

1 Introduction

This document provides a detailed walkthrough of steps required to deploy Virtual Health. The deployment guide explains the deployment of following components.

Component Name	Component Description	Component Type
HealthCare.Portal	Virtual Health Web App	Web App
SharePoint assets	SharePoint artifacts	SharePoint Site
VHCBot	Virtual Health BOT for Scheduling	Web App

2 System Requirments

2.1 Office 365 Plan Requirements

It is recommended to use Office 365 Enterprise E3 and above

E3 Plan details are available here <https://products.office.com/en-us/business/office-365-enterprise-e3-business-software>

Other plans:

<http://office.microsoft.com/en-us/business/compare-all-office-365-for-business-plans-FX104051403.aspx>

2.2 Azure Subscription

Virtual health requires Azure subscription to host following services

- Website/Web App
- Application Insight
- Key vault
- Azure table

2.2.1 Minimum Azure Web App Configuration

Virtual Health web apps need at least Standard configuration to cater the needs of pilot. However it can be scaled out as per the application need.

Configuration	Details																
Mode – Standard Instances – A single instance in Shared or Standard mode already benefits from high availability, but you can provide even greater throughput and fault tolerance by running additional web site instances. In Standard mode, you can choose from 1 through 10 instances, and if you enable the Auto scale feature, you can set the minimum and maximum number of virtual machines to be used for automatic scaling. http://www.windowsazure.com/en-us/documentation/articles/web-sites-scale/	<p>Web Sites Standard (Promotional Pricing): The Standard tier offers multiple instance sizes as well as scaling to meet changing capacity needs. Prices for Standard are as follows:</p> <table><tr><th>SIZE</th><th>CPU CORES</th><th>MEMORY</th><th>PRICE PER HOUR</th></tr><tr><td>Small</td><td>1</td><td>1.75 GB</td><td>\$0.10 (~\$74 / month)</td></tr><tr><td>Medium</td><td>2</td><td>3.5 GB</td><td>\$0.20 (~\$149 / month)</td></tr><tr><td>Large</td><td>4</td><td>7 GB</td><td>\$0.40 (~\$298 / month)</td></tr></table> <p>Note: Refer to the below link to know more about the pricing models: http://www.windowsazure.com/en-us/pricing/details/web-sites/</p>	SIZE	CPU CORES	MEMORY	PRICE PER HOUR	Small	1	1.75 GB	\$0.10 (~\$74 / month)	Medium	2	3.5 GB	\$0.20 (~\$149 / month)	Large	4	7 GB	\$0.40 (~\$298 / month)
SIZE	CPU CORES	MEMORY	PRICE PER HOUR														
Small	1	1.75 GB	\$0.10 (~\$74 / month)														
Medium	2	3.5 GB	\$0.20 (~\$149 / month)														
Large	4	7 GB	\$0.40 (~\$298 / month)														

2.2.2 Software Requirments

Since the services will be deployed in Azure PaaS, hence there is no separate software requirements

3 Prerequisites

The following prerequisites are important for the virtual health application

Office 365	Details
Plan	<p>Purchase Office 365 Enterprise E3 plan: https://products.office.com/en-us/business/office-365-enterprise-e3-business-software</p> <p>Other plans: http://office.microsoft.com/en-us/business/compare-all-office-365-for-business-plans-FX104051403.aspx</p>
Domain(Optional)	<p>Domain for Office 365</p> <p><i>This is optional for Virtual Health Deployment</i></p>
Site Collection	<p>Provision a site collection for Virtual Health. Preferably Publishing site</p>

Azure	Details
Azure Subscription	<p>Azure subscriptions will host following services</p> <ul style="list-style-type: none">• Website/Web App• Application Insight• Key vault• Azure table
SSL certificate	<p>SSL certificates are required for azure web sites and key vaults. It is recommended to have two CA issues SSL certificates for the domain</p> <p>CA issued certificates are required for Trusted Application Endpoint configuration and deployment</p>
Active Directory Integration	<p>Setup and synchronize existing Organization Active Directory on O365 portal</p> <p>http://technet.microsoft.com/en-us/library/hh967642</p>

Domain (Optional)	Domain for azure website
Azure Websites	Provision Azure website for the Virtual Office Solution
Application Insights	Provision Application insights for the Virtual Office Solution
Key Vault	Provision a key vault for the Virtual Office Solution. This is optional
User Account	<p>User should have access to provision and configure services in the Azure PaaS and also should be site collection Administrator</p> <ul style="list-style-type: none"> • Azure Subscription Admin or similar Role • Office 365 Site Collection Administrator
Trusted Application Endpoint	This application must be deployed as cloud service before the deployment of Virtual Health. Refer to link Trusted Application API

3.1 Certificates Required for Deployment

Certificates required for deployment are given in the below table

Certificate Type	Application	Purpose
Self-signed or CA issued	Trusted Application Endpoints	This certificate will be used to setup the OAuth with Azure AD application
CA issued	Trusted Application – Cloud Service	This certificate will be required to configure the https endpoint for Cloud Service
Self-Sign or CA Issues	Key Vault Application	This certificate will be used to setup Key Vault application access. This certificate will be used in section 4.5

4 First time configuration

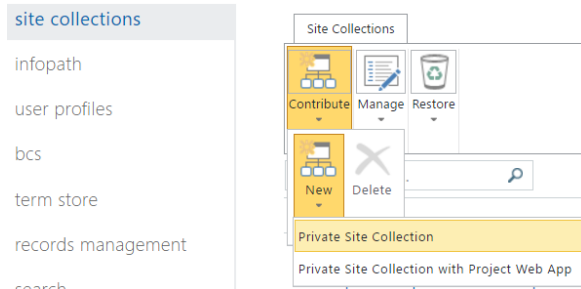
This section will provide steps to configure any new environment for the first time. This step is not required once the new environment is setup.

Open a notepad or xml notepad to note down the configuration values as you go through this section. These configurations will be used during the deployment of the Web Apps



4.1 SharePoint Site Collection Provisioning

This section describes the steps required to provision a SharePoint site collection

- A. Provision SharePoint site collection
 - a. Sign in to the Office 365 admin center with your SharePoint Online admin user name and password
 - b. Go to Admin > SharePoint
 - c. Click on site collection tab
 - d. Contribute → New → Private Site Collection
 - e. Click on Private Site Collection
 - f. Fill in the details as shown below



new site collection

Title	<input type="text" value="Healthcare Portal"/>
Web Site Address	<div><input type="text" value="https://msbpsmdemo.sharepoint.com"/> <div><input type="text" value="/sites/"/> <input type="text" value="healthcare"/></div></div>
Template Selection	<p>2013 experience version will be used</p> <p>Select a language: <input type="text" value="English"/></p> <p>Select a template:</p> <div><div>CollaborationEnterprisePublishingCustom</div><div>Publishing Portal Enterprise Wiki</div></div> <p>A starter site hierarchy for an Internet-facing site or a large intranet portal. This site can be customized easily with distinctive branding. It includes a home page, a sample press releases subsite, a Search Center, and a login page. Typically, this site has many more readers than contributors, and it is used to publish Web pages with approval workflows.</p>
Time Zone	<input type="text" value="(UTC-08:00) Pacific Time (US and Canada)"/>
Administrator	<input type="text" value="Kelly Krout"/>  

- Click Ok
- Note down the site collection url in below format

```
<add key="SharepointSite" value="SITE_COLLECTION_URL" />
```

4.2 SharePoint Configurations

Create a SharePoint Group and Add the people to the group who will have access to the settings page of the Virtual Health solution

- Open the site collection
- Go to site settings → Peoples and Group
- Click on More
- Click on New

- Fill in the details like Name as “VirtualPatientCare Admin” and select group permission as contribute

Type a name and description for the group.

Name: VirtualPatientCare Admin x

About Me:

[Click for help about adding HTML formatting.](#)

Owner
The owner can change anything about the group such as adding and removing members or deleting the group. Only one user or group can be the owner.

Group owner: Keith Kabza x

Group Settings
Specify who has permission to see the list of group members and who has permission to add and remove members from the group.

Who can view the membership of the group?
☒ Group Members ☐ Everyone

Who can edit the membership of the group?
☒ Group Owner ☐ Group Members

Membership Requests
Specify whether to allow users to request membership in this group and allow users to request to leave the group. All requests will be sent to the e-mail address specified. If auto-accept is enabled, users will automatically be added or removed when they make a request.

Caution: If you select yes for the Auto-accept requests option, any user requesting access to this group will automatically be added as a member of the group and receive the permission levels associated with the group.

Allow requests to join/leave this group?
☐ Yes ☒ No

Auto-accept requests?
☐ Yes ☒ No

Send membership requests to the following e-mail address:
admin@instpod.onmicrosoft.com

Give Group Permission to this Site
Specify the permission level that you want members of this SharePoint group to have on this site. If you do not want to give group members access to this site, ensure that all checkboxes are unselected.

[View site permission assignments](#)

Choose the permission level group members get on this site: https://instpod.sharepoint.com/sites/devPatientCare2

☐ Full Control - Has full control.

☐ Design - Can view, add, update, delete, approve, and customize.

☐ Edit - Can add, edit and delete lists; can view, add, update and delete list items and documents.

☒ Contribute - Can view, add, update, and delete list items and documents.

☐ Read - Can view pages and list items and download documents.

☐ View Only - Can view pages, list items, and documents. Document types with server-side file handlers can be viewed in the browser but not downloaded.

- Click Save
- Note down the SharePoint Group Name in below format

```
<add key="SharepointAdminGroup" value="SHAREPOINT_GROUP_NAME" />
```

4.3 Azure Web Apps Provisioning

Virtual Health solution has following web apps

- HealthCare.Portal
- VHCBot

All the above web apps can be provisioned using below steps (steps only explaining for HealthCare.Portal web app)

- Steps to provision an azure website
 1. Login to [Azure](#) management portal
 2. Select Web Apps and click on Add button

The screenshot displays the Microsoft Azure portal interface. On the left, the navigation pane lists various services, with 'Web Apps' selected and highlighted by a red box. The main content area is titled 'App Services' and includes a sub-header 'Microsoft'. Below this, there are three icons: a plus sign (labeled 'Add'), a list icon (labeled 'Columns'), and a refresh icon (labeled 'Refresh'). The 'Add' icon is also highlighted with a red box. The main area contains a table with the following columns: NAME, RESOURCE GROUP, STATUS, PRICING TIER, and SUBSCRIPTION. The table lists 15 App Services instances, all of which are in a 'Running' status and have a 'Standard' pricing tier. The subscription for all instances is 'Internal Consumption'.

NAME	RESOURCE GROUP	STATUS	PRICING TIER	SUBSCRIPTION
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-Southeast...	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-CentralUS	Running	Standard	Internal Consumption
...	Default-Web-CentralUS	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption
...	Default-Web-WestUS	Running	Standard	Internal Consumption

3. Enter name for web app and appropriate subscription Resource group and App Service plan as shown below

* App name
healthcareportaldemo ✓
.azurewebsites.net

* Subscription
Windows Azure MSDN - Visual Studio Ultimate ▼

* Resource Group ⓘ
☒ Create new ☐ Use existing
HealthcarePortal-India ✓

* App Service plan/Location
Default1(Southeast Asia) >

Application Insights ⓘ ☒ On ☐ Off

☐ Pin to dashboard

Create

Automation options

4. Click on create button at the bottom of the panel

Note: You should select the App Service Location closest to your users. This will help in reducing network latency and potentially provide better experience for users. App Service Location (in above example Southeast Asia) will be used to automatically create other services in the same location (in above example it will be Southeast Asia) so that all required objects are co-located.
- B. Steps to configure Application Insights
 - a. While creating the website if you mark the option "Applications Insights" to **ON**, it will be provisioned
 - b. Note down the application insight key
- C. Website – Scaling
 - a. If you want to change the scaling of the website you can scale as per pre-requisite section

Note down the following values from this section

```
<add key="ida:HealthCarePortal" value="HEALTH_CARE_PORTAL_URL" />
<add key="iKey" value="APP_INSIGHT_KEY_HEALTH_CARE_PORTAL" />
BOT_WEBSITE_URL = https://xxxx.azurewebsites.net [It will be used in BOT Configuration Section]
```

4.4 Bot Configuration

Register a Bot

- Go to <https://dev.botframework.com>
- Click on Register a bot
- Add the following details
 - Name: display name
 - Bot handle: unique ID, not used elsewhere
 - Messaging endpoint: HTTPS endpoint used by the bot framework; if Azure Bot Web App deployment is on **<https://x.azurewebsites.net>** then this will be <https://x.azurewebsites.net/api/messages>



Icon

[Upload custom icon](#)

30K max, png only

Name: * ?

VHC Bot

Bot handle: * ?

VirtualHealthCareDemo

Description: * ?

Virtual Health Care Bot for demo environment

Configuration

Messaging endpoint:

https://virtualhealthbotdemo.azurewebsites.net/api/messages

Register your bot with Microsoft to generate a new App ID and password

[Manage Microsoft App ID and password](#)

Paste your app ID below to continue

2b8ef04c-9140-47d2-a311-86f4b5a267be

Admin

Owners: ?

ritesp@microsoft.com

- Click "Create Microsoft App ID and Password"
- It will generate App Id and password and make a note of it and you need to update same in web.config file of Bot Project
- Click on Register to register the bot
- Note down the configurations values in below format

```

<add key="BotId" value="BOT_ID" />

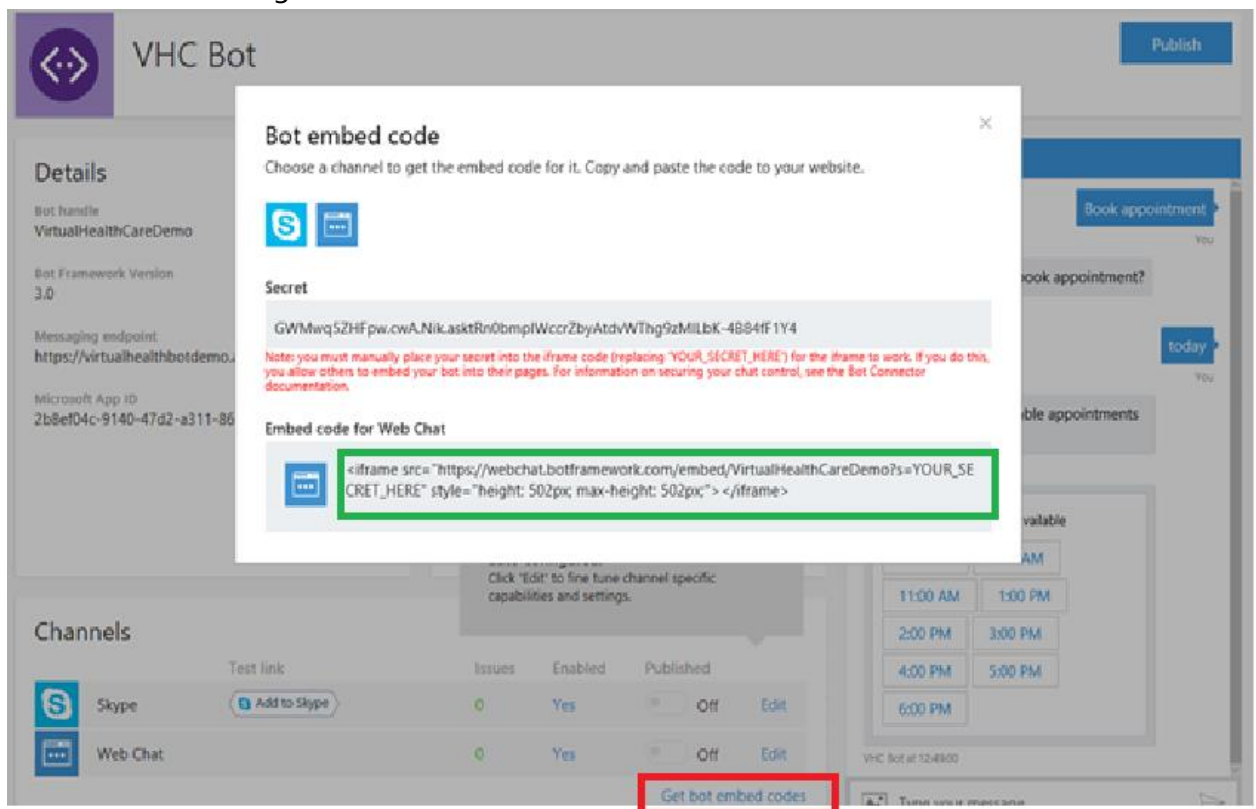
<add key="MicrosoftAppId" value="BOT_APP_ID" />

<add key="MicrosoftAppPassword" value="BOT_APP_PASSWORD" />

```

To get the Bot embed code, follow the below steps (Execute this step after execution of 5.5)

- Go to <https://dev.botframework.com> after registering the Bot
- Click on My Bots
- Click on the Bot created for the Virtual Health
- Click on the "Get bot embed codes"
- Copy the embed code as it will be required to be updated in Web.Config file of HealthCare.Portal web project.
- Note down the configuration value in below format



```

<add key="botUrlEmbed" value="BOT_EMBED_URL" />

```

4.5 Key Vault Provisioning

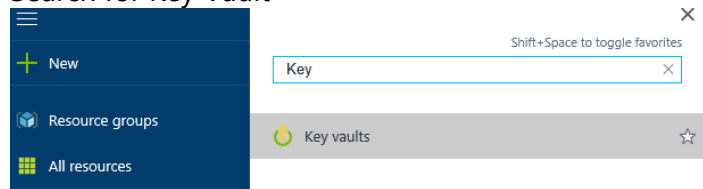
Key Vault Provisioning and Configuration

Note*: User should have access to

- Create an active directory application using PowerShell
- Assign the service principal to an azure active directory application.

A. Key Vault Provisioning

- a. Login to [Azure](#) management portal
- b. Click on New (+) on left navigation Panel
- c. Search for Key Vault



- d. Click on Key Vaults
- e. Click on Add
- f. Fill in the details as shown below

Create Key Vault

*

Name

healthcarekv

✓

*

Subscription

Microsoft Azure Internal Consumption (999)

▼

*

Resource Group

Create new

●

Use existing

HealthcarePortal

▼

*

Location

East US

▼

Pricing tier

Standard

>

Access policies

1 principal selected

>

Advanced access policy

None selected (optional)

>

- g. Click Create
- h. Once it is provisioned, open the Key Vault
- i. Click on Secrets
- j. Click Add and fill the values like below

Page 15

Create a secret

Upload options

Manual

* Name

IdaPassword

* Value

•••••

Content type (optional)

Set activation date. ⓘ ☐

Set expiration date. ⓘ ☐

Enabled ☒ Yes ☐ No

- k. Click Create
- l. Add another secret with Name "SpoPassword"
- m. Note down the Key Vault Base URL in below format

```
<add key="KeyVaultBaseUrl" value="KEY_VAULT_BASE_URL"/>
```

- B. Configure Azure AD application for Key Vault and associate certificate
 - a. Get the certificate for the Key Vault
 - b. Open the PowerShell command as Administrator
 - c. Login to tenant with account which has permission to create application in azure AD and creates service principal

```
Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\WINDOWS\system32> Add-AzureAccount

Id                                     Type Subscriptions                               Tenants
--                                     -
72f988bf-86f1-4522-8366-cbdd0aed3f4e... {72f988bf-86f1-4522-8366-cbdd0aed3f4e...}
```

- d. Run the following PowerShell after updating the yellow highlighted below
It does create following items
 - Creates the AD application with the certificate
 - Create service principal
 - Assign reader role to the service principal

"C:\data\KVWebApp.cer" – Path of the certificate file


```

$x509 = New-Object
System.Security.Cryptography.X509Certificates.X509Certificate2
$x509.Import("C:\data\KVWebApp.cer")
$keyValue = [System.Convert]::ToBase64String($x509.GetRawCertData())

$app = New-AzureRmADApplication -DisplayName "exampleapp" -HomePage
"https://www.contoso.org" -IdentifierUri
"https://www.contoso.org/example" -CertValue $keyValue -EndDate
$cert.NotAfter -StartDate $cert.NotBefore

New-AzureRmADServicePrincipal -ApplicationId $app.ApplicationId
New-AzureRmRoleAssignment -RoleDefinitionName Reader -
ServicePrincipalName $app.ApplicationId
$app
$x509.Thumbprint

```

Refer to this link for more details <https://docs.microsoft.com/en-in/azure/azure-resource-manager/resource-group-authenticate-service-principal>

- e. Note down the thumb print and application Id as it will be used in web.config of the HealthCare.Portal application

```

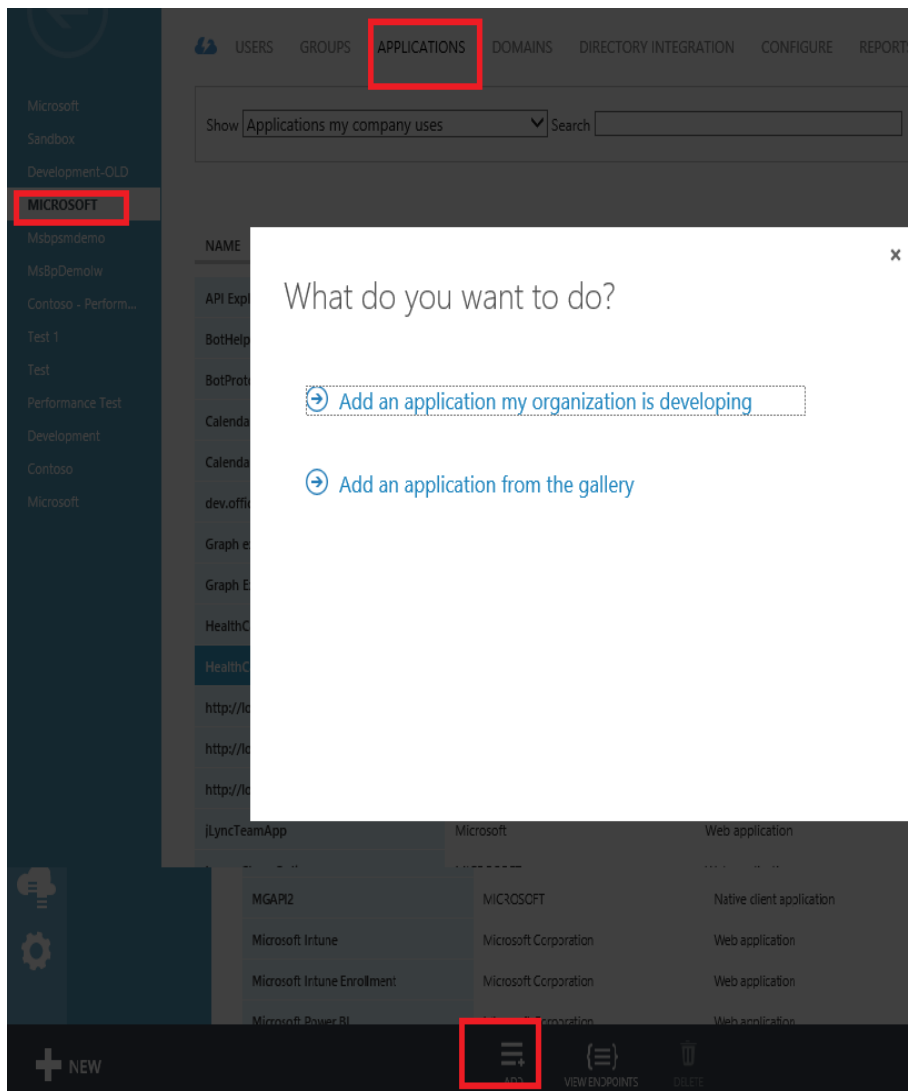
<add key="ClientId" value="AZURE_AD_APPLICATION_ID" />
<add key="Thumbprint" value="THUMB_PRINT_CERTIFICATE" />

```

4.6 Azure AD application Configuration

Provision Azure AD applications

1. Login to [Classic Azure Management Portal](#) with Azure Admin Account
2. Click on the Active Directory link on the left menu
3. Select the Active Directory
4. Click on Applications tab
5. Then click on Add link at bottom
6. It will pop up a window, select "Add an application my organization is developing"



- A. Provision Azure Application for HealthCare Portal
 - a. Select "Web Application AND/OR Web API" option
 - b. Provide name "HealthcarePortal"

ADD APPLICATION

Tell us about your application

NAME

HealthcarePortal

Type

☒ WEB APPLICATION AND/OR WEB API

☐ NATIVE CLIENT APPLICATION

2

- c. Click next
- d. Enter sign-ON and APP ID URL as valid URL e.g. Azure Portal Web App provisioned in above steps as shown below

ADD APPLICATION

App properties

SIGN-ON URL

https://healthcareportaldemo.azurewebsites.net

APP ID URI

https://healthcareportaldemo.azurewebsites.net

1

- e. Click Ok
- f. Click on the created application
- g. Then navigate to Configure tab
- h. Go to key's section, add a key and save the application settings by clicking save
- i. It will generate a secret against key, **make a note of it**
- j. **Make a note of client Id**
- k. Now go to single sign-on section and add reply URL as per application URL i.e. HealthCare.Portal URL
- l. Go to permissions to other applications
- m. Click on Add application
- n. Select Skype for business online and click ok
- o. Select the delegated permissions as shown in the below picture

keys

1 year30-11-201630-11-2017

1

Select durationVALID FROMEXPIRES ONTHE KEY VALUE WILL BE DISPLAYED AFTER YOU SAVE IT.

Copy and store the key value. You won't be able to retrieve it after you leave this page.

single sign-on

APP ID URI

https://healthcareportaldemo.azurewebsites.net

?

REPLY URL

https://healthcareportaldemo.azurewebsites.net

(ENTER A REPLY URL)

?

permissions to other applications

Windows Azure Active Directory	Application Permissions: 0
Skype for Business Online	Application Permissions: 0

☒ Read/write Skype user contacts and groups

☒ Receive conversation invites (preview)

☒ Read/write Skype user information (preview)

☒ Create Skype Meetings

☒ Initiate conversations and join meetings

Delegated Permissions: 5

✕

Add application

- p. Click on save to save the application settings
 - q. **Note down the application secret from key vault**
- ```
<add key="ida:ClientId" value="CLIENT_ID_AZURE_AD_" />
<add key="ida:ClientSecret" value="CLIENT_PWD_AZURE_AD_" />
```
- B. Provision Azure AD application for Native Application

ADD APPLICATION

Tell us about your application

NAME

HealthcareClient

Type

☐ WEB APPLICATION AND/OR WEB API ?

☒ NATIVE CLIENT APPLICATION ?

- d. Click Ok
- e. Enter Redirect URI <http://healthcarenativeclient> and click Ok

ADD APPLICATION

Application information

REDIRECT URI

http://healthcarenativeclient

← ✓

- Click on the native client application created
- Go to configure tab
- Note down **Client Id**
- Go to **"permissions to other applications"** section
- Click on **Add Application**
- Select **Skype for Business Online and Microsoft Graph** and Click Ok
- Provide following delegate permission to **Skype for Business Online**

permissions to other applications

Microsoft Graph	Delegated Permissions: 9
Skype for Business Online	Delegated Permissions: 5
Windows Azure Active Directory	

Add application

☒ Read/write Skype user contacts and groups  
☒ Receive conversation invites (preview)  
☒ Read/write Skype user information (preview)  
☒ Create Skype Meetings  
☒ Initiate conversations and join meetings

- Provide following delegate permission to **Microsoft Graph**

Delegated Permissions: 9

- ☒ Sign in and read user profile
- ☐ Read and write access to user profile
- ☒ Read all users' basic profiles
- ☒ Read all users' full profiles
- ☒ Read and write all users' full profiles
- ☒ Read all groups
- ☐ Read and write access to user mail
- ☒ Send mail as a user
- ☐ Read user calendars
- ☒ Have full access to user calendars
- ☐ Read user contacts
- ☒ View users' email address
- ☒ View users' basic profile

n. Provide following delegated permission to **Windows Azure Active Directory**

- ☐ Read hidden memberships
- ☒ Sign in and read user profile
- ☐ Read all users' basic profiles
- ☐ Read all users' full profiles
- ☐ Read all groups
- ☐ Read and write all groups
- ☐ Read and write directory data
- ☐ Read directory data
- ☐ Access the directory as the signed-in user

Delegated Permissions: 1

o. Click Save

p. Note down the **Client ID** in below format


```
<add key="ida:NativeAppClientId" value="NATIVE_APP_CLIENT_ID" />
```

## 4.7 Azure Web App Configurations

The following configuration is required on the HealthCare.Portal Web App

- A. Add the certificate to Web App
  - a. Click on App Services available in Left Navigation of Azure Portal
  - b. Click on the Web App
  - c. Then Click on SSL Certificates
  - d. Then click upload certificate
  - e. Select \*.pfx file and enter the password for the PFX file

\* PFX Certificate File



\* Certificate password

- f. Click Upload
- B. Add the Key to Azure Web App
  - a. To load the certificate, add the following entry in azure web app
  - b. Click on the Application Settings
  - c. Scroll down and look for App Settings section
  - d. Enter WEBSITE\_LOAD\_CERTIFICATES as key and \* as value
  - e. Then save the setting.

## 4.8 Other Configurations

This section will list down other configurations elements that needs to be captured before deploying the Web Apps.

```
<add key="ida:AuthorizationUri" value="https://login.microsoftonline.com" />
```

```
<add key="ida:AADInstance" value="https://login.microsoftonline.com" />
```

```
<add key="ida:Domain" value="0365_DOMAIN" />
```

```
<add key="ida:TenantId" value="TENANT_ID" />
```

```
<add key="ida:UserName" value="USER_NAME" />
```

```
<add key="SPOUserName" value="SPO_USER_NAME" />
```

```
<add key="ida:PostLogoutRedirectUri" value="HEALTH_CARE_PORTAL_URL" />
```

```
<add key="ida:MeetingSubject" value="MEETING_SUBJECT" />
<add key="TrustedApi" value="TRUSTED_API_URL" />
<add key="MobileSiteUri" value="MOBILE_SITE_URL"/>
<add key="DemoUserId" value="0365_USER_ID"/>
<add key="EmailServer" value="smtp.office365.com"/>
```



## 5 Azure Web Apps Deployment (Continuos)

### 5.1 Updated the Config file

- Open the HealthCarePortal.Sln in Visual Studio 2015
- Make sure the project loads successfully

#### 5.1.1 Update Bot Web.Config

- Click on the **VHCBot** project and expand it
- Open Web.Config file
- Update the following values

```
<add key="BotId" value="BOT_ID" />
<add key="MicrosoftAppId" value=" BOT_APP_ID" />
<add key="MicrosoftAppPassword" value="BOT_APP_PASSWORD" />
<add key="ida:HealthCarePortal" value="HEALTH_CARE_PORTAL_URL"/>
<add key="ida:UserName" value="0365_USER_NAME" />
```

- Save the file and close it

## 5.1.2 Update HealthCare Portal URL

- Click on the **HealthCare.Portal** project and expand it
- Open **Web.Config** file

Update the following values with values captured in above section (user your notepad or xml notepad)

```
<add key="ida:ClientId" value="CLIENT_ID_AZURE_AD_APP_HEALTH_CARE_PORTAL" />
<add key="ida:ClientSecret" value="CLIENT_PWD_AZURE_AD_APP_HEALTH_CARE_PORTAL" />
<add key="ida:Domain" value="0365_DOMAIN" />
<add key="ida:TenantId" value="TENANT_ID" />
<add key="ida:NativeAppClientId" value="NATIVE_APP_CLIENT_ID" />
<add key="ida:UserName" value="USER_NAME" />
<add key="SharepointSite" value="SHAREPOINT_SITE_URL" />
<add key="SPOUserName" value="SPO_USER_NAME" />
<add key="ida:PostLogoutRedirectUri" value="HEALTH_CARE_PORTAL_URL/" />
<add key="ida:MeetingSubject" value="MEETING_SUBJECT" />
<add key="ida:HealthCarePortal" value="HEALTH_CARE_PORTAL_URL" />
<add key="KeyVaultBaseUrl" value="KEY_VAULT_BASE_URL"/>
<add key="ClientId" value="AZURE_AD_APPLICATION_ID" />
<add key="Thumbprint" value="THUMB_PRINT_CERTIFICATE" />
<add key="TrustedApi" value="TRUSTED_API_URL" />
<add key="iKey" value="HEALTH_CARE_PORTAL_APP_INSIGHT_KEY" />
<add key="botUrlEmbed" value="BOT_URL_EMBED" />
<add key="MobileSiteUri" value="MOBILE_SITE_URL"/>
<add key="DemoUserId" value="0365_USER_ID"/>
<add key="EmailServer" value="smtp.office365.com"/>
<add key="SharepointAdminGroup" value="SHAREPOINT_GROUP_NAME"/>
```

- Save the file and close it

## 5.1.3 Update Deployment Tool Config file

Follow the below steps to update the config file of [deployment tool](#) (Download from here)

1. Open **DeploymentTool.exe.config** file
2. Update the appsettings values as per environment  
Path of

```
<add key="basePath" value="SHAREPOINT_SITE_URL"/>
<add key="username" value="SPO_USER_NAME"/>
<add key="password" value="SPO_USER_PASSWORD"/>
```





3. Save it

## 5.2 SharePoint Deployment

Deploy the SharePoint artefacts using below steps

- Download the [deployment tool](#)
- The folder would contain following file

	DeploymentTool.exe	30-11-2016 21:11	Application	28 KB
	DeploymentTool.exe.config	28-11-2016 10:36	XML Configuration...	1 KB
	DeploymentTool.pdb	30-11-2016 21:11	Program Debug D...	60 KB
	DeploymentTool.vshost.exe	30-11-2016 21:11	Application	23 KB
	DeploymentTool.vshost.exe.config	28-11-2016 10:36	XML Configuration...	1 KB
	Microsoft.SharePoint.Client.dll	04-07-2014 04:43	Application extens...	554 KB
	Microsoft.SharePoint.Client.Runtime.dll	04-07-2014 04:43	Application extens...	288 KB

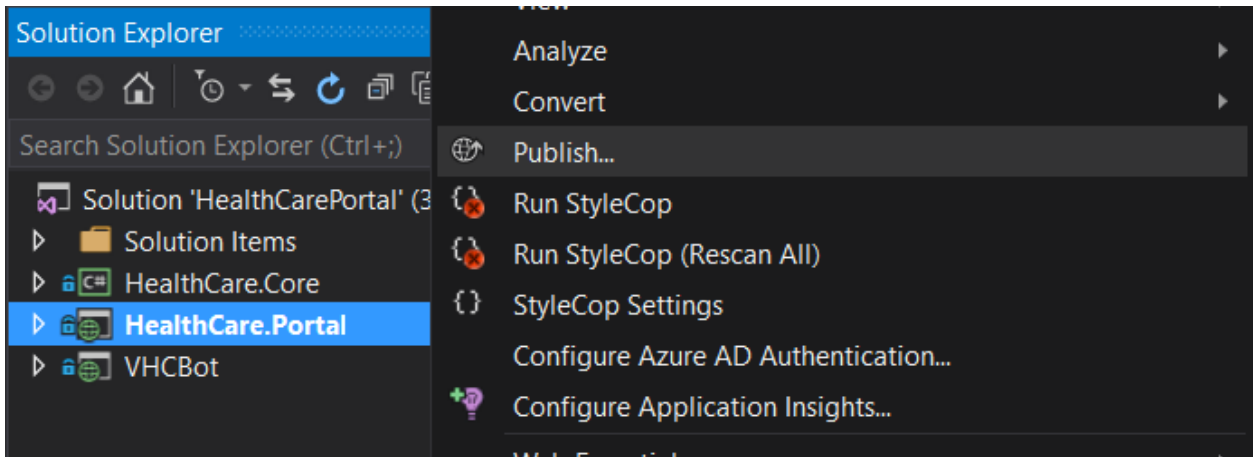
Organize      New      Open      Select				
PC > Data_New (D:) > ServicesCode > VirtualHealth > VirtualHealthDeployment > DeploymentTool				
<input type="checkbox"/>	Name ^	Date modified	Type	Size
	AddAppointments.aspx	13-01-2017 11:36	ASP.NET Server Pa...	17 KB
	ContentTypes.xml	13-01-2017 11:36	XML Document	7 KB
	ListItem.xml	18-01-2017 10:54	XML Document	2 KB
	ListXML.xml	13-01-2017 11:36	XML Document	2 KB
<input type="checkbox"/>	SiteColumn.xml	13-01-2017 11:36	XML Document	11 KB

- Double click DeploymentTool.exe
- Select Option 6
- Wait for PowerShell to complete the operation

## 5.3 Virtual Health Deployment

There are multiple ways to deploy a Web App in Azure. This section talks about Visual Studio Web Deploy publishing.

In **Solution Explorer**, right-click the project, and choose **Publish**.



In a few seconds, the **Publish Web** wizard appears. The wizard opens to a *publish profile* that has settings for deploying the web project to the new web app.

#### Tip

The publish profile includes a user name and password for deployment. These credentials have been generated for you, and you don't have to enter them. The password is encrypted in a hidden user-specific file in the `Properties\PublishProfiles` folder.

1. On the **Connection** tab of the **Publish Web** wizard, click **Next**.

Publish Web

Profile

MyExample810

Connection

Settings

Preview

Publish method: Web Deploy

Server: myexample810.scm.azurewebsites.net:443

Site name: MyExample810

User name: \$MyExample810

Password: [Redacted]

☒ Save password

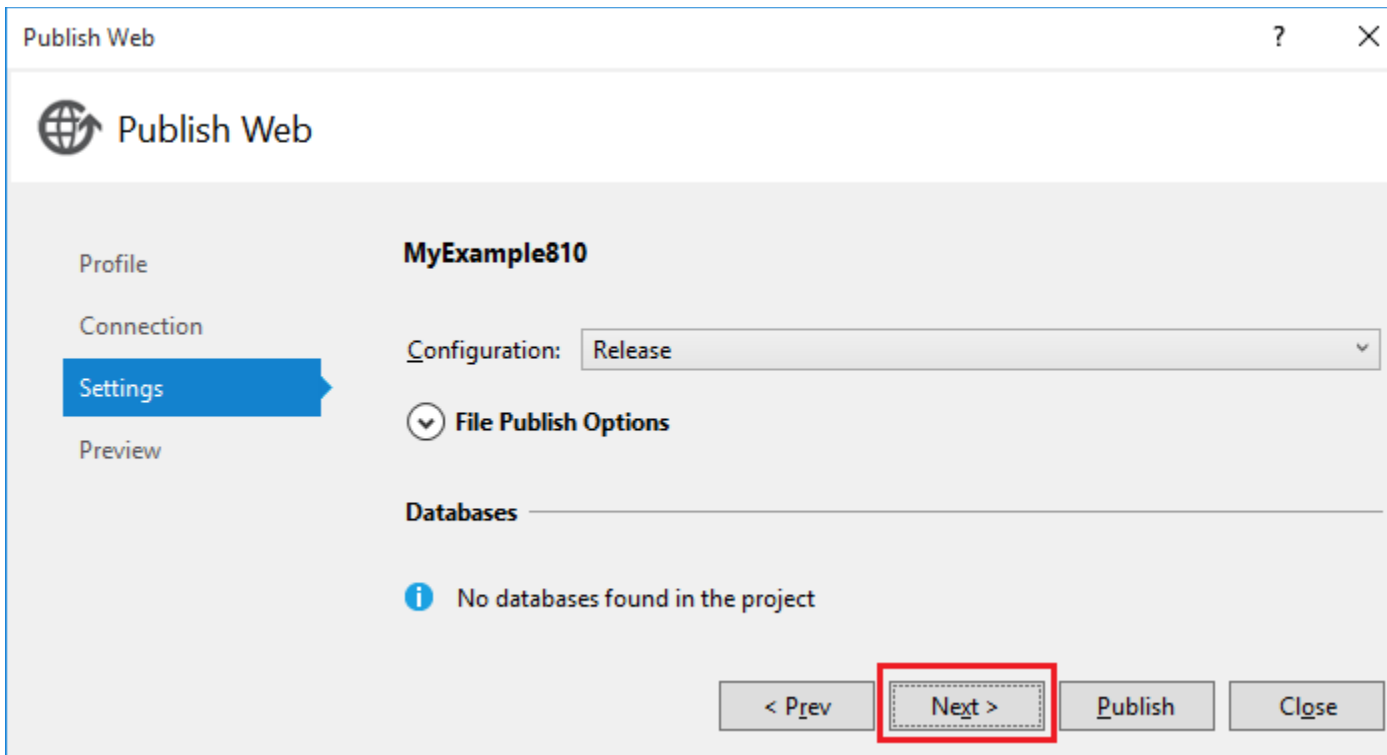
Destination URL: http://myexample810.azurewebsites.net

Validate Connection

< Prev Next > Publish Close

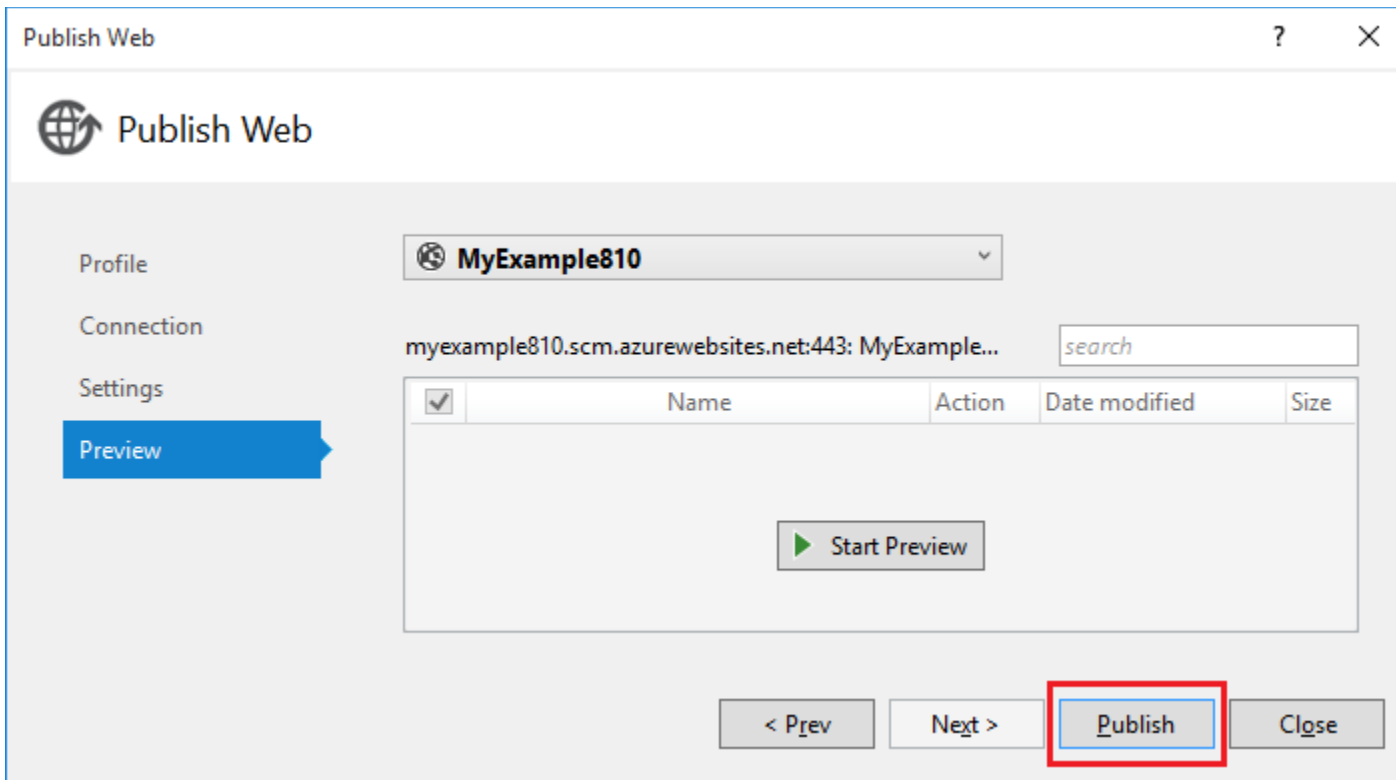
Next is the **Settings** tab. Here you can change the build configuration to deploy a debug build for [remote debugging](#). The tab also offers several [File Publish Options](#).

2. On the **Settings** tab, click **Next**.



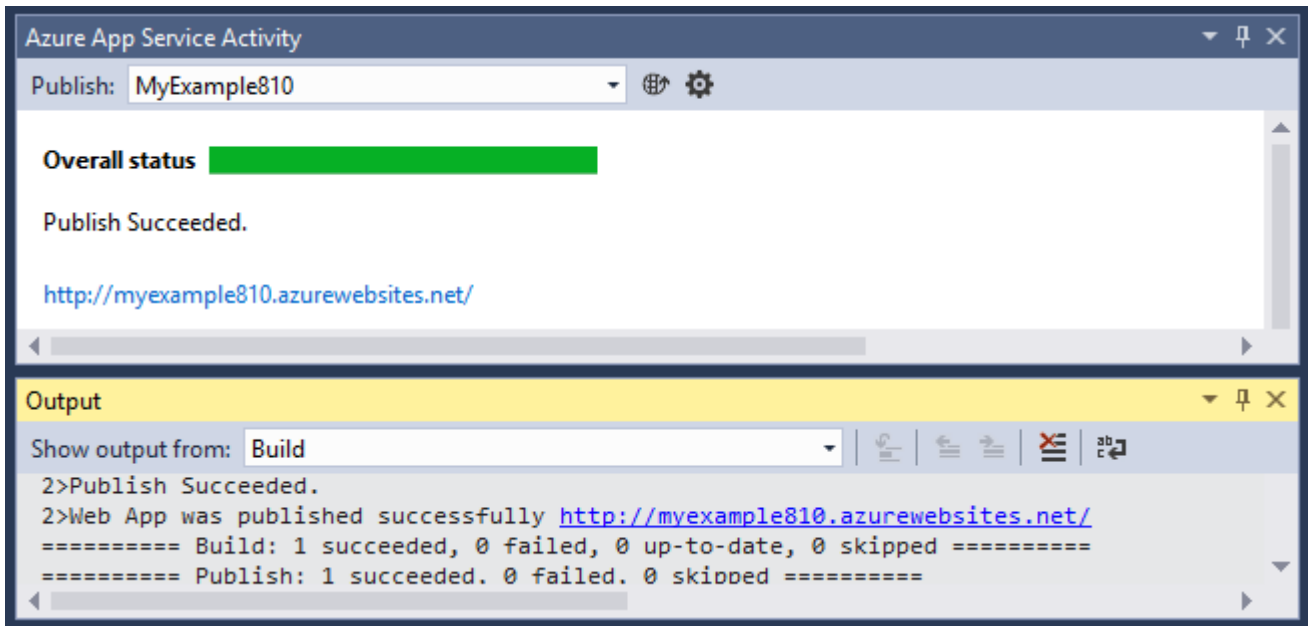
The **Preview** tab is next. Here you have an opportunity to see what files are going to be copied from your project to the API app. When you're deploying a project to an API app that you already deployed to earlier, only changed files are copied. If you want to see a list of what will be copied, you can click the **Start Preview** button.

3. On the **Preview** tab, click **Publish**.



When you click **Publish**, Visual Studio begins the process of copying the files to the Azure server. This may take a minute or two.

The **Output** and **Azure App Service Activity** windows show what deployment actions were taken and report successful completion of the deployment.



Upon successful deployment, the default browser automatically opens to the URL of the deployed web app, and the application that you created is now running in the cloud. The URL in the browser address bar shows that the web app is loaded from the Internet

## 5.4 VHC Bot Web App Deployment

Follow the same step as given in Section 5.3 for HealthCare.Portal deployment

## 5.5 Post Deployment Configuration

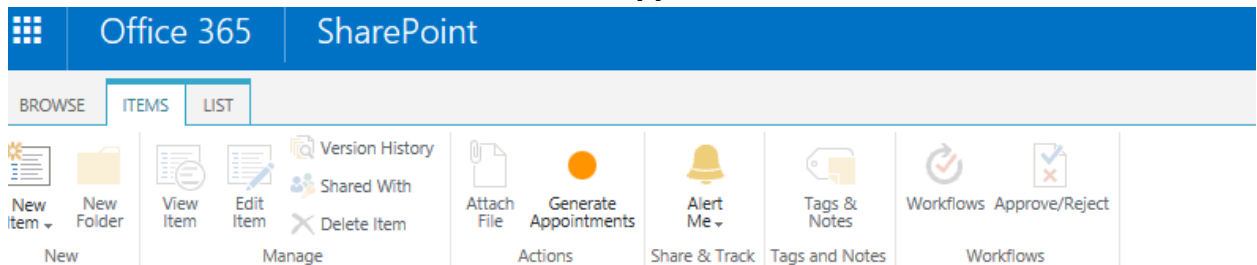
### 5.5.1 BotUrlEmbed in Web.Config file of HealthCare.Portal

- Go to section 4.4 and Get Url Embed code steps, follow the steps to get the Url Embed Code
- Note down the BotUrlEmbed
- Update the Web.Config of HealthCare.Portal with above value
- Republish the HealthCare.Portal project again using Visual Studio



## 5.5.2 Generate the Meeting Slots

- Open the SharePoint Site Collection created in section 4.1
- Login as site collection administrator
- Go to **Settings** → **Site Contents**
- Click on "**Available Dates**" list
- On bottom left corner, there will be a link to change to classic view, click on "**Return to classic SharePoint**"
- Click on **Items** tab and then click on **Generate Appointments**



- Fill in the details as shown below (Date and Check Select All CheckBox)

A screenshot of the 'AddAppointments' form in SharePoint. The form has a blue header with 'SharePoint' text. Below the header, there are links for 'Home' and 'EDIT LINKS'. The main title is 'AddAppointments'. The form contains two main sections: 'Appointment Date:' with a text box containing '02/26/2017' and a placeholder '(mm/dd/yyyy)', and 'Slots:' with a 'Select All' checkbox and a grid of time slots. The time slots are arranged in two columns: 08:00 Am, 09:00 Am, 10:00 Am, 11:00 Am, 01:00 Pm in the first column, and 02:00 Pm, 03:00 Pm, 04:00 Pm, 05:00 Pm, 06:00 Pm in the second column. Each time slot has a checked checkbox. At the bottom of the form is a 'Create Appointments' button.

- Click **Create Appointments**
- It will show confirmation message

## 6 Post Deployment Validations

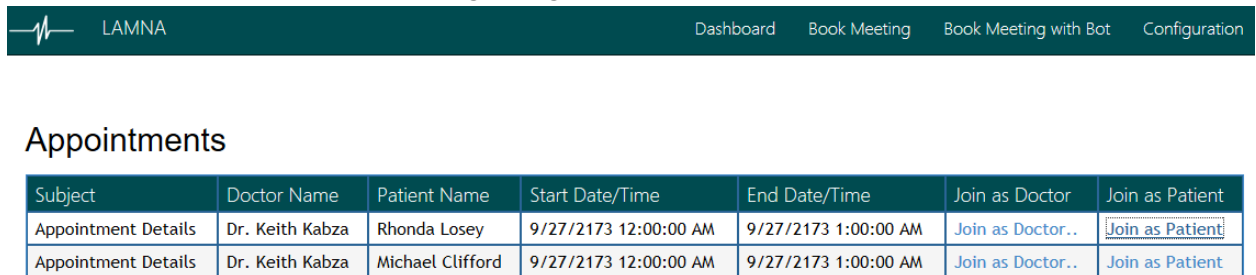
### Validate Home Page is Opening

- Open the HealthCare Portal Web App
- Login as Active O365 Tenant user
- Home page should look like below (Since there is no appointment)



### Validate Book Meeting

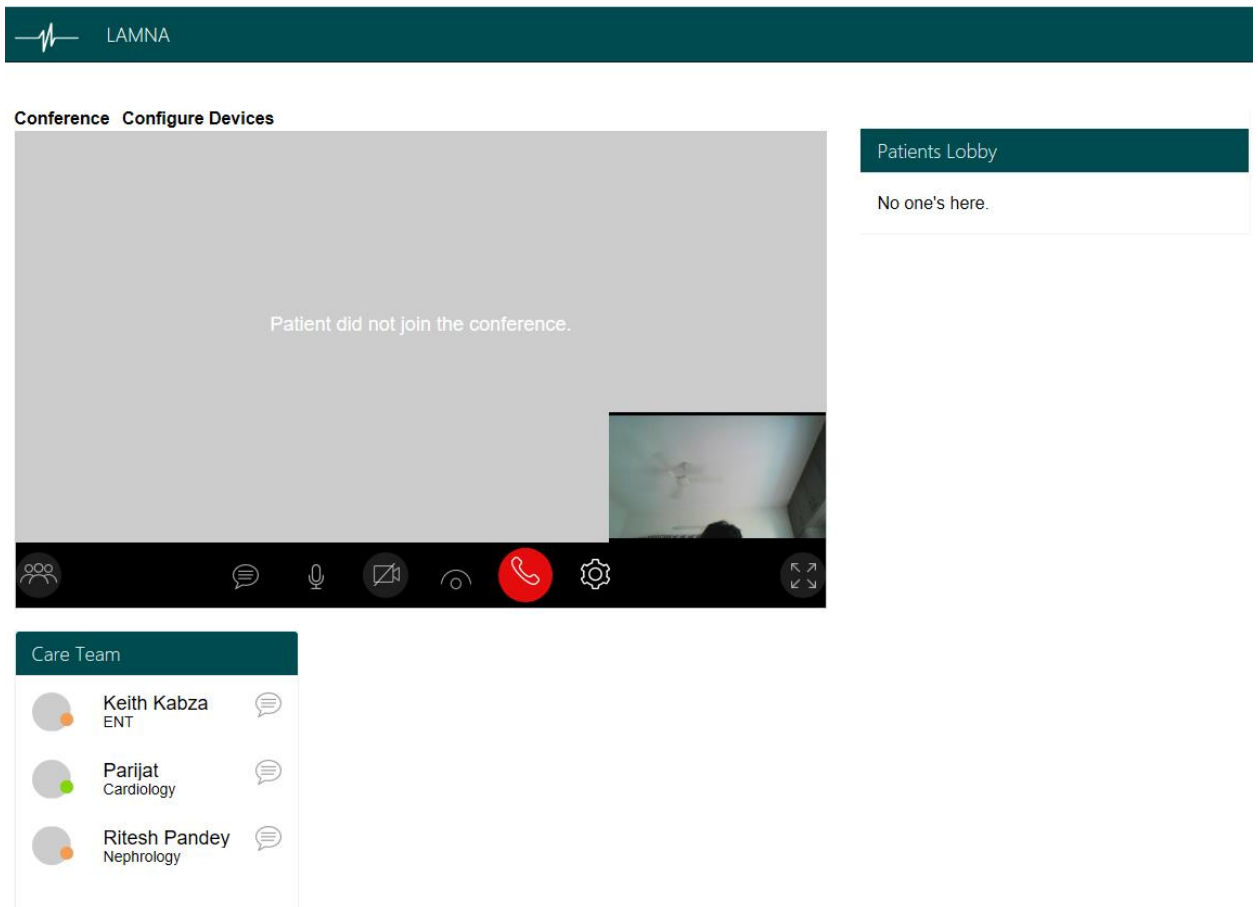
- Click on Book Meeting link on top navigation
- Fill in the details
- Click Submit
- Dashboard should show the meeting in a grid as shown below



Subject	Doctor Name	Patient Name	Start Date/Time	End Date/Time	Join as Doctor	Join as Patient
Appointment Details	Dr. Keith Kabza	Rhonda Losey	9/27/2173 12:00:00 AM	9/27/2173 1:00:00 AM	<a href="#">Join as Doctor..</a>	<a href="#">Join as Patient</a>
Appointment Details	Dr. Keith Kabza	Michael Clifford	9/27/2173 12:00:00 AM	9/27/2173 1:00:00 AM	<a href="#">Join as Doctor..</a>	<a href="#">Join as Patient</a>

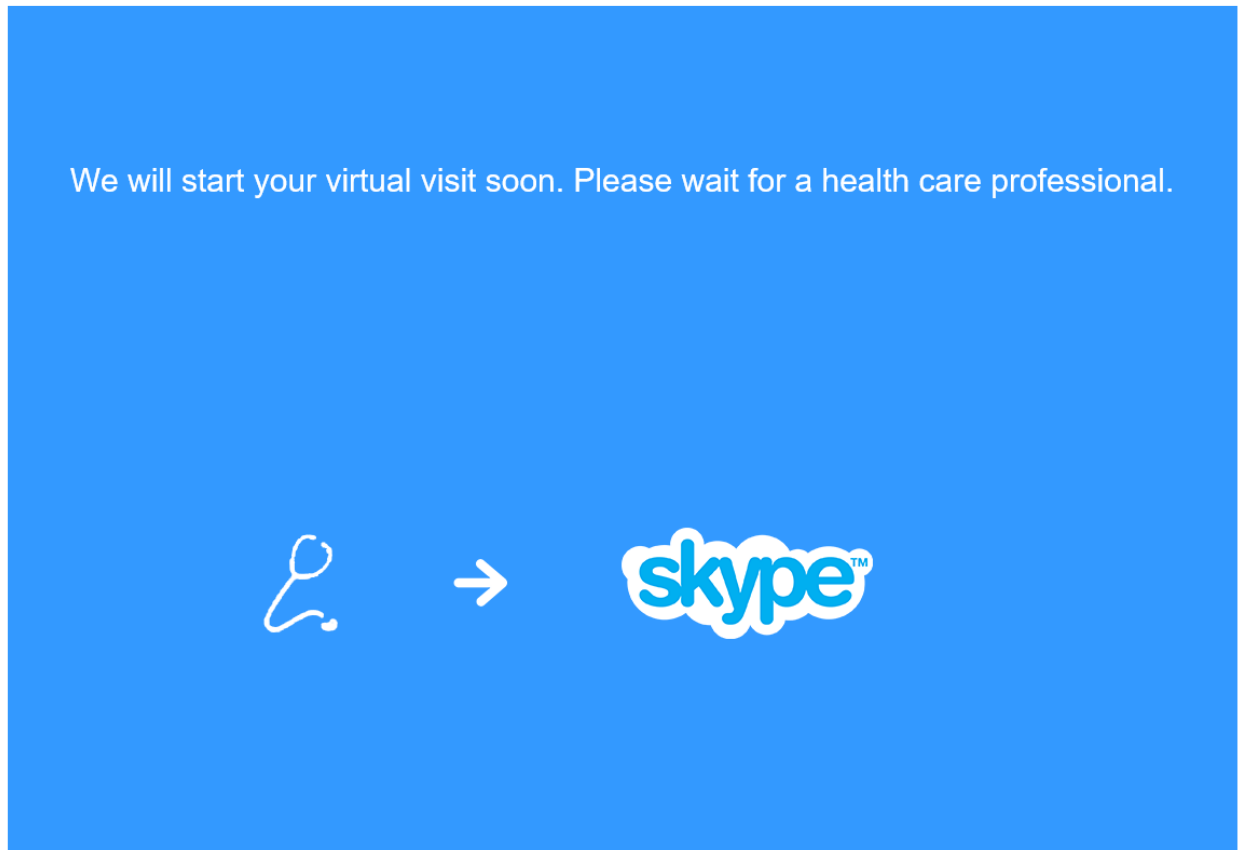
### Join a Conference as Doctor

- Home page, Click on the Join as Doctor Link
- It will open the page in a new tab
- Wait for the page to load
- It should look like below

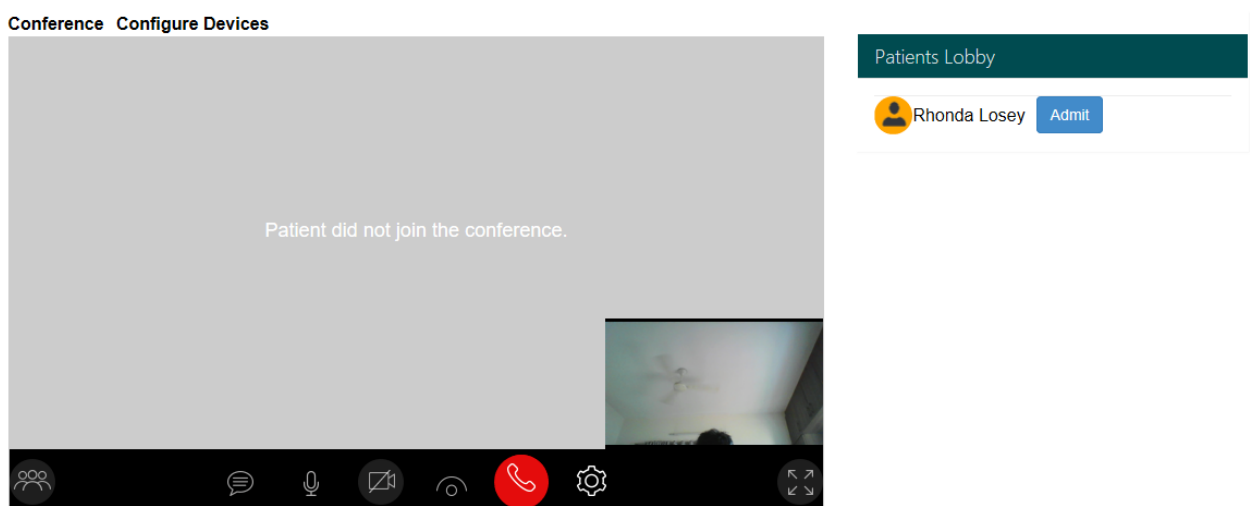


#### Join Conference as Patient

- Go to dashboard
- Join the copy the URL of the patient link from the meeting which Doctor has joined earlier
- Open a new browser window
- Paste the URL
- Wait for the page to load, the patient will wait in lobby

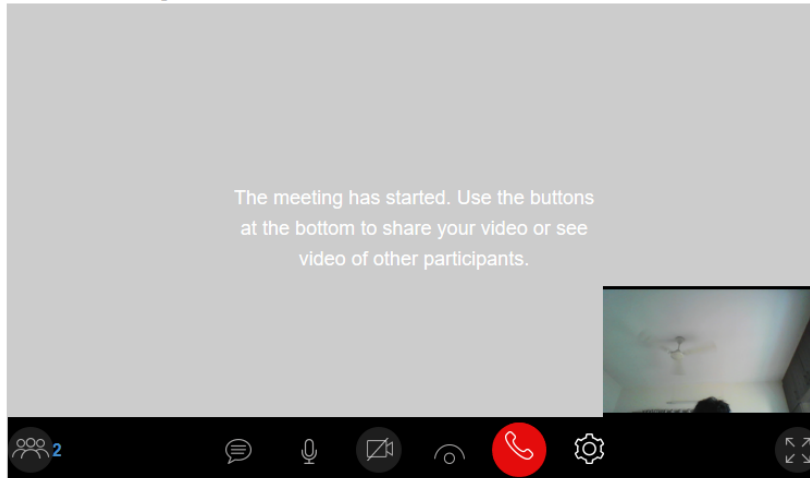


- Go to the doctor window
- Click on Admit



- Meeting starts and doctor window will look like below

Conference Configure Devices

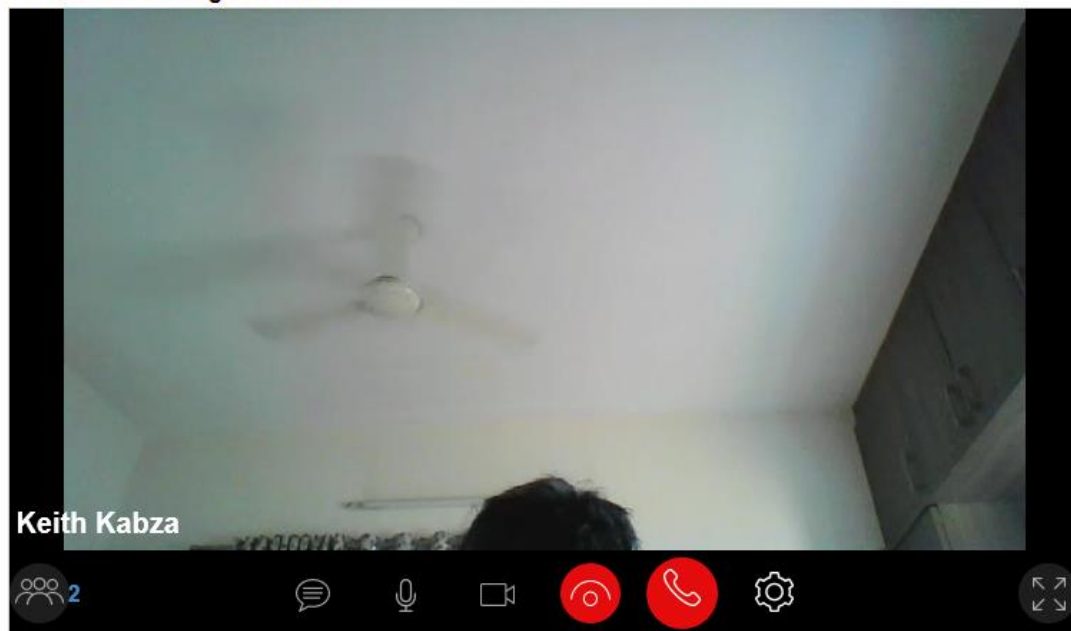


Patients Lobby

No one's here.

- Go to Patient Window, it will look like below

Conference Configure Devices



[Verify Configuration Page](#)

- Click on the Configuration link available in the navigation
- If the user is member of "**VirtualPatientCare Admin**", then page will load and user will see as below

## Configuration

Configuration	Value
Default browser type for meetings	Microsoft Edge <input type="button" value="v"/>
Open Meeting in In Private browser	<input type="button" value="Yes"/> <input type="button" value="No"/>
Allow Participants to wait in Lobby	<input type="button" value="Yes"/> <input type="button" value="No"/>
Allow bandwidth calculation during Meeting conference.	<input type="button" value="Yes"/> <input type="button" value="No"/>
Only meetings which are scheduled within 30 minuntes can be joined.	<input type="button" value="Yes"/> <input type="button" value="No"/>
Allow chat with peer doctors.	<input type="button" value="Yes"/> <input type="button" value="No"/>
Allow meeting creation using Trusted Api.	<input type="button" value="Yes"/> <input type="button" value="No"/>

## Reports

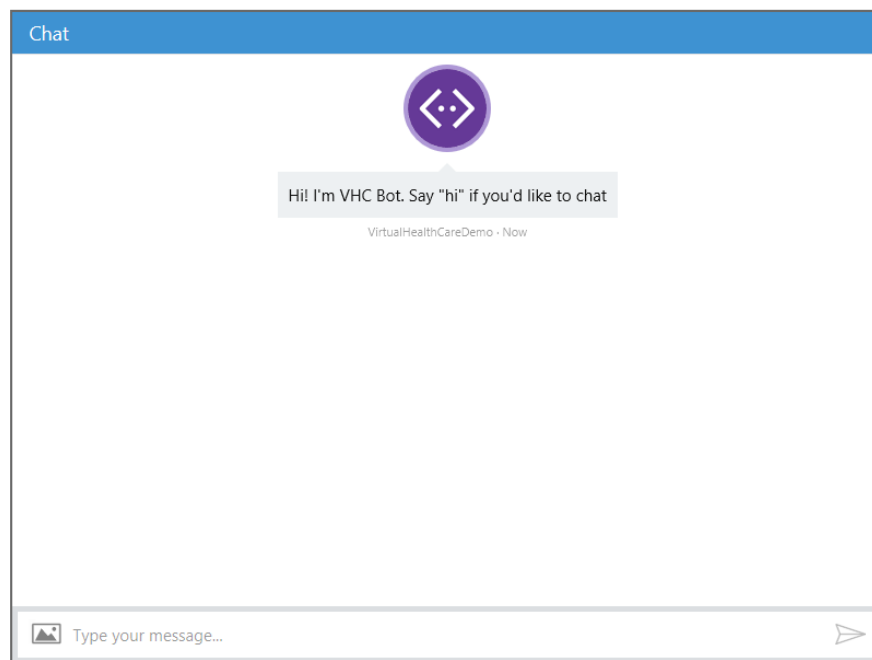
[Meeting Statistics](#)

- Otherwise, user will see an unauthorized message on the page.

### [Validate Book Meeting with Bot Page](#)

- Click on the "Book meeting with bot" link available in Global Navigation
- It will load the Bot page as shown below

## Bot Meeting assistant



**You may try typing below phrases like:**

"Book appointment for tomorrow",  
"Book appointment on 10/27/2016",  
"Cancel my appointment"