How To... Call OData To Post Data (Windows)

Applicable Releases:

SAP Mobile Platform 3.0

Version 1.0

June 2014

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Document History

|  |  |
| --- | --- |
| Document Version | Description |
| 1.00 | First official release of this guide |

Typographic Conventions

|  |  |
| --- | --- |
| Type Style | Description |
| Example Text | Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options.  Cross-references to other documentation |
| **Example text** | Emphasized words or phrases in body text, graphic titles, and table titles |
| Example text | File and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools. |
| Example text | User entry texts. These are words or characters that you enter in the system exactly as they appear in the documentation. |
| <Example text> | Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system. |
| EXAMPLE TEXT | Keys on the keyboard, for example, F2 or ENTER. |

Icons

|  |  |
| --- | --- |
| Icon | Description |
|  | Caution |
|  | Note or Important |
|  | Example |
|  | Recommendation or Tip |

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# Business Scenario

Travel Agency X would like to build an online mobile application for its customers, so they can book their flights anywhere, anytime from their devices. The **SAP Mobile Platform** provides a means for them to securely and efficiently access backend flight data exposed by their SAP NetWeaver Gateway system via OData-based REST services.

Booking a flight requires making changes to the backend data. Luckily the mobile platform client OData SDK provides easy-to-use libraries that can help app developers perform this task.

# Background Information

The goal of this exercise is not to show how to create a project from scratch and dissect every line of code. Instead, it shows the key pieces of code and information, along with a starter project template, so that developers understand how to leverage the OData SDK to on-board users in their own apps.

# Prerequisites

This exercise targets the Windows Desktop platform and has the following prerequisites:

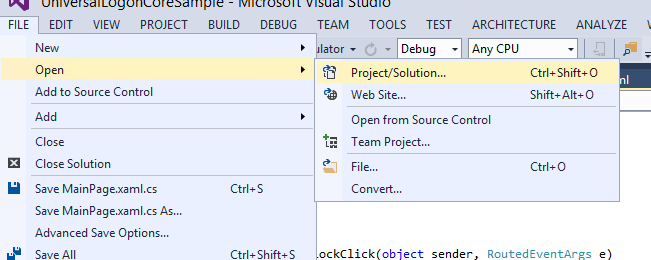
* Visual Studio 2013 with Update 2
* Any Windows machine running .NET 4.5
* To get the most out of this exercise, experience with Windows programming is recommended.

# Step-by-Step Procedure

In the previous exercises, we have successfully on-boarded a device, retrieved data from an OData endpoint and retrieved data from a non-OData JSON endpoint. In this exercise, we will look into how we can make changes to the backend data. To illustrate how we can make changes to the backend data, we will create a flight booking.

## Windows Project

1. ...
   1. Open Visual Studio 2013 with Update 2 and open the solution RKT\_WPF\_POSTFlightBooking.sln



* 1. Windows SMP SDK uses Microsoft OData Parser libraries to parse the OData responses. So in addition to adding Windows SMP SDK libraries as references, you should also add Microsoft OData Parser libraries as references.
  2. Windows SMP SDK libraries are packaged as NuGet packages. See appendix on how to add the libraries as reference.

## Retrieving data from SMP Server

### Steps involved in submitting POST request

Booking a flight entails creating a new entity in the BookingCollection. The HTTP request needs to have the new entity as the payload in the message body. The first step in submitting an HTTP POST request to create an entity is to create this new local ODataEntity and set values for all its properties.

|  |
| --- |
| 1. var entity = new SAP.Data.OData.Online.ODataEntity(“TypeName"); 2. entity.Properties["ID"].Value = XYZ; 3. entity.Properties["Name"].Value = “XYZ"; |

The second step is to let the backend know whether you are setting values for all the properties or only a subset of the properties. The PropertyCreationMode can be combined using the | binary operator.

|  |
| --- |
| public enum PropertyCreationMode  {  Keys = 1,  Mandatory = 2,  Optional = 4,  All = 7,  }   1. Store.AllocateProperties(entity, SAP.Data.OData.Store.PropertyCreationMode.All); |

The ScheduleCreateEntity method is used to schedule an HTTP POST request. This method takes the new entity and collection name as parameters. The Response object is then called asynchronously to submit the request.

|  |
| --- |
| var execution = store.ScheduleCreateEntity(entity, collectionName);  var response = await execution.Response; |

Prior knowledge of what the backend returns as part of the HTTP POST request is required. In our case, as part of booking a flight, the SAP backend returns the same row with the proper booking id as HTTP response. Since we know the type of payload in the HTTP response, we can cast the response to an ODataEntity and display the proper booking id to the user.

|  |
| --- |
| if (response is IODataResponseSingle)  {  if (((IODataResponseSingle)response).PayloadType == ODataType.Entity)  {  this.FlightBookingEntity = (SAP.Data.OData.Online.ODataEntity)((IODataResponseSingle)response).Payload;  }   1. } |

### POST request Process Flow

Create a local ODataEntity and set values for the properties

At design time or runtime – Bind UI control to display actual booking id (Application uses dialog box to display actual booking id)

Cast the Payload property to ODataEntity to extract values for properties

await on the Response object

Call ScheduleCreateEntity passing entity and collection name as parameters

Set the PropertyCreationMode. Options are All, Keys, Mandatory, Optional

### Screen flow of the application

No additional screens are required for this sample application. A dialog box is used to let the user know if the flight booking was successful or not. If the flight booking was successful, the actual booking id returned from the SAP backend is displayed to the user.

Dialog box is used to let user know if booking was successful or not

FlightDetails Page (FlightDetails.xaml) for a selected Flight

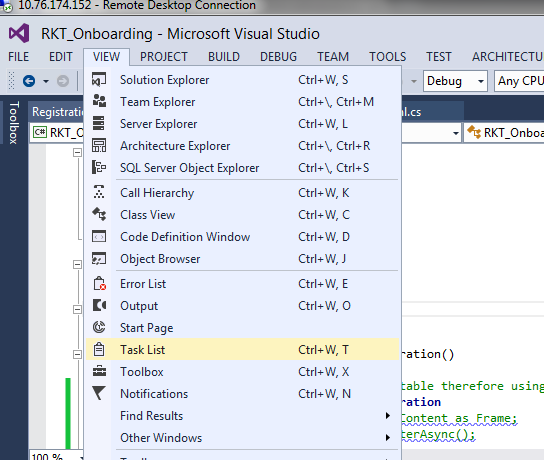
FlightCollection Page (Flights.xaml) for a selected Carrier

CarrierCollection Page

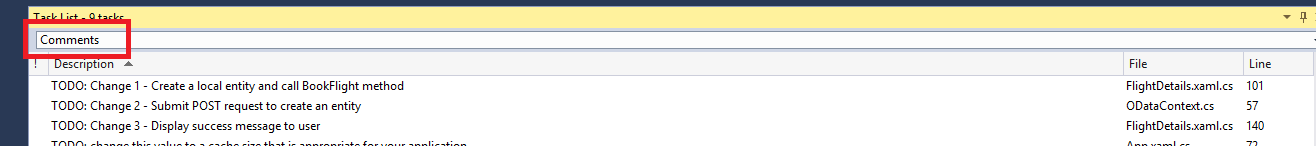
(Airlines.xaml)

### POST BookingCollection

1. ...
   1. In Visual Studio 2013 + Update 2, click on View -> Task List



* 1. Sort the tasks alphabetically, to view all the tasks associated for this exercise. They should all begin with **// TODO: Change x.** There are 3 tasks for this exercise.



* 1. Open FlightDetails.xaml.cs in the sample application.
  2. Go to the BookFlight event handler. In between the BEGIN and END //TODO Change1: markers enter the following code:

|  |
| --- |
| var entity = new SAP.Data.OData.Online.ODataEntity("RMTSAMPLEFLIGHT.Booking");  SharedContext.Context.Store.AllocateProperties(entity, SAP.Data.OData.Store.PropertyCreationMode.All);  entity.Properties["carrid"].Value = SharedContext.JsonContext.AirlineID;  entity.Properties["connid"].Value = SharedContext.JsonContext.FlightNumber;  entity.Properties["fldate"].Value = SharedContext.JsonContext.FlightDate;  entity.Properties["CUSTOMID"].Value = Constants.DefaultCustomerID;  entity.Properties["AGENCYNUM"].Value = Constants.DefaultAgencyID;  entity.Properties["ORDER\_DATE"].Value = SharedContext.JsonContext.FlightDate;  entity.Properties["bookid"].Value = "00000001";  string message = null;  try  {  await SharedContext.Context.BookFlight(entity, "BookingCollection");  } |

A new local entity is created and values are set for its properties. The PropertyCreationMode is set. The BookFlight method is called and the entity and the collection name are passed as reference.

* 1. Open ODataContext.cs in the sample application.
  2. Go to the BookFlight method. In between the BEGIN and END //TODO Change2: markers enter the following code:

|  |
| --- |
| var execution = this.Store.ScheduleCreateEntity(bookingEntity, collectionName);  var response = await execution.Response;  if (response is IODataResponseSingle)  {  if (((IODataResponseSingle)response).PayloadType == ODataType.Entity)  {  this.FlightBookingEntity = (SAP.Data.OData.Online.ODataEntity)((IODataResponseSingle)response).Payload;  }  } |

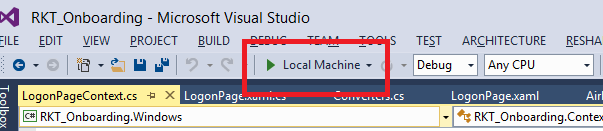
We don’t need to create a new instance of ODataStore. We can always reuse the instance of ODataStore. The ScheduleCreateEntitySet takes the modified entity and collection name as parameters. The Payload property of the response variable is then cast to an ODataEntity.

* 1. Open FlightDetails.xaml.cs in the sample application.
  2. Go to the ShowSuccessMessage method. In between the BEGIN and END //TODO Change3: markers enter the following code:

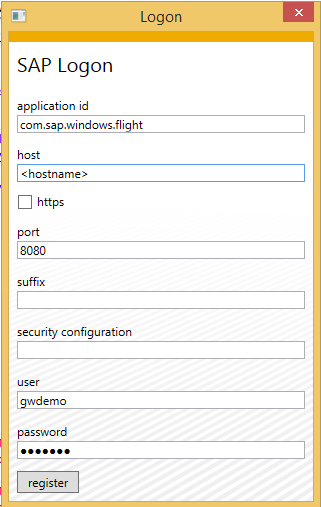
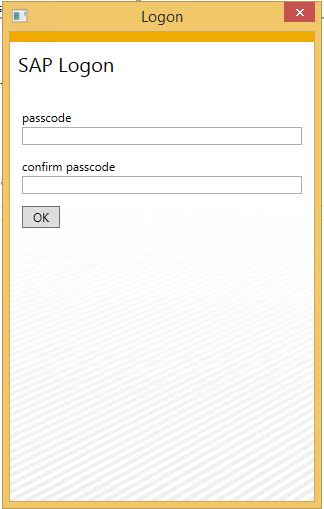
|  |
| --- |
| MessageBox.Show("Flight Booked. Booking Confirmation : " + (string)SharedContext.Context.FlightBookingEntity.Properties["bookid"].Value, "Success", MessageBoxButton.OK, MessageBoxImage.Information); |

## Running the application

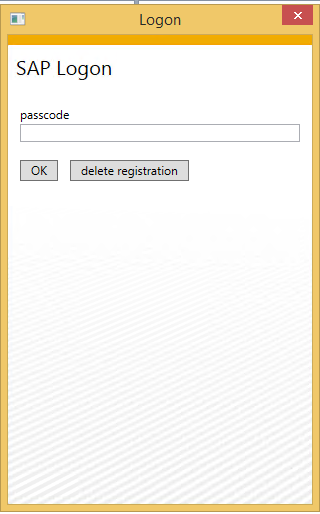
1. Run the application by clicking Run from within Visual Studio 2013 Update 2.



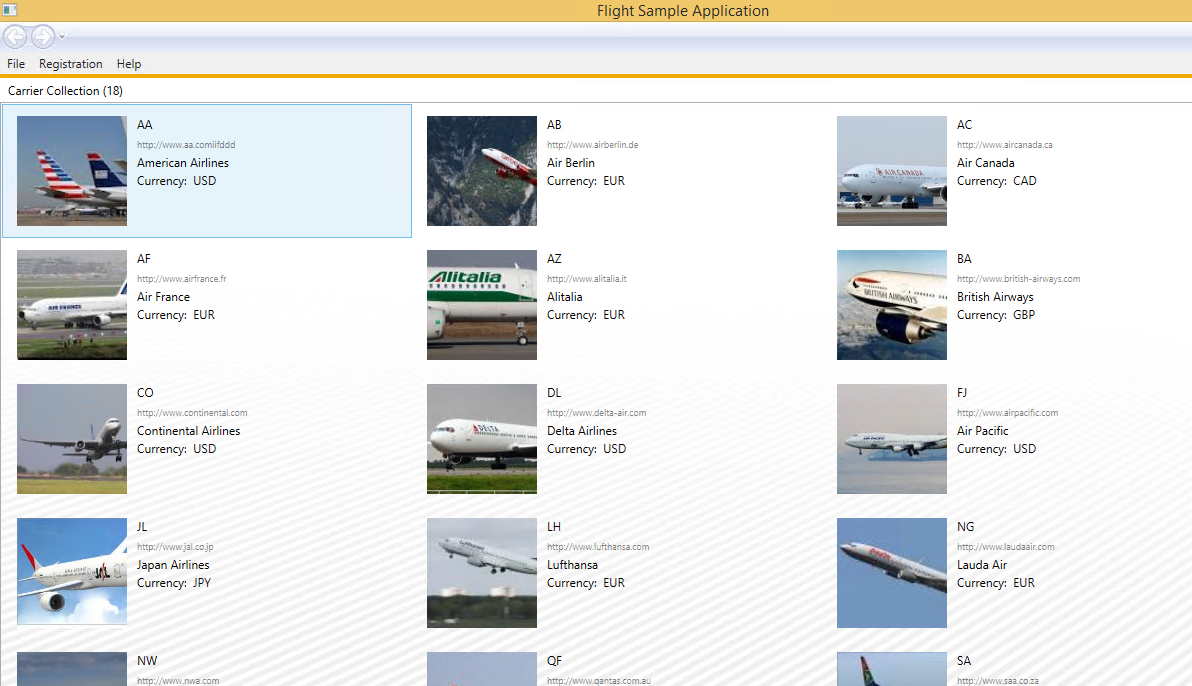
1. If you are not registered, click register. Enter passcode for data vault and click Ok.

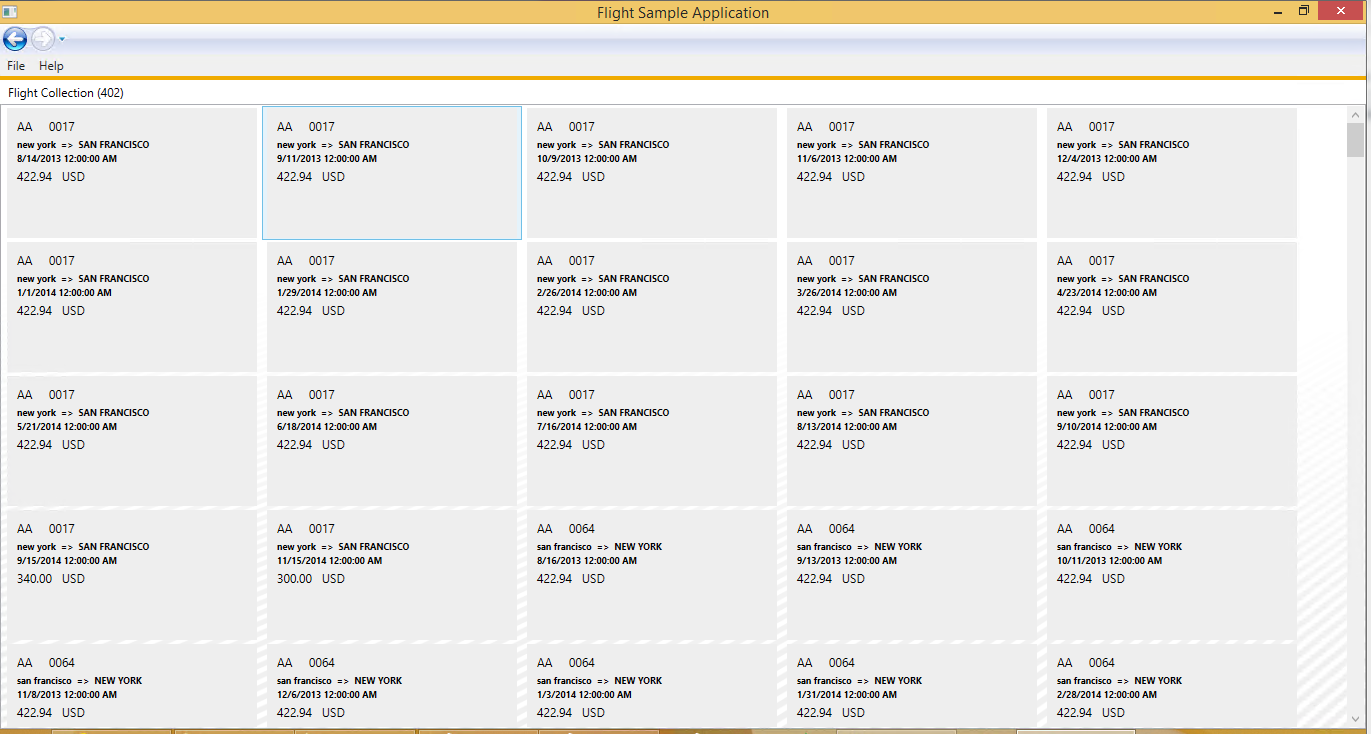
1. If you are already registered, enter the passcode to unlock the data vault.



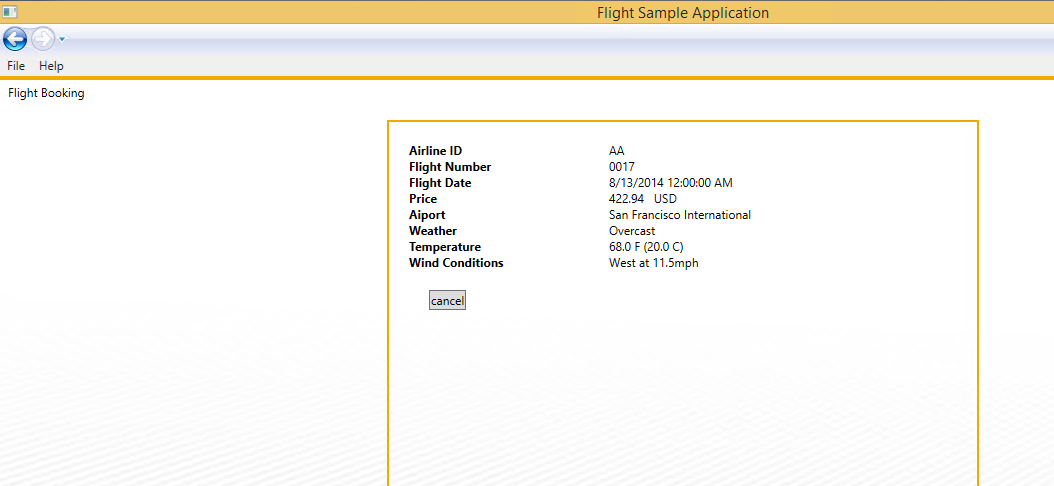
1. The application should now open up. Right click on any Carrier and click on Show flights.



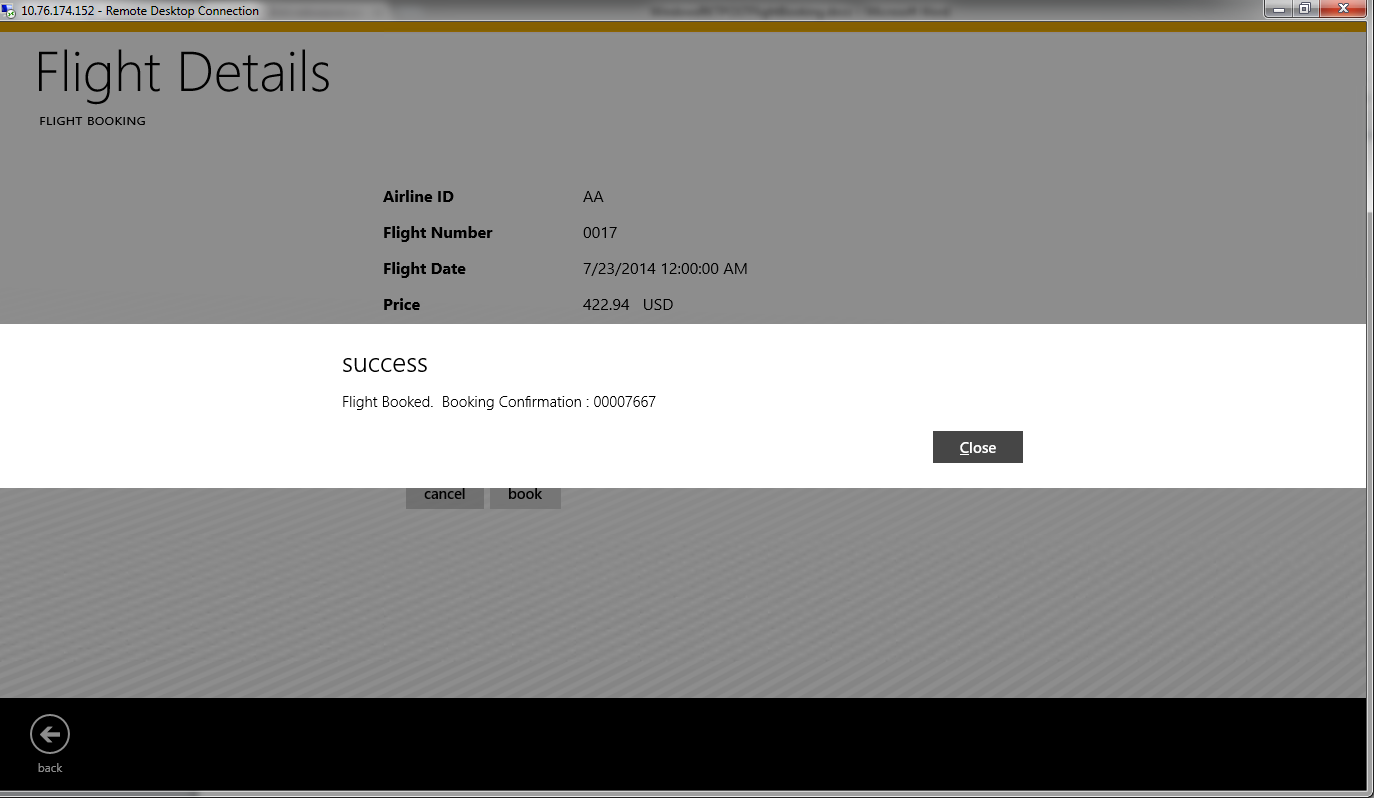
1. You should now be taken to the Flights page. Right click on a future flight and click on Airport Status.



1. You should now be taken to the FlightDetails page. Click on the book button. Note: You will only see the book button if you select a flight in the future.



1. If booking was successful, you will see a success message.



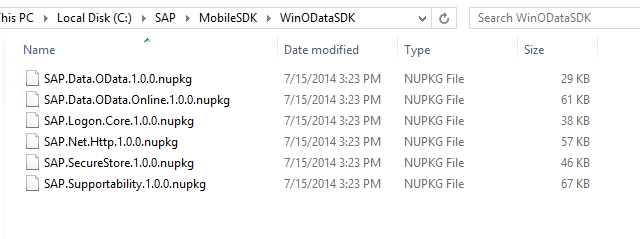
# Appendix

## NuGet Package Manager

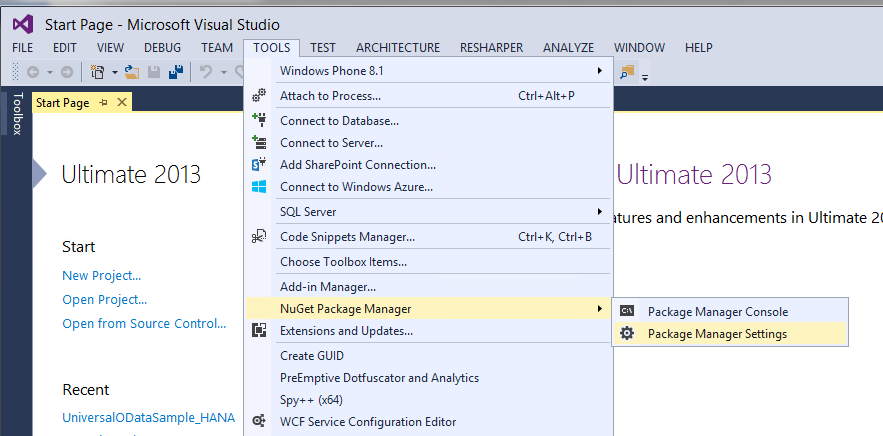
NuGet is the package manager for the Microsoft development platform including .NET. The NuGet client tools provide the ability to produce and consume packages. Starting with Visual Studio 2012, NuGet is included in every edition (except Team Foundation Server) by default. Updates to NuGet can be found through the Extension Manager.

### Adding Windows SMP SDK package in Visual Studio

1. Find the location of the Windows SMP SDK files in your local development machine (default location is C:\SAP\MobileSDK3\NativeSDK\ODataFramework\Windows). (The .nupkg file contains libraries for both Windows Store and Windows desktop)



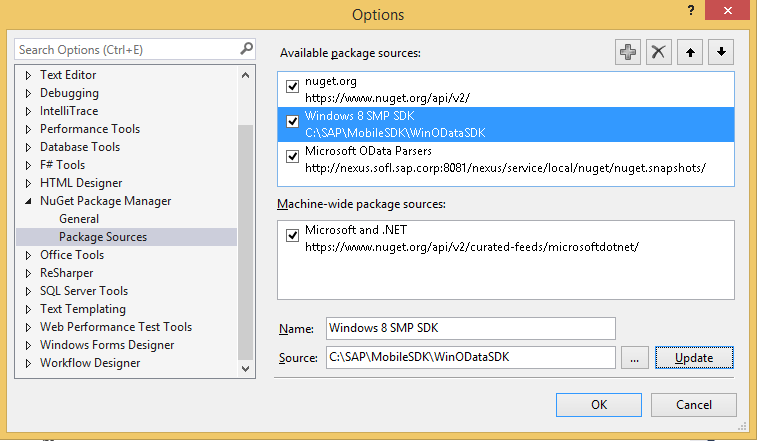
1. Open Visual Studio 2013 with Update 2. Click Tools -> NuGet Package Manager -> Package Manager Settings



1. Click on NuGet Package Manager -> Package Sources on the left pane. On the right pane, click the + sign on the right pane to add a new package source. Enter a name for the package and browse to the source of the unzipped Windows SMP SDK files. Click Update.

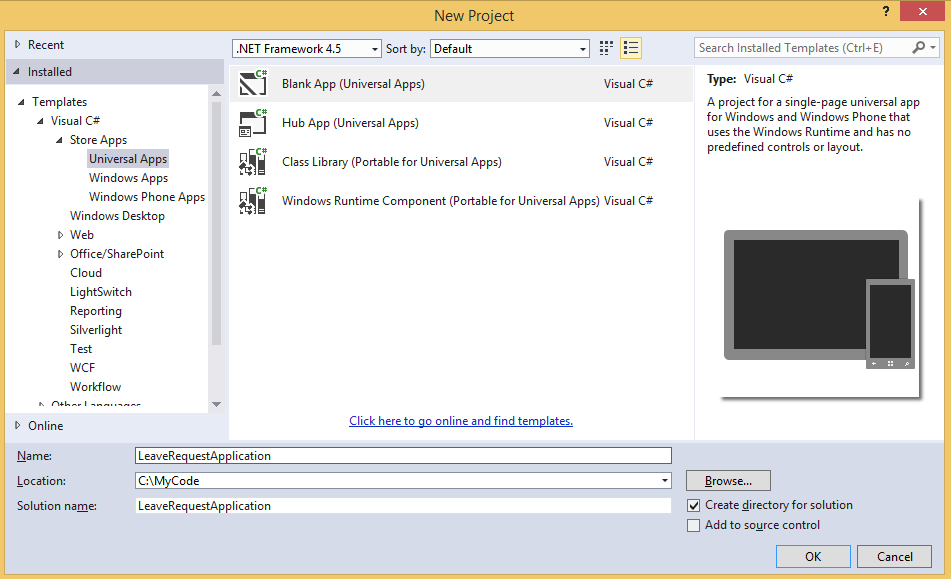
**Name:** Windows SMP SDK

**Source:** C:\SAP\MobileSDK3\NativeSDK\ODataFramework\Windows

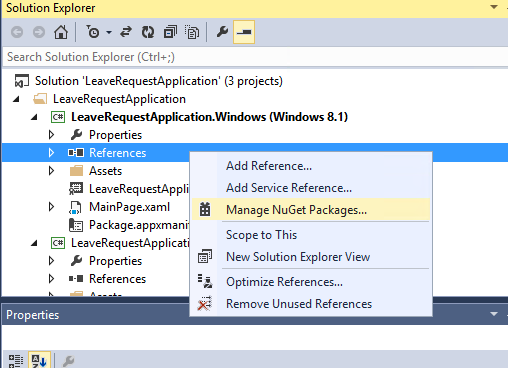


### Adding Windows SMP SDK references to the project

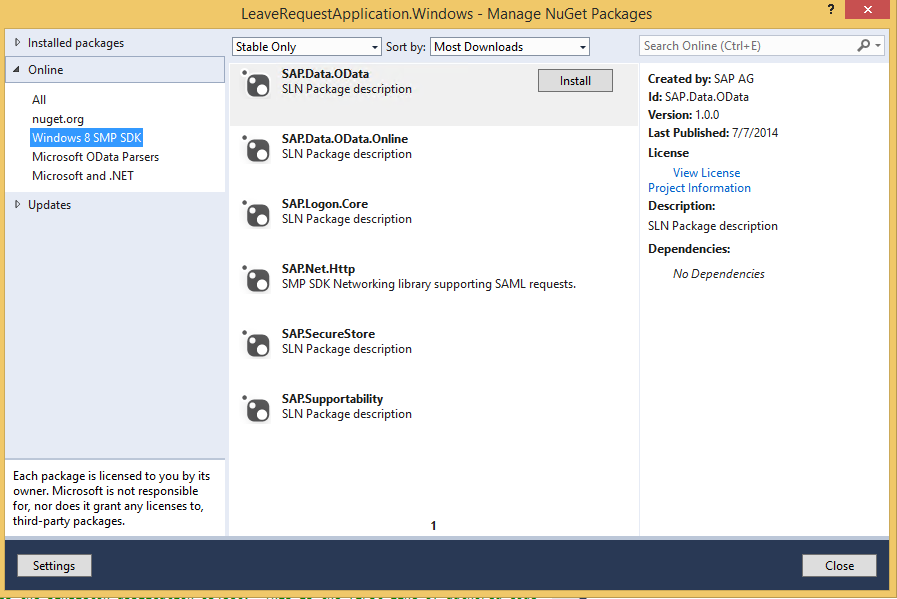
1. Create a new Windows Store Universal project by clicking on the New Project… link. Enter a name for the project.



1. To add references to the Windows project, right click on References and select Manage NuGet Packages…



1. Select the package source on the left pane that you created previously. Select the package that you need to add as a reference and click Install. NuGet Package Manager installs all dependent packages for you automatically. In addition, the proper package for the specified platform is installed.



1. In addition to the SAP NuGet packages, the developer also needs to add references to the Microsoft OData library packages. This can be done directly by adding the packages from the NuGet gallery. Click on nuget.org on the left pane and search for ODataLib. From the Search Results, install the package ODataLib for OData v1-3 (The version is 5.6.2). This will install all the dependent packages. Click I Accept to follow the prompts to install the packages.

Machine generated alternative text: .org
Each package is licensed to you by its
owner. Microsoft is not responsible
for, nor does it grant any licenses to,
third-party packages.
ODatalib for WIndows Phone
Classes to serialize, deserialize and validate OData payloads.
Enables construction of OData producers and consumers.Tar...
ODataLib
Classes to serialize, deserialize and validate OData JSON
payloads. Supports OData v4 only.
EdmLib for OData vi-3
Classes to represent construct, parse, serialize and validate
entity data models. Targets NET 4.0, Silverlight 4.0, or .NET P...
System.Spatial for OData vi-3
Contains classes and methods that facilitate geography and
geometry spatial operations. Targets .NET 4.0, Silverlight 4.0...
WCF Data Services Client for OData vi-3
LINQ-enabled client API for issuing OData queries and
consuming OData payloads. Supports OData v3. Targets .NE...
i 2 b
Created by: Microsoft Corpoi
Id: Microsoft.Data,OData
Version: 5.6.2
Last Published: 8/1/2014
Downloads: 1656106
View License
Project Information
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Description:
Classes to serialize, deserialize and
validate OData payloads. Enables
construction of OData producers and
consumers. Targets .NET 4.0, Silverlight
4.0 or NET Portable Lib with support
for NET 4.0, SL 5.0, Win Phone 8, Win
Phone 8.1, and Win 8. Localized for CHS,
CHT, DEU, ESN, FRA, ITA, JPN, KOR and
RUS.
Tags: wcf data services odata odatalib
edmlib spatial adonet S entity
framework open protocol wcfds
wcfdataservices dataservices
Dependencies:
System.Spatial (t 5.6.2)
Microsoft.DataEdm (= 5.62)
t...a.. :s_..... ...L..... . . LS..... _..L.
settings
L ‘.JL/ULO Parsers
Windows SMP SDK
Microsoft and .NET
ODatalib for OData vi-3
Classes to serialize,
OData JSON payloads.
Install
P Updates
Q
Q
QMachine generated alternative text: License Acceptance fl
The following package(s) require a click-to-accept license:
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I ecIine I Accept

1. Follow steps 3 and 4 to add references to the Windows 8.1 Phone project as well.