

Projet de fin de module CyberOps :

Mise en œuvre d'une infrastructure cloud de supervision centralisée sous AWS

Déploiement de Zabbix conteneurisé pour le monitoring d'un parc hybride (Linux & Windows)



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1. Introduction

Avec la généralisation des infrastructures informatiques distribuées et l'adoption croissante du cloud computing, la supervision des systèmes d'information est devenue un enjeu stratégique pour les entreprises. Assurer la disponibilité, la performance et la fiabilité des ressources informatiques nécessite la mise en place de solutions de monitoring capables de centraliser la collecte et l'analyse des données provenant d'environnements hétérogènes.

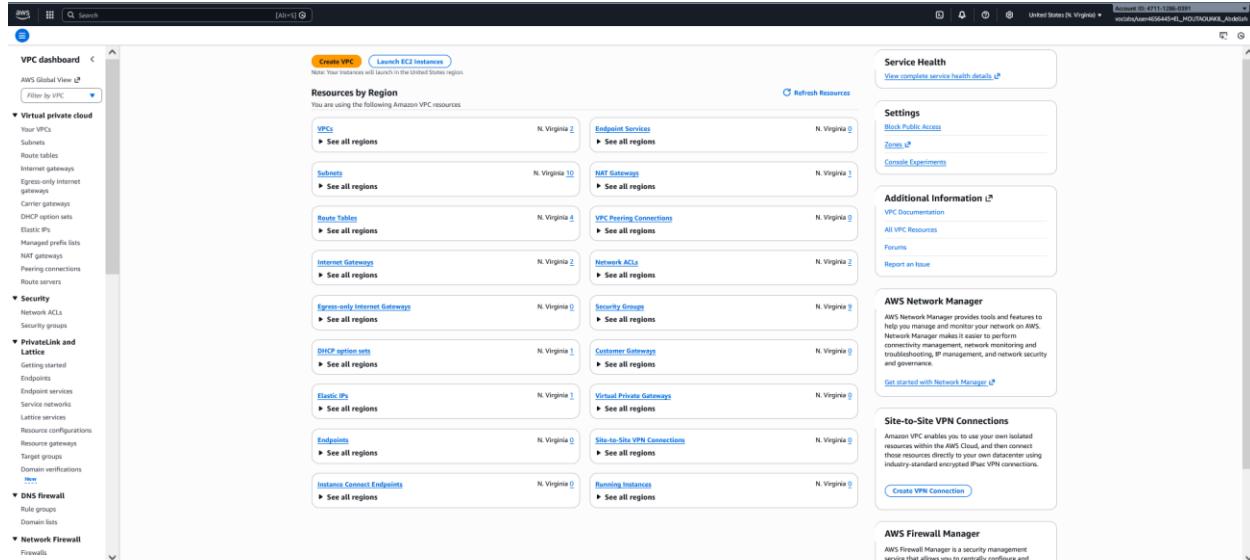
Dans ce cadre, les plateformes cloud telles qu'**Amazon Web Services (AWS)** offrent des services flexibles et évolutifs permettant de déployer rapidement des infrastructures robustes. Par ailleurs, l'utilisation des technologies de conteneurisation, notamment **Docker**, facilite le déploiement, la maintenance et la portabilité des applications. Parmi les solutions de supervision open source les plus utilisées, **Zabbix** se distingue par sa richesse fonctionnelle et sa capacité à superviser efficacement des systèmes Linux et Windows.

L'objectif de ce projet est de **concevoir et mettre en œuvre une infrastructure cloud de supervision centralisée sous AWS**, basée sur le déploiement d'un serveur **Zabbix conteneurisé**, destiné au monitoring d'un parc hybride composé de machines Linux et Windows. Le projet couvre l'ensemble des étapes, depuis la conception de l'architecture réseau et la configuration des instances EC2, jusqu'à l'installation des agents, la visualisation des métriques système et la vérification du bon fonctionnement du monitoring.

Ce travail s'inscrit dans le cadre du module d'**Ingénierie des Infrastructures Big Data et Cloud Computing** et vise à consolider les compétences pratiques en cloud computing, administration système, conteneurisation et supervision des infrastructures informatiques.

2. Architecture Réseau

Creation de vpc

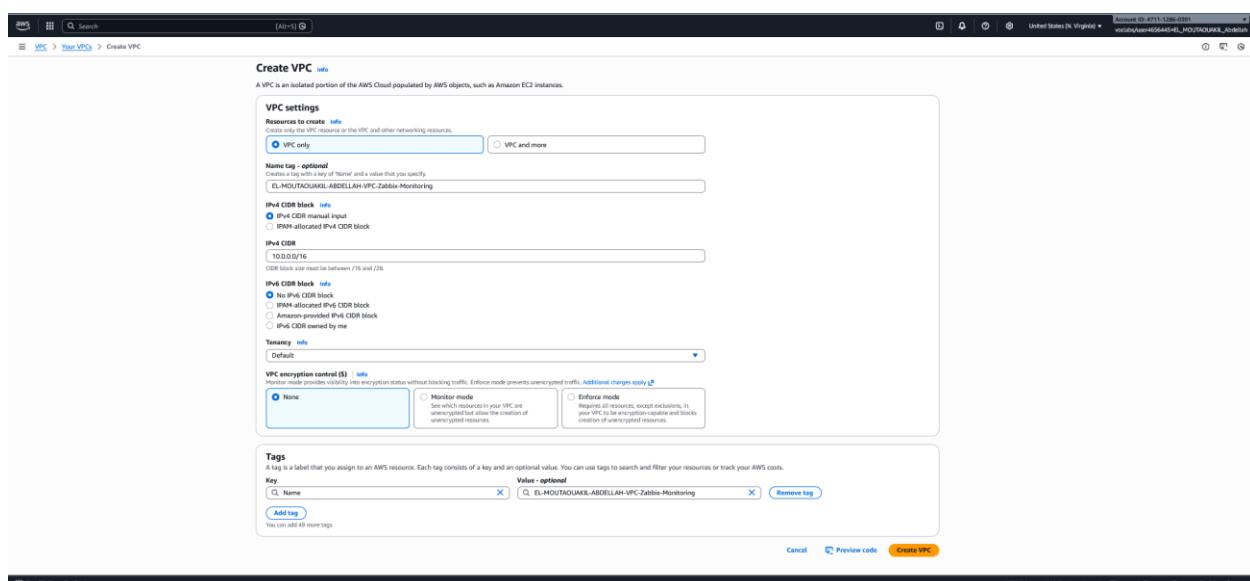


The screenshot shows the AWS VPC dashboard with a sidebar containing navigation links for VPCs, Subnets, Route tables, Internet gateways, Egress-only internet gateways, Carrier gateways, DHCP option sets, Elastic IPs, Managed profile lists, NAT gateways, Peering connections, Route servers, Security (Network ACLs, Security groups), PrivateLink and Latency, DNS Firewall (Rule groups, Domain lists), Network Firewall (Firewall), and CloudWatch Metrics.

The main area displays resources by region (N. Virginia) for various categories:

- VPCs:** See all regions
- Subnets:** See all regions
- Route Tables:** See all regions
- Internet Gateways:** See all regions
- Egress-only Internet Gateways:** See all regions
- DHCP option sets:** See all regions
- Elastic IPs:** See all regions
- Endpoints:** See all regions
- Instance Connect Endpoints:** See all regions
- Endpoint Services:** See all regions
- NAT Gateways:** See all regions
- VPC Peering Connections:** See all regions
- Customer Gateways:** See all regions
- Virtual Private Gateways:** See all regions
- Security Groups:** See all regions
- Network ACLs:** See all regions
- Virtual Private Clouds:** See all regions
- Site-to-Site VPN Connections:** See all regions
- Routing Instances:** See all regions

On the right side, there are sections for Service Health, Settings (Block Public Access, Zones, Compile Experiments), Additional Information (VPC Documentation, All VPC Resources, Forums, Report an issue), AWS Network Manager (Get started with Network Manager), Site-to-Site VPN Connections (Create VPN Connection), and AWS Firewall Manager (AWS Firewall Manager is a security management service that allows you to centrally configure and manage your AWS Firewall).



The screenshot shows the 'Create VPC' wizard, Step 1: VPC settings. It includes fields for:

- Name tag (optional):** EL-MOUTAOUAKIL-ABDELLAH-VPC-Zabiba-Monitoring
- IPv4 CIDR Block:** 10.0.0.0/16
- Tags:** A tag named 'Name' with value 'EL-MOUTAOUAKIL-ABDELLAH-VPC-Zabiba-Monitoring' is added.

Other settings include:

- VPC encryption control (S):** None (selected)
- Monitor mode:** Unselected
- Enforce mode:** Selected

At the bottom, there are 'Cancel', 'Preview code', and 'Create VPC' buttons.

Creation de subnet

The screenshot shows the 'Create subnet' wizard in the AWS VPC console. The current step is 'Subnet settings'. The form fields include:

- VPC ID:** vpc-027376f0bbfb9e79 (EL-MOUTAOUAKIL-ABDELLAH-VPC-Zabbix-Monitoring)
- Associated VPC CDRs:** IPv4 CDRs 10.0.0.0/16
- Subnet name:** EL-MOUTAOUAKIL-ABDELLAH-Public-Subnet-Zabbix
- Availability Zone:** us-east-1a (United States (N. Virginia))
- IPv4 VPC CDR block:** 10.0.0.0/16
- IPv4 subnet CDR block:** 10.0.1.0/24
- Tags - optional:** A single tag named 'Name' with value 'EL-MOUTAOUAKIL-ABDELLAH-Public-Subnet-Zabbix'.

At the bottom right are 'Cancel' and 'Create subnet' buttons.

The screenshot shows the AWS VPC dashboard with the 'Subnets' section. A success message at the top says 'You have successfully created 1 subnet: subnet-07c31e54814b178d6'. The subnet table lists one item:

Name	Subnet ID	Status	VPC	Block Public...	IPv4 CDR	IPv6 CDR	IPv6 CIDR association ID	Available IPv4 addresses	Availability Zone
EL-MOUTAOUAKIL-ABDELLAH-Public-Subnet-Zabbix	subnet-07c31e54814b178d6	Available	vpc-027376f0bbfb9e79 (EL-M...	Off	10.0.1.0/24	-	-	251	us-east-1a (us-east-1a)

At the bottom left is a 'Select a subnet' dropdown menu. The footer includes standard AWS links: Dashboard, Feedback, © 2020, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, Cookie preferences.

Creation de gateway

The screenshot shows the 'Create internet gateway' page in the AWS VPC console. It includes fields for the gateway name ('EL-HOUTAOUAKIL-ABDELLAH-IGW-Zabbix') and optional tags ('Key: EL-HOUTAOUAKIL-ABDELLAH-IGW-Zabbix; Value: EL-HOUTAOUAKIL-ABDELLAH-IGW-Zabbix'). A 'Create internet gateway' button is at the bottom right.

En le lie avec le vpc

The screenshot shows the 'Attach to VPC' page for the previously created internet gateway. It lists a single available VPC ('vpc-02737ff088469e79') and a command line interface ('AWS Command Line Interface command'). A 'Attach internet gateway' button is at the bottom right.

Lagateway est bien créer :

The screenshot shows the AWS VPC dashboard with the URL [https://vpc.console.aws.amazon.com/vpc/home?region=us-east-1#internet-gateways](#). A success message at the top states: "Internet gateway igw-0cd982d7f12e02185 successfully attached to vpc-0273760bbff0e79". The main pane displays the details for the Internet gateway "igw-0cd982d7f12e02185 / EL-MOUTAOUKIL-ABDELLAH-IGW-Zabbix". It shows the VPC ID "vpc-0273760bbff0e79 | EL-MOUTAOUKIL-ABDELLAH-VPC-Zabbix-Monitoring", the state "Attached", and the owner "471112860391". A "Tags (1)" section contains a single tag: "Name: EL-MOUTAOUKIL-ABDELLAH-IGW-Zabbix". On the left sidebar, under "Virtual private cloud", the "Internet gateways" section is expanded, showing various gateway types and their counts.

La creation de la table de routes

The screenshot shows the "Create route table" form in the AWS VPC service. The URL is [https://vpc.console.aws.amazon.com/vpc/routeTables/create?region=us-east-1](#). The form has two main sections: "Route table settings" and "Tags". In the "Route table settings" section, the "Name" field is set to "EL-MOUTAOUKIL-ABDELLAH-Route-Table" and the "VPC" dropdown is set to "vpc-0273760bbff0e79 (EL-MOUTAOUKIL-ABDELLAH-VPC-Zabbix)". In the "Tags" section, there is one tag entry: "Key: Name" and "Value: EL-MOUTAOUKIL-ABDELLAH-Route-Table". At the bottom right, there are "Cancel" and "Create route table" buttons. The status bar at the bottom indicates "© 2020, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences".

En l'accossie avec le subnet cree paravant

The screenshot shows the AWS VPC dashboard with the URL [rtb-034b57e479496ed81 / EL-MOUTAOUKIL-ABDELLAH-Route-Table](#). A green success message at the top states: "You have successfully updated subnet associations for rtb-034b57e479496ed81 / EL-MOUTAOUKIL-ABDELLAH-Route-Table". The main content area displays the "Details" tab for the route table, showing its ID (rtb-034b57e479496ed81), Main status (No), and Owner ID (471112860391). It also lists "Explicit subnet associations" (subnet 01c1e34814b12869 / EL-MOUTAOUKIL-ABDELLAH-Public-Subnet-Zabbix) and "Edge associations" (none). Below this, the "Routes" section shows two routes: one to the target "igw-0e903f71e0385" (Status: Active, Propagated: No, Route Origin: Create Route) and another to "local" (Status: Active, Propagated: No, Route Origin: Create Route Table). The sidebar on the left contains various navigation links for VPC management.

En l'accossie avec le subnet cree paravant

The screenshot shows the AWS VPC dashboard with the URL [rtb-034b57e479496ed81 / EL-MOUTAOUKIL-ABDELLAH-Route-Table](#). A green success message at the top states: "You have successfully updated subnet associations for rtb-034b57e479496ed81 / EL-MOUTAOUKIL-ABDELLAH-Route-Table". The main content area displays the "Details" tab for the route table, showing its ID (rtb-034b57e479496ed81), Main status (No), and Owner ID (471112860391). It also lists "Explicit subnet associations" (subnet 01c1e34814b12869 / EL-MOUTAOUKIL-ABDELLAH-Public-Subnet-Zabbix) and "Edge associations" (none). Below this, the "Explicit subnet associations" section shows a table with columns: Name, Subnet ID, IPv4 CDR, and IPv6 CDR. One row is listed: "EL-MOUTAOUKIL-ABDELLAH-Public-Subnet-Zabbix" with Subnet ID "subnet-01c1e34814b12869", IPv4 CDR "10.0.1.0/24", and IPv6 CDR "-". The "Subnets without explicit associations" section below it states: "The following subnets have not been explicitly associated with any route tables and are therefore associated with the main route table." A table with columns: Name, Subnet ID, IPv4 CDR, and IPv6 CDR is shown, with no rows currently listed. The sidebar on the left contains various navigation links for VPC management.

Creation de security group avec les regles inbound

Create security group

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name Name cannot be edited after creation.

Description Allows SSH access to developer

VPC

Inbound rules

Type	Protocol	Port range	Source	Description - optional
HTTP	TCP	80	Anywhere	Zabbix Web
HTTPS	TCP	443	Anywhere	Zabbix Web sécurisé
Custom TCP	TCP	10050	Anywhere	Agent Zabbix
Custom TCP	TCP	10051	Anywhere	Zabbix Server
SSH	TCP	22	Anywhere	Acès Linux
RDP	TCP	3389	Anywhere	Acès Windows

Add rule

⚠️ Rules of source 0.0.0.0 or ::0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Outbound rules

Type	Protocol	Port range	Destination	Description - optional
All traffic	All	All	Custom	0.0.0.0

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EC2

Dashboard EC2 Global View ▾ Events

Instances

- Instances
- Instance Types
- Launch Templates
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts
- Capacity Reservations
- Capacity Manager **New**

Images

- AMIs
- AMI Catalog

Elastic Block Store

- Volumes
- Snapshots
- Lifecycle Manager

Security & Identity

- Security Groups
- Elastic IPs
- Placement Groups
- Key Pairs
- Network Interfaces

Load Balancing

- Load Balancers
- Target Groups
- Trust Stores

Auto Scaling

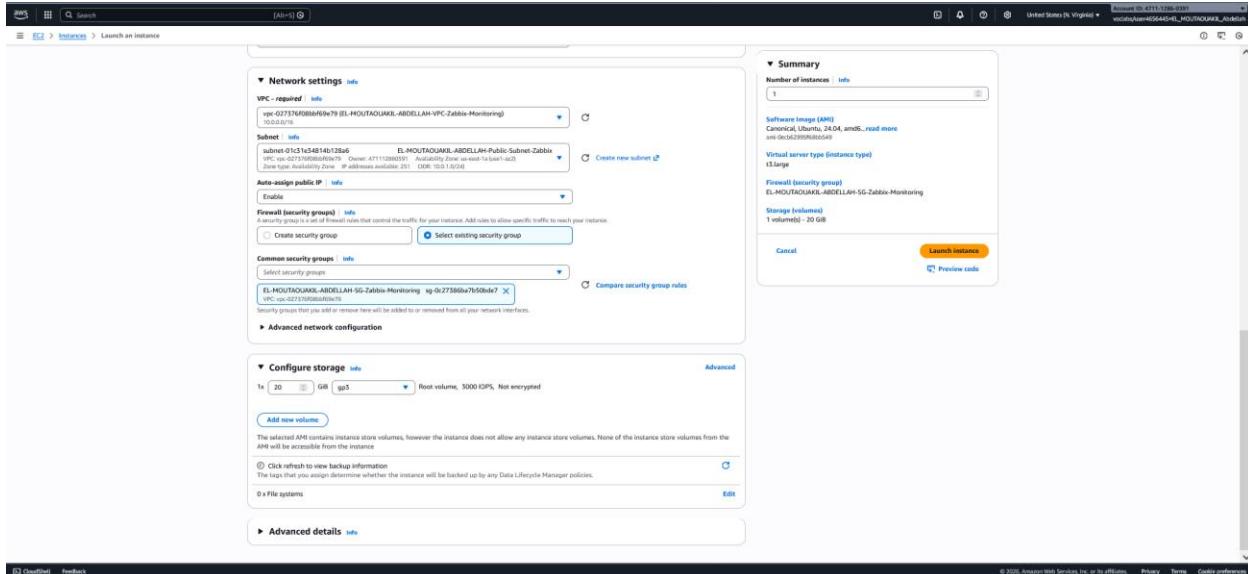
- Auto Scaling Groups

Settings

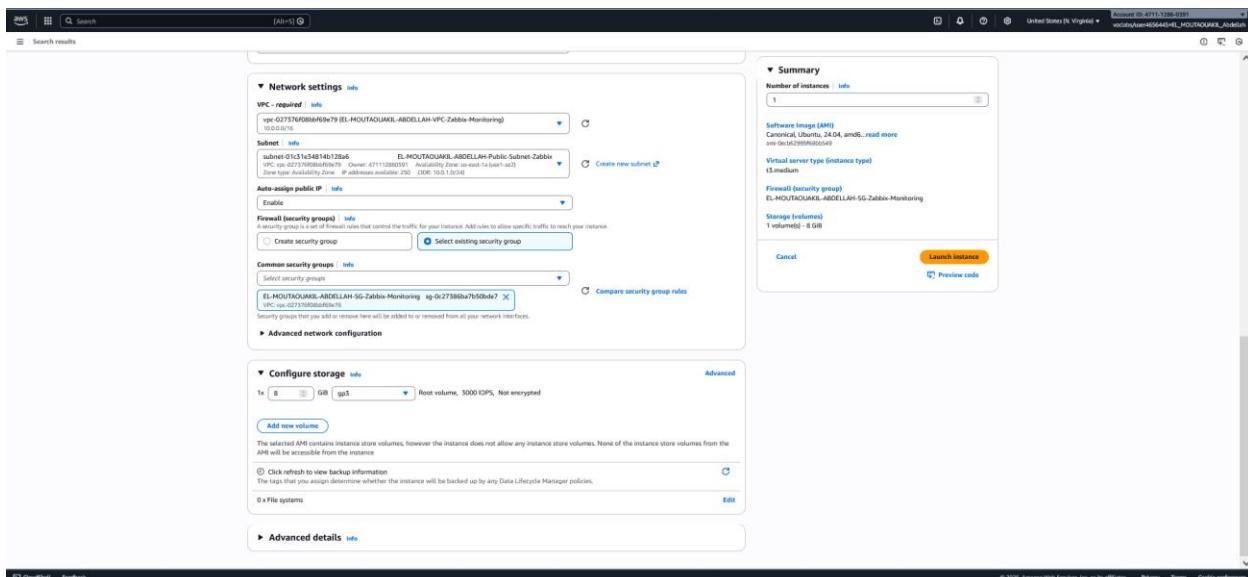
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3. Architecture des Instances EC2 :

Serveur Zabbix : Instance t3.large (recommandé pour Docker/Zabbix) sous Ubuntu.



Client Linux : Instance t3. medium (Ubuntu).



Client Windows : Instance t3.large (Windows Server nécessite au moins 4Go de RAM pour être fluide).

Capture d'écran

3. Déploiement du Serveur Zabbix :

- o Installation de Docker et Docker-Compose.

```

ubuntu@ip-10-0-1-209:~$ sudo apt install docker.io docker-compose
[sudo] password for ubuntu: 
Reading package lists... Done
Building dependency lists... Done
The following additional packages will be installed:
bridge-utils dnsroot-data dnsmasq-base pigz python3-compose python3-docker python3-dockerpy python3-docopt python3-dotenv python3-texttable python3-websocket runc ubuntu-fan
Suggested packages:
ifupdown aufs-tools groupmount | cgroup-lite debbootstrap docker-buildx docker-compose-v2 docker-doc rimage zfs-fuse | zfsutils
The following NEW packages will be installed:
bridge-utils dnsroot-data dnsmasq-base docker.io pigz python3-compose python3-docker python3-dockerpy python3-docopt python3-dotenv python3-texttable python3-websocket runc ubuntu-fan
0 upgraded, 16 newly installed, 0 to remove and 0 not upgraded.
Need to get 290 MB of additional disk space.
After this operation, 290 MB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 pigz amd64 2.8-1 [65.6 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 bridge-utils amd64 1.7.1-1ubuntu2 [33.9 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 runc amd64 1.3.3-1ubuntu1~24.04.3 [8815 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 containerd amd64 1.7.28-0ubuntu1~24.04.1 [336.4 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 python3-compose amd64 1.29.2-2ubuntu1~24.04.1 [5918 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 dnsmasq-base amd64 2.98-2ubuntu0.1 [576 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 python3-websocket-all all 1.7.0-1 [38.1 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 python3-docker all 5.0.3-1ubuntu1.1 [89.1 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 python3-dockerpy all 0.4.1-5 [31.4 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 python3-docopt all 0.4.1-5 [31.4 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 python3-dotenv all 0.10.1-3 [22.1 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 python3-texttable all 1.6.7-1 [11.0 kB]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 python3-compose all 1.29.2-2ubuntu1 [84.6 kB]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 docker-compose all 1.29.2-2ubuntu1 [14.6 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 docker.io amd64 28.2.2-2ubuntu1~24.04.1 [28.3 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 ubuntu-fan all 0.12.16+24.04.1 [34.2 kB]
Fetched 76.3 MB in 1s (57.0 kB/s)
Preconfiguring packages...
Selecting previously unselected package pigz.
(Reading database ... 103389 files and directories currently installed.)
Preparing to unpack .../00-pigz_2.8-1_amd64.deb ...
Unpacking pigz (2.8-1) ...
Selecting previously unselected package bridge-utils.
Preparing to unpack .../01-bridge-utils_1.7.1-1ubuntu2_amd64.deb ...
Unpacking bridge-utils (1.7.1-1ubuntu2) ...
Selecting previously unselected package runc.
Preparing to unpack .../02-runc_1.3.3-1ubuntu1~24.04.3_amd64.deb ...
Unpacking runc (1.3.3-1ubuntu1~24.04.3) ...
Selecting previously unselected package containerd.
Preparing to unpack .../03-containerd_1.7.28-0ubuntu1~24.04.1_amd64.deb ...
Unpacking containerd (1.7.28-0ubuntu1~24.04.1) ...

```

On vérifier que docker est bien installer :

```

ubuntu@ip-10-0-1-209:~$ sudo usermod -aG docker ubuntu
ubuntu@ip-10-0-1-209:~$ sudo systemctl start docker
ubuntu@ip-10-0-1-209:~$ sudo systemctl enable docker
ubuntu@ip-10-0-1-209:~$ docker --version
Docker version 28.2.2, build 28.2.2-0ubuntu1~24.04.1
ubuntu@ip-10-0-1-209:~$
```

- o Lancement des conteneurs (Zabbix Server, Web Interface, DB).

On cree le dossier pour zabbix et le docker compose :

```

ubuntu@ip-10-0-1-209:~$ mkdir ~/zabbix && cd ~/zabbix
ubuntu@ip-10-0-1-209:~/zabbix$ nano docker-compose.yml
ubuntu@ip-10-0-1-209:~/zabbix$ head docker-compose.yml
version: '3.8'

services:
  zabbix-db:
    image: postgres:13
    container_name: zabbix-db
    environment:
      POSTGRES_DB: zabbix
      POSTGRES_USER: zabbix
      POSTGRES_PASSWORD: zabbix_password
ubuntu@ip-10-0-1-209:~/zabbix$
```

```

ubuntu@ip-10-0-1-209:~/zabbix
GNU nano 7.2
zabbix-db:
  image: postgres:13
  container_name: zabbix-db
  environment:
    POSTGRES_DB: zabbix
    POSTGRES_USER: zabbix
    POSTGRES_PASSWORD: zabbix_password
  volumes:
    - zabbix-db-data:/var/lib/postgresql/data
  networks:
    - zabbix-net

zabbix-server:
  image: zabbix/zabbix-server-pgsql:latest
  container_name: zabbix-server
  environment:
    DB_SERVER_HOST: zabbix-db
    DB_SERVER_PORT: 5432
    POSTGRES_DB: zabbix
    POSTGRES_USER: zabbix
    POSTGRES_PASSWORD: zabbix_password
  ports:
    - "10051:10051"
  depends_on:
    - zabbix-db
  networks:
    - zabbix-net

zabbix-web:
  image: zabbix/zabbix-web-apache-pgsql:latest
  container_name: zabbix-web
  environment:
    DB_SERVER_HOST: zabbix-server
    DB_SERVER_PORT: 5432
    POSTGRES_DB: zabbix
    POSTGRES_USER: zabbix
    POSTGRES_PASSWORD: zabbix_password
    PHP_TZ: 'Africa/Casablanca'
  ports:
    - "80:8080"
  depends_on:
    - zabbix-server
    - zabbix-db
  networks:
    - zabbix-net

volumes:
  zabbix-db-data:

networks:
  zabbix-net:
    driver: bridge

```

Après sa en se déconnecte de l'instance et on connecte pour que les permissions de docker s'applique.

Après le relancement de l'instance :

```

ubuntu@ip-10-0-1-209:~/zabbix
ubuntu@ip-10-0-1-209:~/zabbix$ docker-compose up -d
Creating network "zabbix_net" with driver "bridge"
Creating volume "zabbix_zabbix-db-data" with default driver
Pulling zabbix-db (postgres:13)...
13: Pulling from library/postgres
d7eced37f02a: Pull complete
0000d950a0c0: Pull complete
fc1f00235910: Pull complete
9479dcac9eaf: Pull complete
09773d40818cd: Pull complete
4d2c7a793d8a: Pull complete
8cb600e698bc: Pull complete
ba16871a003e: Pull complete
aa11149a82: Pull complete
5f1ded65589: Pull complete
7d0650bb210f: Pull complete
23a39b1083e9: Pull complete
217fa31efc7b: Pull complete
4ec2503a0333: Pull complete
Digest: sha256:a669940c683801b4ab839ab3b0e0a3555a5fe425371422310944e89eca7d8068
Status: Downloaded newer image for postgres:13
Pulling zabbix-server (zabbix/zabbix-server-pgsql:latest)...
latest: Pulling from zabbix/zabbix-server-pgsql
107435sec<0d: Pull complete
e394de653a: Pull complete
a697a675c1d: Pull complete
f39e7297249: Pull complete
9bdcf1721e9: Pull complete
d1ec5f9ead6d: Pull complete
4f4fb708ef54: Pull complete
500dc03a0333: Pull complete
Digest: sha256:a677489594fd361df5e9284eba041c75e7ff2c1350f8f189969437ebdb9b
Status: Downloaded newer image for zabbix/zabbix-server-pgsql:latest
Pulling zabbix-web (zabbix/zabbix-web-apache-pgsql:latest)...
latest: Pulling from zabbix/zabbix-web-apache-pgsql
107435sec<0d: Already exists
944fb708ef54: Pull complete
b65633a2c2c: Pull complete
b21c1c5eb5ff: Pull complete
4f4fb708ef54: Pull complete
7abb5738fb: Pull complete
Digest: sha256:9b9ad53c684cf5d7b15c62ee22e3d2c97c2b0b2bd5ce811d1a8fe42416cd01b
Status: Downloaded newer image for zabbix/zabbix-web-apache-pgsql:latest
Creating zabbix-db... done
Creating zabbix-server... done
Creating zabbix-web... done
ubuntu@ip-10-0-1-209:~/zabbix$ docker-compose ps
Name          Command           State           Ports
-----
zabbix-db     docker-entrypoint.sh postgres   Up      5432/tcp
zabbix-server /usr/bin/docker-entrypoint   Up      0.0.0.0:10051->10051/tcp,:::10051->10051/tcp
zabbix-web    docker-entrypoint.sh          Up (healthy) 0.0.0.0:80->8080/tcp,:::80->8080/tcp, 8443/tcp
ubuntu@ip-10-0-1-209:~/zabbix$ 

```

○ Capture d'écran : Interface de connexion Zabbix réussie.

En vérifie que zabbix est bien lancé sur : <http://13.221.240.167/>

ZABBIX

Username
Password
 Remember me for 30 days
Sign in

Help • Support

© 2001–2025, Zabbix SIA

20°C Ciel couvert 4:46 PM 1/2/2026

ZABBIX

Global view

From now-1h To now Apply

Last 2 days	Yesterday	Today	Last 5 minutes
Last 7 days	Day before yesterday	Today so far	Last 15 minutes
Last 30 days	This day last week	This week	Last 30 minutes
Last 3 months	Previous week	This week so far	Last 1 hour
Last 6 months	Previous month	This month	Last 3 hours
Last 1 year	Previous year	This month so far	Last 6 hours
Last 2 years	Previous year	This year	Last 12 hours
		This year so far	Last 1 day

2026-01-02
16:47
(UTC+01:00)
Africa/Casablanca

Values per second
0.98

Host availability: Available 0, Not available 1, Mixed 0, Unknown 0, Total 1

System information:

Parameter	Value	Details
Zabbix server is running	Yes	zabbix-server:1051
Zabbix server version	7.4.6	
Zabbix frontend version	7.4.6	
Number of hosts (enabled/disabled)	1 / 0	
Number of templates	357	
Number of items (enabled/disabled/not connected)	121 / 110 / 0 / 11	

Problems by severity:

Severity	Count
Disaster	0
High	0
Average	0
Warning	0
Information	0
Not critical	0

Memory utilization: 0.98

5. Configuration des Clients (Agents) :

- o Installation de l'agent sur la machine Linux.

```
ubuntu@ip-10-0-1-194 ~
ubuntu@ip-10-0-1-194: ~ wget https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-release/zabbix-release_6.4-1ubuntu22.84_all.deb
--2026-01-02 15:51:03 - https://repo.zabbix.com/zabbix/6.4/ubuntu/pool/main/z/zabbix-release/zabbix-release_6.4-1ubuntu22.84_all.deb
Resolving repo.zabbix.com (repo.zabbix.com)... 178.128.6.101, 2604:a88:2:d0::2062:d001
Connecting to repo.zabbix.com (repo.zabbix.com)[178.128.6.101]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3744 (3.7K) [application/octet-stream]
Saving to: "zabbix-release_6.4-1ubuntu22.84_all.deb"

zabbix-release_6.4-1ubuntu22.84_all.deb          100%[=====]   3.66K --.-KB/s    in 0s

2026-01-02 15:51:04 (514 kB/s) - "zabbix-release_6.4-1ubuntu22.84_all.deb" saved [3744/3744]

ubuntu@ip-10-0-1-194: ~ sudo dpkg -i zabbix-release_6.4-1ubuntu22.84_all.deb
Selecting previously unselected package zabbix-release.
(Reading database ... 71735 files and directories currently installed.)
Preparing to unpack zabbix-release_6.4-1ubuntu22.84_all.deb ...
Unpacking zabbix-release (1:6.4-1ubuntu22.84) ...
Setting up zabbix-release (1:6.4-1ubuntu22.84) ...
ubuntu@ip-10-0-1-194: ~ sudo apt update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu-security InRelease [126 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu universe InRelease [15.0 MB]
Get:6 https://repo.zabbix.com/zabbix/6.4/ubuntu jammy InRelease [2883 B]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/amd64 Components [3871 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [63 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8326 kB]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1684 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [311 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [158 kB]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main c-n-f Metadata [15.0 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1596 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [306 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [378 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [31.4 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [247 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata [559 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [208 kB]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata [516 kB]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [30.3 kB]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [6048 kB]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 kB]
Get:29 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [488 kB]
Get:30 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 Packages [109.4 kB]
Get:31 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main Translation-en [926 kB]
Get:32 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [7284 kB]
Get:33 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [368 kB]
Get:34 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [25.5 kB]
Get:35 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [17.9 kB]
Get:36 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [18.5 kB]

ubuntu@ip-10-0-1-194 ~

```

On configure le fichier de configuration :

```
ubuntu@ip-10-0-1-194: /tmp
GNU nano 7.2
# Default:
# Server=

Server=13.221.240.167

### Option: ListenPort
#       Agent will listen on this port for connections from the server.
#
# M: integer
# ServerActive=

ServerActive=13.221.240.167

### Option: Hostname
#       List of comma delimited unique, case sensitive hostnames.
#       Required for active checks and must match hostnames as configured on the server.
#       Value is acquired from HostnameItem if undefined.
#
# Mandatory: no
# Default:
# Hostname=

Hostname=EL-MOUTAOUAKIL-Linux-Client

### Option: HostnameItem
#       Item used for generating Hostname if it is undefined. Ignored if Hostname is defined.
#       Does not support UserParameters or aliases.
#
# Mandatory: no
# Default:
# HostnameItem=system.hostname
```

En cree les dossier et les fichier de configuration :

```
ubuntu@ip-10-0-1-194:/tmp$ sudo mkdir -p /etc/zabbix
ubuntu@ip-10-0-1-194:/tmp$ sudo mkdir -p /var/log/zabbix
ubuntu@ip-10-0-1-194:/tmp$ sudo mkdir -p /var/run/zabbix
ubuntu@ip-10-0-1-194:/tmp$ sudo mkdir -p /etc/zabbix/zabbix_agentd.conf.d
ubuntu@ip-10-0-1-194:/tmp$ sudo cp conf/zabbix_agentd.conf /etc/zabbix/
ubuntu@ip-10-0-1-194:/tmp$ sudo useradd --system --shell /sbin/nologin --home /var/lib/zabbix zabbix
ubuntu@ip-10-0-1-194:/tmp$ sudo chown zabbix:zabbix /var/log/zabbix
ubuntu@ip-10-0-1-194:/tmp$ sudo chown zabbix:zabbix /var/run/zabbix
ubuntu@ip-10-0-1-194:/tmp$ sudo chown zabbix:zabbix /etc/zabbix
ubuntu@ip-10-0-1-194:/tmp$ sudo nano /etc/zabbix/zabbix_agentd.conf
ubuntu@ip-10-0-1-194:/tmp$ sudo nano /etc/systemd/system/zabbix-agent.service
ubuntu@ip-10-0-1-194:/tmp$ sudo systemctl daemon-reload
ubuntu@ip-10-0-1-194:/tmp$ sudo systemctl enable zabbix-agent
Created symlink /etc/systemd/system/multi-user.target.wants/zabbix-agent.service → /etc/systemd/system/zabbix-agent.service.
ubuntu@ip-10-0-1-194:/tmp$ sudo systemctl start zabbix-agent
```

Créer le service systemd :

```
✉ ubuntu@ip-10-0-1-194: /tmp
GNU nano 7.2
[Unit]
Description=Zabbix Agent
After=syslog.target network.target

[Service]
Environment="CONFFILE=/etc/zabbix/zabbix_agentd.conf"
Type=forking
Restart=on-failure
PIDFile=/var/run/zabbix/zabbix_agentd.pid
KillMode=control-group
ExecStart=/usr/local/bin/zabbix_agentd -c $CONFFILE
ExecStop=/bin/kill -SIGTERM $MAINPID
RestartSec=10s
User=zabbix
Group=zabbix

[Install]
WantedBy=multi-user.target
```

Le service a bien demarrer :

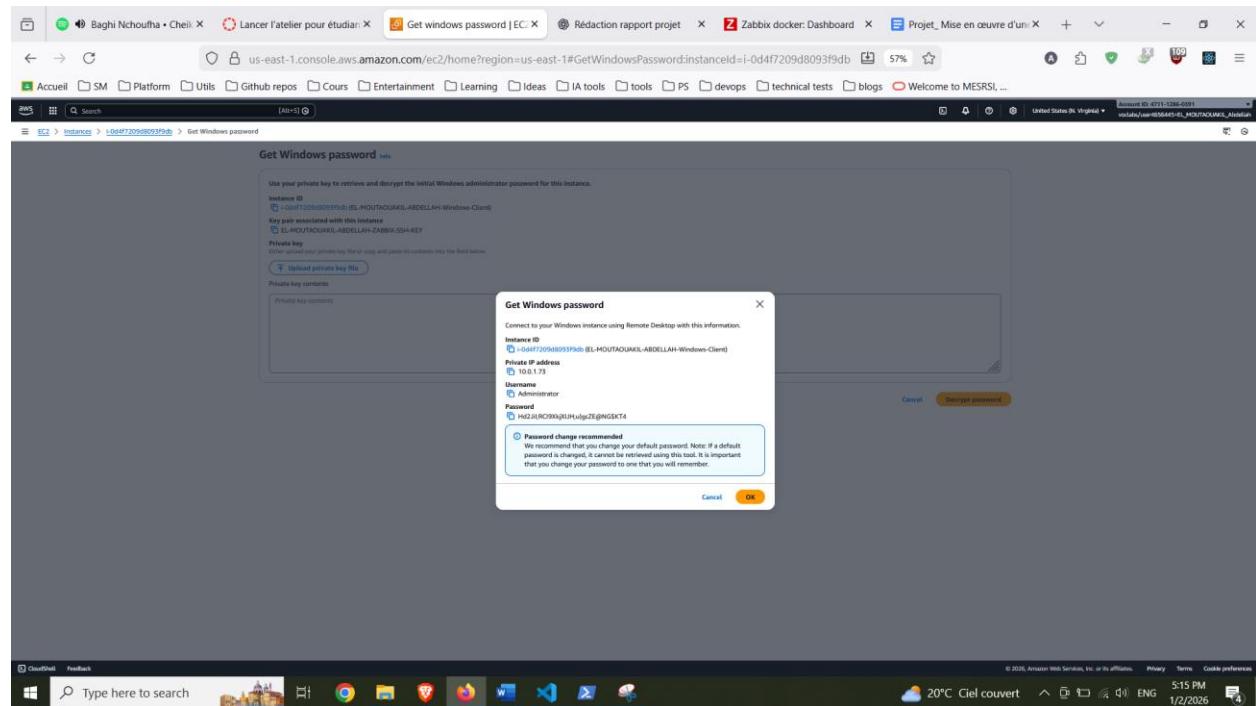
```
ubuntu@ip-10-0-1-194:/tmp$ sudo systemctl status zabbix-agent.service
● zabbix-agent.service - Zabbix Agent
   Loaded: loaded (/etc/systemd/system/zabbix-agent.service; enabled; preset: enabled)
     Active: activating (start) since Fri 2026-01-02 16:10:48 UTC; 1min 10s ago
   Process: 13981 ExecStart=/usr/local/bin/zabbix_agentd -c $CONFFILE (code=exited, status=0/SUCCESS)
   Tasks: 6 (limit: 4525)
  Memory: 1.1M (peak: 1.6M)
    CPU: 24ms
   CGroup: /system.slice/zabbix-agent.service
           └─13983 /usr/local/bin/zabbix_agentd -c /etc/zabbix/zabbix_agentd.conf

Jan 02 16:10:58 ip-10-0-1-194 systemd[1]: zabbix-agent.service: Scheduled restart job, restart counter is at 2.
Jan 02 16:10:58 ip-10-0-1-194 systemd[1]: Starting zabbix-agent.service - Zabbix Agent...
Jan 02 16:10:58 ip-10-0-1-194 systemd[1]: zabbix-agent.service: Can't open PID file /run/zabbix/zabbix_agentd.pid (yet?) after start: No such file or directory
ubuntu@ip-10-0-1-194:/tmp$ sudo systemctl status zabbix-agent
● zabbix-agent.service - Zabbix Agent
   Loaded: loaded (/etc/systemd/system/zabbix-agent.service; enabled; preset: enabled)
     Active: activating (start) since Fri 2026-01-02 16:12:28 UTC; 24s ago
   Process: 14005 ExecStart=/usr/local/bin/zabbix_agentd -c $CONFFILE (code=exited, status=0/SUCCESS)
   Tasks: 6 (limit: 4525)
  Memory: 1.1M (peak: 1.6M)
    CPU: 9ms
   CGroup: /system.slice/zabbix-agent.service
           └─14007 /usr/local/bin/zabbix_agentd -c /etc/zabbix/zabbix_agentd.conf

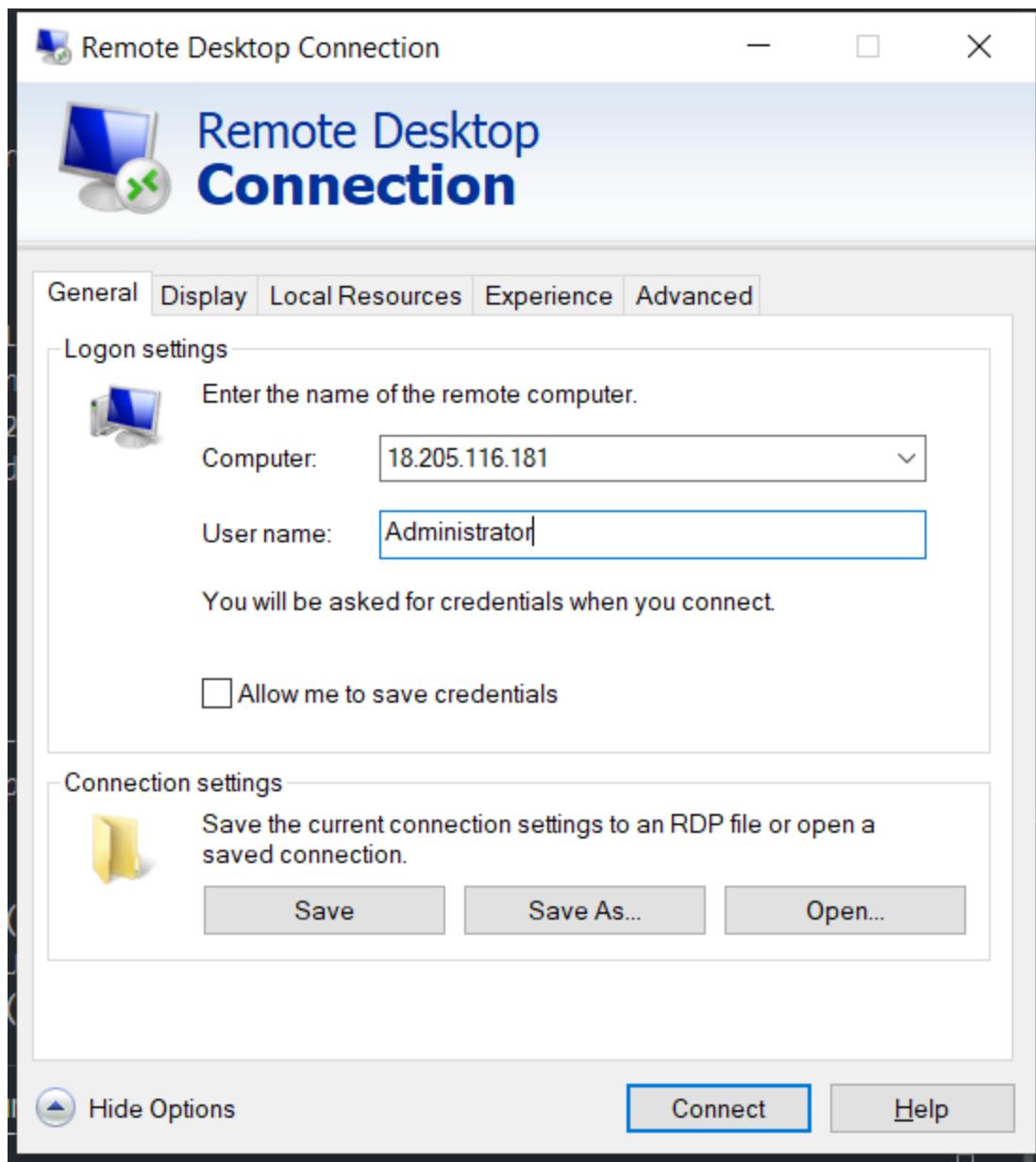
Jan 02 16:12:38 ip-10-0-1-194 systemd[1]: zabbix-agent.service: Scheduled restart job, restart counter is at 3.
Jan 02 16:12:38 ip-10-0-1-194 systemd[1]: Starting zabbix-agent.service - Zabbix Agent...
Jan 02 16:12:38 ip-10-0-1-194 systemd[1]: zabbix-agent.service: Can't open PID file /run/zabbix/zabbix_agentd.pid (yet?) after start: No such file or directory
ubuntu@ip-10-0-1-194:/tmp$
```

o Installation de l'agent sur la machine Windows.

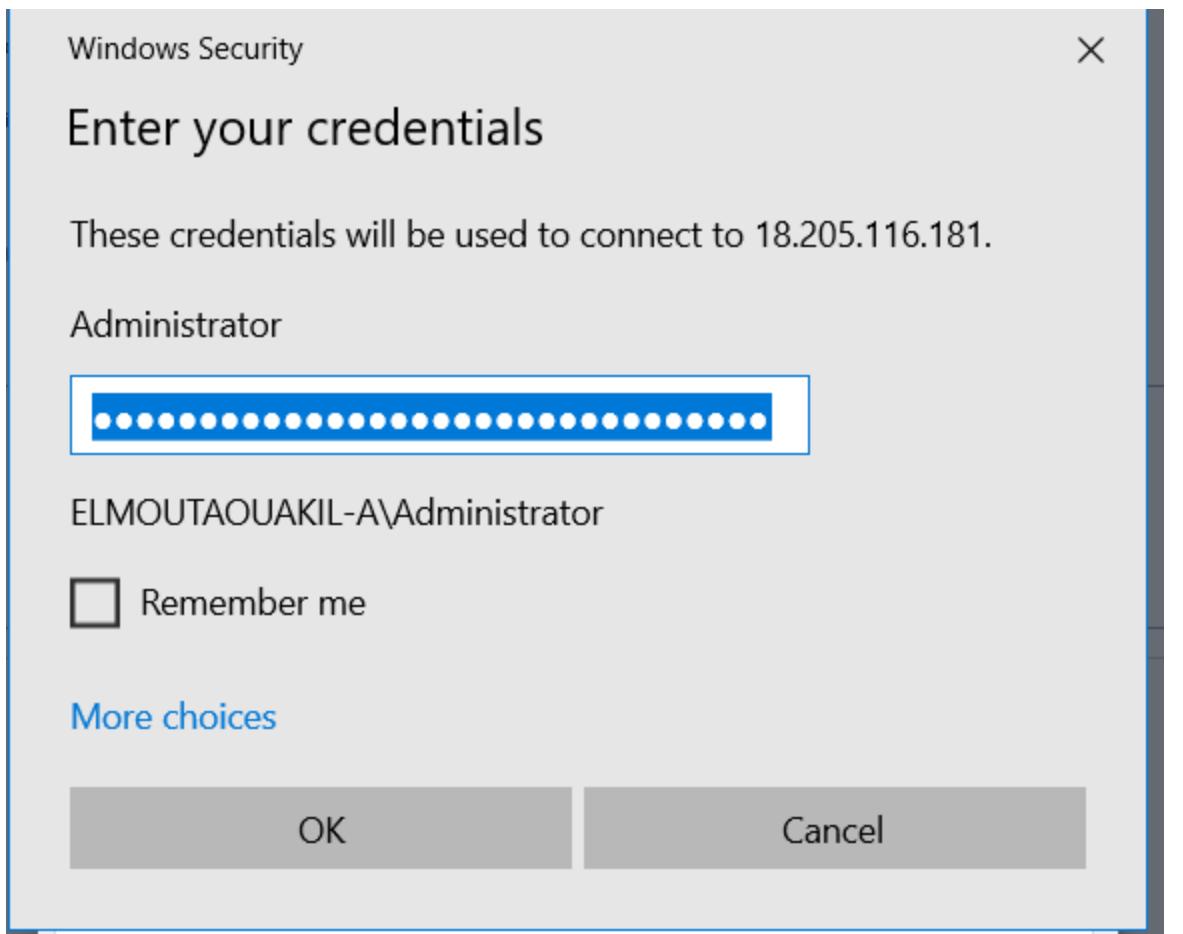
En recuperer le mot de passe de windows server au pres de aws :



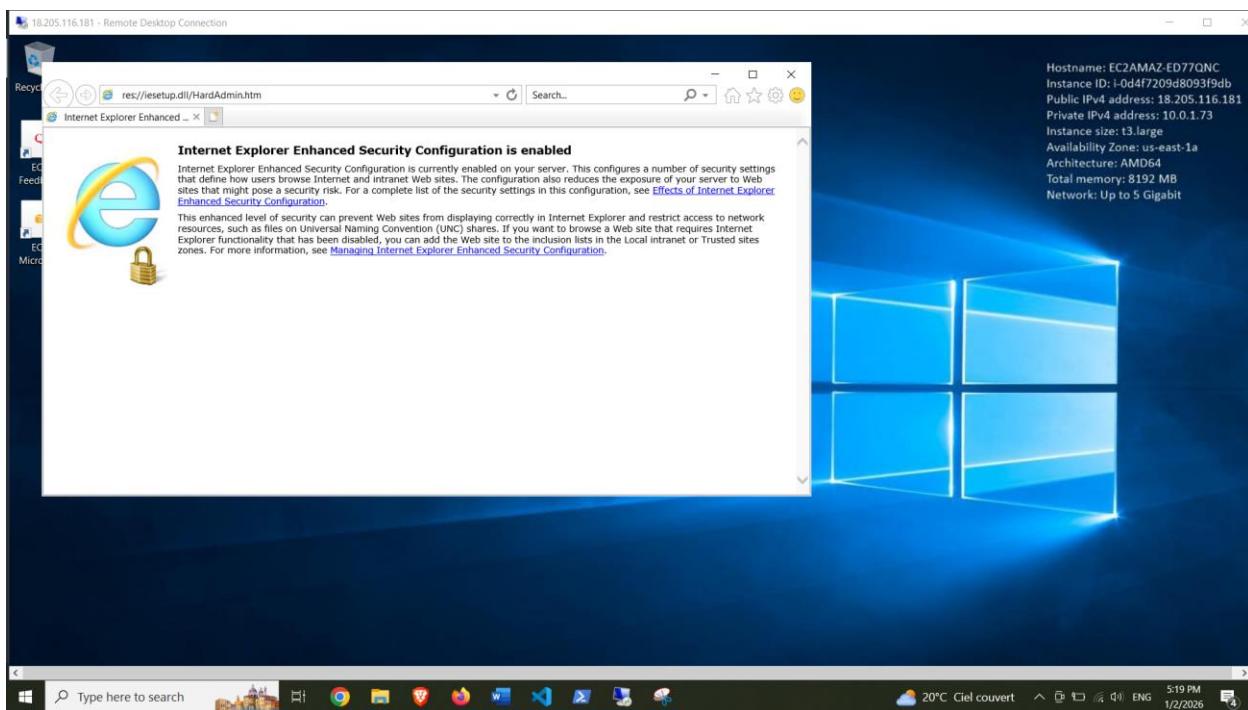
On connecte a l'instance en utilisant rdp :



En entre le mot de pass recuperer de aws :



La connexion a reussie :



En telecharge zabbix :

The screenshot shows a web browser window titled '18.205.116.181 - Remote Desktop Connection'. The address bar shows 'www.zabbix.com/download_agents?version=6.0+LTS&release=6.0.43&os=Windows&os_version=11%2C+10&hardware=amd64&encryption=openssl'. The main content is the Zabbix download page. It features the 'ZABBIX 20 YEARS' logo. Two download links are visible:

- zabbix_agent2-6.0.43-windows-amd64-openssl.msi**
Checksum: sha256: 523213e63a78c53f7aa2636695b3057f92a7243cf1fa4db9f67d862cc62be75
sha1: c08991b7549f2082a55f346c38c870abef2cad73
md5: b0e24e3ff6f952b85dc0fd0b898b76cfa
- zabbix agent 2 v6.0.43**
Packing: MSI
Encryption: OpenSSL
Linkage: Dynamic
Checksum: sha256: b782101b7bb57942b91c1139218d7eb3556fd24652f69bd85d4b0533a1c41af6
sha1: 2d3b6895d188ac494895d9ca1ecf1f7672200640
md5: 5c54f863dd089dc99bd0be37ac7d14d2

Each download link has a 'DOWNLOAD' button and a link to 'https://cdn.zabbix.com/zabbix/binaries/stable/6.0/6.0.43/zabbix_agent-6.0.43-windows-amd64-openssl.msi'.

En lance l'installation :

The screenshot shows a web browser window titled '18.205.116.181 - Remote Desktop Connection'. The address bar shows 'www.zabbix.com/download_agents?version=6.0+LTS&release=6.0.43&os=Windows&os_version=11%2C+10&hardware=amd64&encryption=openssl'. The main content is the Zabbix download page. A 'Zabbix Agent 2 service configuration' dialog box is open over the page. The dialog box contains the following fields:

- Host name: EL-MOUTAOUAKIL-Windows-Client
- Zabbix server IP/DNS: 13.221.240.167
- Agent listen port: 10050
- Server or Proxy for active checks: 13.221.240.167
- Enable PSK
- Add agent location to the PATH

At the bottom of the dialog box are 'Back', 'Next', and 'Cancel' buttons.

Le service est bien lancer :

18.205.116.181 - Remote Desktop Connection

Administrator: Windows PowerShell

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

PS C:\Users\Administrator> Get-Service "Zabbix Agent 2"

Status    Name            DisplayName
-----  -----
Running   Zabbix Agent 2  Zabbix Agent 2

PS C:\Users\Administrator>
```

En verifie la connectivite a travers le server zabbix :

```
ubuntu@ip-10-0-1-209: ~
ubuntu@ip-10-0-1-209:~$ docker exec zabbix-server zabbix_get -s 18.205.116.181 -k agent.ping
1
ubuntu@ip-10-0-1-209:~$
```

- o *Capture d'écran* : Configuration du fichier zabbix_agentd.conf.

6. Monitoring et Tableaux de Bord :

- o Ajout des hôtes dans l'interface Zabbix.

Ajout du Client Linux dans Zabbix

The screenshot shows the Zabbix web interface with the 'Hosts' module selected. A 'New host' dialog box is open, prompting for host details. The host name is 'EL-MOUTAOUIL-Linux-Client', and it is assigned to the 'Linux servers' host group. The IP address is listed as 'Agent 3.83.80.130'. The 'Enabled' checkbox is checked. The status bar at the bottom indicates 'Zabbix 7.4.6 © 2001–2025, Zabbix SIA'.

En fait la même chose pour windows :

The screenshot shows the Zabbix web interface with the 'Hosts' module selected. A 'New host' dialog box is open, prompting for host details. The host name is 'EL-MOUTAOUIL-Windows-Client', and it is assigned to the 'Linux servers' host group. The IP address is listed as 'Agent 18.205.116.181'. The 'Enabled' checkbox is checked. The status bar at the bottom indicates 'Zabbix 7.4.6 © 2001–2025, Zabbix SIA'.

- o Capture d'écran : Statut "Vert" (ZBX) des deux clients.

The screenshot shows the Zabbix 7.4.6 interface. On the left, a dark sidebar contains navigation links for Dashboards, Monitoring (with Hosts selected), Services, Inventory, Reports, Data collection, Alerts, Users, Administration, Support, and Integrations. The main content area is titled 'Hosts'. It features a search bar and filters for Name, Host groups, IP, DNS, Port, Status (Any, Enabled, Disabled), Tags (And/Or, Or), and Severity (Not classified, Warning, High, Information, Average, Disaster). Below these are 'Show hosts in maintenance' and 'Show suppressed problems' checkboxes. A 'Save as' button is at the bottom right of the filter section. The main table lists three hosts:

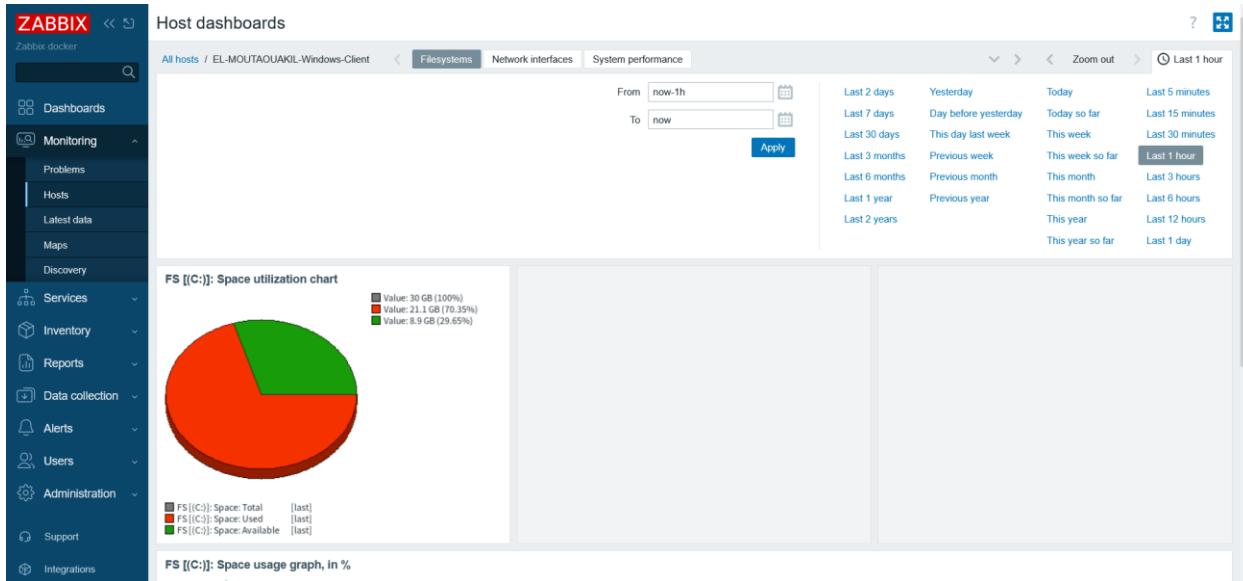
Name	Interface	Availability	Tags	Status	Latest data	Problems	Graphs	Dashboards	Web
EL-MOUTAOUAKIL-Linux-Client	3.83.80.130:10050	ZBX	class: os target: linux	Enabled	Latest data 75	0	Graphs 16	Dashboards 3	Web
EL-MOUTAOUAKIL-Windows-Client	18.205.116.181:10050	ZBX	class: os target: windows	Enabled	Latest data 100	1	Graphs 12	Dashboards 3	Web
Zabbix server	127.0.0.1:10050	ZBX	class: os class: software subclass: logging	Enabled	Latest data 121	1	Graphs 8	Dashboards 4	Web

At the bottom right of the table, it says 'Displaying 3 of found'. The footer includes the Zabbix version (7.4.6), copyright information (© 2001–2025, Zabbix SIA), and system status (20°C, Ciel couvert, Last 1 hour, 1/2/2026).

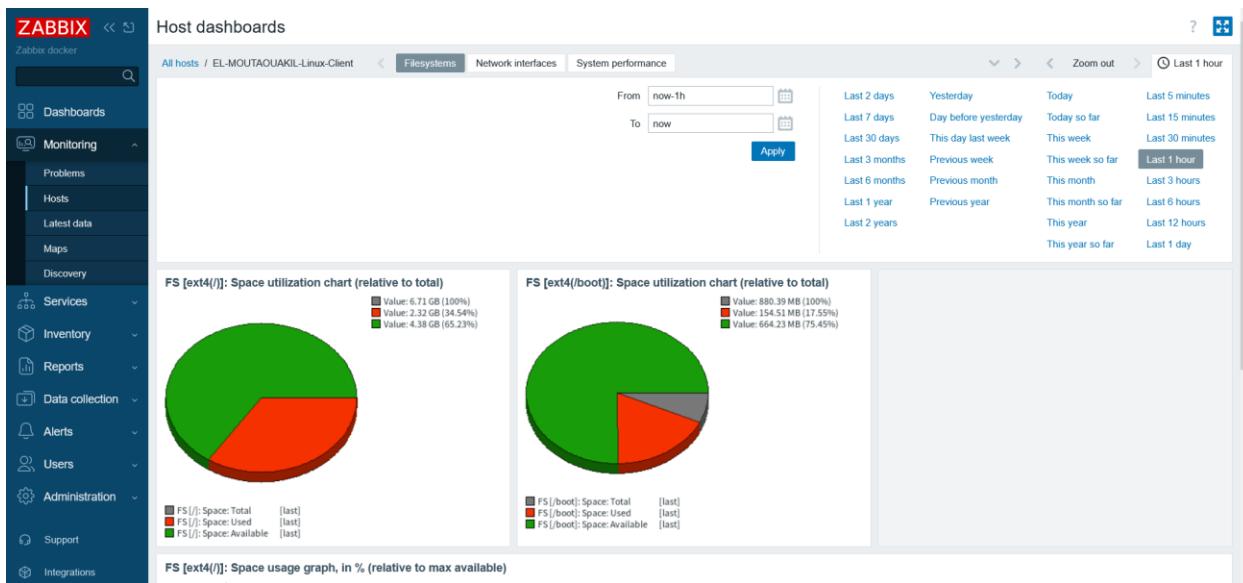
o Capture d'écran : Graphique de charge CPU ou RAM d'un client.

The screenshot shows the 'Global view' dashboard. The left sidebar is identical to the previous 'Hosts' screenshot. The main area has a title 'Global view' and a 'Edit dashboard' button. It features a search bar and a time range selector from 'now-1h' to 'now' with an 'Apply' button. To the right of the time range are several time-based filters: Last 2 days, Yesterday, Today, Last 5 minutes; Last 7 days, Day before yesterday, Today so far, Last 15 minutes; Last 30 days, This day last week, This week, Last 30 minutes; Last 3 months, Previous week, This week so far, Last 1 hour; Last 6 months, Previous month, This month, Last 3 hours; Last 1 year, Previous year, This month so far, Last 6 hours; and Last 2 years, Previous year, This year, Last 12 hours. Below these are 'Last 1 day' and 'This year so far' buttons. The dashboard itself contains several widgets: 'Top hosts by CPU utilization' showing utilization for three hosts (EL-MOUTAOUAKIL-Windows-Client, EL-MOUTAOUAKIL-Linux-Client, Zabbix server); 'System information' listing host status, version, and template counts; a large digital clock displaying '2026-01-02 18:20 (UTC+01:00) Africa/Casablanca'; a 'Memory utilization' gauge showing 'No data'; a 'Values per second' graph showing a value of '3.73'; and two smaller sections for 'Host availability' (2 Available, 1 Not available, 0 Mixed, 0 Unknown) and 'Problems by severity' (0 Disaster, 0 High, 2 Average, 0 Warning, 0 Information, 0 Not classified).

Pour le client windos :



Pour le client linux :



7. Conclusion : Difficultés rencontrées et solutions apportées.