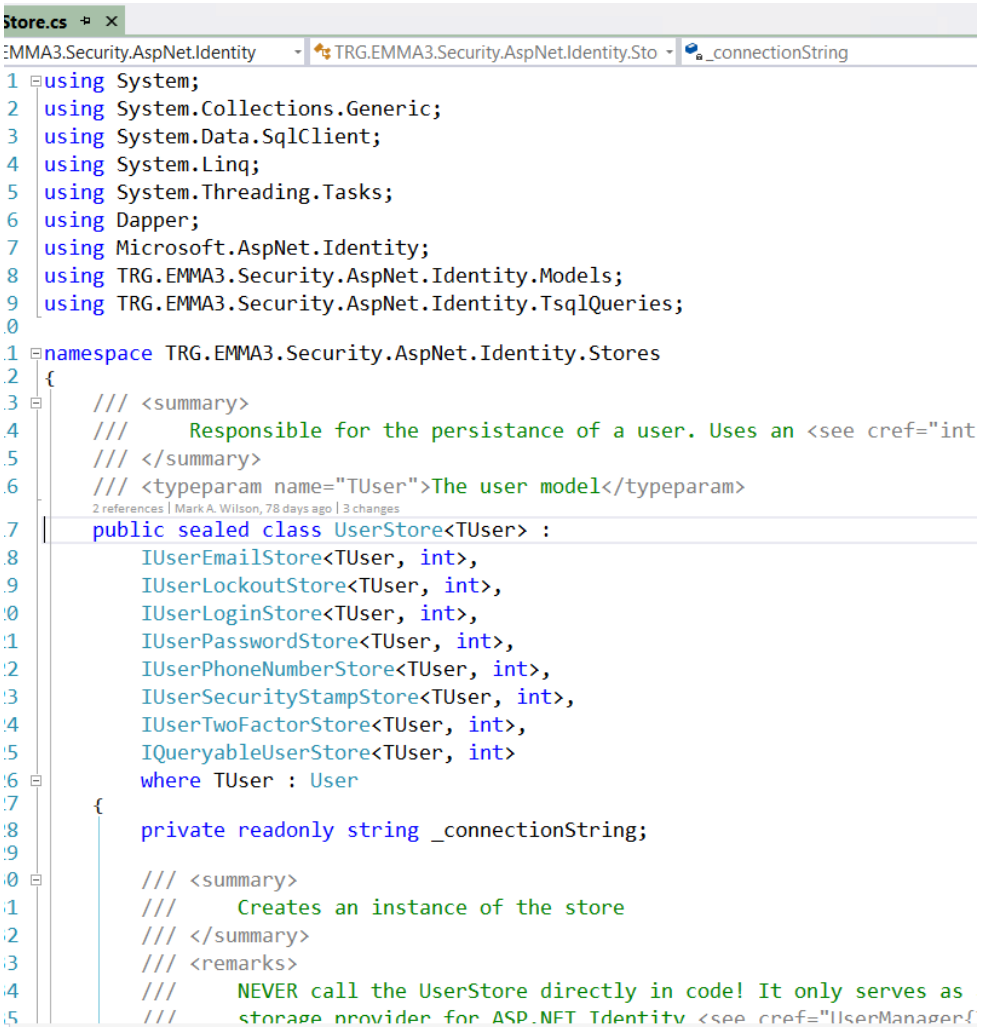
UserManager

All configuration.



UserStore

Gets/Sets don't alter data in the Data Source (DB).



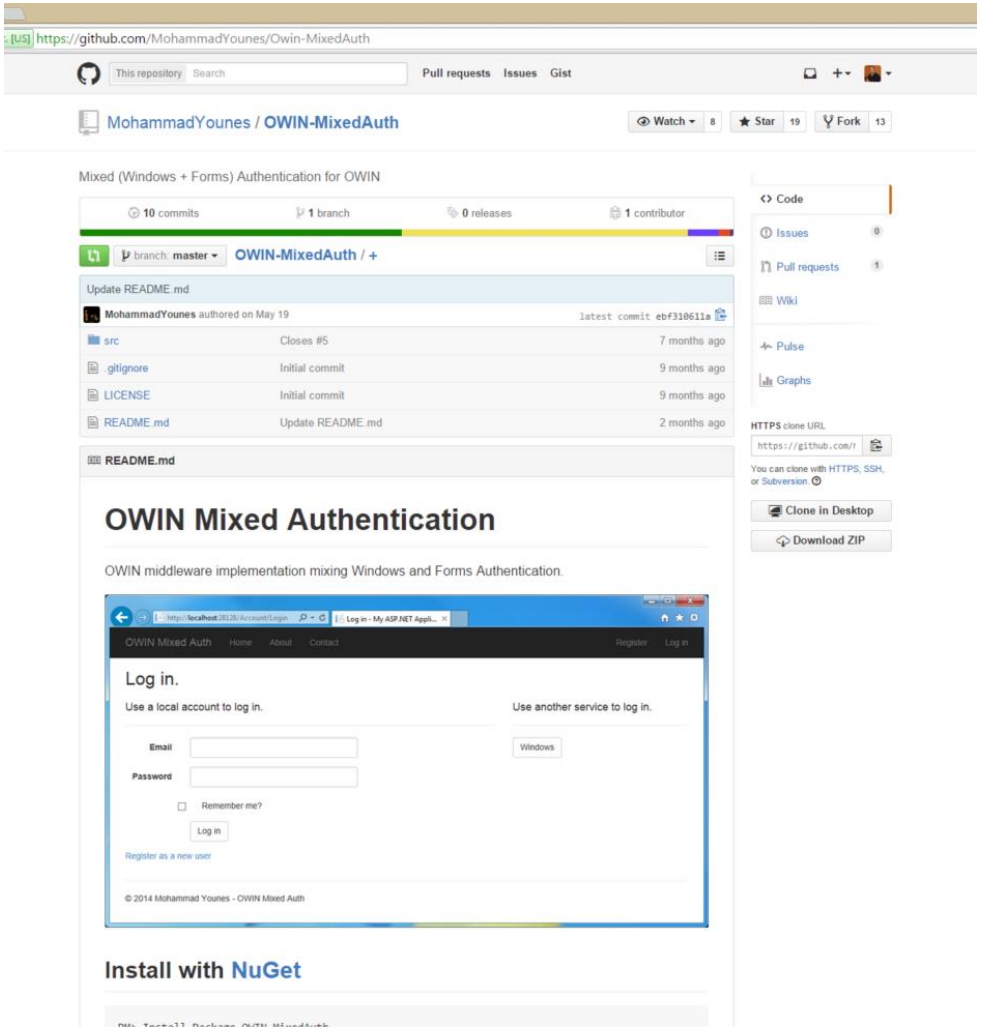
Lessons Learned

- Pretty easy to create.
- Permits integer primary key.
- Interact with managers, not stores.
- Gets/Sets don't alter data in the Data Source (DB).
- In OAuthConfig, configure the database context, user manager, and role manager to use a single instance per request.

Mixed Authentication

OWIN MixedAuth

Third-party Windows login provider.



- https://github.com/MohammadYounes/Owin-MixedAuth

Lessons Learned

- Proof of concept?
- Enable Windows Authentication.
- Required small code changes.
- Uses a pop-up window.
- Uses a cookie.

Resources

- **Fiddler** (http://www.telerik.com/fiddler)
- **Token Based Authentication using ASP.NET Web API 2, Owin, and Identity** (http://bitoftech.net/2014/06/01/token-based-authentication-asp-net-web-api-2-owin-asp-net-identity/)
- **Overview of Custom Storage Providers for ASP.NET Identity** (http://www.asp.net/identity/overview/extensibility/overview-of-custom-storage-providers-for-aspnet-identity)
- **OWIN Mixed Authentication** (https://github.com/MohammadYounes/Owin-MixedAuth)

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