Tableau Server on Microsoft Azure:

Deployment Guidelines and Best Practices

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Abstract

Tableau and Microsoft Azure provide a comprehensive business intelligence solution that can be implemented quickly, secured easily, and used by everyone. Tableau enables you to analyze and share nearly any data, including data in Microsoft SQL Server, Azure SQL DB, Azure Data Warehouse and Azure HDInsight. This whitepaper outlines how you can configure Tableau Server for hosting on Azure to help your organization see, understand, and share data to fully realize your investments in Azure and the Microsoft Data Platform. This paper will provide guidance for deploying your Tableau Server in Azure – either by self deploying or through a preconfigured deployment on Azure Marketplace.

Introduction to Tableau with Microsoft Azure

Regardless of size or industry, your organization is creating data with every transaction. Whether you already have extensive, cloud-based data workflows, or you are planning to implement them in the future, your organization needs a way to visualize and share data insights with anyone, anytime.

Tableau Server provides an interactive business intelligence platform that allows your team to access and share data insights from anywhere – even on-the-go from tablets or phones. Dashboards published to Tableau Server enable your business to get answers in minutes not months, while securing data and analytics to ensure only the right people have access to the right content.

Microsoft Azure provides a flexible, cost-effective, and high-performance cloud computing platform to deploy, scale and manage your Tableau Server implementation. With Azure Virtual Machines, you can spin up instances as you need, when you need them. There are no upfront investments, hardware procurement, or physical deployment required.

Option 1 – Self Deployment via Azure Virtual Machines

Prerequisites

To work with Tableau Server on Microsoft Azure, you will need:

· An Azure subscription.

· A Tableau Server license.

· Microsoft Remote Desktop installed on your computer. You use Remote Desktop to sign in to the VM that is hosting Tableau Server. Remote Desktop is pre-installed on Windows-based operating systems. If you use a Mac, you can install Remote Desktop as a client from the Microsoft Download Center.

· Tableau Server installer. You can download the installer from the Tableau Server Trial Download page.

Select an Azure image and size

Microsoft Azure offers many types of VM images in various sizes. It's important to select an image that lets you run Tableau Server. The following images are suitable for running Tableau Server:

Windows Server 2016 Datacenter

Windows Server 2012 R2 Datacenter

Windows Server Essentials Experience

Windows Server 2012 Datacenter

Windows Server 2008 R2 SP1

If you do not have a preference for a specific image, select Windows Server 2016 Datacenter.

The image must also meet Tableau Server's hardware guidelines. However, you must balance the hardware capabilities of the image that you select against the cost—the more capable a VM is, the more it costs per unit (minute). We advise that you choose an instance that supports Azure premium storage.

> **Suggestion:** Typically, the **DS13_V2** is a good choice. For testing and proof-of-concept purposes, you may find a virtual machine with only four cores acceptable (such as the **DS12_V2**). Feel free to reach out to Tableau for guidance sizing.

Step 1: Set up an Azure instance

To begin, create a VM instance to host Tableau Server.

1. In a browser, go to the Windows Azure portal: https://portal.azure.com/

2. Sign in using the user name and password for your Azure account. You will be taken to the Microsoft Azure dashboard.

3. At the top of the page, click the **New** button.
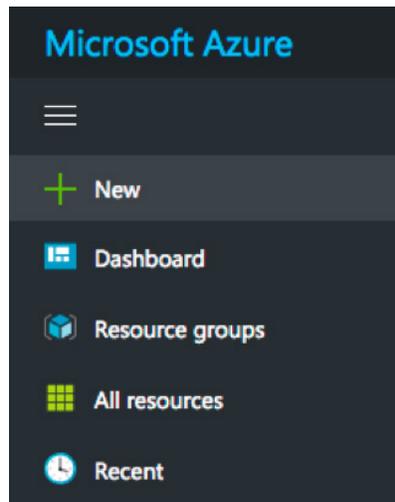
Select **Compute** > **Windows Server 2016 Datacenter** (or other supported Operating System).
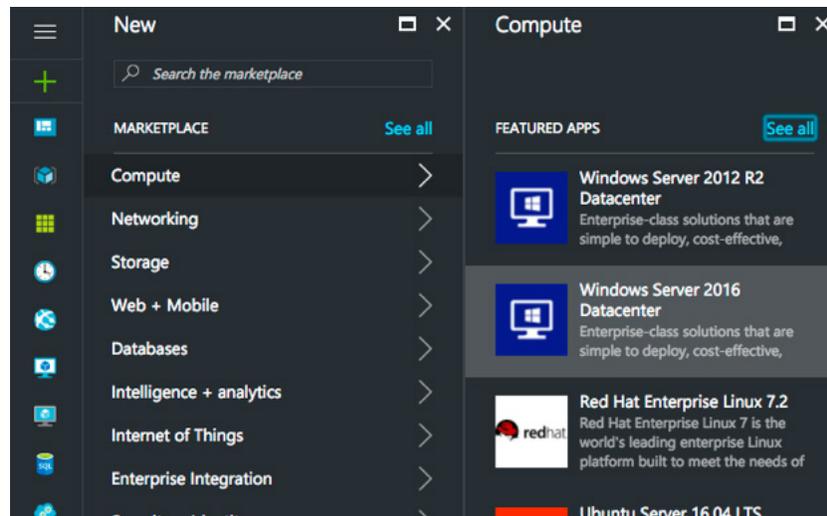
4. The Windows Server 2016 Details blade will appear. Review the information, then click **Create** at the bottom of the page. Do not change the **deployment model** drop down – it should remain **Resource Manager**.

5. The **Create virtual machine – Basics** blade will appear. Specify the following information:

A **Name** for the instance. This must be 15 or fewer characters

The **VM disk type**: choose **SSD**

A **User name** and **Password**. You will use these credentials to login to the machine via RDP

The Azure Subscription this VM should be associated with

The name of a new **Resource group** to host the VM's resources

The **Location** of the new resource group

6. At the bottom of the blade, click **OK**.
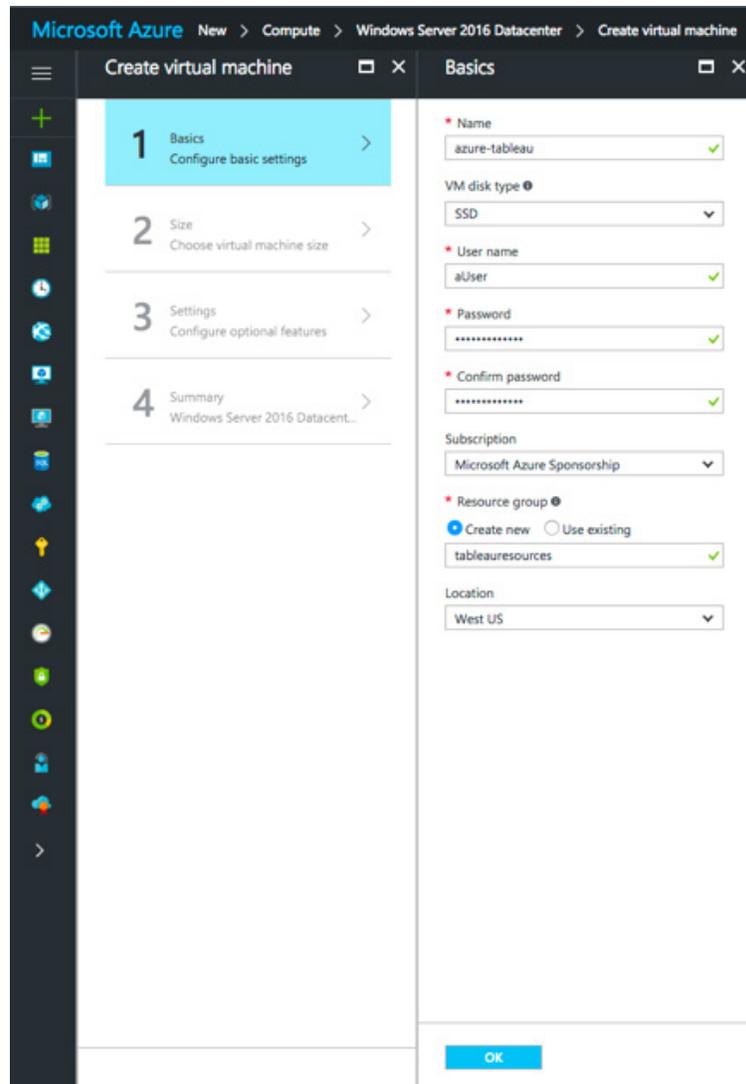
7. In the **Choose a size** blade, click **View all** in order to see all available virtual machine sizes.

View all

8. Choose the **DS13_V2** size and then click the **Select** button.

9. In the **Settings** blade, click **Network security group (firewall)**. Next, click **Add an inbound rule** in order to allow specific types of internet traffic to reach your virtual machine.

In this example we are adding rules to allow inbound HTTP & HTTPS traffic.
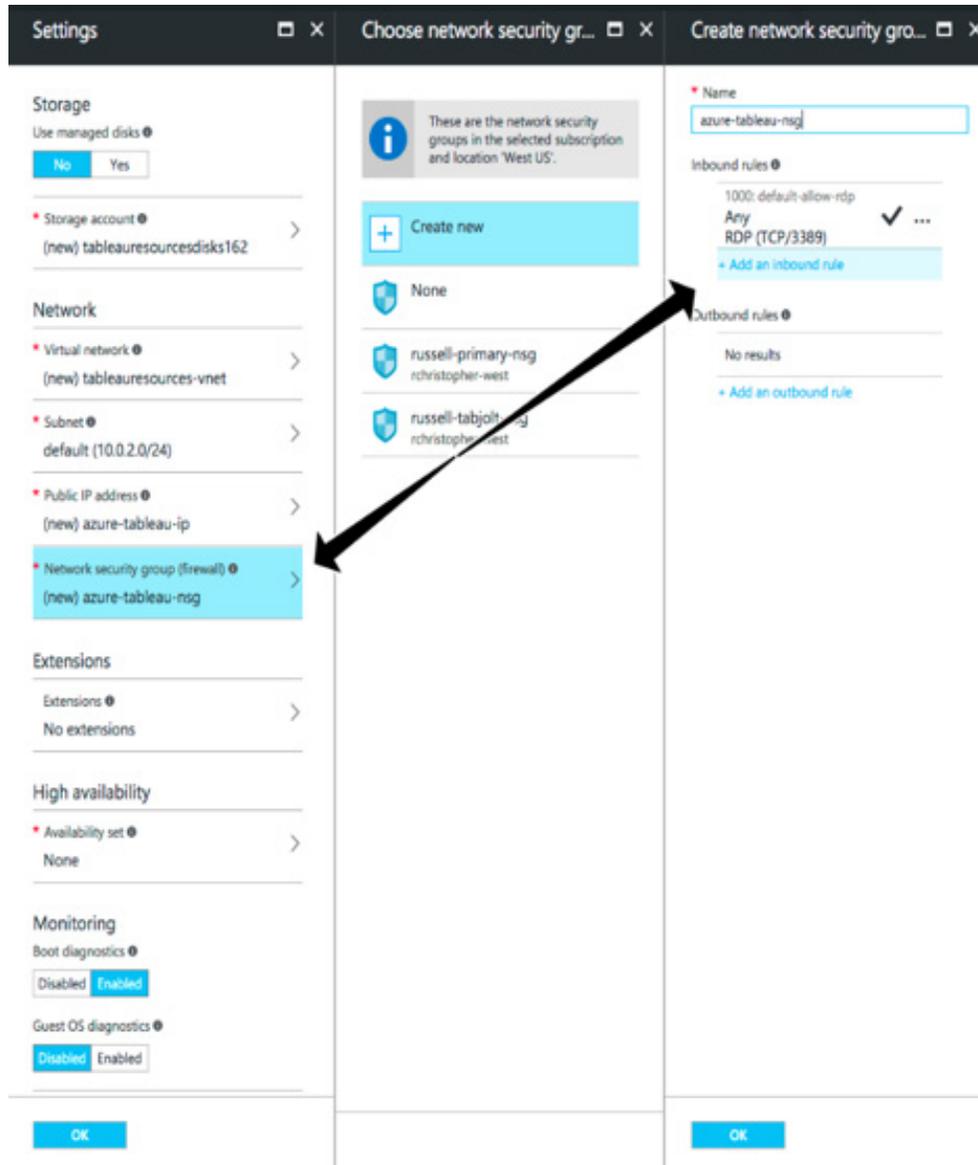
10. **Name** the inbound rule what you wish, for example **port-80**.

11. Give the rule a **Priority**, like 100.

12. In the **Service** drop-down box, choose **HTTP** and click **OK**.

13. Repeat steps 9–12 to create a second rule for the **HTTPS** service with a **Priority** of 101.

14. When complete, the **Create network security group** dialog should include 3 rules to allow RDP, HTTP, and HTTPS access. Click **OK**.

15. On the **Summary** blade, review your settings and click **OK**.
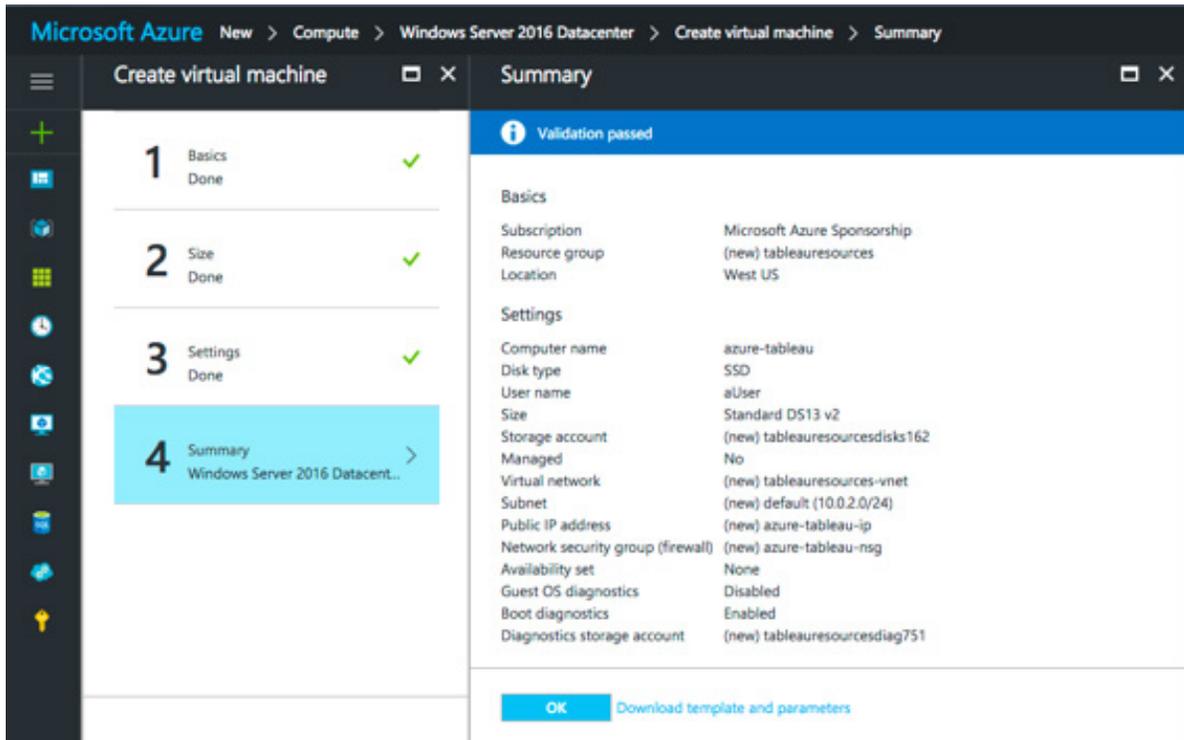
16. Azure will begin to deploy your image. The process will take several minutes. Once the process is complete and the machine is running, click the your VM's tile on the Azure Dashboard.
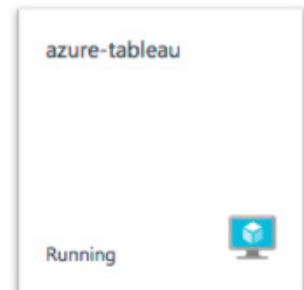
17. After the page appears, find the **Disks** item under **Settings** list on the left. and click it.
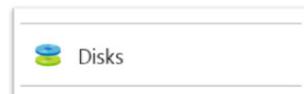
18. Note that only a single OS disk has been provisioned. It is a best practice to install Tableau on its own disk. Click **Add Data Disk** to do so.

19. In the **Attached Unmanaged Disk** blade, change **Size (GiB)** to either 128, 512 or 1024. Even though the field provides for any number, Azure will round up the provisioned storage to one of those values as per current 3 options for Premium Storage disk size (documented here). We recommend you select at least **512 GiB**, which will provide a minimally acceptable amount of IOPS and Throughput.

10. Next, click the **Browse** button for **Storage Container**.

19. A list of pre-existing storage account(s) will be listed. Choose the one you wish to store your data in.
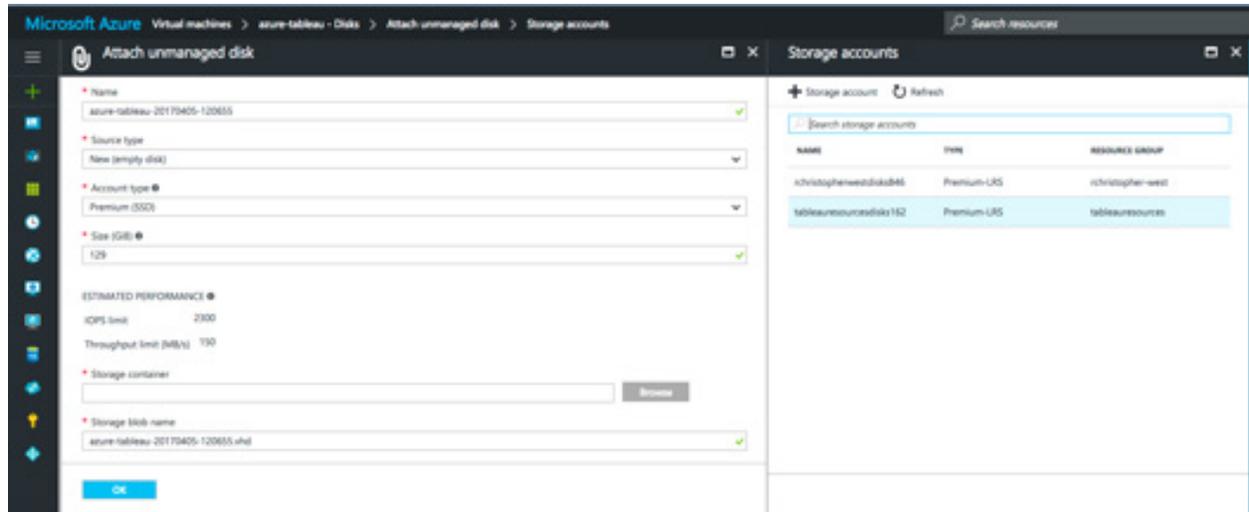
In the **Containers** list, choose **vhds**, then click **Select**.
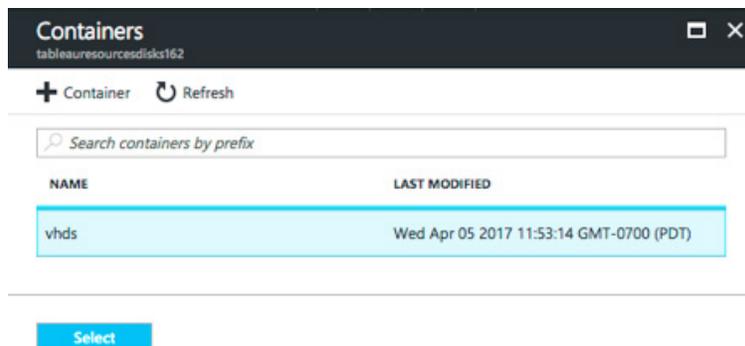
20. Select **Host Caching** value **None** for the disk.
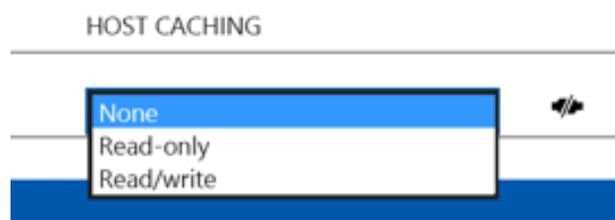
21. Click **OK** in the **Attached Unmanaged Disk** blade. To complete the process of adding a disk to your VM, click **Save** on the **Disks** blade.
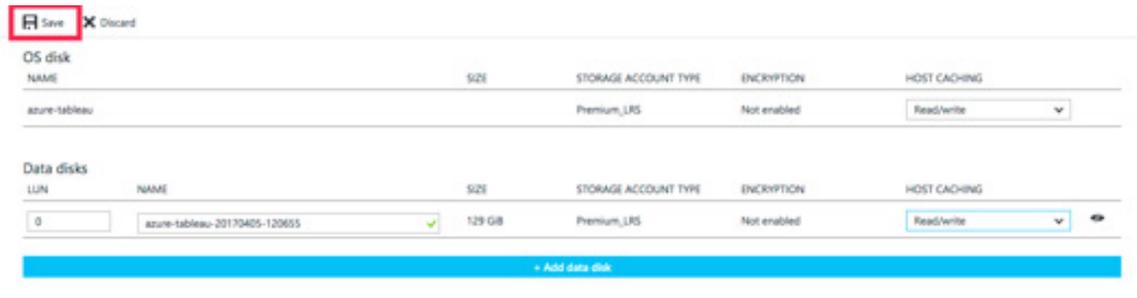
Wait for a few minutes until the Virtual Machine disks are successfully updated. You can watch the Notifications list in the upper-right-hand corner of the Portal if you wish.

22. In the left-hand blade, click the **Overview** item to return to the **Overview** page.

Step 2: Connect to the instance

Use Remote Desktop to connect to the instance and sign in to Windows Server.

1. Click **Connect** in order to download and use the RDP file for your Virtual Machine. Azure will download an .rdp file that contains connection information for the instance.

2. Select **Save File**. If you save the .rdp file, you can just double-click it anytime you want to connect to the instance.
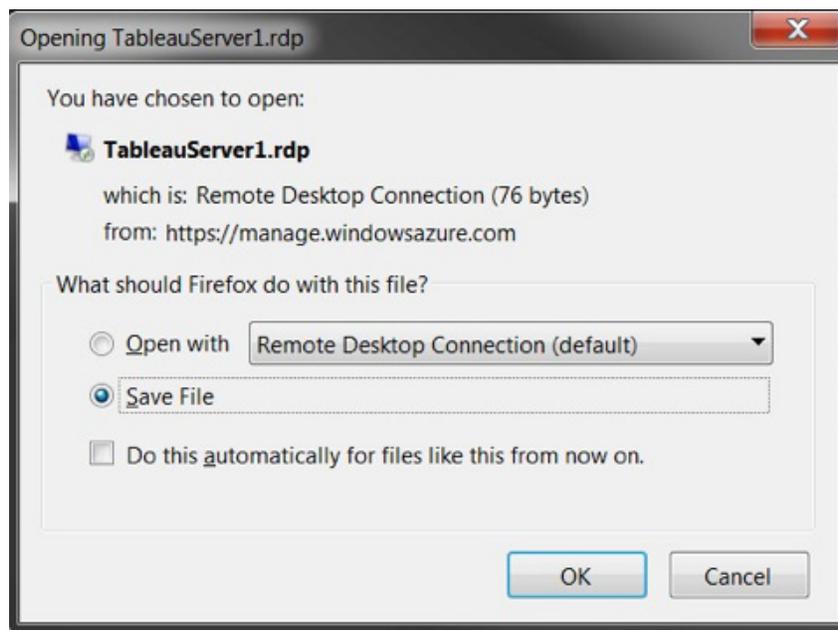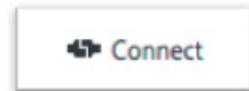
3. In the location on your computer where the browser downloads files, find the .rdp file, and then double-click it.

4. If you see a warning that the publisher of the remote connection can't be identified, click **Connect**.

5. In the Windows Security dialog box, enter the name and password that you specified when you created the instance earlier, and then click **OK**.

> **Note:** If you are already signed in to a Windows domain, the dialog box might offer you options to connect as your domain user. If so, you should enter the credentials under **Other User**. Under the password field, select your local computer as the domain.

You are signed in to the instance as an administrator. By default, Windows opens the **Server Manager** dashboard. You may close this window.
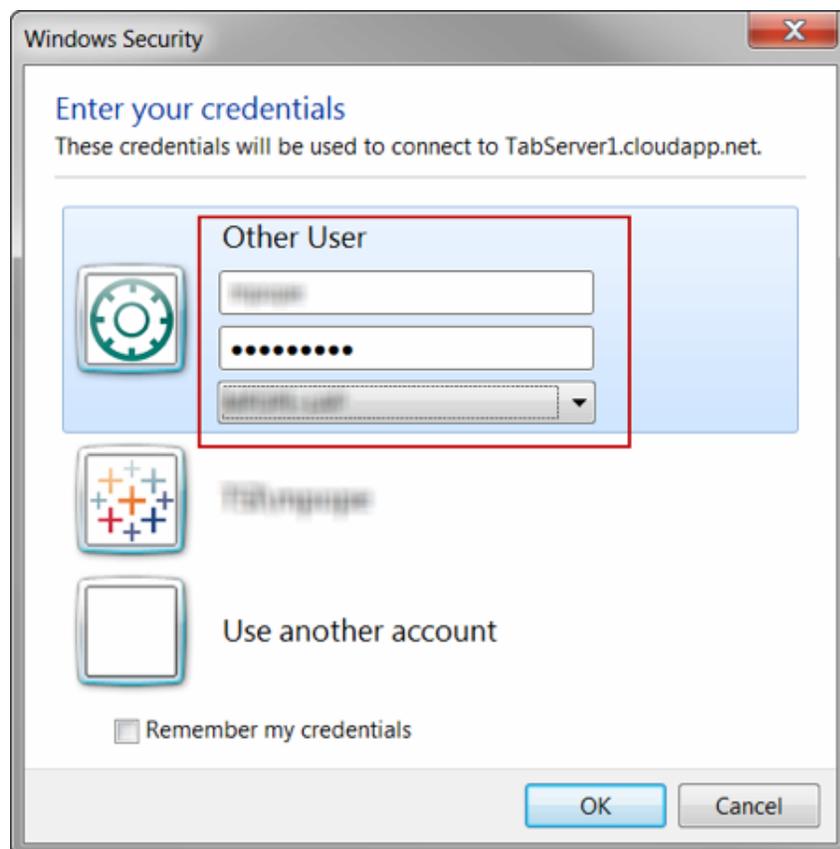
Step 3: Add New Data Disk to Windows

Windows Server won't automatically recognize the data disk you previously added. You will configure Windows to use this volume.

1. Server Manager automatically launches when you log into your instance. Close it.

2. In Windows, **right-click** the **Start** button and choose **Run**.
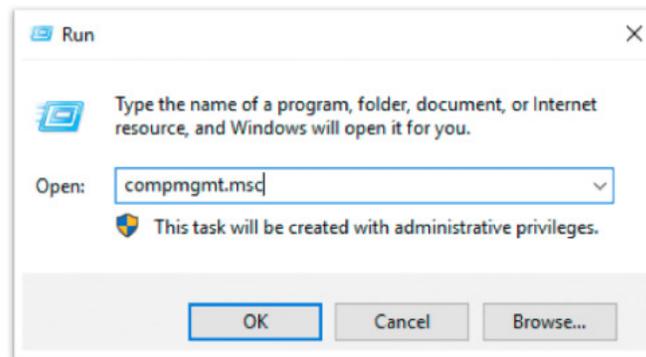
Type **compmgmt.msc** and hit **ENTER**. The Computer Management application will open. In right-hand treeview, choose **Disk Management**.
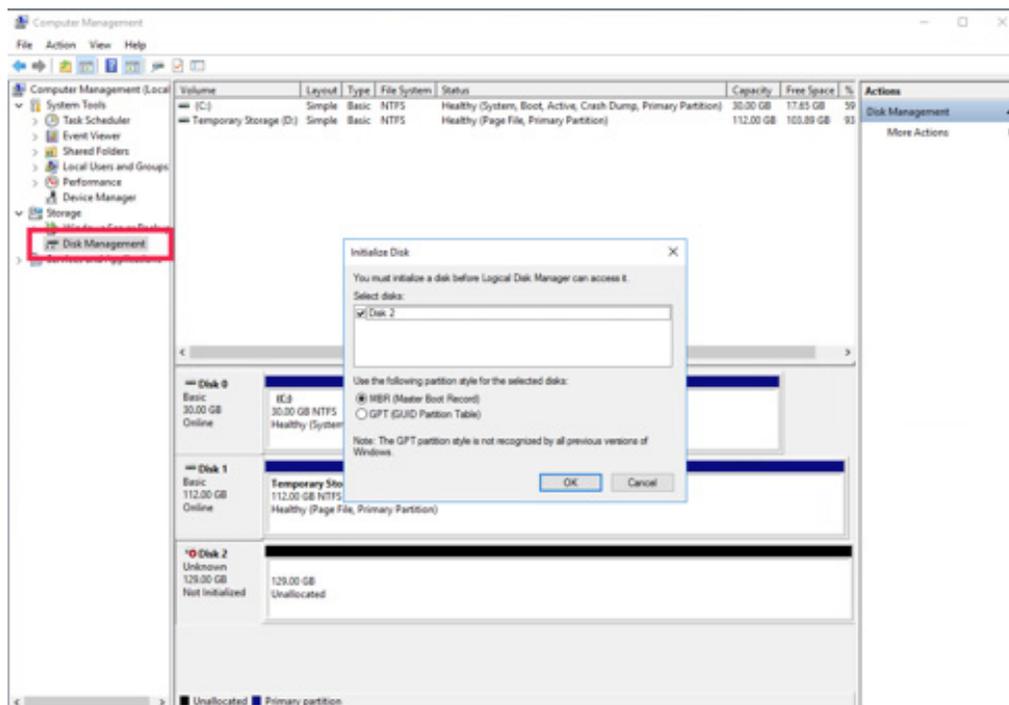
An **Initialize Disk** dialog will immediately appear. Click **OK**.

3. Right-click **Disk 2** and choose **New Simple Volume**
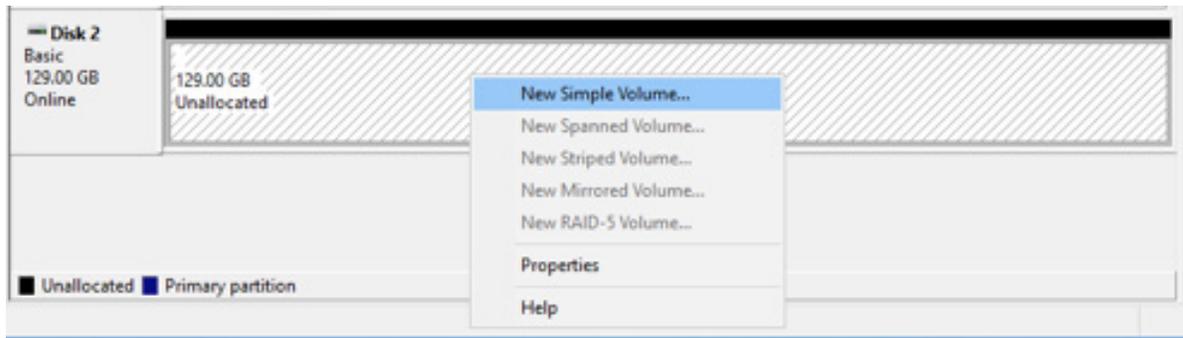
4. When the **New Simple Disk Wizard** appears, click **Next** four times, accepting all default values. On the final screen, click **Finish**.

5. You will be prompted to format the disk. Click **Format Disk**. Note that the drive letter you see may match the screenshots below.
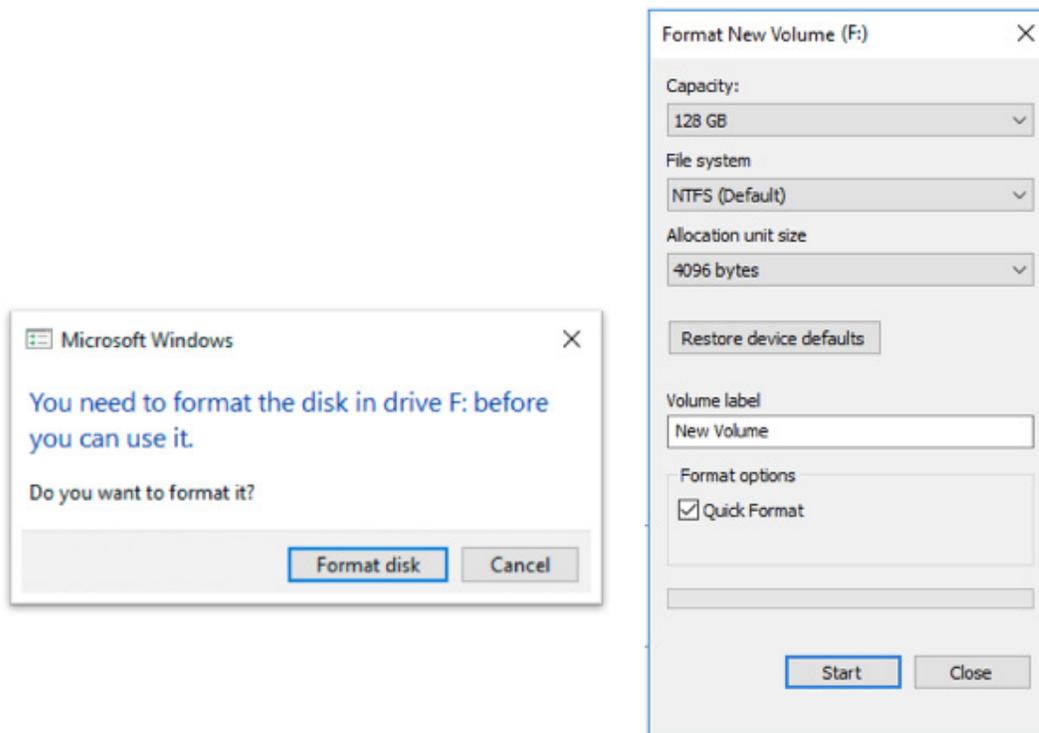
6. Finally, click **Start** in the **Format New Volume** window and click OK in the Warning dialog. When formatting completes, you may Close the Format New Volume dialog.

Make sure to note the drive letter of the new hard disk (Disk 2) you just added in Computer Management before you close it, too.

Step 4: Install Tableau Server on the instance

Installing Tableau Server on the Azure instance is similar to installing it on any other server. However, note the following:

· You can select local authentication or Active Directory authentication. However, if you select Active Directory authentication, Active Directory must be set up on Azure. For more information, see Install a replica Active Directory domain controller in an Azure virtual network in the Azure documentation.

· The Run As User must be a local user on the server instance.

· Put a copy of the Tableau Server installation program on the instance by doing one of the following:

> · **Download the installer directly** at http://www.tableau.com/products/server/download

> > **Note:** The default enhanced security configuration on Windows Server dictates that Internet Explorer is always set to High for the Internet zone and cannot be changed for that zone. Therefore, as you browse to public sites using Internet Explorer, you must add those sites to the list of trusted sites or use Server Manager to turn Enhanced Security off. See Internet Explorer: Enhanced Security Configuration for more information.

> · **Download the 64-bit version of Tableau Server.** Note that the file is large (1 GiB+) and takes some time to download.

> · **Copy the installer to the instance.** If you already have a copy of the Tableau Server installer on your computer, copy it to the instance. Create a folder on the instance where you want to put the installer. Switch to your computer, copy the Tableau Server installer (for example, TableauServer-64bit-10-3-1.exe), switch back to the instance, and then paste the file into the new folder.

· Double-click the installer on the instance to start the server installation process. The installation process works the same as it does on any other server. For more information, see the installation guide in the Tableau documentation.

Step 5: Access the instance from a browser

Make sure that users can access the server.

1. In the Azure Portal, navigate to the **Overview** page of your virtual machine. Note the Public ip address associated with the VM
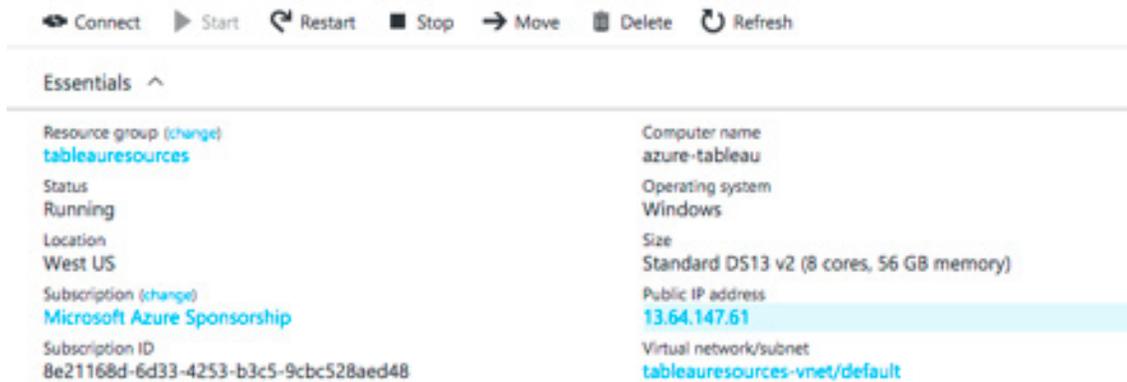
If you wish, click on the Public IP address and give your machine a public hostname, as well:
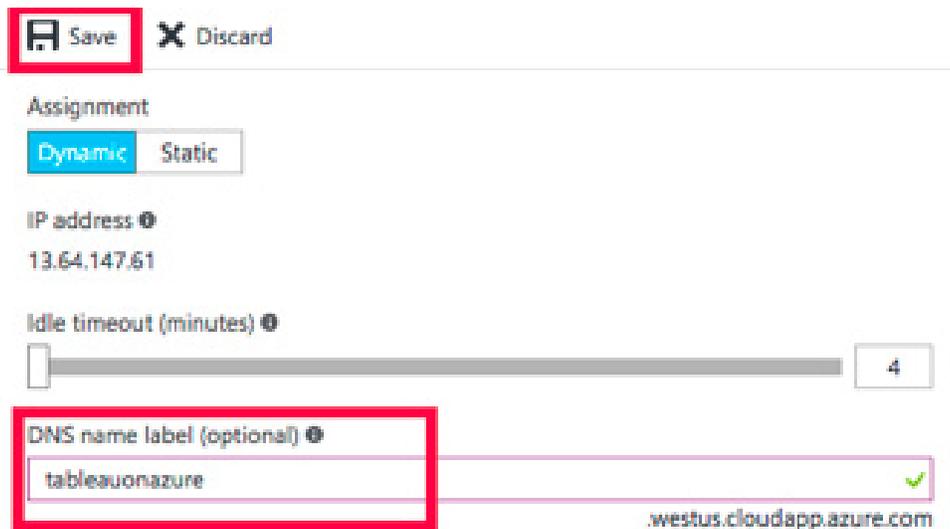
2. In an internet browser, navigate to Tableau Server with either the IP address or DNS name identified in the previous step.

Examples:

`http://13.64.47.61`

`http://tableauonazure.westus.cloudapp.azure.com`

If you cannot connect to the instance, check the suggestions in Troubleshooting.

Publish to the Azure instance

After you set up Tableau Server on an Azure instance, users in your organization can publish workbooks and data sources to the server. The process works the same way that it does if Tableau Server is installed on-premises.

Before you allow users to publish, make sure that each user has an identity in Tableau Server that lets them sign in. For more information, see Add Users to the Server in the Tableau Server documentation.

To publish workbooks and data sources to Tableau Server, users must sign in to the server using the ip address (or optional DNS hostname) that you created for your instance. Using the preceding example, the user would utilize 13.6.47.61 or tableauonazure.westus.cloudapp.azure.com and use the user name and password that they've been assigned.

For more information, see How to Publish Workbooks to a Tableau Server in the Tableau documentation.

Manage your Tableau Server license when shutting down or deleting an Azure instance

You don't need to manage your Tableau Server license if you shut down an Azure instance using the Azure portal or from inside the VM itself (generally via the Start menu).

Keep in mind:

- When you **stop** your VM via the Azure portal, resources are deallocated and billing stops, except for storage.

- If you **stop** your VM from inside the guest (for example, by using the Start menu), the OS shuts down, but resources are not deallocated by Azure: you will continue to be billed.

Deleting a Virtual Machine deallocates all the resources being used by the instance, including external storage. You might do this if you don't need to use the instance any more. In this case, you should **deactivate** your Tableau Server license before you shut down and delete the instance.

Before you delete an instance, do the following:

1. Sign in to the instance.

2. Create a backup of Tableau Server, and then copy the .tsbak file to another location that will continue to be accessible after the instance is no longer available. For more information, see Back Up the Tableau Data in the Tableau Server documentation.

3. Run the **Manage Product Keys** utility.

4. Select the product key for the instance, and then click **Deactivate**.
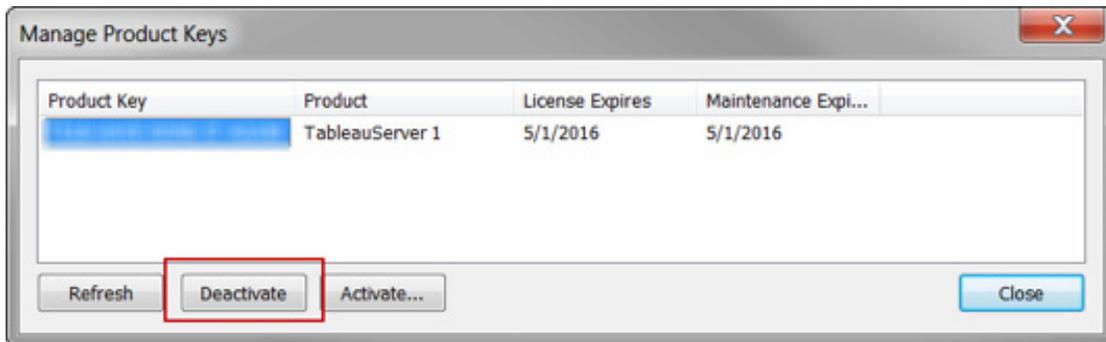

You can now shut down and delete the instance.

Option 2 – Pre-configured image via Azure Marketplace

One of the fastest ways to get Tableau Server up and running in Azure, based on a pre-configured Server image, is through the Azure Marketplace.

1. Go to the Azure Portal Marketplace and search for "Tableau Server"
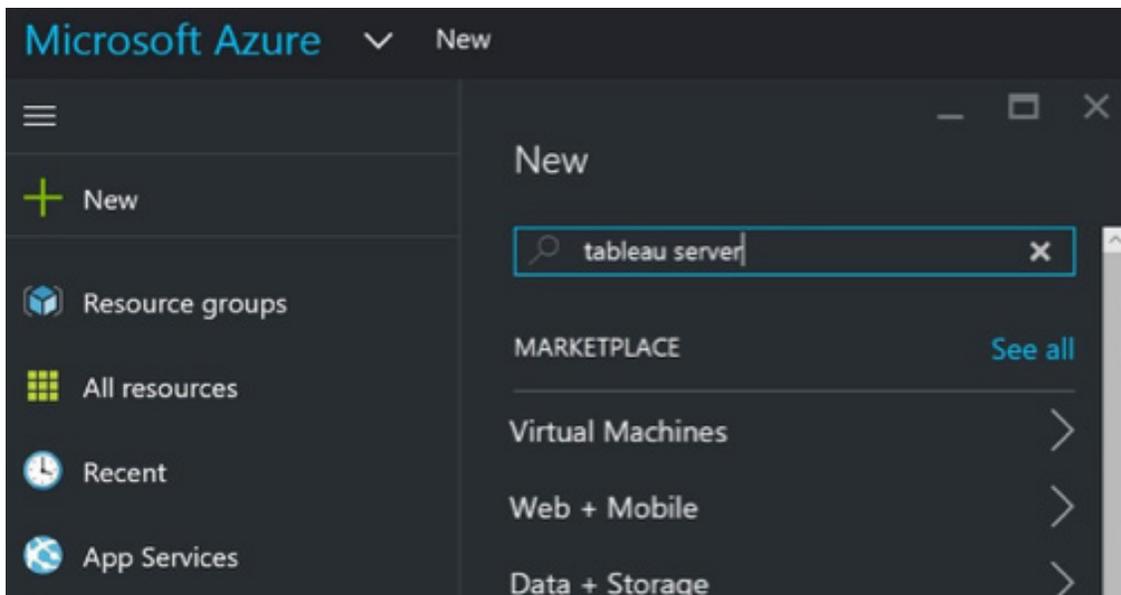
2. Select Tableau Server and "Create" the image

Results

NAME	PUBLISHER	CATEGORY
⊕ Tableau Server (Staged)	Tableau	Virtual Machines

3. Enter your subscription information, choose a resource group and a deployment location

4. Select your Virtual Machine size
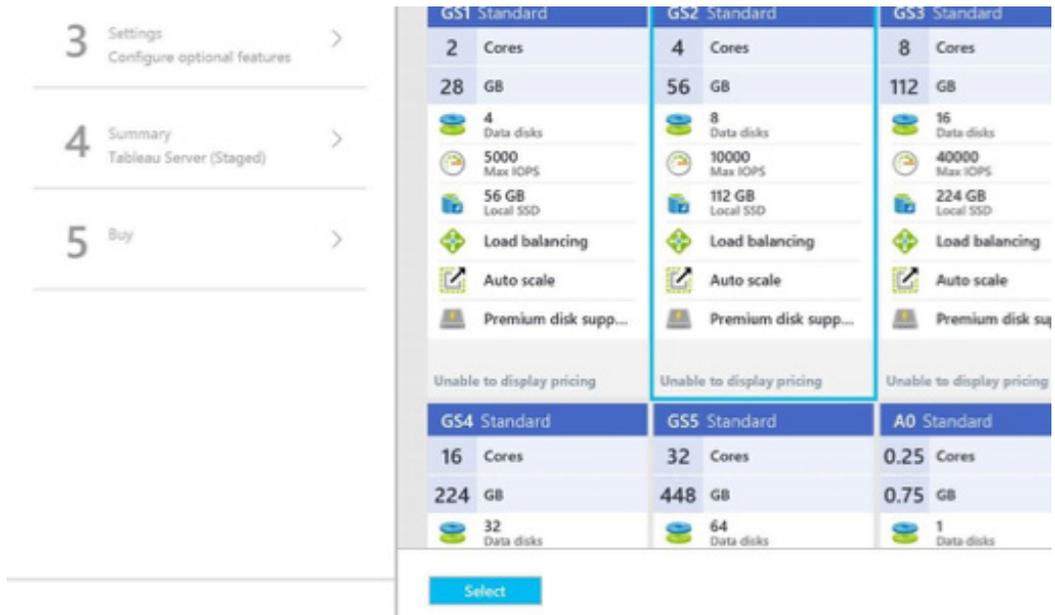
5. Configure optional features such as your disk type, storage account, subnet, etc.
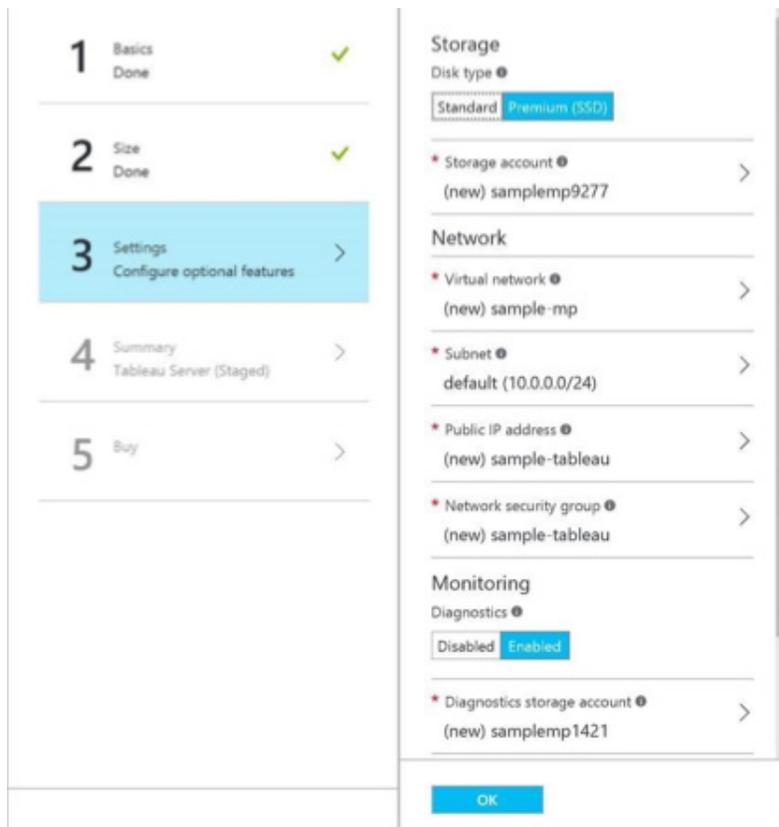
6. Validate your Server configuration
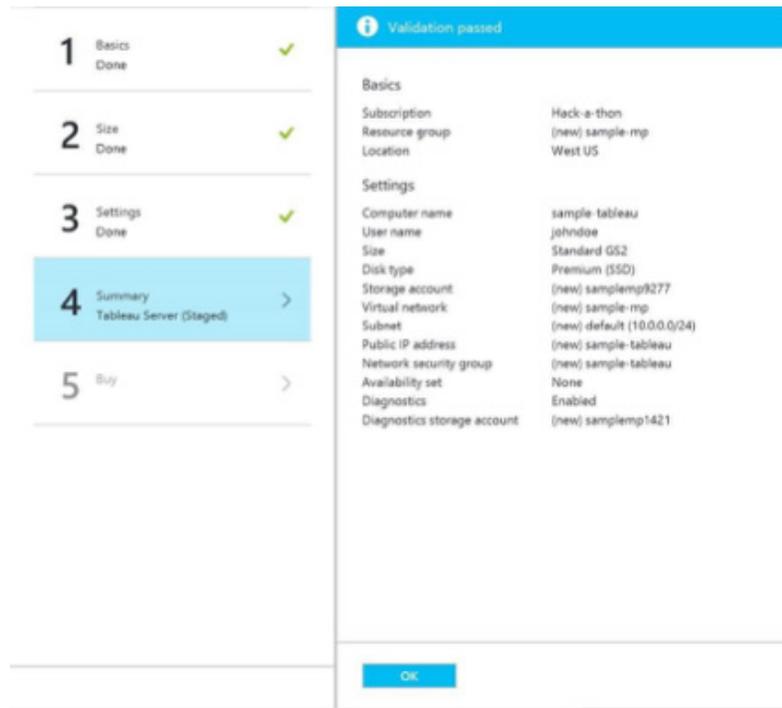
7. Deploy your Tableau Server!
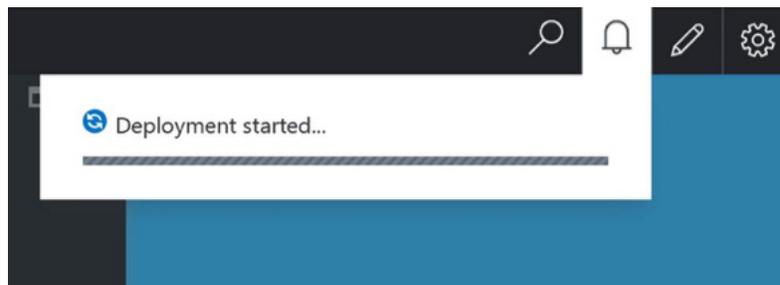
About Tableau

Tableau helps people transform data into actionable insights that make an impact. Easily connect to data stored anywhere, in any format. Quickly perform ad hoc analyses that reveal hidden opportunities. Drag and drop to create interactive dashboards with advanced visual analytics. Then share across your organization and empower teammates to explore their perspective on data. From global enterprises to early-stage startups and small businesses, people everywhere use Tableau's analytics platform to see and understand their data.

Resources

Tableau's approach to cloud

Deploy Tableau Server on other cloud platforms:
- Google Cloud Platform
- Amazon Web Services

Use Tableau with Amazon Redshift

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