Infrastructure preparation BC Cloud on Local Server

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1 About BI4Dynamics BC Cloud installation

1.1 Infrastructure and application installations

BI4Dynamics for BC Cloud installation comes in two steps:

1.1.1 Infrastructure part: installation of On-Premises Server

Resources must be prepared ahead of BI4Dynamics application installation. Installation is focused on settings of On-Premise Server and settings resources in Azure Portal.

1.1.2 Application part: installation of BI4Dynamics application

BI4Dynamics application on On-Premise Server is very similar to installation on Azure VM installation. Please head over to <u>https://www.bi4dynamics.com</u> to find the BI4Dynamics Application installation instructions document.

1.2 Settings of On-Premises Server

This document will guide you through setting up On-Premises Server and resources needed to run BI4Dynamics for BC Cloud.

1.2.1 Prerequisites

Please use an Administrator user you have set up in line with the System Requirement document.

1.2.2 Deliverables

- ✓ On-Premise Server with SQL Server and SQL PolyBase component installed
- ✓ Blob Storage Account with Container to store data exported from BC Cloud

1.2.3 Expected installation time

First time user:

Installation step	Time (min)
Blob Storage and Container instance	20
Setting up Virtual Machine	20
Total time	40

Deployment time of Azure resources may vary 50% (no rule in respect of daytime or region).

2 Create Resources in Azure Portal

2.1 Create Blob Storage

Blob storage will keep BC and application data.

2.1.1 Create storage account

Go to Azure portal, go to Resource group, click Add

(initial sector of the sector	Ŷ	
	«	🕂 Add 🎫 Edit columns 💼 Delete resource group 🖒 Refresh 🞍 Export to CSV 😚 Open quer
(i) Overview	^	
Activity log		Subscription (change): Pay-As-You-Go
Access control (IAM)		Subscription ID : 0edf89a6-c40e-475e-99db-92b04d214475

Enter Storage Account into search window, click on Create



Add Storage account name, select the same Location as BC and change Replication to LRS.

Home > vm-bi4-demo > New > Storag	ge account >
Create storage account	
5	
Basics Networking Data protection	on Advanced Tags Review + create
Azure Storage is a Microsoft-managed sen redundant. Azure Storage includes Azure B Tables. The cost of your storage account de Learn more about Azure storage accounts	vice providing cloud storage that is highly available, secure, durable, scalable, and libbs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure pends on the usage and the options you choose below.
Project details	
Select the subscription to manage deploye your resources.	d resources and costs. Use resource groups like folders to organize and manage all
Subscription *	Pay-As-You-Go 🗸
Resource group *	vm-bi4-demo 🗸
	Create new
Instance details	
The default deployment model is Resource using the classic deployment model instead	Manager, which supports the latest Azure features. You may choose to deploy d. Choose classic deployment model
Storage account name * 🕢	vmbi4demostorage 🗸 🗸
Location *	(Europe) West Europe
Performance ()	● Standard ○ Premium
Account kind ①	StorageV2 (general purpose v2)
Replication ①	Locally-redundant storage (LRS)
Review + create	< Previous Next : Networking >

Keep other tab option default. Click **Review and Create.** (finish in 20- 30 seconds)

Go to Storage Account, select Access Key, select Show keys

Copy the content of the key

Home > vmbi4demostorage	
vmbi4demostorag Storage account	ge Access keys
	Use access keys to authenticate your applications when making requests to this Azure storage account. Store you
🗳 Tags	keys so that you can maintain connections using one key while regenerating the other.
Diagnose and solve problems	When you regenerate your access keys, you must update any Azure resources and applications that access this st
Access Control (IAM)	Storage account name
💕 Data transfer	vmbi4demostorage
🗲 Events	Hide keys
🗽 Storage Explorer (preview)	key1 🗘
Settings	Key
Access keys	41+eDbv9U/G/OSWd/8550P86v++VBdqlaPeTTHHvun1lGgN4HaRY9mwElFYMrTagHcn8l7blQ==
Access Reys	Connection string
🍨 Geo-replication	DefaultEndpointsProtocol=https;AccountName=vmbi4demostorage;AccountKey=4T+eDbv9U7G7OSWd785S0P

Save Storage Key to notepad file.

2.1.2 Create (storage) container

Go to Storage Account Overview and select Containers



Click on + Container and enter new container Name

Home > vmbi4demostorage	e∣Containers ≉			New container	×
Storage account Search (Ctrl+/) Overview	Container A Change ac Search containers by prefix	ccess level 🤌 Restore containers 🤊	~ C	Name * vmbi4democontainer public access level	~
 Activity log Tags 	Name	Last modified	Pub	Private (no anonymous access)	\checkmark
Diagnose and solve problems	You don't have any containers	yet. Click '+ Container' to get started.		 Auvanceu 	

Click Create.

You have successfully created Storage Account with one container.

2.1.3 Container name used as Storage Container and Docker Container – confusing?

To someone new, a name Container may be confusing as it is used in two Azure Services:

- Under Storage Account we have created storage Containers to store data in Azure Data Lake
- Under Container Instance, a Docker Container is self-contained Azure resource that acts like light virtual machine for specific task

Both services are used in BI4Dynamics BC Cloud solution.

2.2 Create Docker container instance

With these settings we will create a docker container (a light virtual machine) based on BI4Dynamics image that is used for running table export from BC to Blob storage. Docker will run at scheduled time and automatically shut down after finishing the export.

Go to Azure service, click Container instance

+ 📮 🗗 🗟 🚱 🚍	Decourse Subscriptions Ature Active	\rightarrow
resource machines Services instance accounts	groups Directory	 Invite set intes
ck + New to create a new container instance		
me >		
New Wei Manage view ○ Refresh ★ Export to CSV ⊙ Open query ⊘ Assign tags > Feedbac Iter for any field Subscription == 2 of 3 selected Resource group == all × Location == all × Location == all ×	type Add filter	
elect:		
Subscription: Pay-As-You-Go	Home > Container instances >	
Resource group: vm-bi4-demo	Create container in	istance
Container name (any name): ym-bi/-		
demo-container	Basics Networking Advar	nced Tags Review + create
Region (same as BC)	Azure Container Instances (ACI) all to learn new tools. ACI offers per- Learn more about Azure Contain	lows you to quickly and easily run containers on Azure without managing servers or having second billing to minimize the cost of running containers on the cloud. er Instances
	Project details	
portant: following settings	Select the subscription to manage your resources.	deployed resources and costs. Use resource groups like folders to organize and manage all
UST be exactly like below:	Subscription *	
Image source:		
Docker Hub or other registry	Resource group * ()	Create new
Image type: Public	Container details	
Image:	Container name * 🔅	vm-bi4-demo-container
bi4dynamicsdevelopment/bc2lake	Region * 🛈	(Europe) West-Europe
OS Type:	Image source * ①	O Quickstart images
Windows		Azure Container Registry
Size change to		
1vcpu, 8GiB memory (minimum)	Image type * 🛈	(Public Private
Confirm change OK	Image * 🗊	bi4dypamicsdevelopment/bc2lake
	OS type *	Linux Windows
ick Next: Networking	os ype	This selection must match the OS of the image chosen above.
ick Next: Advanced	Size * (i)	1 vcpu, 8 GiB memory, 0 gpus
		Change size
	Review + create	< Previous Next : Networking >

Under Advanced tab set the following

- Restart policy: Never
- Environment variables keys must be exact:
 - StorageAccountName enter the name of storage account that is used for Blob Storage
 - **BlobAccessKey** of the same storage account
 - **ContainerName** of the storage account

Home > Container instances >			
Create container insta	nce		
Basics Networking Advanced	Tags Review + create		
Configure additional container propertie	s and variables.		
Restart policy ①	Never		\sim
Environment variables			
Mark as secure	Кеу	Value	
No	StorageAccountName	vmbi4demostorageaccount	Î
No	BlobAccessKey	ae65dSsiaxFYyFVp8F04Gr1dCLgc	Î
No	ContainerName	vmbi4democontainer	Î
No V			
Command override ①	[] [vampla	. ["/bin/bach" " e" "acha balla claan '	100000" 1
	Example:	. [/bin/bash , -c , echo hello; sleep	100000]

These Keys and Values give Docker instance access to Blob Storage.

Click Review and Create

Click Create

•	idation passed					
lasics	Networking	Advanced	Tags	Review + create		
Basics						
Subscrip	tion		Pay-As	-You-Go		
Resource	: group		vm-bi-	I-demo		
region			West #	urope		
Containe	r name		vm-bie	-demo-container		
mage ty	pe		Public			
mage			bi4dyr	iamics/bc2lake		
OS type			Windo	HS		
Memory	(ଜାନ)		8			
Number	of CPU cores		1			
SPU typ	e (Proview)		None			
3PU COU	nt		U			
Networ	king					
Network	ing type		Public			
Ports			80 (TC	P)		
Advano	ed					
Rostart p	olicy		Nover			
Environn	rent variables		3			
Comman	id override		0			
Tags						
(none)						

You have successfully created Docker instance

3 Setup up On-Premises Server

Now we continue with server settings and adding Azure resources.

3.1 Install Azure CLI

3.1.1 About CLI

The **Azure command-line interface** (**Azure CLI**) is a set of commands used to create and manage **Azure** resources. The **Azure CLI** is available across **Azure** services and is designed to get you working quickly with **Azure**, with an emphasis on automation.

3.1.2 Install CLI

Go to <u>https://docs.microsoft.com/en-us/cli/azure/install-azure-cli-windows?view=azure-cli-latest&tabs=azure-cli</u> and install Azure CLI.

Install or update
The MSI distributable is used for installing or updating the Azure CLI on Windows. You don't need to uninstall current versions before using the MSI installer because the MSI will update any existing version.
Microsoft Installer (MSI) Microsoft Installer (MSI) with Command
When the installer asks if it can make changes to your computer, click the "Yes" box.
Azure CLI current version
Download and install the current release of the Azure CLI.
Current release of the Azure CLI

3.2 Setup Hosts file

3.2.1 Download auxiliary installation files

Here is the link to auxiliary installation files: <u>https://www.bi4dynamics.com/dl/azure/VM.zip</u>. There are 2 files:

- 1. Enable PolyBase script: SQL script that will enable PolyBase feature.
- 2. **Loopback script**: this script will enable access to SQL server on VM from resource outside of VM. We will be using Docker to interface with SQL server.

📄 enable_polybase	12/1/2020 12:40 PM	Microsoft SQL Ser	1 KB
😰 loopback	11/30/2020 11:34	Registration Entries	1 KB

3.3 Setup SQL Server Analysis Services

SQL Server Analysis Services is by default running as service user. We need to change it to administrator user that we created.

Go to SQL Server 2019 Configuration Manager and go to SQL Server Services menu:



Change Log-on Account for SQL Server Analysis Services to VM admin account: Set st

QL Serv	er Analys	is Services (MSSQLSE	RVER) Pro	perties	?	×
Log On	Service	Advanced					
Log on	as:						
C Bui	t-in accou	nt:					
					Ŧ		
 Thi 	s account:						
Acc	ount Name	• <mark> </mark>	\vm-admin	-user		Browse	
Pas	sword:	F	*******	******	-		
Cor	firm passv	vord:		*******			
Service	status:		R	unning			
S	art	Stop		Pause		Restart	
		ОК	Cano	el	Apply	H	elp

And **Start** the service.

Set start mode to Automatic:

.og	On	Service	Advanced	
	Ger	neral		
	Binary Path			"C:\Program Files\Microsoft SQL Se
	Error Control			1
	Exit Code			1077
	Host Name			vm-bi4-demo
	Nar	ne		SQL Server Analysis Services (MSSQ
	Pro	cess ID		0
	SQL	Service	fype	Analysis Server
	Sta	rt Mode		Automatic 👻
1	State			
	510	le		Stopped
St	art N	Mode art mode	of this service	Stopped

3.4 Install PolyBase

3.4.1 Install PolyBase SQL feature

Every server with SQL server has folder containing SQL installation files C:\SQLServerFull\

← → ✓ ↑ 🏪 → This PC → Windows (C:) →					
		Name	Date modified	Туре	
📌 Quick access		Packages	11/11/2020 6:12 AM	File folder	
🛄 Desktop	*	PerfLogs	10/13/2020 9:40 PM	File folder	
🕂 Downloads	*	Program Files	1/6/2021 2:26 PM	File folder	
🗎 Documents	1	Program Files (x86)	1/6/2021 4:13 PM	File folder	
Pictures	*	SQLIaaSExtension	1/6/2021 2:27 PM	File folder	
This PC		SQLServerFull	11/11/2020 6:22 AM	File folder	
2D Objects		Users	1/6/2021 3:33 PM	File folder	
J SD Objects		Windows	1/6/2021 3:39 PM	File folder	
Desktop		WindowsAzure	1/6/2021 2:24 PM	File folder	
Documents					

Run C:\SQLServerFull\setup.exe

Select Installation and New SQL Server stand-alone installation or add features to existing installation.



Select Add features to an existing instance



Select PolyBase Query Service and Java connector





Keep the option Install open JRE selected.



Follow the next steps to finish the installation and **Install** newly selected features. It will take 4 minutes. When installation is completed, close configuration windows and **Restart** the server from Taskbar:

on completed successfully with product updates				
Your SQL Server 2019 installation completed successfully with product updates.				
Information about the Setup operation or possible ne	xt steps:			
Sava connector for HDFS data sources	Succeeded			
	Information about the Setup operation or possible ne Feature Java connector for HDFS data sources PolyBase Query Service for External Data			

Discor	nnect			
Shut down				
Restar	t			
Φ				
	م	₽i	e	

3.4.2 Enable PolyBase

Open SSMS (SQL Server Management Studio), **connect** to SQL server instance, select **master** database in System Databases and create **New query**:



Open enable_polybase.sql file provided with by BI4Dynamics in master database connection



and Execute query on master database.



Restart the server.

You have successfully installed and enabled PolyBase.

3.5 Install Azure modules

In this step we will add Azure modules that are needed for Azure authentication and registration. These are official Microsoft modules available on the internet. Process requires installation of NuGet provider, that will manage the packages. Download and installation is done by PowerShell.

By typing windows search **power** open **PowerShell**, a desktop application:



Run command (copy exact text): Install-Module –Name Az –AllowClobber This message will display. Confirm "Y"

Process will need few minutes to complete...



Administrator: Windows PowerShell – 🗆 X lows PowerShell right (C) Microsoft Corporation. All rights reserved. S C:\Users\vm-admin-user> Install-Module -Name Az -AllowClobber Set provider is required to continue werSkellGet requires NuGet provider version '2.8.5.201' or newer to interact with NuGet-based repositories. The NuGet rovider must be available in 'C:\Program Files\PackageManagement\ProviderAssemblies' or 'Vosrs\vm_admin-userNapDats\Local\PackageManagement\ProviderAssemblies'. You can also install the NuGet provider unning 'Install-PackageProvider -Name NuGet -MinimumVersion 2.8.5.201 -Force'. Do you want PowerShellGet to install d import the NuGet provider row?] Yes [N] No [S] Suspend [?] Help (default is "Y"): Y ntrusted repository ou are installing the modules from an untrusted repository. If you trust this repository, change its nstallationPolicy value by running the Set-PSRepository cmdlet. Are you sure you want to install the modules from

/SGallery'? /] Yes [A] Yes to All [N] No [L] No to All [S] Suspend [?] Help (default is "N"): _

During 2-minute installation, this window will be displayed:

lindows PowerShell opyright (C) Microsoft Corporation. All rights reserved. Installing package 'Az' Installing dependent package 'Az.ApplicationInsights' ooooooooo alling package 'Az.ApplicationInsights'

Run command (copy exact text): Install-Module "AzureAD"

Confirm "Y" to install the package and close PowerShell.

You have successfully configured On-Premise server with required resources.

4 Result

4.1 Information needed for BI4Dynamics application installation

The fields created in this installation will be needed in BI4Dynamics **application** installation.

4.1.1 Information about Azure Storage and Container instance

Description	Value
Subscription	Pay-As-You-Go
Resource Group	vm-bi4-demo
Azure Storage Account Name	vmbi4demostorage
Container Name	vmbi4democontainer
Storage Account Blob Key	4T+eDbv9U7G7Wd785S0P86V++VBdqIaPeTTHHvun1lGgN4I==
Container Instance Name	vm-bi4-demo-container

Next step – BI4Dynamics applications installation