



Teramind on AWS

Deployment Guide

Ver 7.0 (18 DECEMBER 2021)



Table of Contents

Teramind on AWS Overview	2
Benefits of Deploying Teramind on AWS	2
Primary Server Requirements	3
Database Server Requirements	4
OCR Server Requirements	5
Storage Requirements	6
Agent Requirements	7
Prerequisites	8
1. Creating an AWS Instance and Accessing it with SSH	9
2. Creating an RDS Database	14
3. Adding an S3 Storage	18
4. Finishing the Deployment	21
5. Setting up the OCR (optional)	25
6. Installing the Teramind Agent	29
Firewall & Proxy Considerations	29
Antivirus Considerations	29
Additional Configurations	30
Changing the License Key.....	30
Setting Up the Active Directory / LDAP Integration.....	30
SMTP Email	30
SSL Certificate	30
Architecture	31
Technical Specifications	32
Installation Support and Troubleshooting	33

Teramind on AWS Overview

All Teramind solutions are available to deploy on Amazon’s distributed, highly scalable, and reliable Amazon Web Services (AWS) platform as a Private Cloud option. This deployment guide will help you discover what you can expect from your Teramind on AWS deployment and provide you with installation prerequisites, step-by-step instructions, technical and support information.

Benefits of Deploying Teramind on AWS

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, security or have made the transition and already host on AWS, then Teramind on AWS is the right choice for you. With our AWS Private Cloud hosting option, enjoy the benefits of both worlds: cost and scalability comparable to a Cloud deployment and security and flexibility similar to an On-Premise solution. Here are some infrastructure benefits you can expect if you choose to deploy Teramind on AWS:



Flexible and Competitive Pricing

You only pay for the AWS resources you consume (i.e. CPU, storage, memory). Teramind’s recommended configuration for a standard deployment (*m4.xlarge* instance, supporting up to 100 users) costs only a few cents per hour*.

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



Optimized Environment

Choose the region, OS, storage, database, etc. For example, you can use an Amazon S3 storage for Teramind’s session recordings and Amazon RDS databases for session logs that are highly optimized for performance on AWS.



Easy Deployment

Create a Teramind server with a single click by launching the Teramind AMI (Amazon Machine Image) from the AWS Marketplace.



Reliability

Support for High Availability (HA), redundancy with multi-geo replications, on-demand backup, and disaster recovery.



Scaling

Vertical and horizontal scaling with optional auto-scaling that adjusts capacity based on demand.



Central Management Console

Configure and manage all your deployments from one central location.



Security and Compliance

Firewall, encryption at rest, SSL encryption, VLAN, SSH tunnels, 2FA, IP whitelisting, and encrypted disks allowing for easy regulatory compliance for HIPAA, GDPR, PCI DSS, and more make it ideal for Teramind customers in government, healthcare, finance, and other regulated industries.

Primary Server Requirements

Deployments for under 1,000 concurrent users can be hosted on one all-inclusive server, in most cases. EC2 instance(s) should be provisioned based on the expected number of concurrent monitored sessions, according to the following table:

Concurrent Users	Server Requirements	EC2 Instance Type
Up to 100	1 Teramind Master Server (VM)	<ul style="list-style-type: none">m4.xlarge
Up to 500	1 Teramind Master Server (VM)	<ul style="list-style-type: none">m4.2xlarge
Up to 1, 000	1 Teramind Master Server (VM)	<ul style="list-style-type: none">m4.4xlarge
Larger deployments: <i>1,000 or more concurrent users</i>	1 Teramind Master Server (VM)	<ul style="list-style-type: none">m4.4xlarge
	1 Teramind App Server (VM) per 1,000 concurrent users	<ul style="list-style-type: none">m4.4xlarge
	1 Teramind BI Server (VM)	<ul style="list-style-type: none">m4.4xlarge

Database Server Requirements

Concurrent Users	Server Type	CPU/RAM/Disk
Up to 100	db.t3.medium	<ul style="list-style-type: none">• CPU: 2 vCPU• RAM: 4 GB• Disk: 100 GB*
Up to 500	db.t3.xlarge	<ul style="list-style-type: none">• CPU: 4 vCPU• RAM: 16 GB• Disk: 500 GB*
Up to 1,000	db.t3.2xlarge	<ul style="list-style-type: none">• CPU: 8 vCPU• RAM: 32 GB• Disk: 1 TB*
Larger deployments: <i>1,000 or more concurrent users</i>	db.m4.4xlarge or more	<ul style="list-style-type: none">• CPU: 16 vCPU• RAM: 64 GB• 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	EC2 Instance Type
Less than 200 users	1 OCR Database Node	<ul style="list-style-type: none">m4.xlarge
	1 OCR Mining Node	<ul style="list-style-type: none">m4.4xlarge
Larger deployments of 200 or more users	1 OCR Database Node	<ul style="list-style-type: none">m4.xlargeDisk: 100 GB
	1 OCR Mining Node per 200 users	<ul style="list-style-type: none">m4.4xlargeDisk: 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	<p>The Teramind virtual appliance comes with a primary volume of 50 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.</p> <ul style="list-style-type: none"> 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	<p>The simplest way to add scalable storage is to use AWS S3 Storage. For instruction on how to do so, check out this step.</p> <ul style="list-style-type: none"> S3 Storage is mandatory if you have a multi-server deployment (a deployment that has more than one Teramind App Server).

Agent Requirements

Supported Platforms	<ul style="list-style-type: none">• 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) * <p><i>* At the moment, Teramind on Mac has limited functionalities. check out what features are currently supported here.</i></p>
Sessions	<ul style="list-style-type: none">• Stand-alone workstation / server• Terminal server (RDS) *• Application / Session server• Citrix• VMware Horizon <p><i>* 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.</i></p>
Load	Approximately 30 MB - 50 MB memory and 1-3% CPU utilization, depending on user activity
Visibility	Hidden or revealed desktop agents available
Deployment	<ul style="list-style-type: none">• 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	<p>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 policies and rules. Once the connection is re-established, the agent will upload the data to the server at a throttled pace.</p> <p>The offline storage buffer is configurable in monitoring settings and takes approximately 1GB per 160 hours of work time.</p>



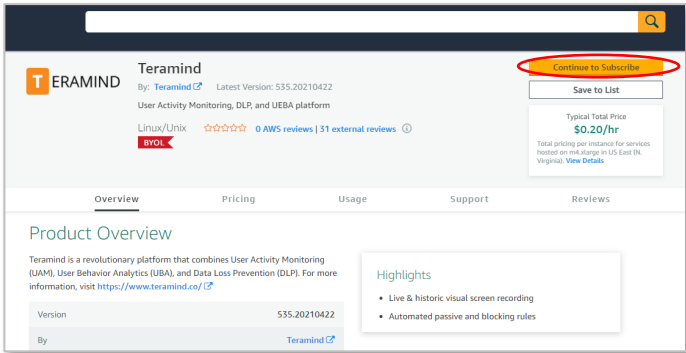
Detailed agent specifications can be found on our Knowledge Base [here](#).

Prerequisites

To get started, you will need:

- An AWS 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

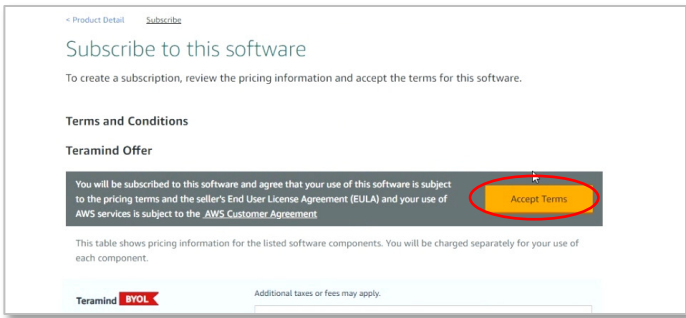
1 Creating an AWS Instance and Accessing it with SSH



Step 1-1

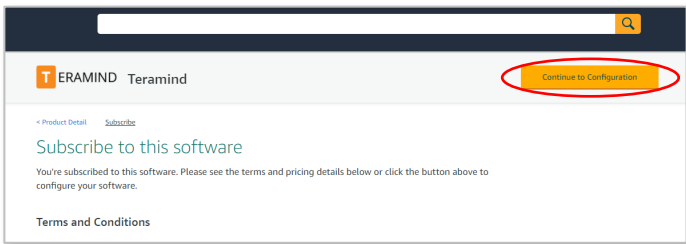
Visit: <https://www.teramind.co/deployment/aws> and click the **Check out Teramind on Amazon Marketplace** button, which will take you to the *Overview* tab on Teramind's deployment page on AWS.

Once there, click the **Continue to Subscribe** button on the top right corner.



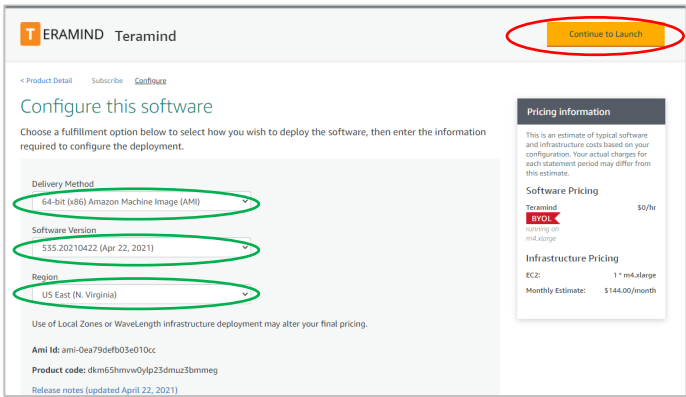
Step 1-2

On the *Subscribe* tab, click the **Accept Terms** button.



Step 1-3

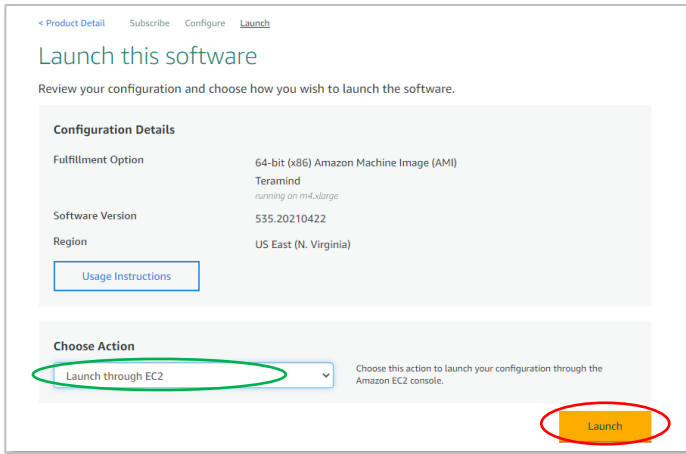
Click the **Continue to Configuration** button on the *Subscribe* tab.



Step 1-4

On the *Configure* tab, you can choose the **Delivery Method**, **Software Version**, and the **Region**. Be sure to select a region closest to you for better performance.

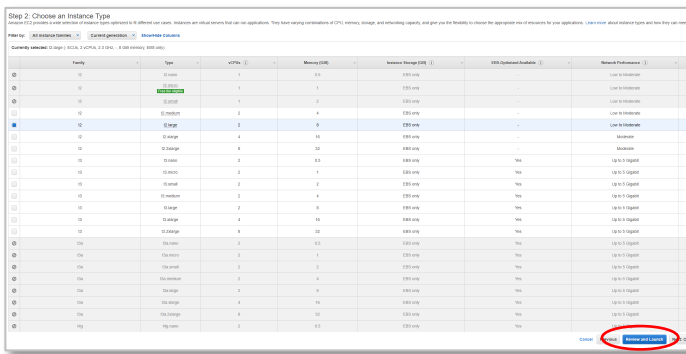
Click the **Continue to Launch** button when done.



Step 1-5

On the *Launch* tab, click the **Choose Action** pull-down menu and select **Launch through EC2**.

Click the **Launch** button.

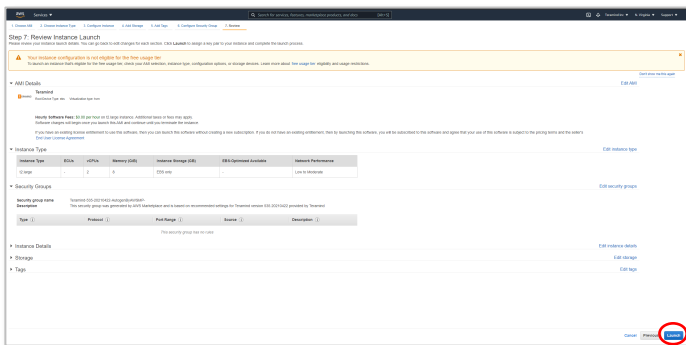


Step 1-6

On the *Choose an Instance Type* screen, select an instance type from the list of available instances.

Check out the [Primary Server Requirements](#) section above for help on choosing an instance.

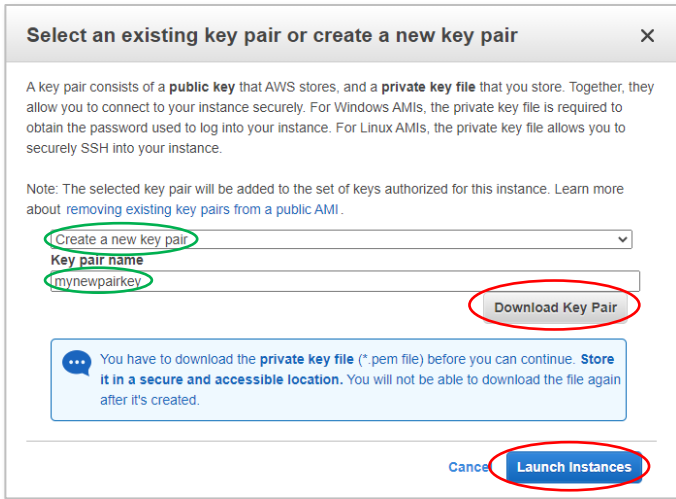
Once done, click the **Review and Launch** button at the bottom of the page.



Step 1-7

The *Review Instance Launch* screen shows all the details associated with your selected instance. You can edit any configuration if needed.

Click **Launch** to accept the configurations and launch the instance.



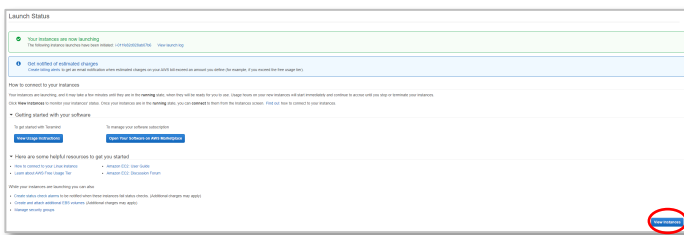
Step 1-8

Once the instance is ready, a window will pop up where you can select an existing key pair or create a new pair.

From the first pull-down menu, select **Create a new key pair** and give it a **name**. Click the **Download Key Pair** button and save the file in a secure place. You will need it in *Step 1-16*.

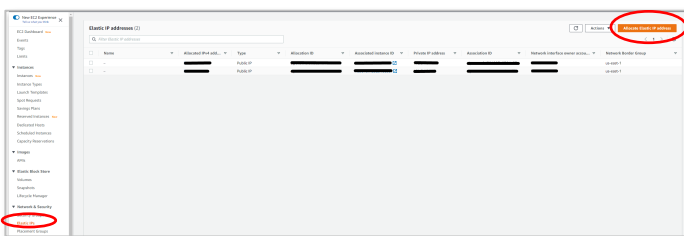
Once done saving, click **Launch Instances**.

The instance will be initialized in a few moments



Step 1-9

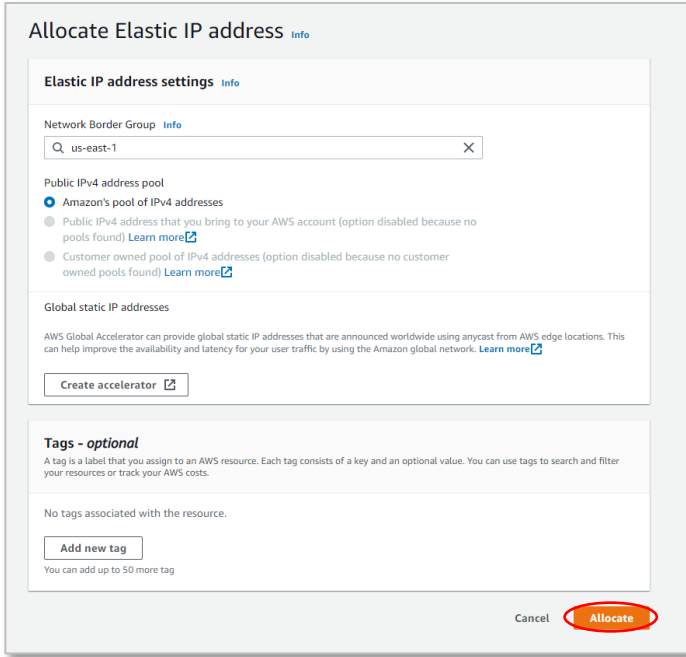
On the Launch Status window, click the **View Instances** button at the bottom to see your newly created instance(s).



Step 1-10

We now need to assign an elastic IP to the instance. Otherwise, each time you restart the instance, it's going to assign a new IP address causing the Teramind Agent to lose connection.

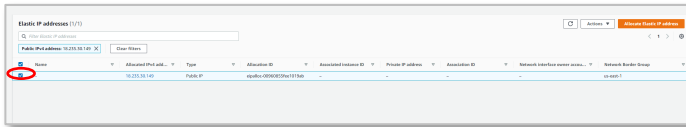
To assign an elastic IP, click the **Elastic IPs** (under *Network & Security*) from the left sidebar. Then click the **Allocate Elastic IP address** button on the top-right side of the screen.



Step 1-11

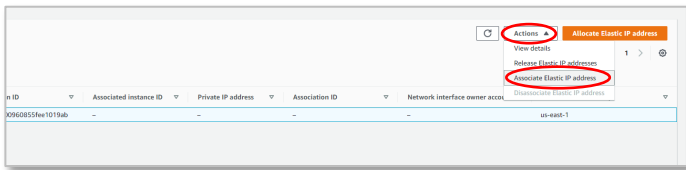
We will use the default settings on the *Allocate Elastic IP address* screen.

Click the **Allocate** button.



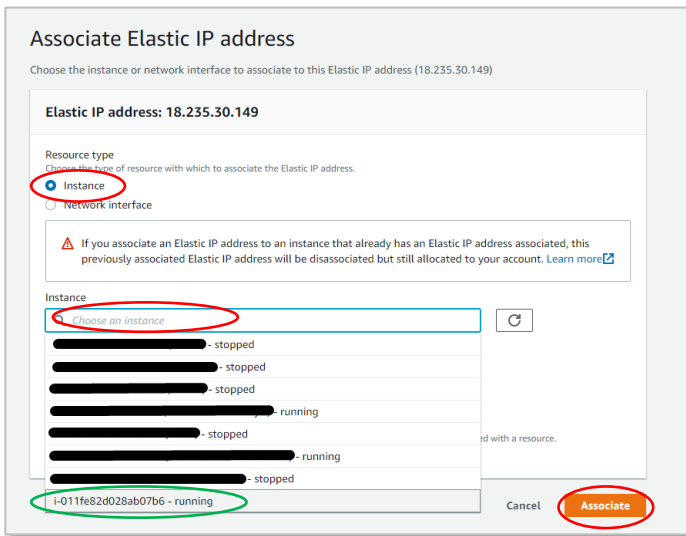
Step 1-12

Once the IP is allocated, click the **IP address** or the checkmark in front to select it.



Step 1-13

Click the **Actions** menu on top and select **Associate Elastic IP address** from the pull-down menu.

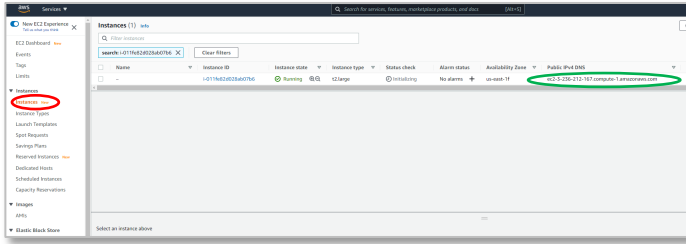


Step 1-14

On the *Associate Elastic IP address* screen, make sure **Instance** is selected as the *Resource type*.

Click the **Instance** box. You will see a list of available instances.

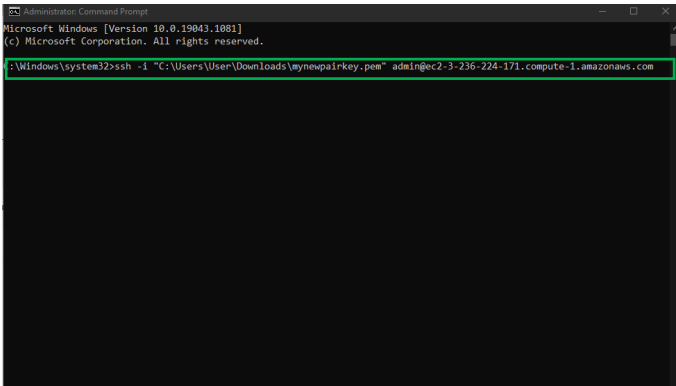
Select the **instance** you created earlier and then click the **Associate** button.



Step 1-15

Go back to the **Instance** menu.

Copy or write down the **Public IPv4 DNS** address for the instance you created. You will need it in the next step.



Step 1-16

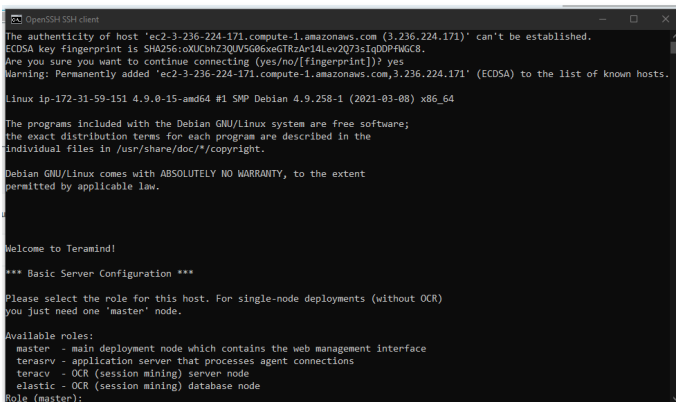
Launch an SSH session. If you are on Windows, you can use a tool like PuTTY or a similar utility for the SSH. Make sure you have administrative access.

Type:
`ssh -i "<pem file>"
 admin@<DNS>`

Where *<pem file>* is the full path of the key pair file you downloaded in *Step 1-8*.

<DNS> is the Public IPv4 DNS address you copied in the previous step.

Press **Enter**. The server will be ready in a few minutes.



Step 1-17

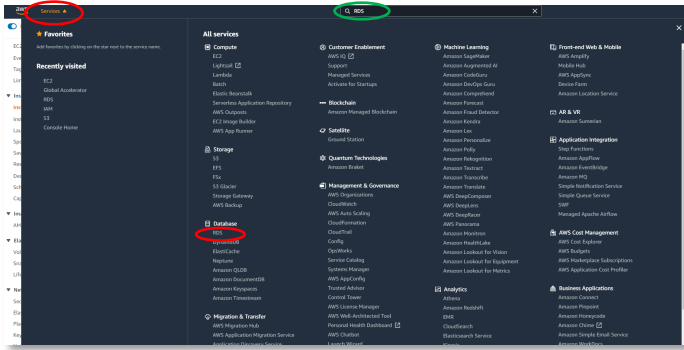
Once the server is ready, you will see this message, 'Welcome to Teramind!'. Under the message you will be given options to assign roles for the nodes/hosts, beginning with the Master role. However, before you can assign a role, you will need to finish the rest of the steps.

Keep this command window open as you will use it to finalize the setup at a later stage.

2 Creating an RDS Database

Before you proceed any further with the setup process, you will need to determine if you want to use external databases or storage with the instance. External databases or storage are not mandatory. However, you may want to use Amazon RDS as the database, and Amazon S3 for screen and audio recordings. Using RDS and S3 will improve the scalability of your platform and is recommended for deployments over 100 concurrent users.

This guide will show you how to use an external database and storage using an AWS RDS database and the AWS S3 storage service. First, it will show you how to create an RDS database. If you already know how to create an RDS database, you can skip the next section.

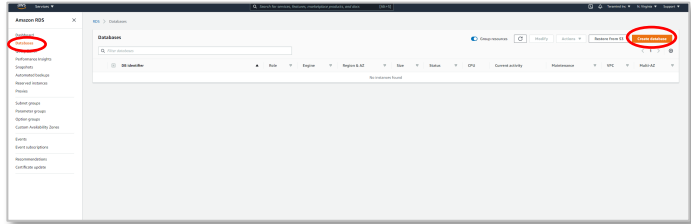


Step 2-1

From your *EC2 Management Console*, click **Services** from the top left-hand side. A Few options will show up.

Type **RDS** in the search field.

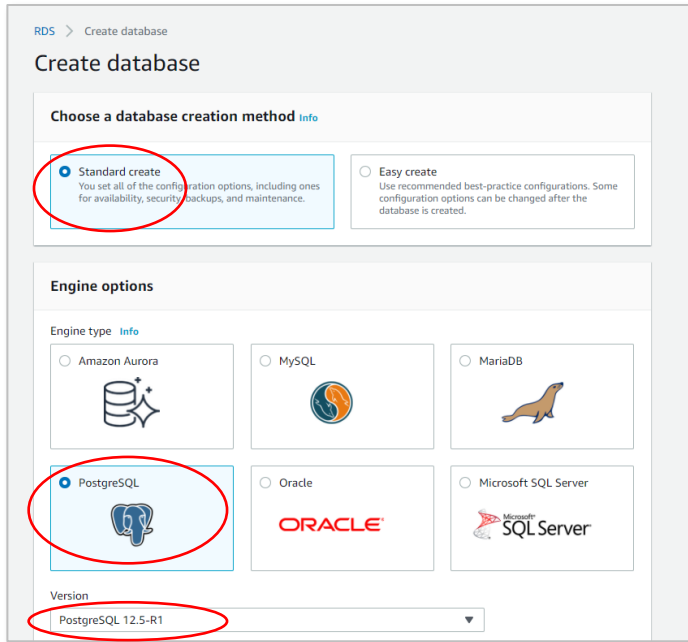
Select the **RDS** under the Database category.



Step 2-2

Select **Databases** from the left-hand sidebar.

Then, click the **Create database** button on the top-right corner of the screen.



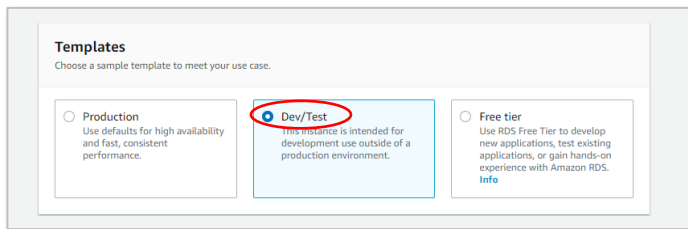
Step 2-3

On the *Create database* screen, select **Standard create** under the *Choose a database creation method*.

Select **PostgreSQL** under the *Engine options* section.

Select the latest **Version** for the database.

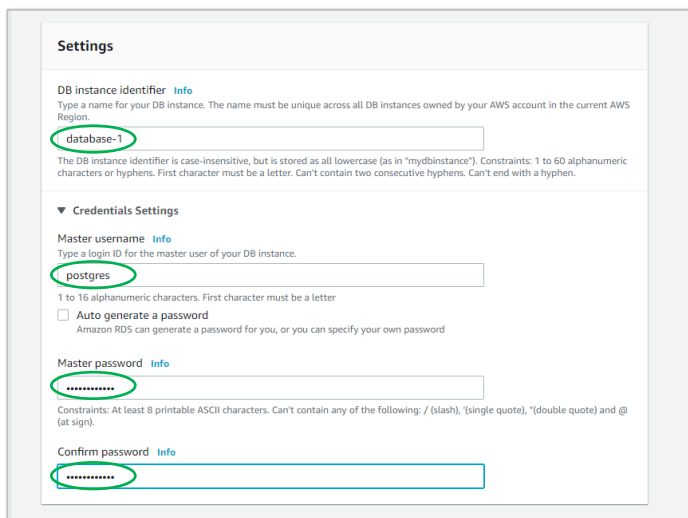
Scroll down until you reach the *Templates* section.



Step 2-4

Under the *Templates* section, select either **Production** or **Dev/Test** depending on what you want to do. In this case, we will use the **Dev/Test** option.

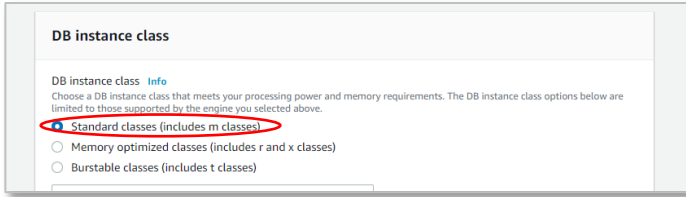
Scroll down until you reach the *Settings* section.



Step 2-5

Under the *Settings* section, type a name in the **DB instance identifier** field. Assign a **Master user name** and a **password**.

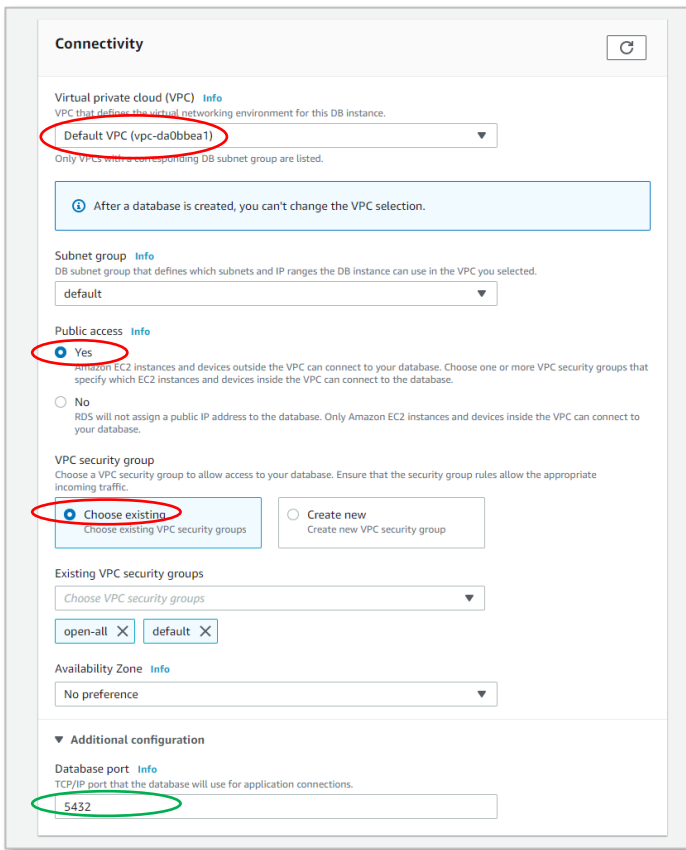
Scroll down until you reach the *DB instance class* section.



Step 2-6

Under the *DB instance class* section, select the **Standard classes** option.

Scroll down until you reach the *Connectivity* section.



Step 2-7

Under the *Connectivity* section, you can configure various connectivity options according to your needs.

For this tutorial's purposes we will use the following settings:

Select **Default VPC** for the *Virtual private cloud (VPC)* option.

Select **Yes** for the *Public access* option.

Select **Choose existing** for the *VPC security group* option.

Under *Additional configurations*, assign a **port** in the *Database port* field. This TCP/IP port should be open so that your applications can use the database.

Scroll down until you reach the *Database authentication* section.

Database authentication

Database authentication options [Info](#)

Password authentication
Authenticates using database passwords.

Password and IAM database authentication
Authenticates using the database password and user credentials through AWS IAM users and roles.

Password and Kerberos authentication
Choose a directory in which you want to allow authorized users to authenticate with this DB instance using Kerberos Authentication.

► **Additional configuration**
Database options, encryption enabled, backup enabled, backtrack disabled, Performance Insights enabled, Enhanced Monitoring enabled, maintenance, CloudWatch Logs, delete protection disabled

Estimated monthly costs

DB instance	116.07 USD
Storage	2.30 USD
Total	118.37 USD

This billing estimate is based on on-demand usage as described in [Amazon RDS Pricing](#). Estimate does not include costs for backup storage, IOs (if applicable), or data transfer.

Estimate your monthly costs for the DB Instance using the [AWS Simple Monthly Calculator](#).

You are responsible for ensuring that you have all of the necessary rights for any third-party products or services that you use with AWS services.

Cancel **Create database**

Step 2-8

Under the *Database authentication* section, select **Password authentication** for the *Database authentication options*.

Under the *Additional configurations* section, you can specify additional options such as encryption, backup, enhanced monitoring, etc. For this tutorial's purposes, we will keep them to their default settings.

Under the *Estimated monthly costs* section, you will be able to see the cost breakdown for your database.

Once ready, click the **Create database** button at the bottom to create the database.

3 Adding an S3 Storage

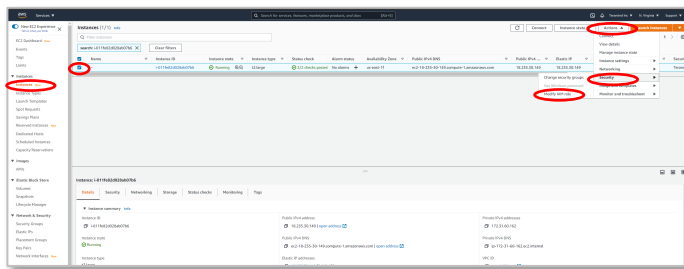
Teramind does not need external storage. However, Teramind can utilize a file storage system for screen and audio recordings, captured attachments, printer documents, and metadata such as user images. AWS S3 is an efficient, secure, scalable, and redundant solution to store objects like these. The S3 storage will improve the scalability of your platform and is recommended for deployments of over 100 concurrent monitored users.



For more information, check out the [Storage Requirements](#) section of this guide.

To use the AWS S3 storage, you will need to attach an Identity and Access Management or IAM profile to your storage instance. IAM enables you to manage access to your AWS services and resources securely. Using IAM, you can create and manage AWS users and groups and control user permissions.

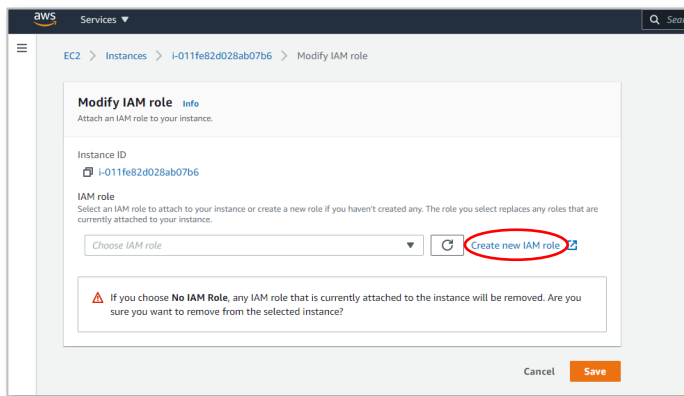
This guide will show you how to create an IAM profile and attach it to your S3 instance. If you already know how to create one, you can skip this section.



Step 3-1

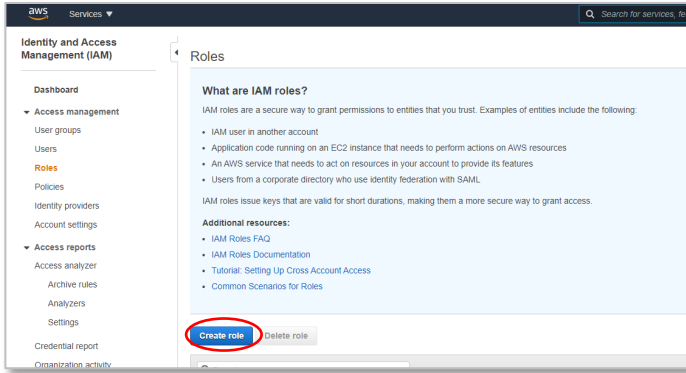
Go to the **Instances** screen from your EC2 Management Console. Make sure the instance you want to use is selected.

Click the **Actions** button near the top-right corner. From the pull-down menu, select **Security > Modify IAM Role**.



Step 3-2

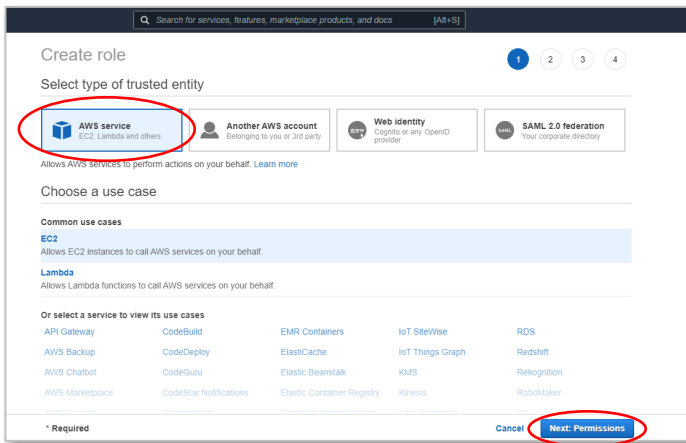
On the *Modify IAM Role* screen, click the **Create new IAM role** link.



Step 3-3

On the *Roles* screen, you will see an explanation of the IAM roles and links to some resources and documentations.

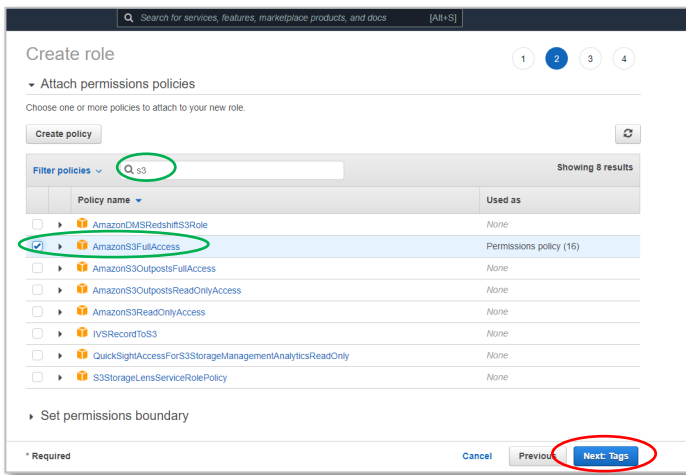
Click the **Create role** button to continue.



Step 3-4

Select the default **AWS service** as the type for the trusted entity.

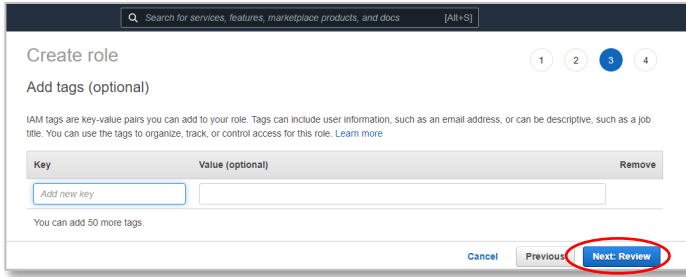
Click the **Next: Permissions** button.



Step 3-5

From the list of permission policies, select the one named '**AmazonS3FullAccess**' (you can quickly locate it using the **Search** field).

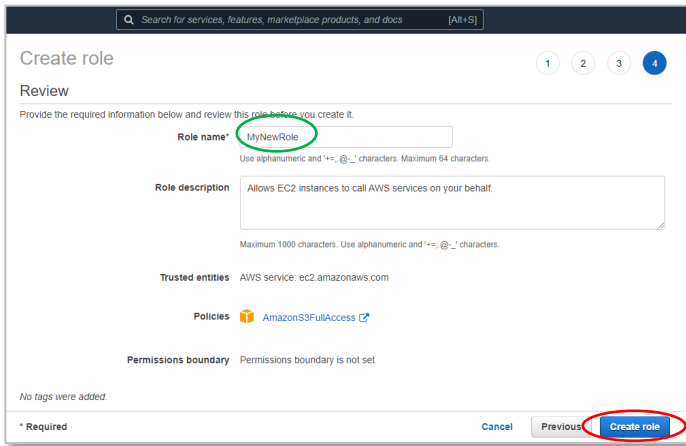
Click the **Next: Tags** button to continue.



Step 3-6

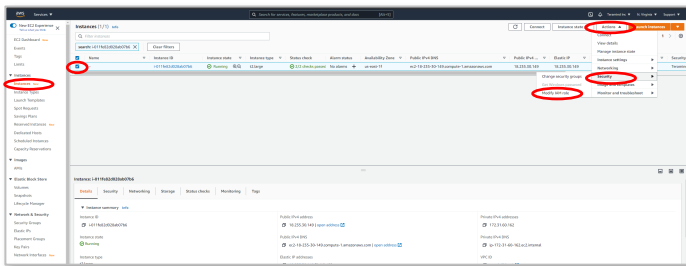
Tags are optional and we will not use any in this tutorial. You can still add some tags if you want.

Click the **Next: Review** button to go to the next screen.



Step 3-7

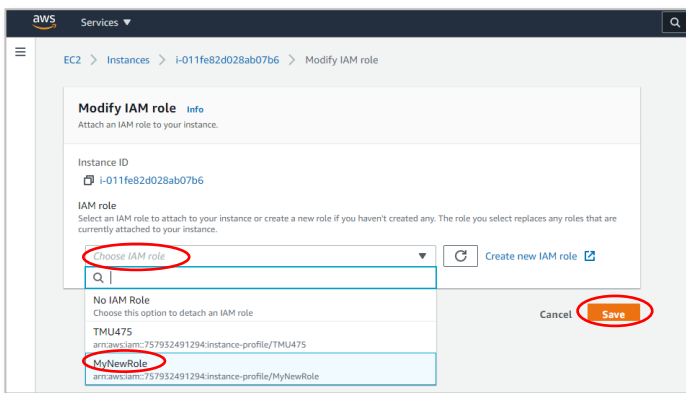
On the *Review* screen, give the role a **name** and click the **Create role** button.



Step 3-8

Go back to the **Instances** screen from your EC2 Management Console. Make sure the instance you want to use is selected.

Click the **Actions** button near the top-right corner. From the pull-down menu, select **Security > Modify IAM Role**.



Step 3-9

On the *Modify IAM Role* screen, click the **Choose IAM role** field and select the IAM role you created in *Step 3-7*.

Click the **Save** button to attach the IAM role to your instance.

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 \(On-Premise / Private Cloud deployment\)](#).

```
OpenSSH SSH client
Available roles:
master - main deployment node which contains the web management interface
teramind - application server that processes agent connections
teracy - OCR (session mining) server node
elasticsearch - OCR (session mining) database node
Role (master): master

Teramind comes with a pre-installed PostgreSQL database server.
You can also choose to use a dedicated database host (ie. Amazon RDS,
Azure DB for PostgreSQL, ...). If you prefer to use an external DB
server, you'll need to have the hostname, username, password ready.
Use external database (yes/NO): yes

*** NOTE ***
Teramind requires two databases named 'teramind' and 'tm_onsite'.
If those databases do not exist, the installation process will
attempt to create them. Therefore, CREATEDB permissions are
necessary.
***

Database IP or hostname: database-1.c039ae0bjlt.us-east-1.rds.amazonaws.com
Database username: postgres
Database password:
```

Step 4-1

Go back to the command prompt window you left open in *Step 1-17*.

Enter a **name** at the *Role (master)* prompt.

At the *Use external database?* prompt enter **Yes**.

Supply the RDS **database IP / hostname**, **username**, and **password** you created before. Press **Enter** when done.

Teramind will initialize the database, tables, and required indexes automatically.

```
admin@ip-172-31-59-151:~$
Done
Updating database config...

Teramind can store screen recordings and other non-meta-data as flat files or
as objects in a S3-compatible bucket.
Use S3 for storing data (yes/NO): yes

*** NOTE ***
This host should have IAM role for accessing S3.
***

Teramind can use existing S3 buckets or create new ones.
Create new buckets (yes/no): yes
Enter bucket name for screen recordings: teramindbuckettest1
Enter bucket name for user content (ie. attachments, printed documents, ...): teramindbuckettest2
Enter bucket name for Teramind application objects: teramindbuckettest3
Starting Teramind
Created symlink /etc/systemd/system/multi-user.target.wants/teramind.service → /etc/systemd/system/teramind.service.
Teramind initial configuration is complete. Please open https://3.236.224.171/ in
a browser to continue system setup.
```

Step 4-2

After Teramind has finished the database initializations, it will ask, *Use S3 for storing data?*. Type **Yes**.

Type **Yes** at the *Create new buckets?* prompt. You will be prompted to enter names for **three buckets**: one for screen recordings, one for user content i.e. attachments or printer docs, and the third one for application objects. Give unique names to each bucket.

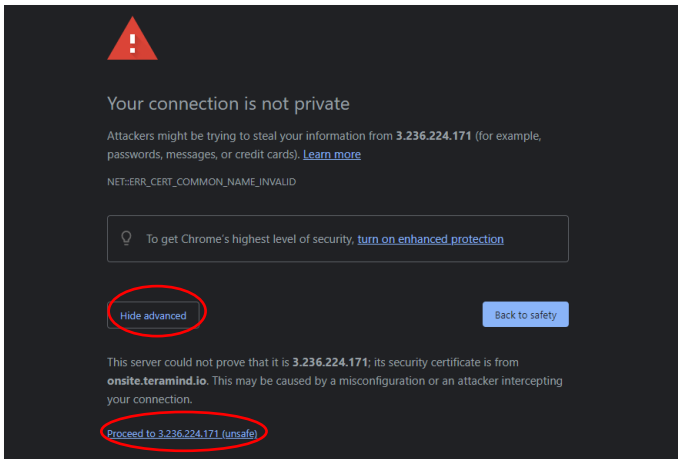
Please see the *S3 Bucket Naming Requirements* below for information on rules related to the naming of the buckets.

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.

S3 Bucket Naming Requirements

The S3 buckets must have a name that conforms with the naming requirements for non-US Standard regions. Amazon S3 defines a bucket name as a series of one or more labels, separated by periods, that must adhere to the following rules:

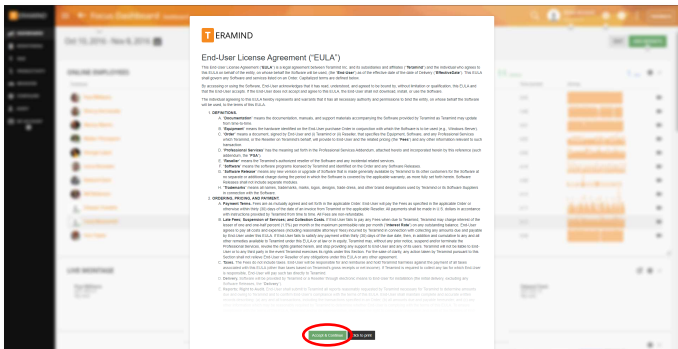
- The bucket name can be between 3 and 63 characters long and can contain only lower-case characters, numbers, periods, and dashes.
- Each label in the bucket name must start with a lowercase letter or number.
- The bucket name cannot contain underscores, end with a dash, have consecutive periods, or use dashes adjacent to periods.
- The bucket name cannot be formatted as an IP address, i.e. 198.51.100.24.



Step 4-3

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.

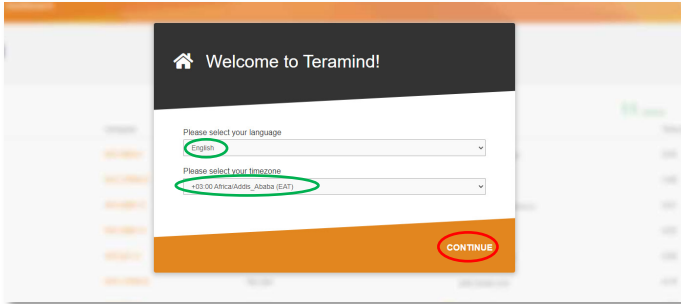
If you are using Google Chrome, click the **ADVANCED** link on the page and select the **Proceed to...** option.



Step 4-4

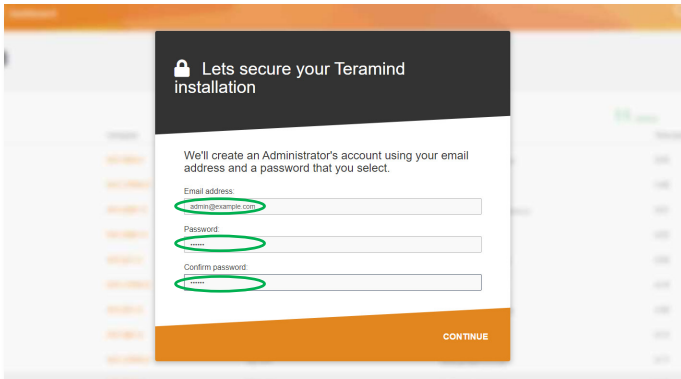
When you enter the Teramind Dashboard for the first time, you will see the *End-User License Agreement* screen.

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



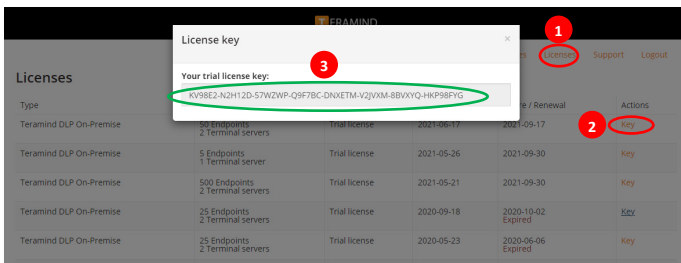
Step 4-5

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



Step 4-6

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



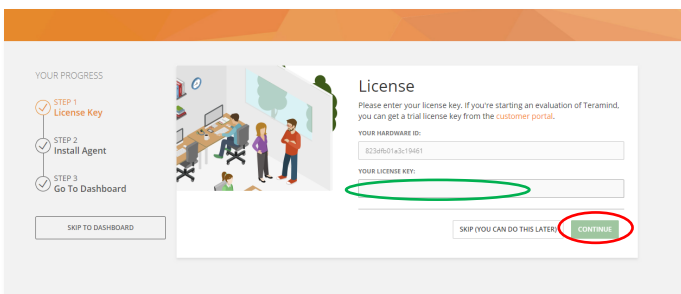
Step 4-7

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

Click the **Licenses** tab.

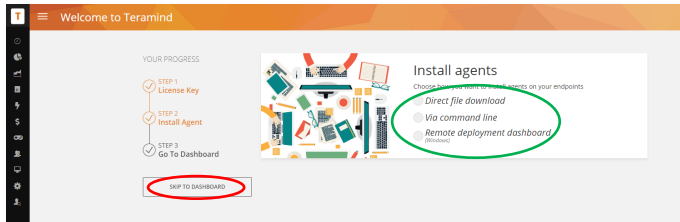
From the list of licenses, click the **Key** link under the *Actions* column. A pop-up will display the license key.

Copy the **license key** or write it down.



Step 4-8

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



Step 4-9

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](#)

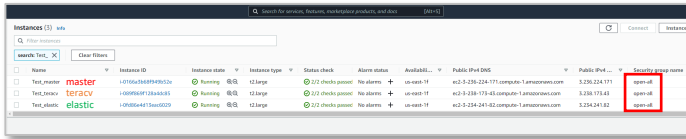
To install the agent at a later time, click the **SKIP TO DASHBOARD** button.



You are done setting up your Teramind Server. If you want to use the OCR feature, continue to the [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 in addition to a master node.



Step 5-1

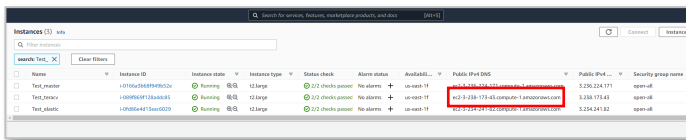
Create the *master* VM as usual.

Then, create two additional VMs. The first node will store the OCR videos. In Teramind, we will refer to it as *teracy*. The second node is for the OCR database. In Teramind, we will refer to it as *elastic*.

Make sure all the nodes are in the same **Security Group**.

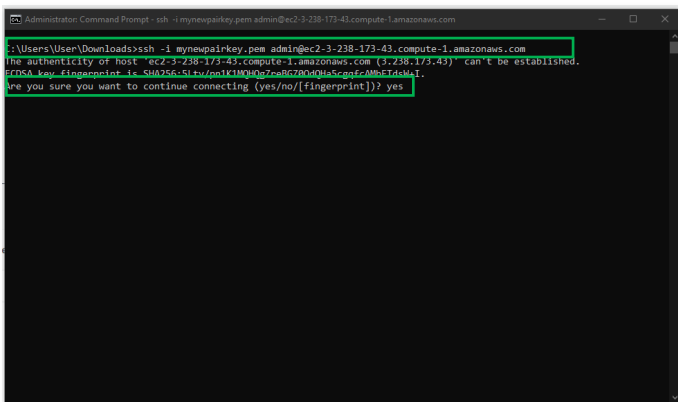


For more information on the OCR server requirements, check out the [OCR Server Requirements](#) section on this guide.



Step 5-2

From your AWS portal's *Instances* page, copy the **Public IPv4 DNS** address for the *teracy* instance.



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.

Type:
`ssh -i "<pem file>"
admin@<DNS>`

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

<DNS> is the Public IPv4 DNS you copied in the previous step (Step 5-2).

If prompted to confirm the connection, enter **yes**.

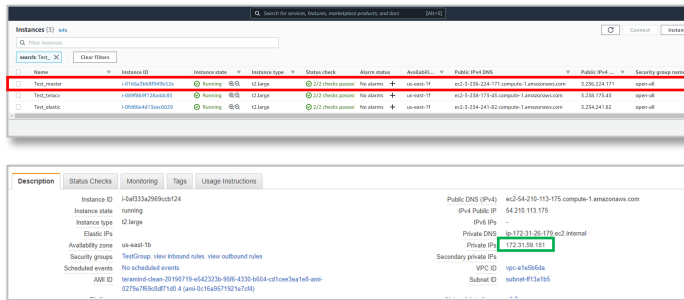
Press **Enter**. The server will be ready in a few minutes.

Step 5-4

On the AWS portal's *Instances* page, select the **master** instance.

At the bottom of the screen, you will notice a *Description* panel is shown.

Copy or write down the **Private IP** address from the *Description* panel.



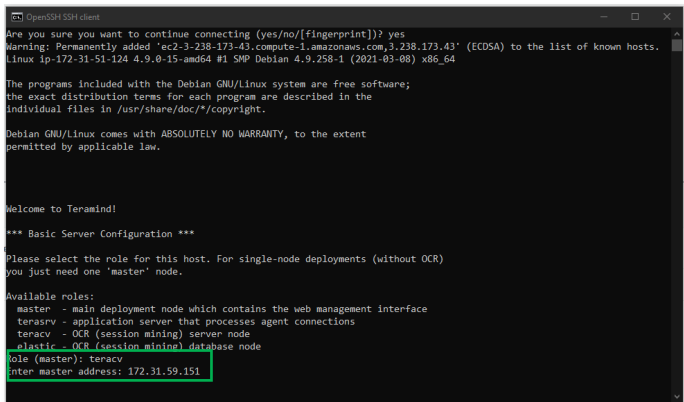
Step 5-5

Go back to the command prompt window.

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

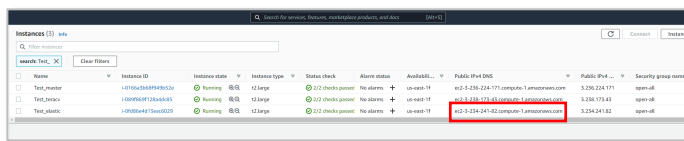
Paste the **Private IP address** you copied in the previous step (Step 5-3).

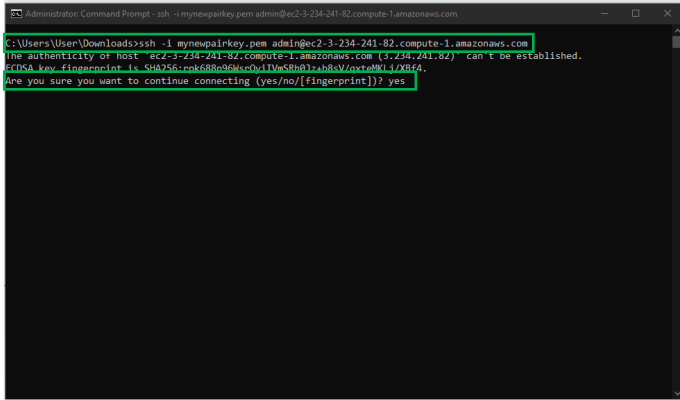
It will take a few minutes for Teramind to set up the *teracv* node.



Step 5-6

From your AWS portal's *Instances* page, copy the **Public IPv4 DNS** address for the *elastic* instance.





Step 5-7

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.

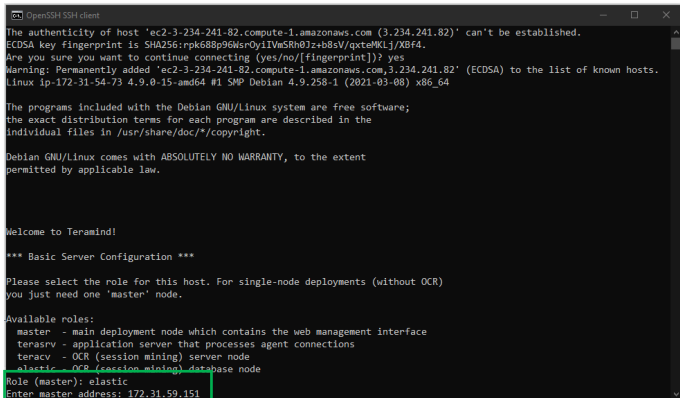
Type:
`ssh -i "<pem file>"
admin@<DNS>`

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

`<DNS>` is the Public IPv4 DNS address you copied in the previous step (*Step 5-6*).

If prompted to confirm the connection, enter **yes**.

Press **Enter**. The server will be ready in a few minutes.

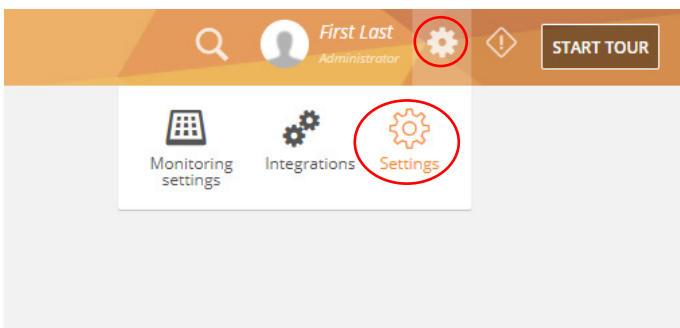


Step 5-8

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

Paste the **Private IP address** of the *master* node you copied in *Step 5-4*.

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

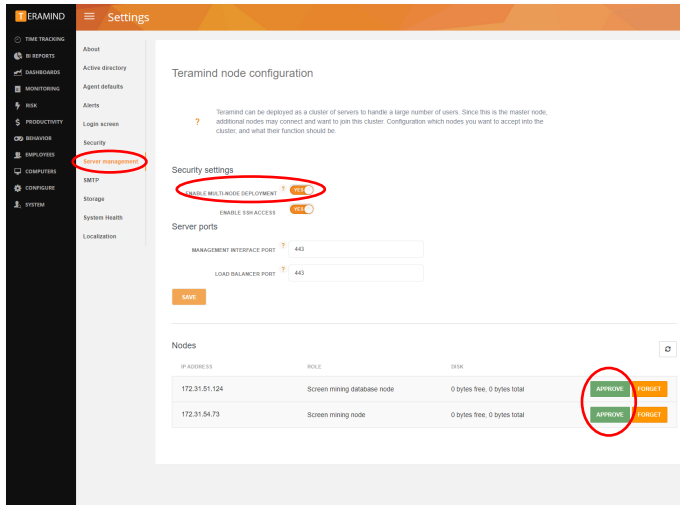


Step 5-9

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 setup 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.

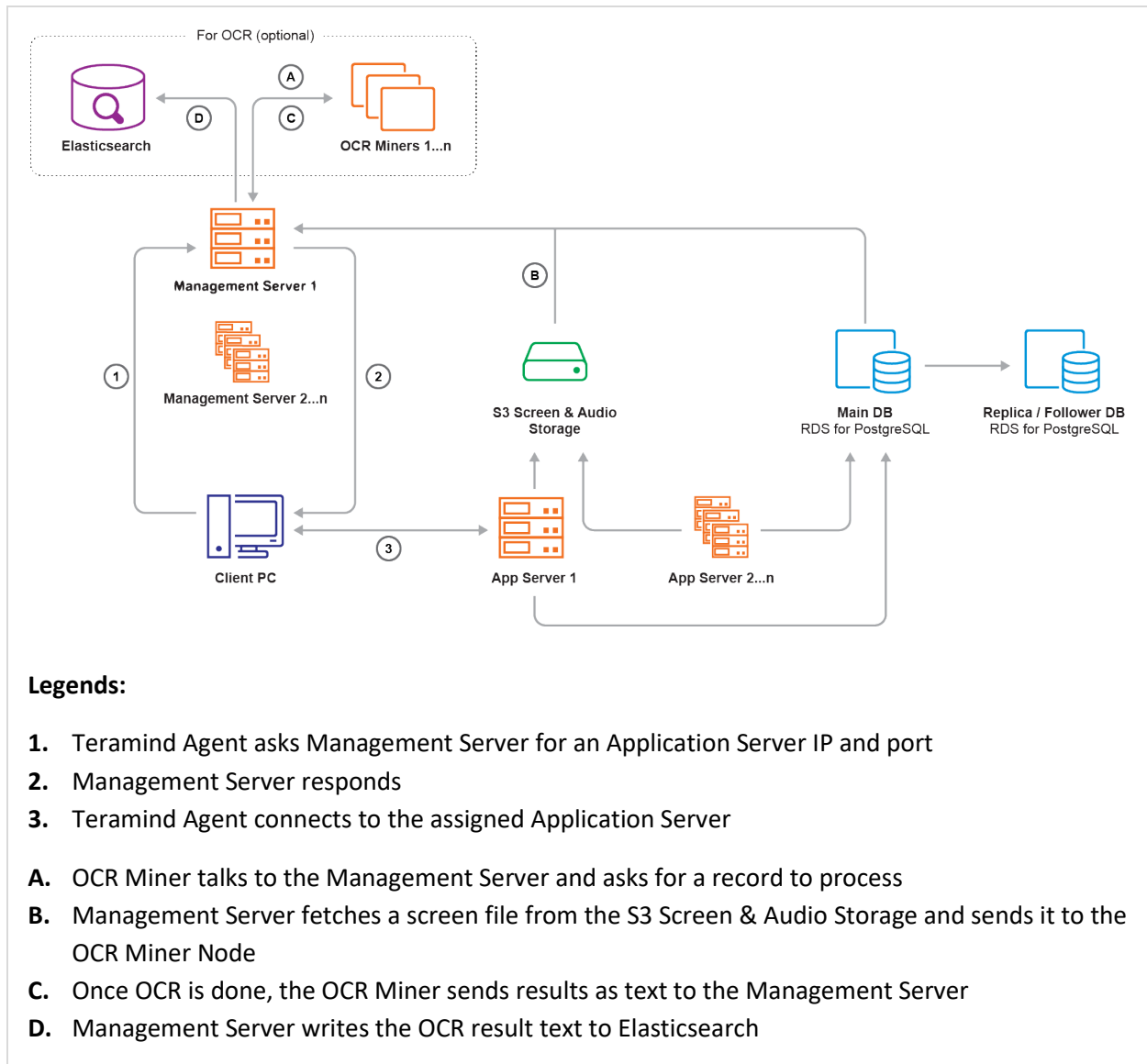
SMTP Email

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



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	<p>Teramind on AWS 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:</p> <ul style="list-style-type: none">• US East (N. Virginia)• US East (Ohio)• US West (N. California)• US West (Oregon)• Canada (Central)• EU (Frankfurt)• EU (Ireland)• EU (London)• EU (Paris)• Asia Pacific (Singapore)• Asia Pacific (Sydney)• Asia Pacific (Seoul)• Asia Pacific (Tokyo)• Asia Pacific (Mumbai)• South America (São Paulo)
OS	64-bit Linux/Unix, Debian 9.5 AMI.
Databases	EBS volume by default. Optionally S3, RDS/Postgres can be used as screen/audio recording storage.
Instances	Teramind supports various EC2 instances types (m4, t2, t3, m3, etc.) for different sizes (micro, large, extra large, etc.). Please check out the Recommended Instance Sizes section for more information.
License	BYOL (bring your own Teramind license). Click here to try or subscribe to Teramind on-prem/private cloud.

Installation Support and Troubleshooting

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