Teramind on Azure

Deployment Guide

Ver 3.9 (18 DECEMBER 2021)

TERAMIND

Table of Contents

Teramind on Azure Overview

All Teramind solutions are available to deploy on Microsoft's enterprise-ready Azure platform as a Private Cloud option. This deployment guide will help you discover what you can expect from your Teramind on Azure deployment and provide you with installation prerequisites, step-by-step instructions, technical and support information.

Benefits of Deploying Teramind on Azure

If you prefer on-premise deployments but unwilling to incur the cost and hassle of an in-house infrastructure or you want to move to the Cloud but have been concerned about compliance or security, or have made the transition and already host on Azure, then Teramind on Azure is the right choice for you. Here are some infrastructure benefits you can expect if you choose to deploy Teramind on Azure:

Flexible and Competitive Pricing

No upfront cost, you only pay for the resources you consume (i.e. CPU, storage, memory). Additionally, you can save even more if you already use Windows Server and SQL Server. Teramind's configuration for a standard deployment (*D4d v4* instance, supporting up to 100 users) costs only a few cents per hour*.

**Infrastructure costs are set by Microsoft and subject to change.*

Most Coverage

With 54 regions* in 140 countries, Azure has the most coverage than any cloud provider. Global customers can reduce the infrastructure cost and complexity while meeting local residency requirements by hosting in an Azure data center. Moreover, you can pair regions and Availability Zones for your ideal Teramind setup.

**Not all regions are currently available on Teramind. See the Regions/Data Centers section for a list of supported regions.*

Easy Deployment

Create a Teramind machine instance in minutes by launching the Teramind deployment from the Teramind Azure Marketplace page. Or, if you prefer, deploy programmatically using API calls, ARM templates, or the PowerShell console to automatically deploy without using the Azure Portal.

Premium Storage and Optimization

The majority of the Teramind Azure deployments come with SSDs designed for high-performance and low-latency disk support. Additionally, Teramind lets you choose from a range of instance types optimized for special purposes like Compute/Storage Optimized instances.

Agility and Scaling

Vertical and horizontal scaling with optional auto-scaling allows you to scale the number of running instances up or down, based on telemetry data automatically with Azure Monitor.

Reliability and Disaster Recovery

Your data stays resilient with Azure's High Availability (HA), redundancy with multi-geo replications, on-demand backup, and offsite disaster recovery features.

Security and Compliance

With 70+ compliance offerings, Azure has the largest portfolio in the industry when it comes to security, privacy, and transparency. Combining this with Teramind's conformance with GDPR, HIPAA, PCI DSS, etc. makes Teramind and Azure an ideal package for customers in government, healthcare, finance, and other regulated industries.

Central Management Console

Configure and manage all your deployments from one central location. Azure also comes with built-in support for application monitoring, log analytics, patching, backup, and site recovery so you can focus on your Teramind application and not worry about managing the infrastructure.

Primary Server Requirements

Deployments for under 1,000 concurrent users can be hosted on one all-inclusive server, in most cases. VM instance(s) should be provisioned based on the expected number of concurrent monitored sessions, according to the following table:

Concurrent Users	Server Requirements	Instance Type
Up to 100	1 Teramind Master Server (VM)	• D4d v4
Up to 500	1 Teramind Master Server (VM)	• D8d v4
Up to 1, 000	1 Teramind Master Server (VM)	• D16d v4
Larger deployments: *1,000 or more concurrent users*	1 Teramind Database Server (VM)	• D16d v4
	1 Teramind App Server (VM) per 1,000 concurrent users	• D16d v4
	1 Teramind BI Server (VM)	• D16d v4

Database Server Requirements

Concurrent Users	Server Type	CPU/Disk
Up to 100	1 Basic	• CPU: 2 vCores • Disk: 100 GB*
Up to 500	1 General Purpose	• CPU: 4 vCores • Disk: 500 GB*
Up to 1, 000	1 General Purpose	• CPU: 8 vCores • Disk: 1 TB*
Larger deployments: *1,000 or more concurrent users*	1 General Purpose	• CPU: 16 vCores or more • Disk: 1 TB or more*

** Disk size is estimated for 1 year of average usage and may vary depending on monitored data, monitoring profiles, etc.*

OCR Server Requirements

You need to set up at least one OCR Database Node and one Mining Node for the OCR features to work.

No of Users	Server Requirements	Instance Type
Less than 200 users	1 OCR Database Node	• D4d v4
	1 OCR Mining Node	• D16d v4
Larger deployments of 200 or more users	1 OCR Database Node	• D4d v4 • Disk: 100 GB
	1 OCR Mining Node per 200 users	• D16d v4 • Disk: 24 GB

You will need to adjust the disk size as you add or remove video recordings over time. See the Storage Requirements section below for more information.

Storage Requirements

Primary Storage	The Teramind virtual appliance comes with a primary volume of 32 GB by default. This volume contains the Teramind server application and database. The size of this volume can be increased at a later point in time. **Teramind requires the primary volume to be on SSD or equivalently fast storage for deployments above 500 users.** **BI Classifications needs about 5GB of disk space plus additional disk space equivalent to about 20% of your current DB size. So for example, if you have a database of 100GB the BI deployment will need 20GB+5GB = 25GB space. Check out this KB article to learn how to update your BI classifications.**
Storage for Screen Recordings	The simplest way to add scalable storage is to use Microsoft Azure Blob Storage. For instructions on how to do so, check out this step. **Microsoft Azure Blob Storage is mandatory if you have a multi-server deployment (a deployment that has more than one Teramind App Server).**

Agent Requirements

Supported Platforms	• Microsoft Windows 8 and up (32 & 64-bit) • Microsoft Windows Server 2012 and up • macOS 12 (Monterey), macOS 11 (Big Sur), macOS 10.15 (Catalina) and macOS 10.14 (Mojave) * ** At the moment, Teramind on Mac has limited functionalities. check out what features are currently supported here.*
Sessions	• Stand-alone workstation / server • Terminal server (RDS) * • Application / Session server • Citrix • VMware Horizon ** Ideally, terminal servers should have a maximum of about 30 users or less depending on the number of screens and monitoring settings. Otherwise, you may have a performance impact.*
Load	Approximately 30 MB - 50 MB memory and 1-3% CPU utilization, depending on user activity
Visibility	Hidden or revealed desktop agents available
Deployment	• Silent MSI • Deployment via Group Policy or SCCM • Dashboard-based silent remote installer
Bandwidth	Approximately 10 kbps upstream depending on user activity level & number of screens
Offline Storage	Teramind features offline recording on the Silent/Hidden Agent (Windows). This means that in case of network downtime, the agent will save all data locally, and continue to enforce the policy. Once the connection is re-established, the agent will upload the data to the server at a throttled pace. The offline storage buffer is configurable in monitoring settings and takes approximately 1GB per 160 hours of work time.

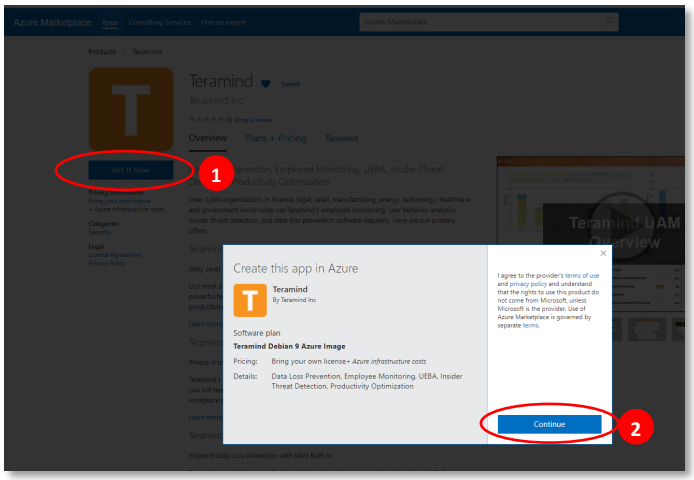
Detailed agent specifications can be found on our Knowledge Base here.

Prerequisites

To get started, you will need:

- An Azure account
- Your Teramind license key, available from Teramind Self-Hosted portal at: https://www.teramind.co/portal
- An SSH client like Putty if you are using Windows

1 Creating an Azure Instance and Accessing it with SSH

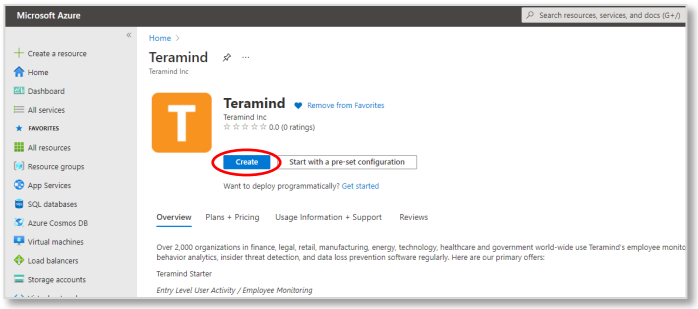


Step 1-1

Visit: www.teramind.co/deployment/azure and click the **Check out Teramind on Azure Marketplace** button.

1. Once on the portal, click the **GET IT NOW** button. A window will pop up with the title, *Create the app in Azure*.
2. Click the **Continue** button.

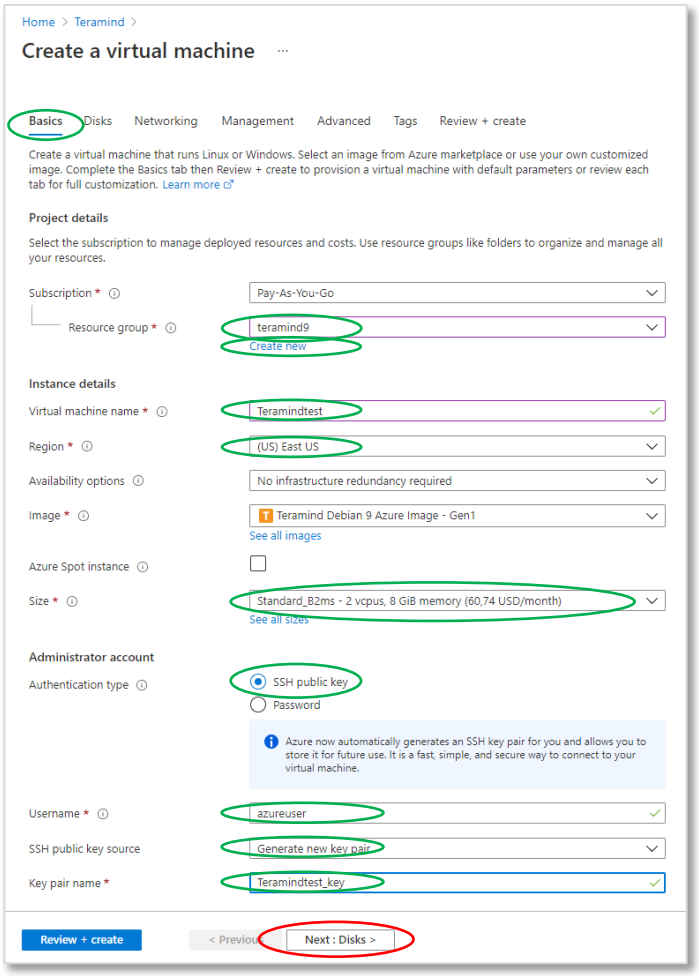
This will launch the Azure Portal and take you to Teramind's *Home* page. You might be asked to log in if you are not already.



Step 1-2

Click the **Create** button.

This will take you to the *Create a virtual machine* page.



Step 1-3

The *Create a virtual machine* page has several tabs.

Click the Basic tab if it's not selected already.

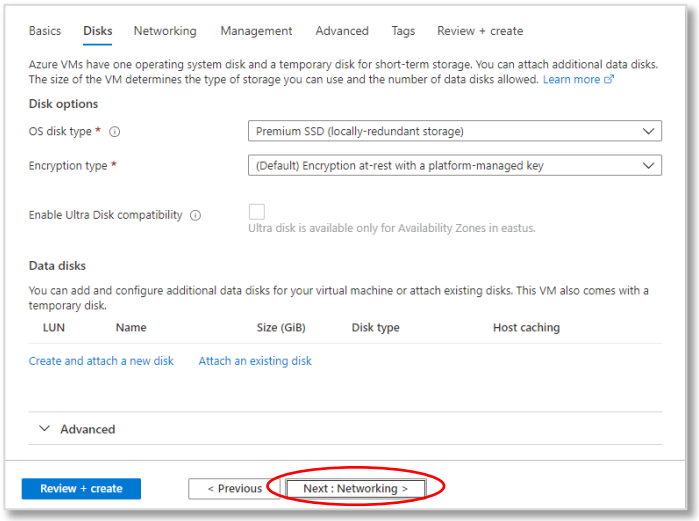
Under the *Project details* section, select an existing Resource group. Or, create a new group by clicking the Create new link.

Under the *Instance details* section, enter a Virtual machine name and select a Region and Size for the machine.

> Check out the Primary Server Requirements section above for help on choosing an instance.

Under the *Administrator account*, select the SSH public key for the *Authentication type* option. Enter a Username. Select Generate new key pair for the *SSH public key source* option. Enter a Key pair name.

Click the **Next: Disks** button to continue.

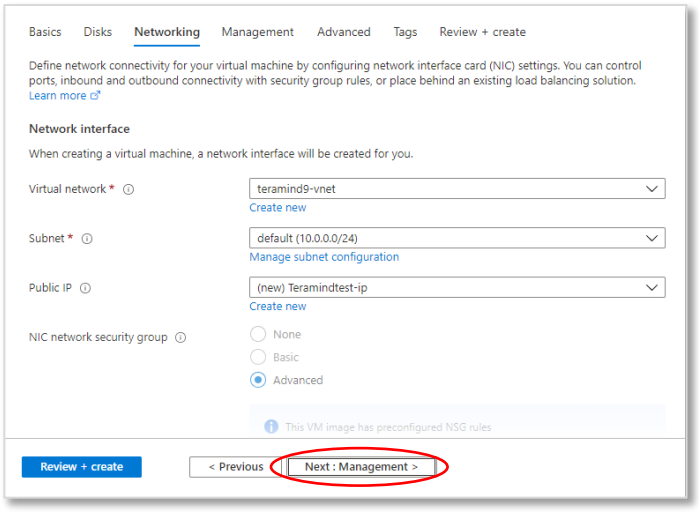


Step 1-4

On the *Disk*s tab, you can choose disk type, encryption, and other options. For this demonstration, we will keep the default settings for these options.

> Note that Teramind requires the primary volume to be on SSD or equivalently fast storage for deployments above 500 users.

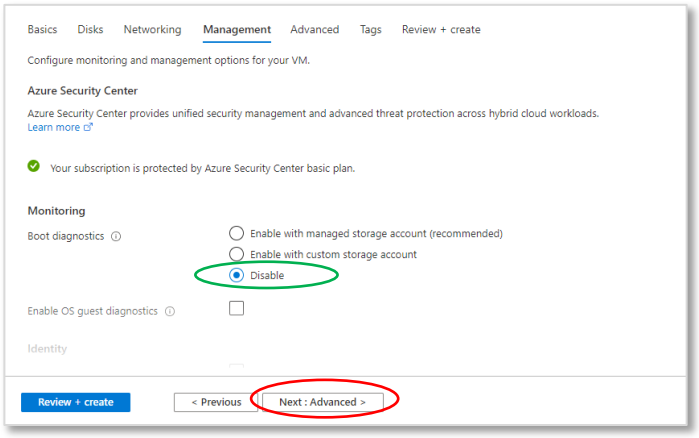
Click the **Next: Networking** button to continue.



Step 1-5

Teramind already comes with a pre-configured network interface card (NIC) with the necessary NSG rules for use with the VM. So, unless you have special needs, you can keep the default settings on the *Networking* screen.

Click the **Next: Management** button to continue.

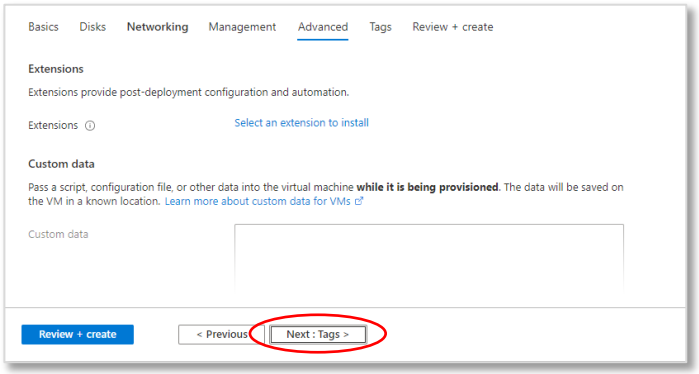


Step 1-6

The *Management* screen let you turn the settings for Monitoring, Identity and Auto-Shutdown options.

Under the *Monitoring* section, Disable the *Boot diagnostics* option.

Click the **Next: Advanced** button to continue.

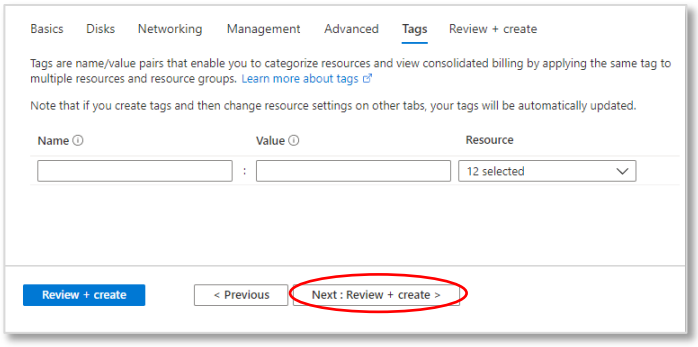


Step 1-7

You can add post-deployment *extensions*, *custom data* such as a script or a file, and configure other options from the *Advanced* screen.

For this tutorial, we will not need any of these options.

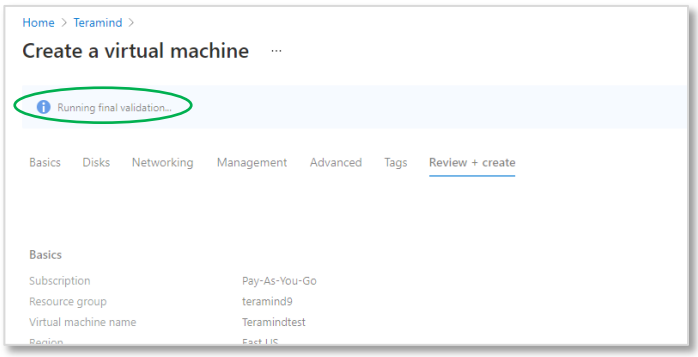
Click the **Next: Tags** button near the bottom of the page to continue.



Step 1-8

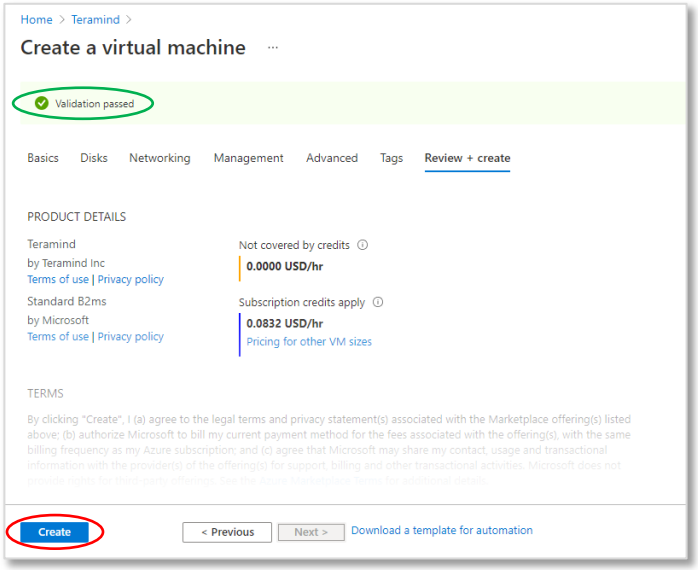
Tags allow you to categorize resources for consolidated billings. You can decide to use this feature if you want. For this tutorial, we will not use any tags.

Scroll to the bottom of the page and click the **Next: Review + create** button. Azure will run a validation check for all the settings.



Step 1-9

Wait while Azure runs a *validation check* for all the settings.

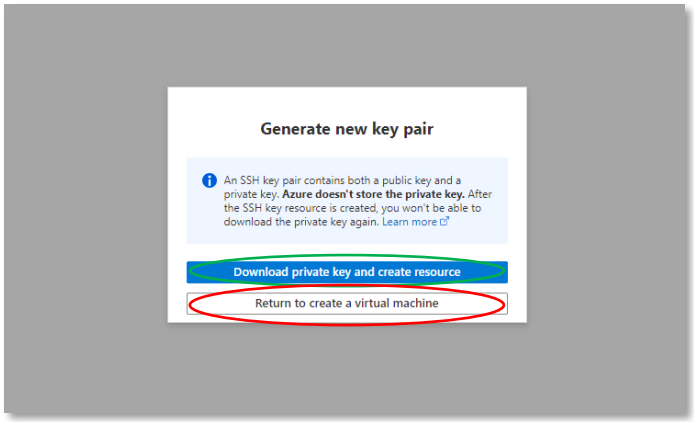


Step 1-10

Once Azure is done with the checks, it will show a *Validation passed* message unless it encounters any errors.

Review all your settings and click the **Create** button near the bottom of the page to start creating the virtual machine.

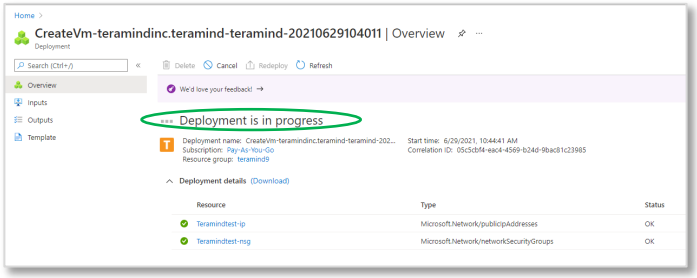
Depending on your settings, it may take a few minutes to create the instance.



Step 1-11

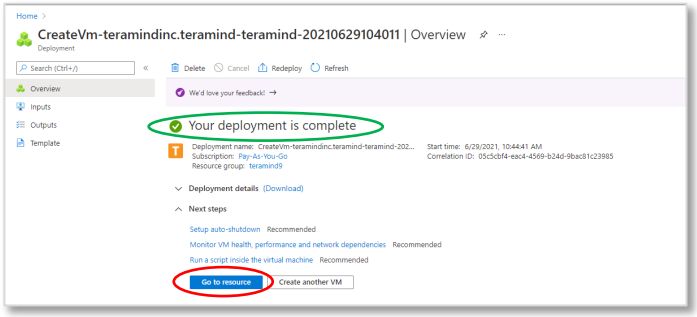
Since we used the SSH public key as the authentication type (*Step 1-3*), Azure will generate a private key (PEM file) which you can download by clicking the Download private key and create resource button. Save the key in a secure place. You will need it in *Step 1-15* to log in to your instance.

Click the **Return to create a virtual machine** button when ready.



Step 1-12

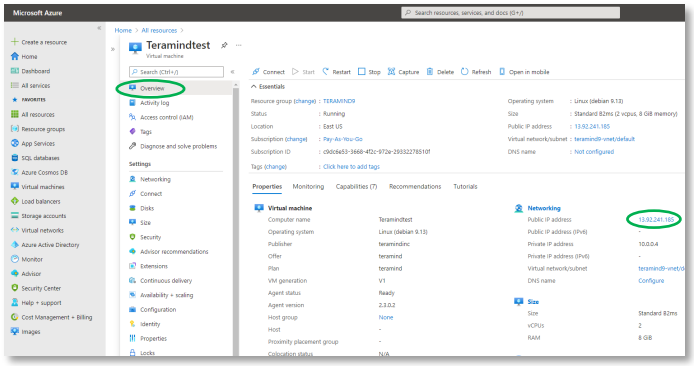
You will see a '*Deployment is in progress*' message and a blue progress icon next to your instance while it is being created. It might take a few minutes to complete the deployment.



Step 1-13

Once the VM is ready, you will see a '*Your deployment is complete*' message.

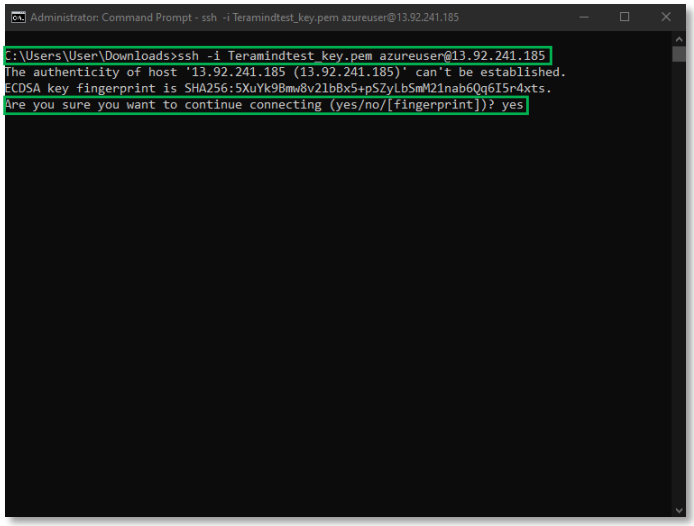
Click the **Go to resource** button to continue to your VM's resource page.



Step 1-14

Make sure you are on the Overview tab (second tab from the left). You will see a summary of the VM's settings and current status.

From under the *Networking* section, copy or write down the Public IP address for the virtual machine. We will use this IP for the next step.



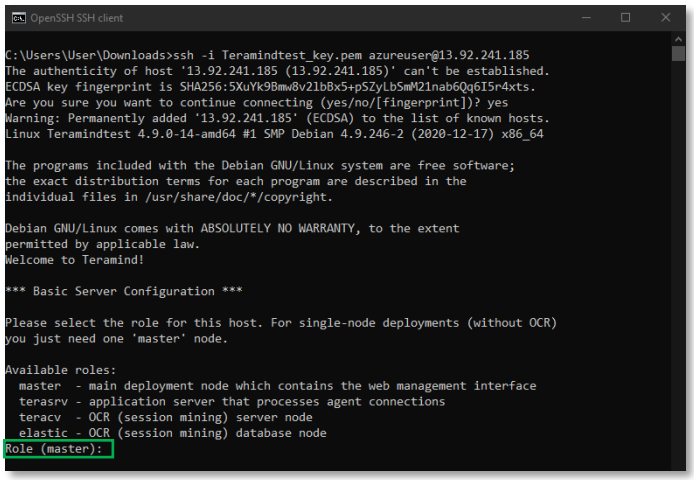
Step 1-15

Launch an SSH session. If you are on Windows, you can use a tool like Putty or a similar utility for the SSH. Make sure you have administrative access.

Type:
`ssh -i <pem file> <username>@<ip address>`

Where `<pem file>` is the full path of the *PEM* file you downloaded in *Step 1-11*. `<username>` is the Username you used for the administrator account when creating the VM in *Step 1-3*. And finally, `<ip address>` is the public IP address you copied in the previous step (*Step 1-14*).

Press **Enter**. If you are asked to continue connecting, type `yes` and press **Enter** again.



Step 1-16

Once the server is ready, you will be prompted for a Role (master). However, before we can do that, we need to take care of few other things.

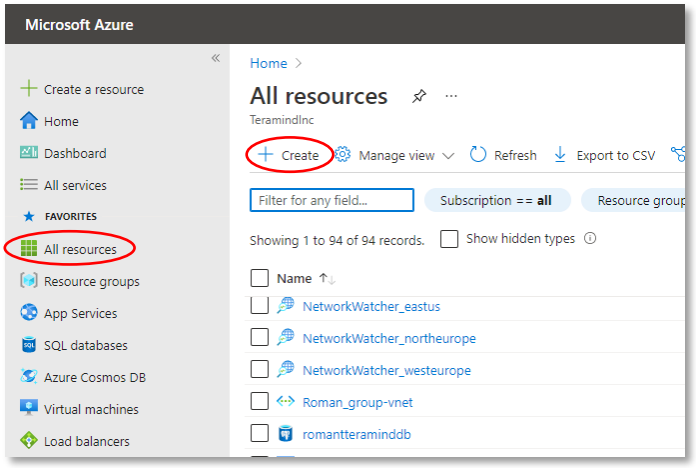
Keep this command window open as you will use it to finalize the setup in *Step 4*.

2 Creating an Azure Database for PostgreSQL

External databases are not mandatory. However, using the *Azure Database for PostgreSQL* will improve the scalability of your server and is recommended for deployments over 100 concurrent users.

For this tutorial, we will show you how to create an *Azure Database for PostgreSQL* to use with Teramind.

If you already know how to create a database, you can skip the next step.

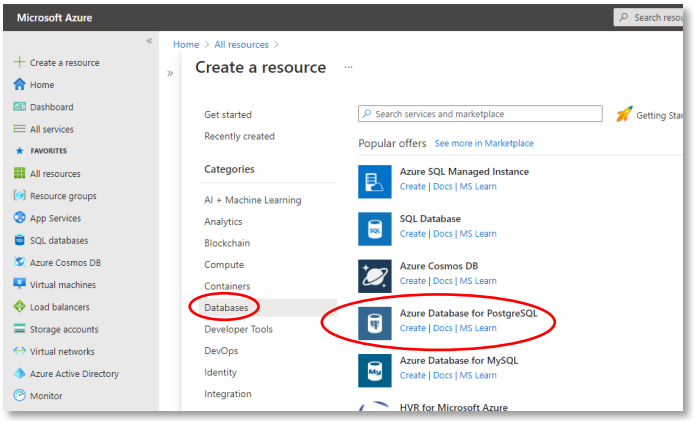


Step 2-1

From the Azure Portal, click **All resources** from the left-sidebar.

Click the **+ Create** button on top.

You will be taken to the *Create a resource* panel.

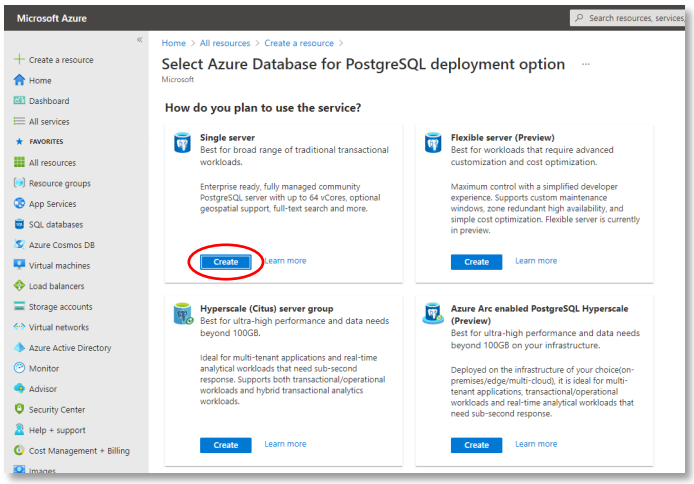


Step 2-2

Select **Databases** from the list of resources (you can also use the search field to locate it).

Select **Azure Database for PostgreSQL** from the list of databases on the right.

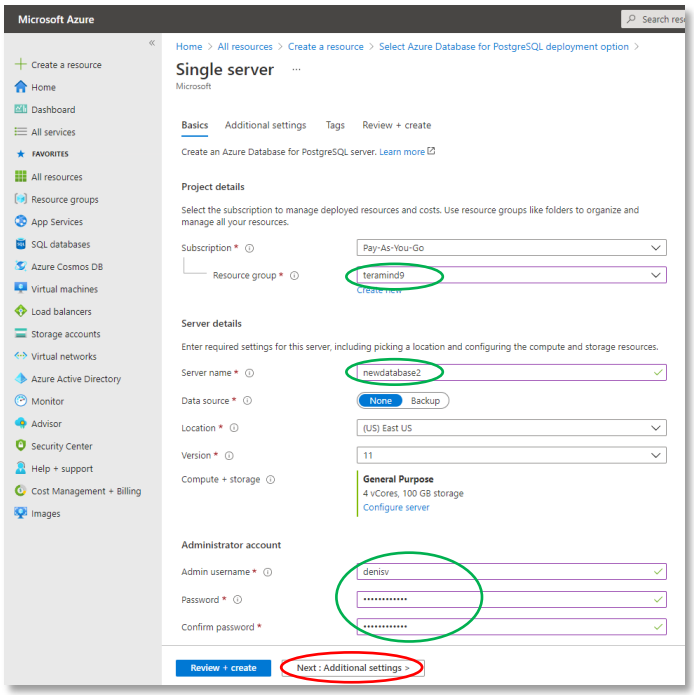
You will be taken to the resource deployment page.



Step 2-3

On the *deployment option* page, you will be asked how you want to use the service.

Click the **Create** button under the *Single server* plan.



Step 2-4

On the *Single server* page, under the first tab, *Basics*, select the Resource group you want to use or click the *create new link* under it to create a new group.

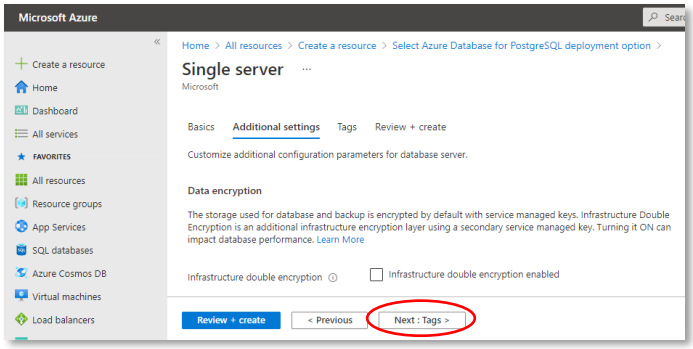
Enter a name in the Server name field under the *Server Details* section.

Provide your admin username and password to authenticate the account.

For this tutorial, you can keep other options to their default values.

Click the **Next: Additional settings** button to continue.

Check out the Database Server Requirements section above for help on choosing an instance for your database.

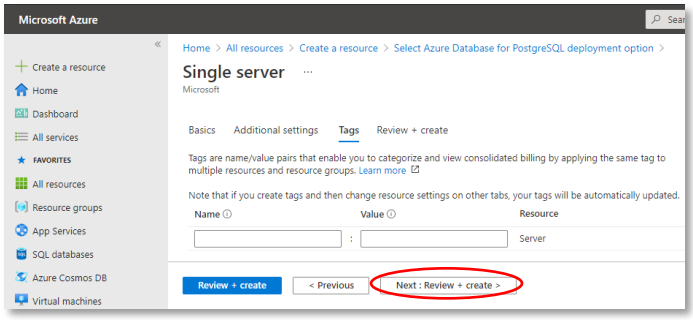


Step 2-5

Additional settings tab allows you to customize additional configuration parameters such as data encryption.

For this tutorial, we will keep the default configurations.

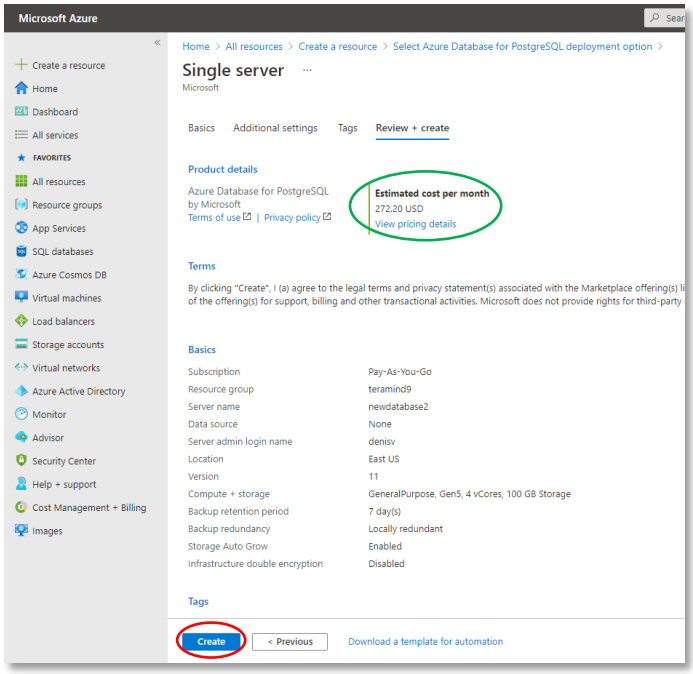
Click the **Next: Tags** button to continue.



Step 2-6

Tags allow you to categorize resources for consolidated billings. For this tutorial, we will not use any tags.

Click the **Next: Review + create** button to continue.

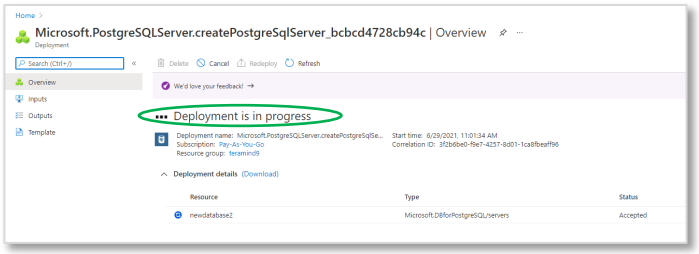


Step 2-7

On the *Review + create* tab, you will be able to see the estimated cost per month to use the database and a summary of your configurations.

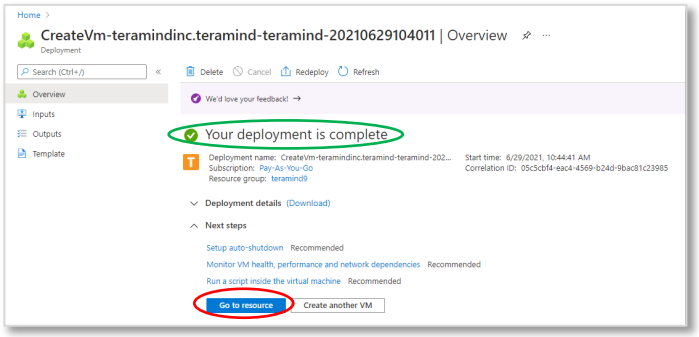
Review all your settings and click the **Create** button near the bottom.

It might take a few minutes to create the database.



Step 2-8

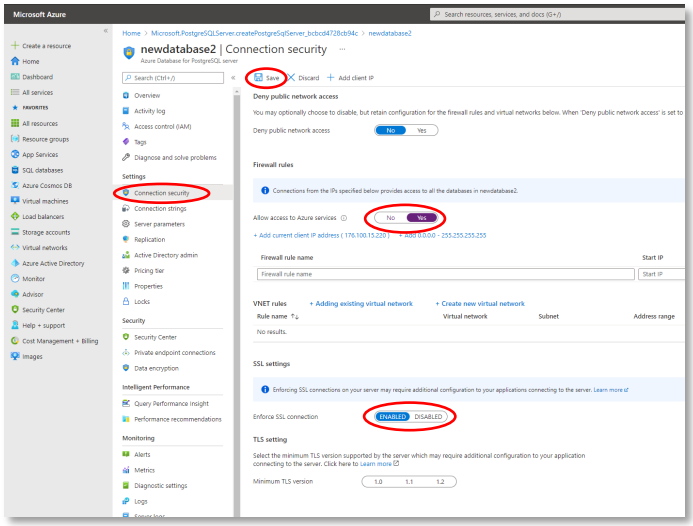
You will see a '*Deployment is in progress*' message and a blue progress icon next to your database server while it is being created. It might take a few minutes to complete the deployment.



Step 2-9

Once the database is ready, you will see a '*Your deployment is complete*' message.

Click the **Go to resource** button to continue to your database's resource page.



Step 2-10

Select the **Connection security** tab (2nd tab from the left).

Turn the *Allow access to Azure services* option **ON**.

DISABLE the *Enforce SSL connection* option near the bottom.

Click the **Save** icon on top to save the changes.

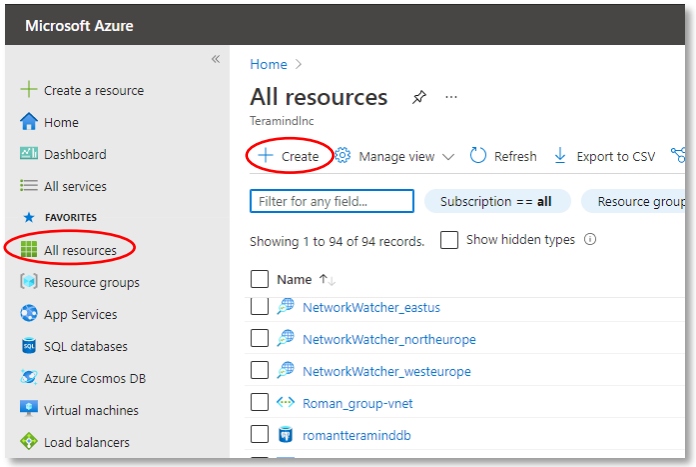
We will connect to this database later in *Step 4*.

3 Creating a Microsoft Azure Blob Storage

External storage is not mandatory for Teramind deployments. However, Teramind uses file storage for OCR screen recordings, and *Microsoft Azure Blob Storage* is an efficient, secure, scalable, and redundant solution to store such data within Azure. External storage is recommended for deployments of over 100 concurrent monitored users.

If you already know how to create a storage, you can skip the next section.

For more information on external storage, check out the Storage Requirements section on this guide.

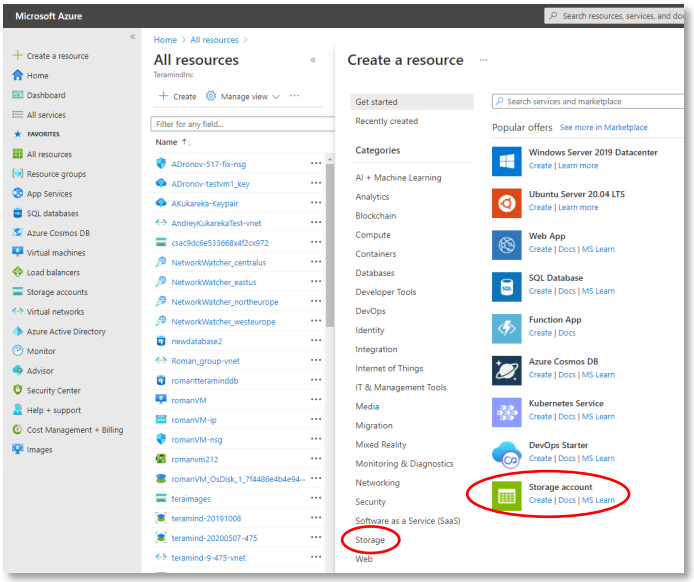


Step 3-1

From the Azure Portal, click **All resources** from the left-sidebar.

Click the **+ Create** button on top.

You will be taken to the *Create a resource* panel.

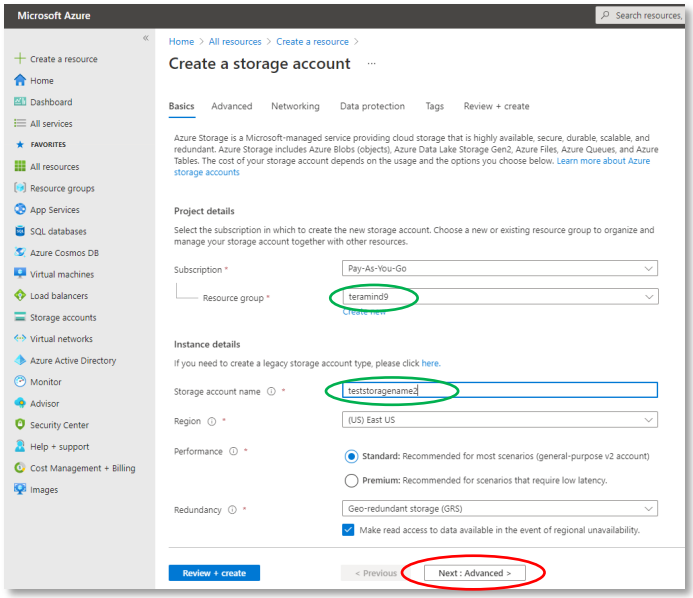


Step 3-2

Select **Storage** from the list of resources (you can also use the search field to locate it).

Select **Storage account** from the list of storage options on the right.

You will be taken to the *Create a storage account* page.



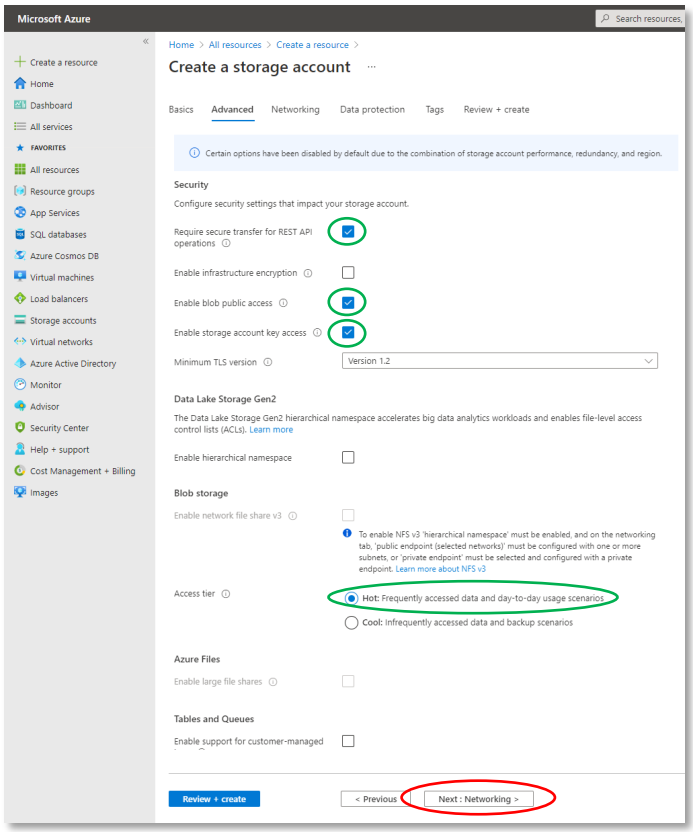
Step 3-3

On the *Create storage account* page, under the first tab, *Basics*, select the Resource group you want to use or click the *create new link* under it to create a new group.

Enter a name in the Storage account name field under the *Instance Details* section.

You can configure other options such as *Region*, *Performance*, and *Redundancy*. For this tutorial, we will keep them to their default values.

Click the **Next: Advanced** button to continue.

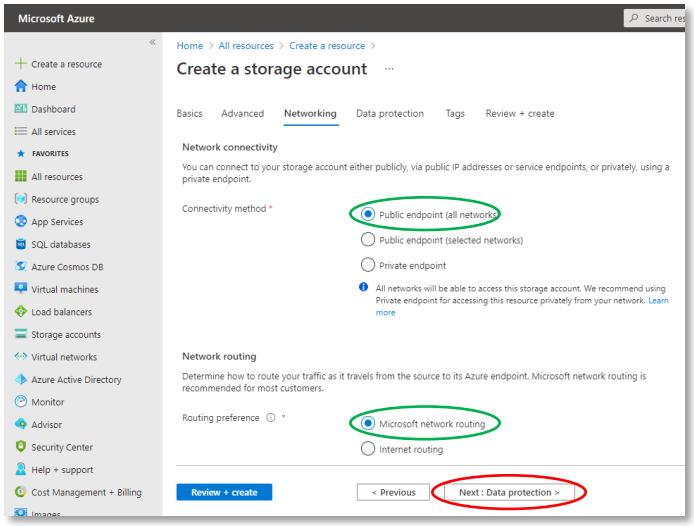


Step 3-4

On the *Advanced* tab, configure as follows:

- Enable secure transfer: Enabled
- Enable blob public access: Enabled
- Enable storage account key access: Enabled
- Access tier: Hot

Click the **Next: Networking** button to continue.

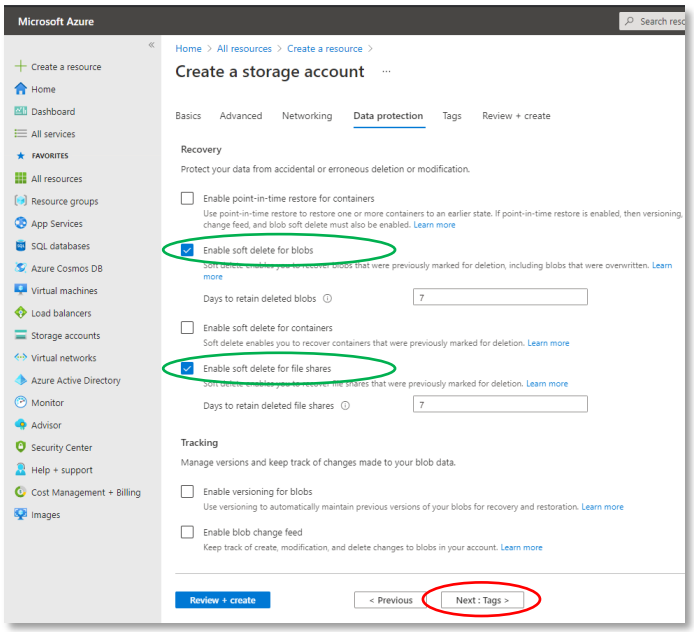


Step 3-5

On the *Networking* tab, configure as follows:

- Connectivity method: Public endpoint (all networks)
- Routing preference: Microsoft network routing

Click the **Next: Data protection** button to continue.

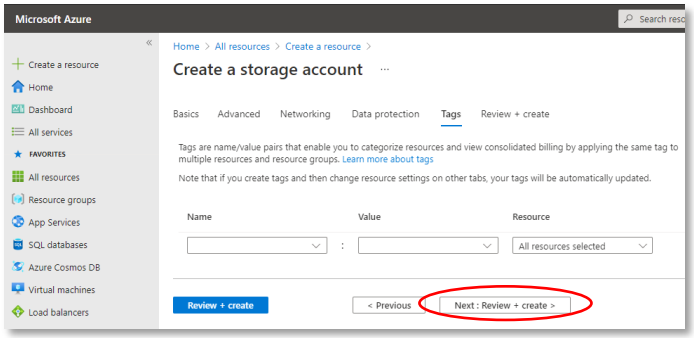


Step 3-6

On the *Data protection* tab, configure as follows:

- Enable soft delete for blobs: Enabled
- Enable soft delete for file shares: Enabled

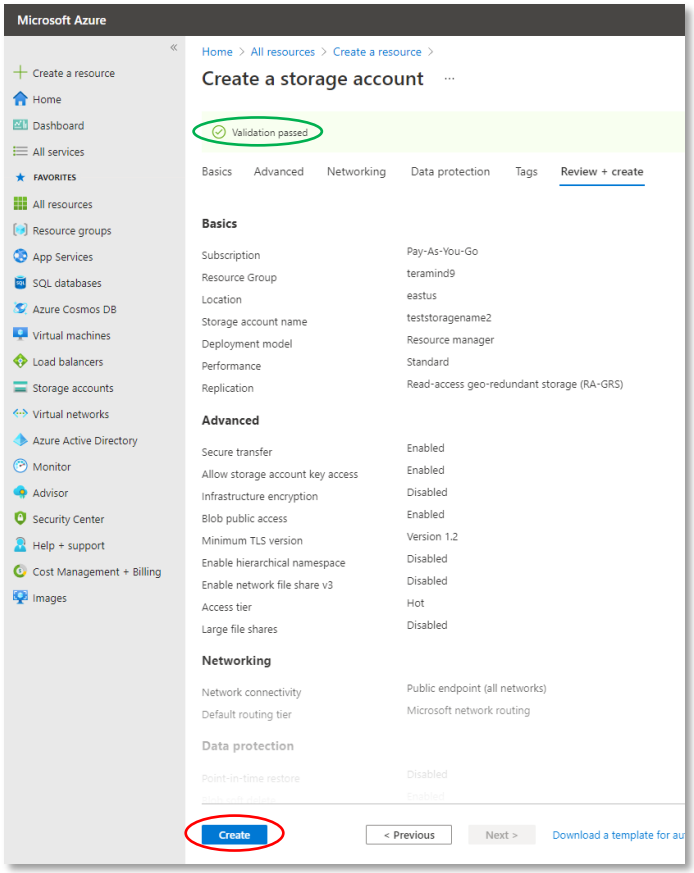
Click the **Next: Tags** button to continue.



Step 3-7

Tags allow you to categorize resources for consolidated billings. For this tutorial, we will not use any tags.

Click the **Next: Review + create** button. Azure will run a validation check for all the settings.

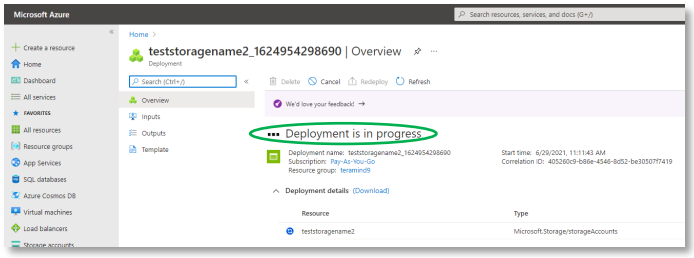


Step 3-8

Azure will confirm with a *Validation passed* message unless it encounters any errors.

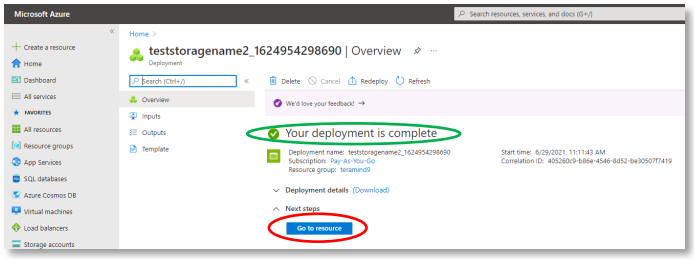
Review all your settings and click the **Create** button near the bottom of the page when ready.

It might take a few minutes to create the storage.



Step 3-9

You will see a '*Deployment is in progress*' while your storage account is being created. It might take a few minutes to complete the deployment.



Step 3-10

Once the storage is ready, you will see a '*Your deployment is complete*' message.

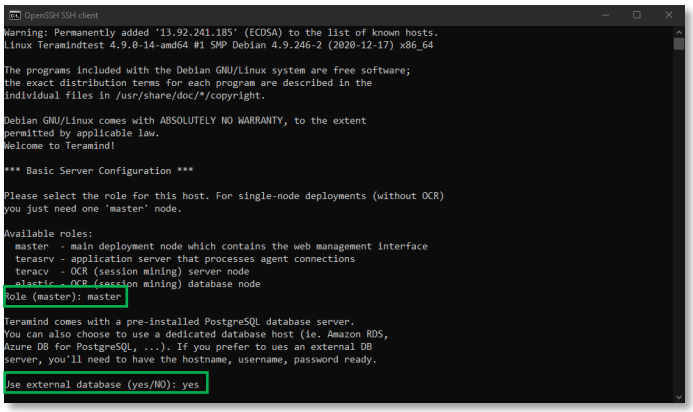
You can see your newly created storage by clicking the **Go to resource** button.

We will connect to this storage in *Step 4*.

4 Finishing the Deployment

As the last step of the server deployment process, you will need to assign the external database and storage to your master instance, setup the Teramind Server using the SSH and finally, configure your account settings on the Teramind Dashboard.

After you finish the deployment, you should update your server and apply any latest patch. Check out this article on our Knowledge Base: [How to update the Teramind Server and BI Classification (On-Premise / Private Cloud deployment)](#).



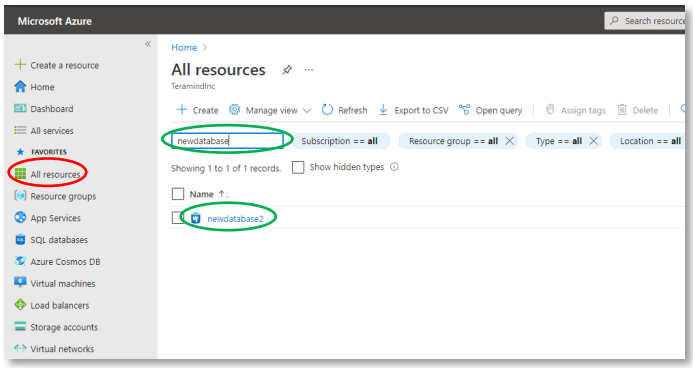
Step 4-1

Go back to the SSH window you used in *Step 1-16*.

Give the master role a name (e.g. 'master') at the '*Role (master)*' prompt.

At the '*Use external database?*' prompt enter yes.

Next, Teramind will ask for the connection details for the database.



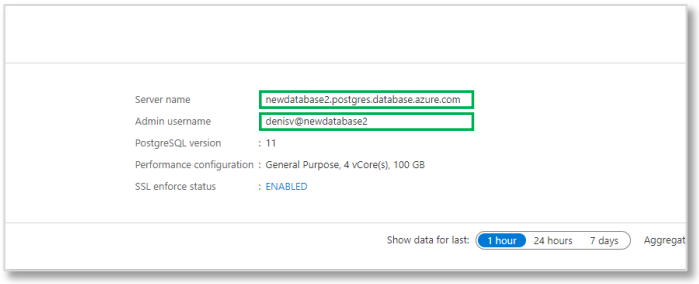
Step 4-2

Go back to the Azure portal.

Click **All resources**.

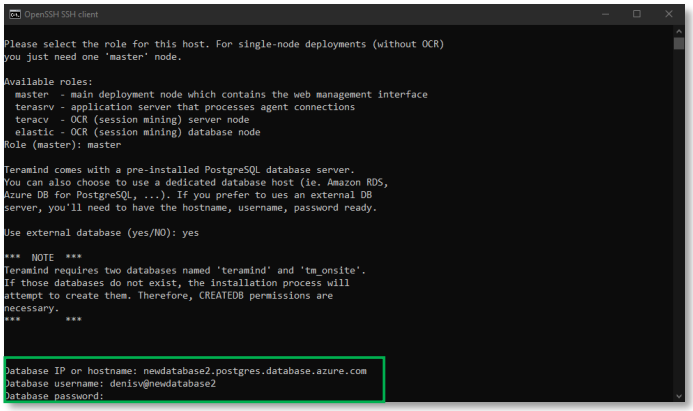
Click your database (e.g. 'newdatabase2') from the list of resources. You can narrow down the list using the Filter option on top.

It will open the database *Overview* panel.



Step 4-3

From the database's *Overview* panel, near the top-right corner, copy or write down the Server name and the Admin username.



Step 4-4

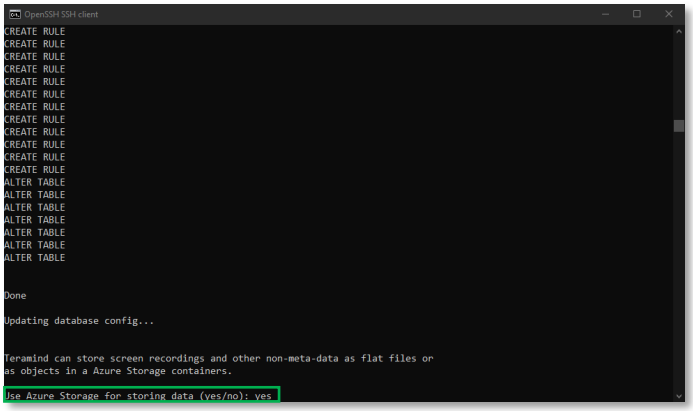
Go back to the SSH window you opened in *Step 4-1*.

Paste or type the database hostname (the *Server name* you copied in the previous step), and press **Enter**.

Paste or type the database username (the *Admin username* you copied in the previous step), and press **Enter**.

Type the database password you used when you created the database in *Step 2-4*. Then, Press **Enter**.

During the database setup process, if you are prompted to enter a password, use the admin password you assigned to the VM in *Step 1-3 (not the database password)*.

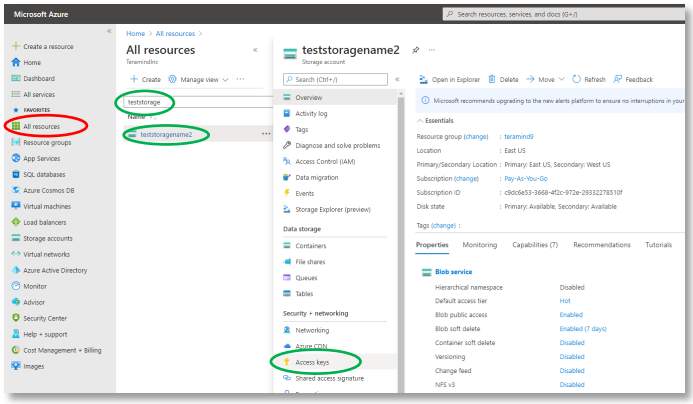


Step 4-5

Once the database setup is done, Teramind will ask if you want to use Azure storage.

Type yes and press **Enter**.

Next, you will need to provide the Azure storage account name and the access key to connect.



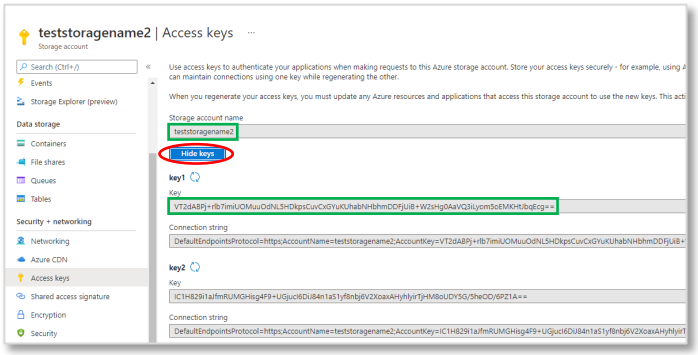
Step 4-6

Go back to the Azure portal.

Click **All resources**.

Click your storage account name (e.g. ‘teststoragename2’) from the list of resources. You can narrow down the list using the Filter option on top.

Click Access keys from the right panel.

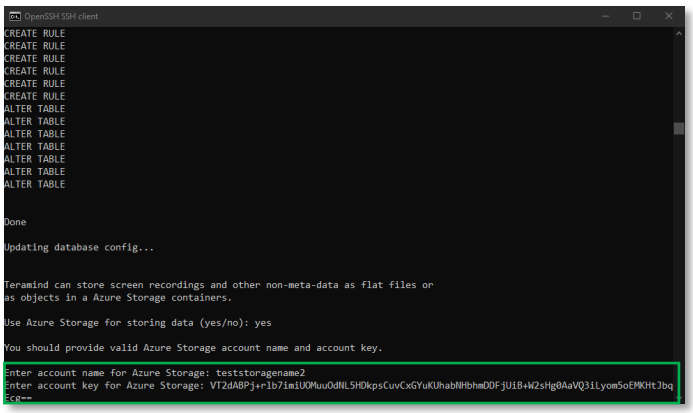


Step 4-7

On the *Access keys* panel, click the **Show keys** / **Hide keys** button to show/hide keys.

Copy or write down the Storage account name.

Copy or write down the key under *key1* too.



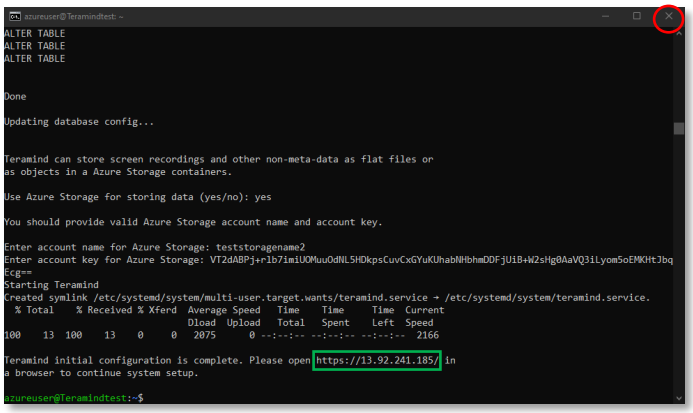
Step 4-8

Go back to the SSH window.

Paste or type the Storage account name you just copied, and press **Enter**.

Paste or type the storage key1 you copied in the previous step and press **Enter**.

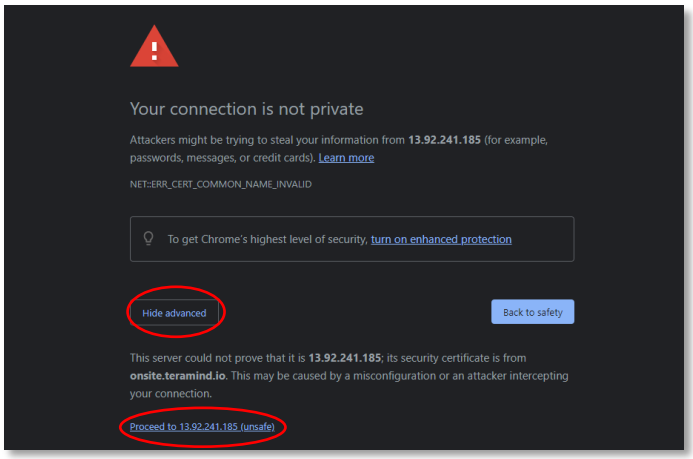
Teramind will configure the storage and finalize the server installation.



Step 4-9

Once you have entered the bucket Teramind will set up the servers. Finally, you will be provided with a link to your dashboard. Click the link or enter it on your browser to continue.

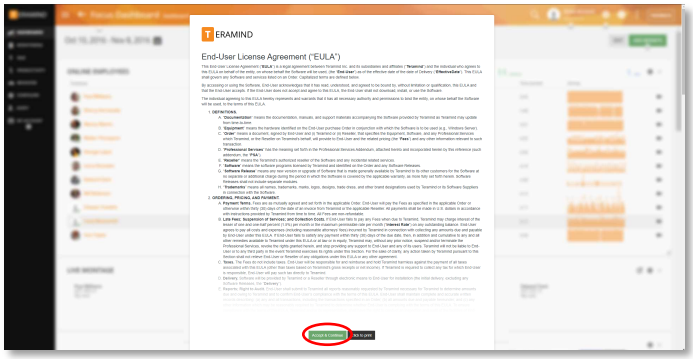
You can **close** the SSH window.



Step 4-10

When you open the Teramind Server link in the browser, you may be displayed a warning message. This is because you are using an HTTPS connection without an SSL certificate. Most browsers will allow you to continue with an override action.

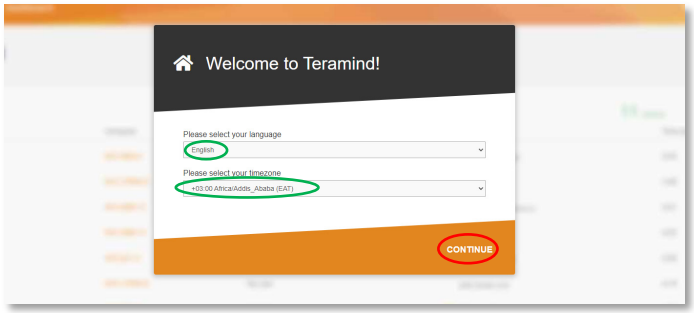
If you are using Google Chrome, click the **ADVANCED** link on the page and select the **Proceed to…** option.



Step 4-11

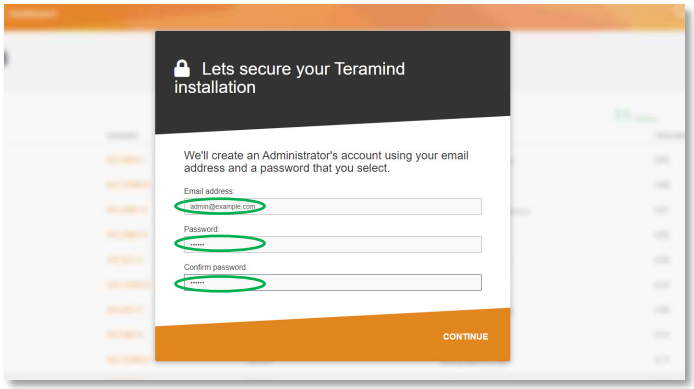
When you enter the Teramind Dashboard for the first time, you will see the *End-User License Agreement* screen.

Scroll down and click the **Accept & Continue** button.



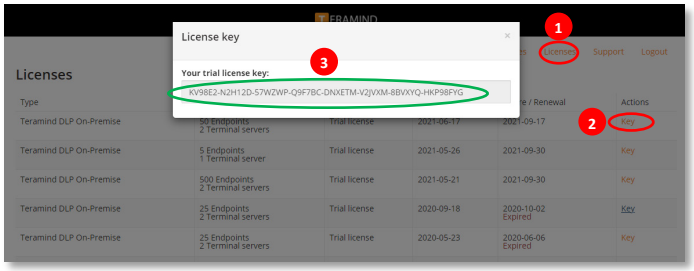
Step 4-12

On the *Welcome to Teramind* screen, select your language and timezone and click **CONTINUE**.



Step 4-13

On the *Lets secure your Teramind installation* screen, enter an email and a password for your Admin account.



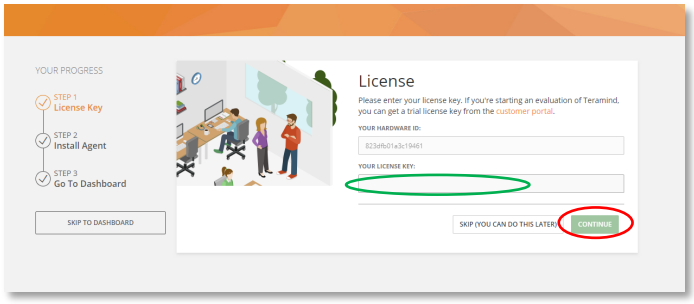
Step 4-14

Open a new browser tab and go to: https://www.teramind.co/portal. Login with the admin email and password.

Click the **Licenses** tab.

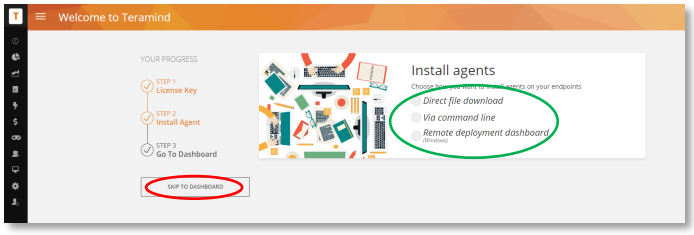
From the list of licenses, click the **Key** link under the *Actions* column. A pop-up will display the license key.

Copy the license key or write it down.



Step 4-15

Go back to your Teramind Dashboard. Enter the license key and click the **CONTINUE** button.



Step 4-16

At this stage, you can install the Teramind agent and start monitoring the targeted computer(s). Or, you can do it later.

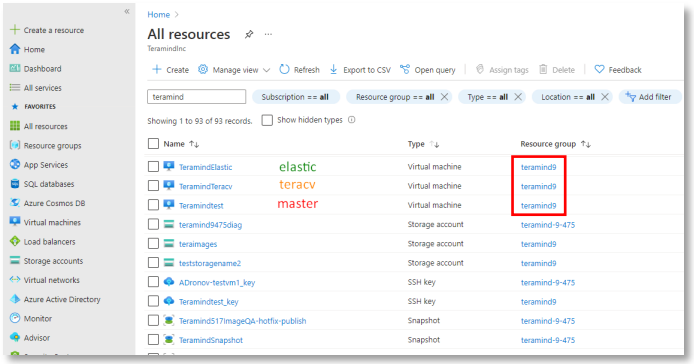
To install the agent, click one of the options under *Install agents*. If you need help installing the agent, check out this article on our Knowledge Base. You can also watch this short video: Downloading and Installing Teramind's Hidden Agent

To install the agent at a later time, click the **SKIP TO DASHBOARD** button.

You are done setting up your Teramind Server. If you want to use the OCR feature, continue to Step 5 below.

5 Setting Up the OCR (optional)

If you want to use the OCR feature, you will need to set up two nodes (VMs) in addition to a master node.



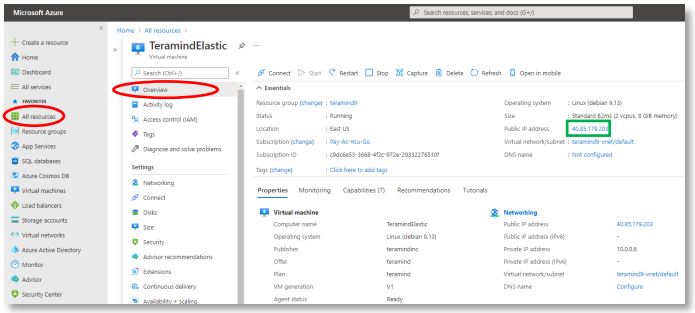
Step 5-1

Create the ***master*** VM/node as usual.

Then, create two additional VMs/nodes. The first node is for the OCR database. In Teramind, we will refer to it as ***elastic***. This node will be used by the OCR engine for metadata and other processing activities. The second node is for storing the videos. In Teramind, we will refer to it as ***teracv***.

It does not matter how you name the databases, just make sure to assign the correct database to the correct role later in the SSH steps. Also, please make sure that all the nodes are in the same **Resource group**.

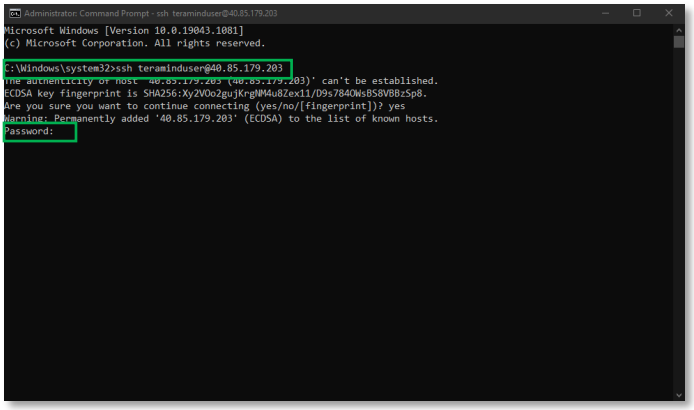
> For more information on the OCR server requirements, check out the OCR Server Requirements section on this guide.



Step 5-2

Click **All resources** from the left panel of the *Azure Portal* and open the *elastic* instance (e.g. '**TeramindElastic**').

Click the **Overview** tab and copy the Public IP address located under the *Essentials* section.



Step 5-3

Launch an SSH session. If you are on Windows, you can use a tool like Putty or a similar utility for the SSH. Make sure you have administrative access.

If you used the *username/password* option for your VM's *Authentication type*, then use the following command:

Type:
`ssh <username>@<ip_address>`
Press **Enter**.

Where `<username>` is the Username you used for the administrator account when creating the *elastic* VM in *Step 5-1* and `<ip_address>` is the Public IP address you copied in the previous step.

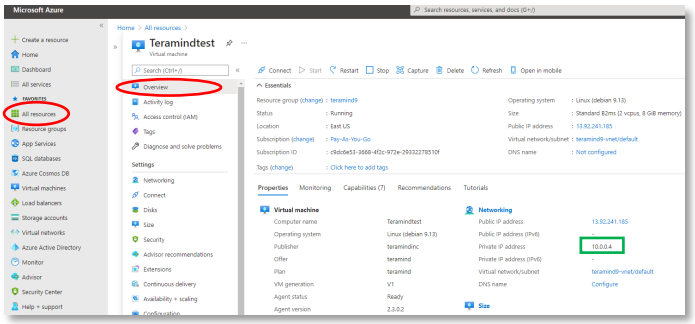
Type the password and press **Enter**.

Note:

If you used the *SSH public key* option for your *elastic* VM's *Authentication type*, then use the following command:

```
ssh -i "<pem file>"
<username>@<ip_address>
```

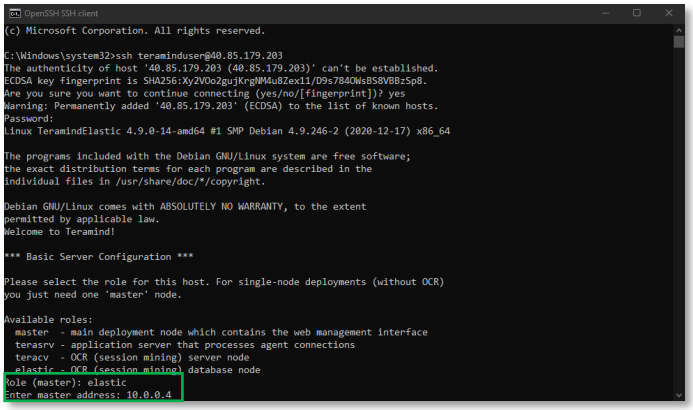
Where `<pem file>` is the full path of the key pair file you downloaded when creating the VM.



Step 5-4

Click **All resources** from the left panel of the Azure Portal and open the *master* instance (e.g. '**Teramindtest**').

Click the **Overview** tab and copy the Private IP address located under the *Networking* section.



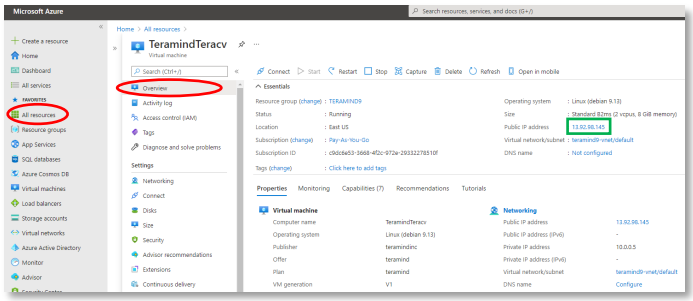
Step 5-5

Go back to the command prompt window.

When asked, enter elastic at the *Role (Master)* prompt.

At the *Enter master address* prompt, type/paste the Private IP address you copied in the previous step.

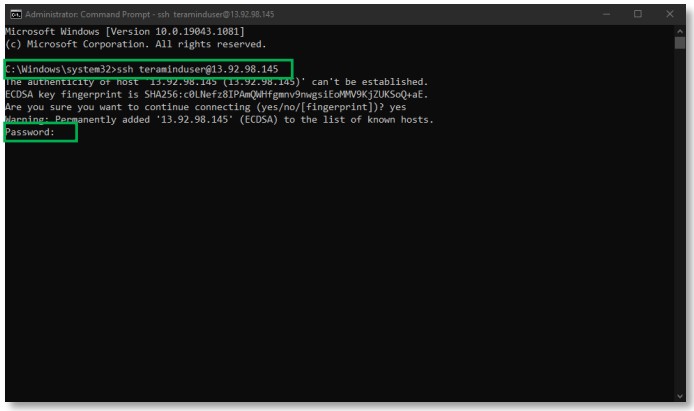
It might take a few minutes for Teramind to set up the *elastic* node.



Step 5-6

Click **All resources** from the left panel of the *Azure Portal* and open the *teracv* instance (e.g. '**TeramindTeracv**').

Click the **Overview** tab and copy the Public IP address located under the *Essentials* section.



Step 5-7

Go back to the SSH window or launch a new one.

If you used the *username/password* option for your *teracv* VM's *Authentication type*, then use the following command:

`ssh <username>@<ip_address>` then press **Enter**.

Where `<username>` is the Username you used for the administrator account when creating the *teracv* VM in *Step 5-1* and `<ip_address>` is the Public IP address you copied in the previous step.

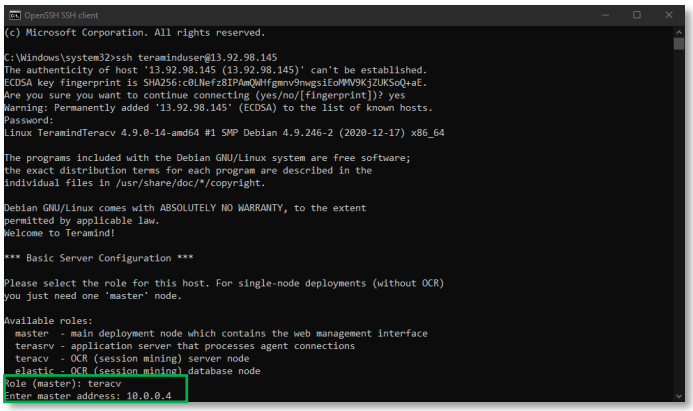
Type the password and press **Enter**.

Note:

If you used the *SSH public key* option for your VM's *Authentication type*, then use the following command:

`ssh -i "<pem file>" <username>@<ip_address>`

Where <*pem file*> is the full path of the key pair file you downloaded when creating the VM.



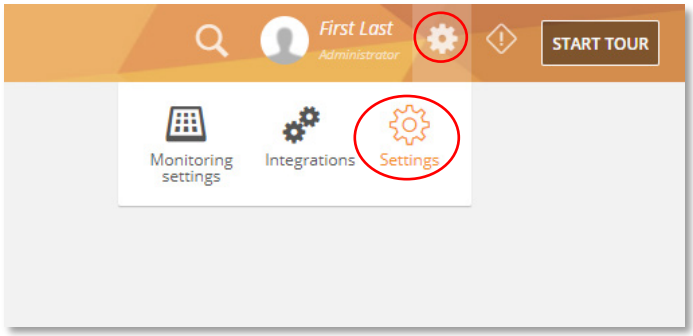
Step 5-8

When asked, enter teracv at the *Role (Master)* prompt.

At the *Enter master address* prompt, enter the Private IP address you copied in *Step 5-4*.

It might take a few minutes for Teramind to set up the *teracv* node.

Once done, you can exit the SSH session.

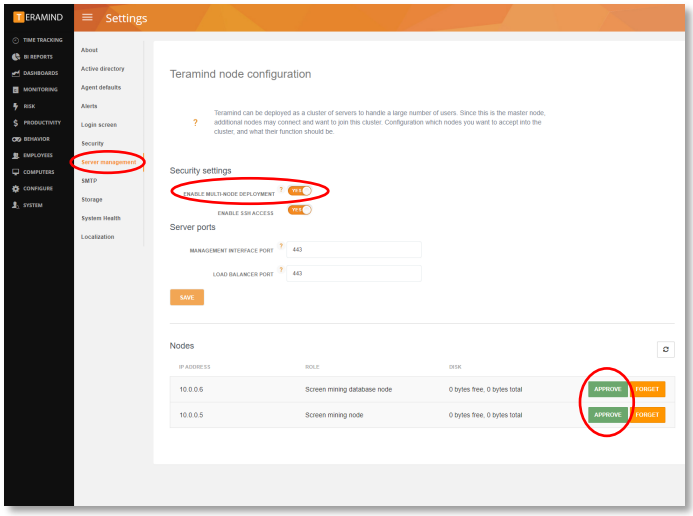


Step 5-9

We will now need to approve the two nodes on the Teramind Dashboard.

Login to your Teramind Dashboard on the master server.

Click the **Cog Wheel** icon near the top-right corner of the dashboard and select **Settings** from the pull-down menu.



Step 5-10

From the *Settings* screen, click the **Server management** tab.

Turn on the **ENABLE MULTI-NODE DEPLOYMENT** option under the *Security settings* section.

Under the *Nodes* section, you will notice the *Screen mining database node* and the *Screen mining node*.

Approve both nodes by clicking the **APPROVE** buttons.

You are now all set up for the OCR.

6 Installing the Teramind Agent

Teramind Agent can be installed both locally and remotely. Check out this article to learn how to download and install the agent: How to download and install the Teramind Agent.

Firewall & Proxy Considerations

In most cases, you should not have to change any settings to get Teramind to work. By default, the Teramind Agents communicate with the Teramind server on two ports: 443, and 10000.

The Teramind management interface is entirely web-driven and runs over HTTPS (port 443). This means that most proxies will allow the traffic through, provided you properly installed your SSL certificates.

For live and recorded screen playback, as well as live session listing, Teramind uses Websockets. Although Websockets operates as HTTPS over port 443, some older proxies may not recognize this protocol. In either case, if you are experiencing trouble accessing your Teramind dashboard, try to disable your proxy temporarily to isolate the cause.

Also note that, if the audio recording is enabled, Teramind Agent will connect to the server on a random UDP port in the range 1000-65535 to send the audio recordings. Make sure UDP ports in that range are enabled and open from the endpoint to the server.

If you encounter any issues with your firewall or proxy, check out this troubleshooting article for help: Firewall and proxy issues.

Antivirus Considerations

Teramind Agent and its drivers come digitally signed with an extended validation certificate. We've made every effort to coordinate our signature with the major antivirus vendors, and as a result, Teramind should work normally with the vast majority of antivirus software.

If you encounter any issues, check out the Antivirus Configuration Guide for help.

Additional Configurations

Once you have installed the Teramind successfully, you can configure other aspects of the server, agent, and other settings entirely from the web-based dashboard.

Changing the License Key

Check out this article for help: How to change the license key (On-Premise / Private Cloud Deployment).

Setting Up the Active Directory / LDAP Integration

Check out the Active Directory section on the Teramind User Guide to learn how to set up an Active Directory / LDAP integration.

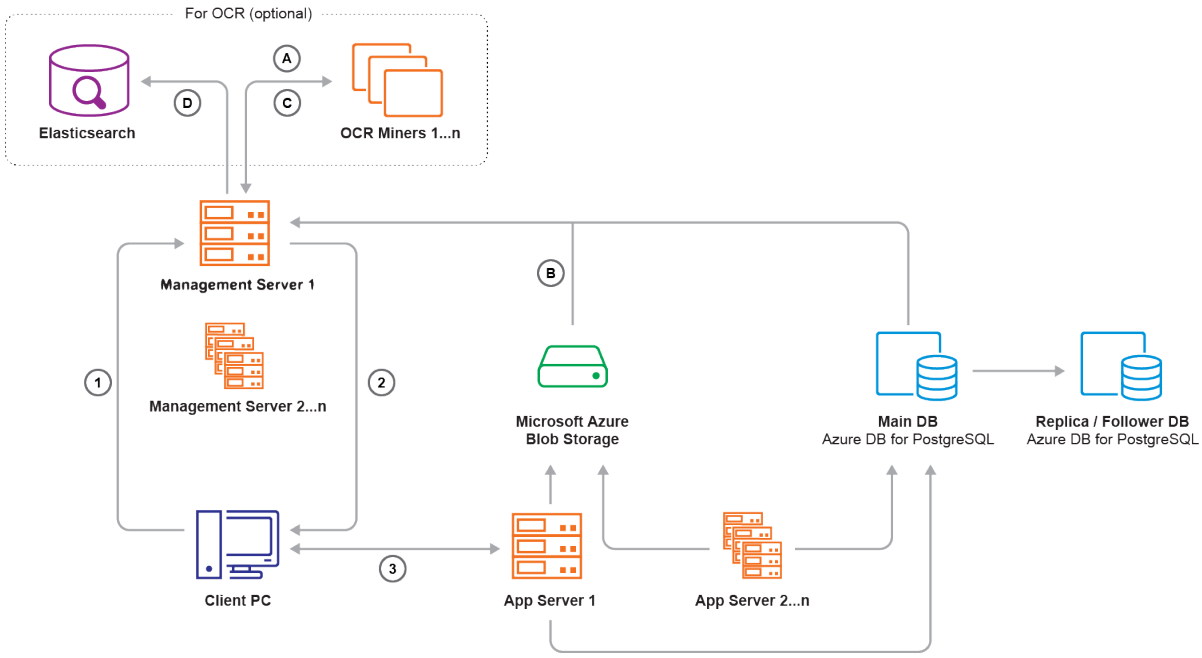
SMTP Email

Check out this article for help: SMTP Configurations (On-Premise).

SSL Certificate

Check out the Settings > Security > SSL section on the Teramind User Guide to learn how to set up the SSL certificates. You can also create your own SSL certificates for use with your on-premise deployments. To learn how to generate such self-signed certificates, check out this article.

Architecture



Legends:

1. Teramind Agent asks Management Server for an Application Server IP and port
2. Management Server responds
3. Teramind Agent connects to the assigned Application Server

A. OCR Miner talks to the Management Server and asks for a record to process
B. Management Server fetches a screen file from the Microsoft Azure Blob Storage and sends it to the OCR Miner Node
C. Once OCR is done, the OCR Miner sends results as text to the Management Server
D. Management Server writes the OCR result text to Elasticsearch

The **Management Server** serves the admin dashboard, load balances agents, and provides data to the OCR Miner Nodes. Teramind Agent connects to an **Application Server** via an always-on, TLS-encrypted connection, using our own protocol based on Google Protocol Buffers. **OCR Miners** are stateless and work with spot instances.

Technical Specifications

Regions / Data Centers	Teramind on Azure deployment is available on the following data centers/regions (subject to change). We recommend you choose a region closest to you for faster service and lower latency: • Canada Central • Canada East • Central US • East US • East US 2 • North Central US • South Central US • West Central US • West US • West US 2 • Canada Central • Canada East • Central US • East US • East US 2 • North Central US • South Central US • West Central US • West US • West US 2
OS	64-bit Linux/Unix, Debian 9 Azure Image / VHD.
Databases	Azure SQL volume by default. Optionally, Microsoft Azure Blob Storage and Azure Database for PostgreSQL are supported.
Instances	For a typical deployment of up to 100 concurrent users, Teramind recommends a B4MS Standard VM with 4 Cores, 16GB RAM, and 32GB SSD. Various other instances types (Basic, Standard, General Purpose, Memory Optimized, Compute Optimized) with different combinations of CPU, RAM, SSD, and HDD options are available to meet specific use cases.
License	Azure infrastructure costs + BYOL (bring your own Teramind license). Go to www.teramind.co/product/price to try or buy a Teramind on-prem/private-cloud license.

Installation Support and Troubleshooting

Chat	From your Teramind Dashboard or our website: https://teramind.co/
Email	support@teramind.co
Phone	+1 212 603 9617