Azure Fast Start for Mobile Application Development

Module 10: Microsoft Azure Hybrid Connections

Student Lab Manual

Instructor Edition (Book Title Hidden Style)

Version 1.0

**Conditions and Terms of Use**

Microsoft Confidential

This training package is proprietary and confidential, and is intended only for uses described in the training materials. Content and software is provided to you under a Non-Disclosure Agreement and cannot be distributed. Copying or disclosing all or any portion of the content and/or software included in such packages is strictly prohibited.

The contents of this package are for informational and training purposes only and are provided "as is" without warranty of any kind, whether express or implied, including but not limited to the implied warranties of merchantability, fitness for a particular purpose, and non-infringement.

Training package content, including URLs and other Internet Web site references, is subject to change without notice. Because Microsoft must respond to changing market conditions, the content should not be interpreted to be a commitment on the part of Microsoft, and Microsoft cannot guarantee the accuracy of any information presented after the date of publication. Unless otherwise noted, the companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted herein are fictitious, and no association with any real company, organization, product, domain name, e-mail address, logo, person, place, or event is intended or should be inferred.

© 2015 Microsoft Corporation. All rights reserved.

**Copyright and Trademarks**

© 2015 Microsoft Corporation. All rights reserved.

Microsoft may have patents, patent applications, trademarks, copyrights, or other intellectual property rights covering subject matter in this document. Except as expressly provided in written license agreement from Microsoft, the furnishing of this document does not give you any license to these patents, trademarks, copyrights, or other intellectual property.

Complying with all applicable copyright laws is the responsibility of the user. Without limiting the rights under copyright, no part of this document may be reproduced, stored in or introduced into a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), or for any purpose, without the express written permission of Microsoft Corporation.

For more information, see Use of Microsoft Copyrighted Content at  
<http://www.microsoft.com/en-us/legal/intellectualproperty/Permissions/default.aspx>

Microsoft, Internet Explorer, and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Other Microsoft products mentioned herein may be either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. All other trademarks are property of their respective owners.

Contents

[Lab 1: 2 Integrating Hybrid Connections 6](#_Toc433841779)

[Exercise No 1: Connect to an on-premise SQL Server from a web app in Azure Web App 6](#_Toc433841780)

[Exercise No 2: Publish the Web App to Azure and configure it to use a Hybrid connection 12](#_Toc433841781)

# Lab 1: 2 Integrating Hybrid Connections

#### Introduction

This lab demonstrates the power and simplicity of Hybrid connections by connecting on-Premise SQL Server from a web app deployed in Azure Web App.

#### Objectives

After completing this lab, you will know to:

* Add a configured Hybrid connection
* Establish transparent connectivity between Azure and your On-Premise servers

#### Prerequisites (if applicable)

* Be familiar with Web app deployment on Azure
* Be familiar with SQL login authentication

#### Estimated time to complete this lab

50 minutes

## Exercise No 1: Connect to an on-premise SQL Server from a web app in Azure Web App

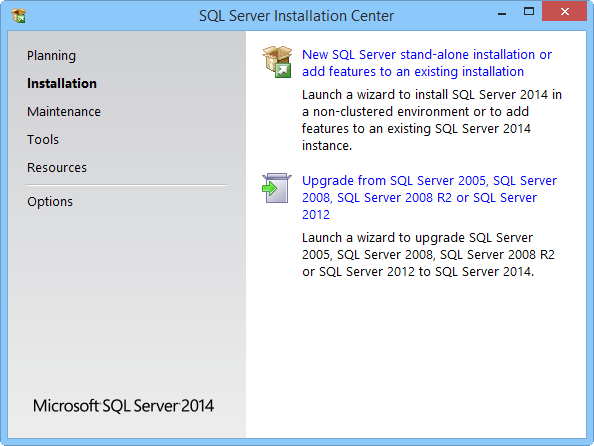
#### Objectives

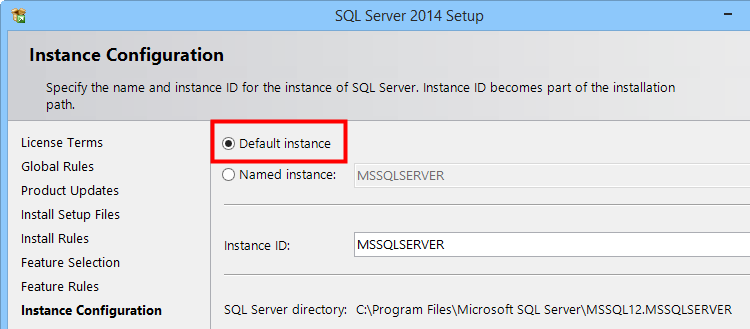
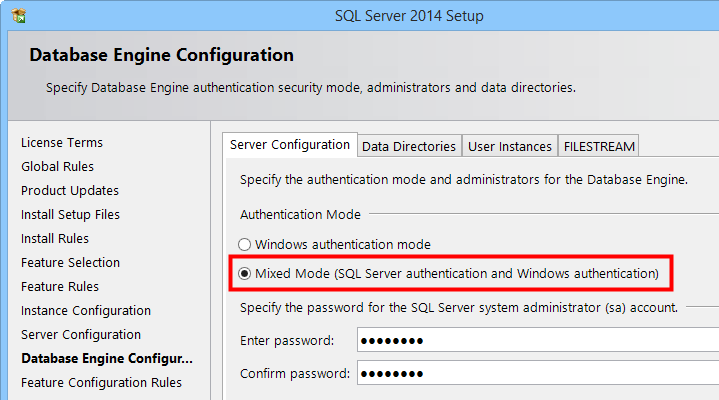
In this exercise, you will:

* Create an Azure Storage Blob Connector
* Create an empty Logic App.
* Add a Trigger in the Logic App.

**Task 1: Install SQL Server Express Edition**

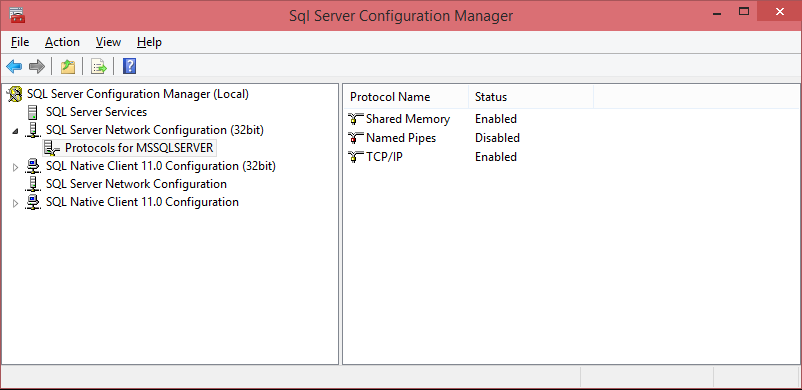
1. Download SQL Server Express from <http://www.microsoft.com/en-us/server-cloud/Products/sql-server-editions/sql-server-express.aspx>
2. Select the SQL Server 2014 Express 64 Bit
3. Once downloaded, run the setup of SQL Express.
4. Choose “*New SQL Server stand-alone installation or add features to an existing installation*” :



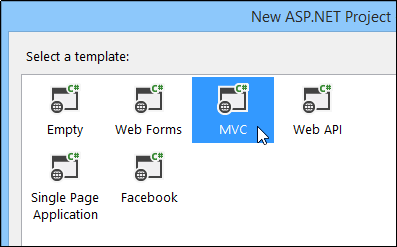
1. On the Instance Configuration page, choose *Default instance* :  
     
     
     
   **Note**: By default, the default instance of SQL Server listens for requests from SQL Server clients on static port 1433, which is what the Hybrid Connections feature requires. Named instances use dynamic ports and UDP, which are not supported by Hybrid Connections.
2. Accept the defaults on the Server Configuration page*.*
3. On the *Database Engine Configuration* page, under *Authentication Mode*, choose *Mixed Mode (SQL Server authentication and Windows authentication),* and provide a password :  
     
     
     
   **Note**: In this lab, SQL Server authentication will be used so be sure to remember the password that you provide, because you will need it later.
4. Step through the rest of the wizard to complete the installation

**Task 2: Enable TCP/IP for incoming SQL Server connections**

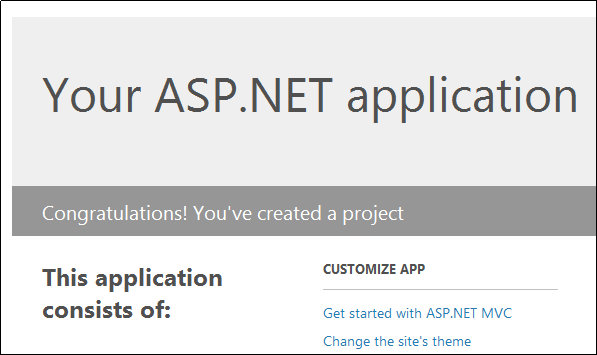
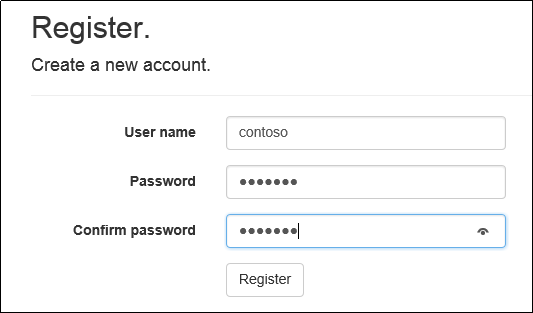
1. Start SQL Server Configuration Manager. Click *Start*, point to *All Programs*, and click *Microsoft SQL Server* and then *click SQL Server Configuration Manager.*
2. In SQL Server Configuration Manager, in the console pane, expand *SQL Server Network Configuration*.
3. In the console pane, click *Protocols for* *<instance\_name>*.
4. In the details pane, right-click *TCP/IP*, and then click *Enable*.
5. In the console pane, click *SQL Server Services*.
6. In the details pane, right-click *SQL Server* (*<instance\_name>*), and then click *Restart*, to stop and restart the SQL Server service:



**Task 3: Create a web app in Visual Studio 2015 and deploy it to Azure**

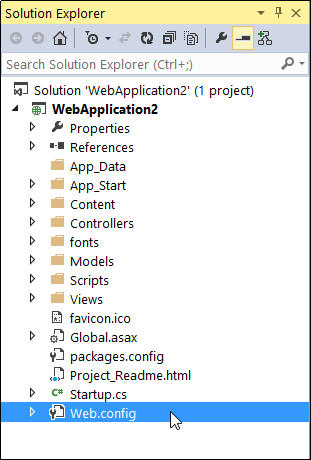
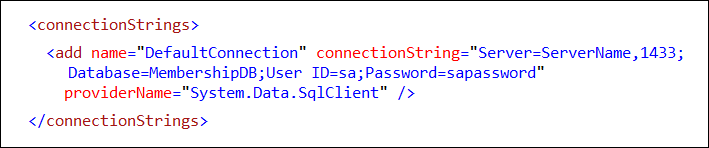
1. Create a new project in Visual Studio 2015
2. Select the project type *ASP .NET Web Application*, enter a name for that project, and click on the OK button.
3. In the second page, select the template *MVC* :  
     
   
4. Check the checkbox *Host in the cloud* and select *Web app* in the combo box.
5. Click the *OK* button
6. You should have then the corresponding solution opened in Visual Studio.

**Task 4: Test locally your web app**

1. Test the web app just created from Visual Studio by typing C*trl+F5*
2. An instance of your Internet browser is started and display you web app home page :  
     
   
3. Click on the button *Register* in the upper right of the home page to test the registration of a user.
4. Enter a dummy email address, user and password and click on the *Register* button :  
     
   
5. If the registration is successful, you should be back to the home page of the web app and in the top right a “hello” message with the email name just registered.

**Task 5: Modify the database connection string**

In these step, you edit the connection string that tells your application where to find your local SQL Server Express database. The connection string is in the application's Web.config file, which contains configuration information for the application.

1. Open the file *Web.config* listed in the view *Solution Explorer* of Visual Studio :  
     
   
2. Search in the config file for the node *<connectionStrings>* and for the *DefaultConnection* element.
3. Replace in the connection string the *Data Source* value by just the server name of your local SQL server if you configured SQL Server Express to not use a named instance :  
     
     
     
   **Notes:** If you are connecting to a named instance instead of a default instance (for example, YourServer\SQLEXPRESS), you must configure your SQL Server to use static ports. For information on configuring static ports, see [How to configure SQL Server to listen on a specific port](http://support.microsoft.com/kb/823938). By default, named instances use UDP and dynamic ports, which are not supported by Hybrid Connections.  
     
   It is recommended that you specify the port (1433 by default, as shown in the example) in the connection string so that you can be sure that your local SQL Server has TCP enabled and is using the correct port.  
     
   Remember to use SQL Server Authentication to connect, specifying the user ID and password in your connection string
4. Click Save in Visual Studio to save the Web.config file
5. Test again the Web App and the registration of a new user:   
     
   Run project  
     
   Register a new account  
     
   This test automatically creates a database on your local SQL Server that holds the membership information for your application. One of the tables (dbo.AspNetUsers) holds web app user credentials like the ones that you just entered.

## Exercise No 2: Publish the Web App to Azure and configure it to use a Hybrid connection

#### Objectives

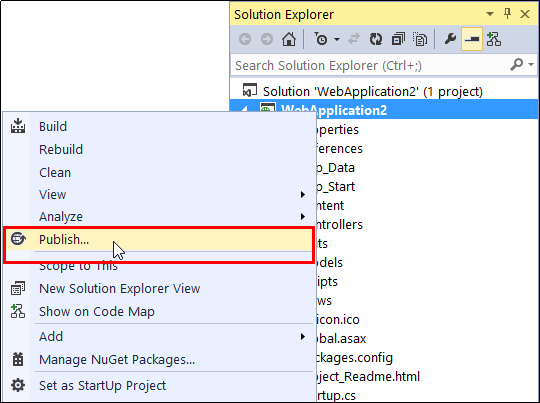
In this exercise, you will deploy the web app created before on Azure and configure it to use a hybrid connection to use on-Premise SQL Server:

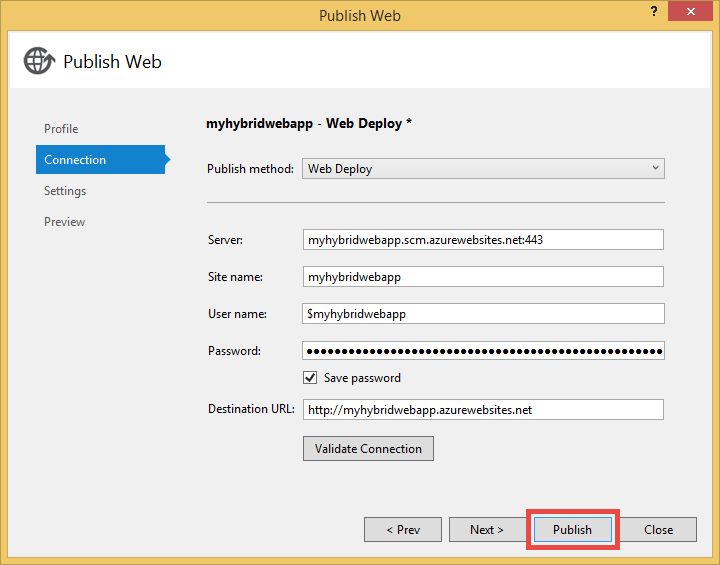
* Deploy the Web App on Azure
* Test the Web App once deployed
* Add a hybrid connection
* Install the agent
* Test the Web App

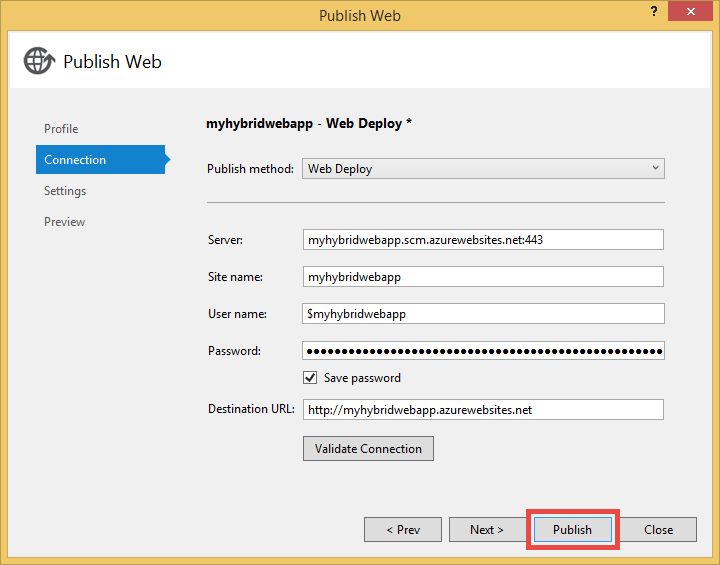
#### Scenario

After you installed SQL Server Express, created a Web App and tested it against your SQL server, you will publish the Web App to Azure.

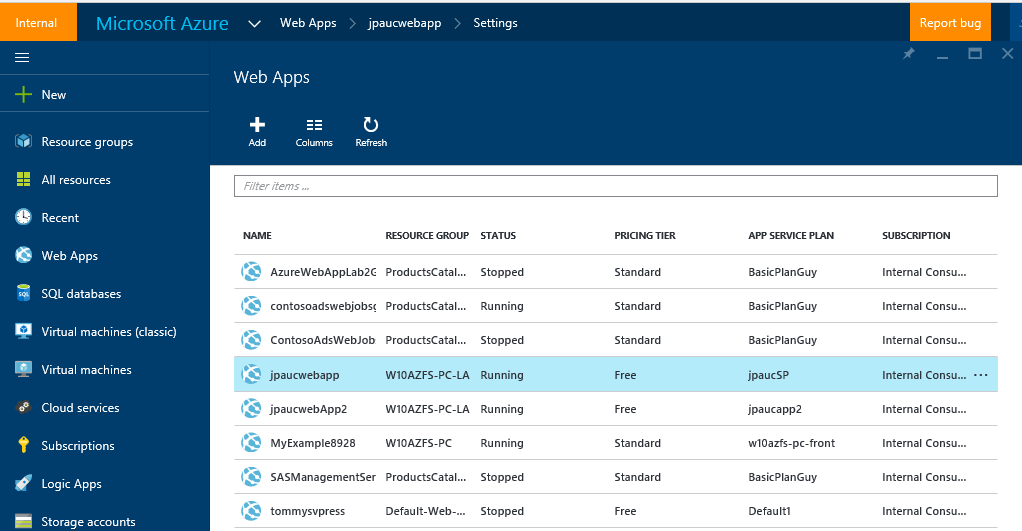
**Task 1: Publish the Web App to Azure**

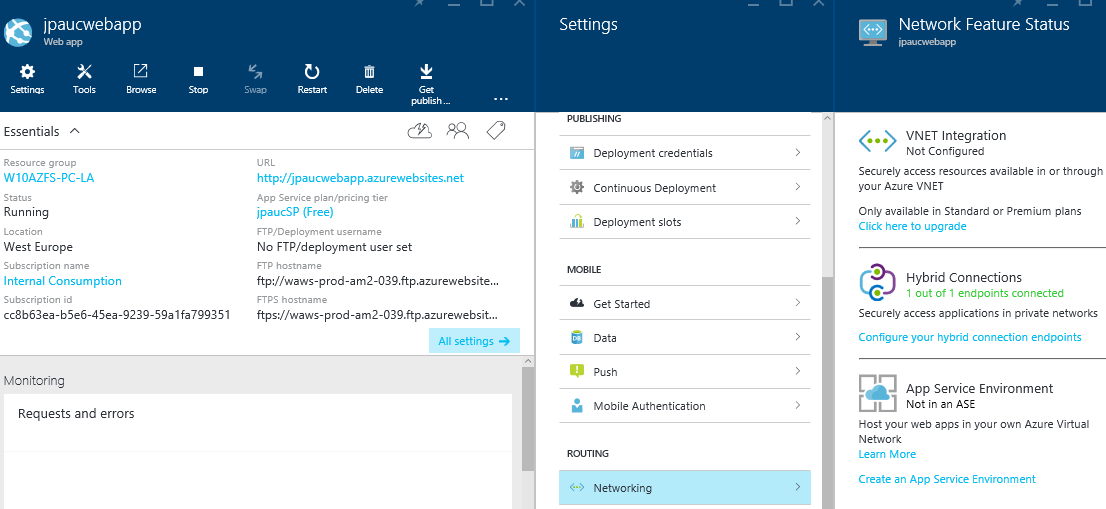
1. In Visual Studio, right click on the Project and select *Publish :*
2. Select *Microsoft Azure Web Apps* target
3. Select the account to connect to Azure.
4. Click the new button to create a new web App.
5. Fill the different deployment fields and click on the Create button.
6. After the creation of the Web App, you are redirected to the *Publish Web* page:

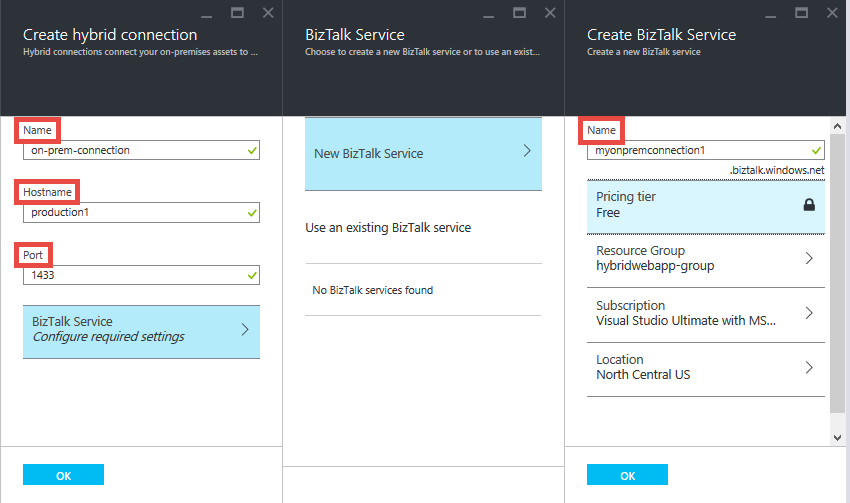
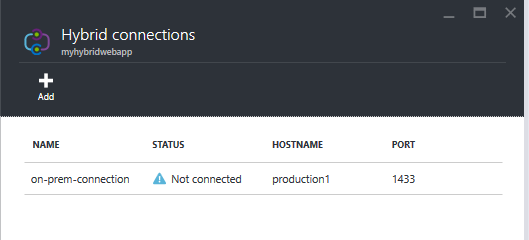


1. Check the different fields of that page and click directly on the *Publish* button.  
   Visual Studio will log then in its *Output* view all the publication steps and will display the home page of the Web App :  
     
   
2. Once deployed, test your Web App on Azure and register as new user.

**Task 1: Publish the Web App to Azure**

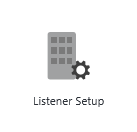
1. Back in the home page of the Azure portal, click on *Web Apps* and select the web App just published before :  
     
   
2. In the *Settings* blade of your Web App, select *Networking* and then select *Configure your hybrid connection endpoints:*

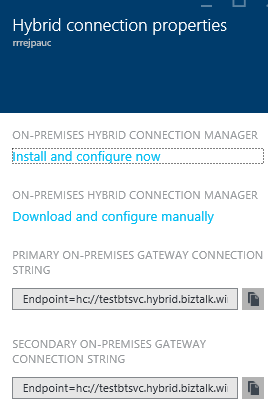
**

1. On the Hybrid connections blade, click Add > New hybrid connection
2. On the Create hybrid connection blade:
   1. For Name, provide a name for the connection.
   2. For Hostname, enter the computer name of your SQL Server host computer.
   3. For Port, enter 1433 (the default port for SQL Server).
   4. Click BizTalk Service > New BizTalk Service and enter a name for the BizTalk service  
        
      
3. Click OK twice  
     
   When the process completes, the Notifications area will flash a green SUCCESS and the Hybrid connection blade will show the new hybrid connection with the status as Not connected.  
     
   

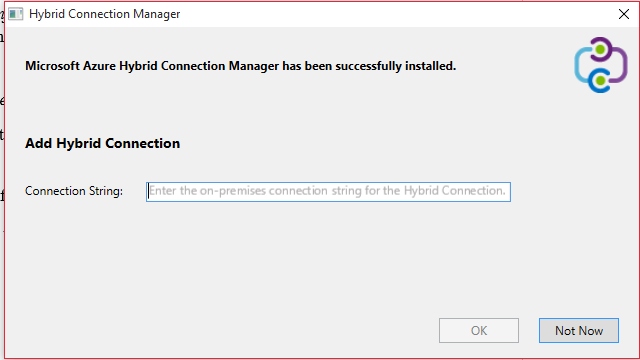
At this point, you have completed an important part of the cloud hybrid connection infrastructure. Next, you will create a corresponding on-premises piece.

**Task 1: Install the on-premises Hybrid Connection Manager to complete the connection.**

1. In the *Hybrid connections* blade, click the hybrid connection you just created and then click Listener Setup.  
     
   
2. The *Hybrid connection properties* blade opens.



1. Copy in the clipboard the Primary *On-Premise gateway connection string*.
2. Select *download and configure manually* to start downloading the *HybridConnectionManager.msi*.
3. Run the downloaded .msi file. A dialog box should be displayed to enter a connection string.



1. Paste the hybrid connection string that you copied earlier and click OK

If you encountered the following error *“No connection could be made because the target machine expressly refused it 127.0.0.1:9352”*, execute the following steps:

In a command prompt as administrator, type the following commands:

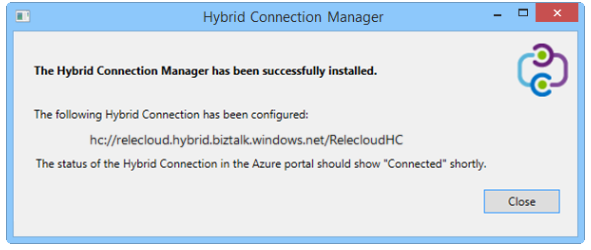
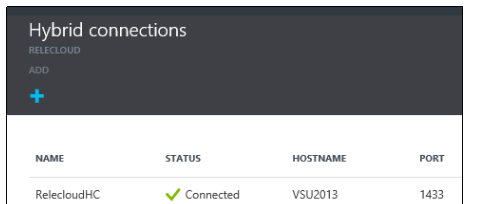
* *Register the url in the network stack*

*netsh http add urlacl url=*[*http://+:9352/*](http://+:9352/) *user= everyone*

* Restart the Hybrid Connection listener to take account on the new URLACL configuration

*net stop HybridConnectionManager*

*net start HybridConnectionManager*

1. When the install completes, click Close.  
     
   
2. On the Hybrid connections blade, the Status column now shows Connected  
     
     
   
3. Now that the hybrid connection infrastructure is complete, check that the Web App connects successfully to your On-Premise SQL Server Express.