

# SP3 SLAM/DMZ - Mission 2 : Installation des serveurs

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# Présentation de la mission

## Option 1 : Un seul serveur

Serveur unique : **WEBSGBDEPOKA**

- **Nom** : WEBSGBDEPOKA
- **IP** : 172.16.X.101
- **Système** : Windows Server 2019
- **Services** : Apache, PHP, FTPS/SFTP, Microsoft SQL Server

## Option 2 : Deux serveurs séparés

Serveur WEB : **WEBEPOKA**

- **Nom** : WEBEPOKA
- **IP** : 172.16.X.101
- **Système** : Debian
- **Services** : Apache, PHP, FTPS/SFTP

Serveur SGBD : **SITERGESTREVUES**

- **Nom** : SITERGESTREVUES
- **IP** : 172.16.X.102
- **Système** : Windows Server 2019
- **Service** : Microsoft SQL Server

**Choix retenu** : mise en place de deux serveurs distincts pour une meilleure tolérance aux pannes.

# Serveur WEBEPOKA

## 1. Préconfiguration

```
sudo apt update && sudo apt upgrade -y && sudo reboot now
sudo apt install etckeeper -y
sudo etckeeper init
```

## 2. Configuration réseau

```
cat /etc/network/interfaces
```

```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).
source /etc/network/interfaces.d/*

# Loopback interface
auto lo
iface lo inet loopback

# Primary network interface
allow-hotplug ens3
iface ens3 inet static
    address 172.16.3.101/24
    gateway 172.16.3.254
    dns-nameservers 172.16.53.1
```

```
cat /etc/resolv.conf
```

```
nameserver 172.16.53.1
nameserver 9.9.9.9
```

## 3. Installation du service Web, PHP et SQLSRV

### Installation d'Apache2

```
sudo apt install apache2
```

## Installation des dépendances de base

```
sudo apt install -y lsb-release apt-transport-https ca-certificates software-properties-common curl wget gnupg2
```

## Ajout du dépôt PHP Sury

```
sudo wget -qO /etc/apt/trusted.gpg.d/php.gpg https://packages.sury.org/php/apt.gpg
echo "deb https://packages.sury.org/php/ $(lsb_release -sc) main" | sudo tee
/etc/apt/sources.list.d/php.list
sudo apt update
```

## Installation de PHP 8.2 et des modules principaux

```
sudo apt install -y php8.2 php8.2-cli php8.2-fpm php8.2-common \
php8.2-mysql php8.2-curl php8.2-xml php8.2-mbstring php8.2-intl php8.2-zip php8.2-
dev
```

## Installation des outils de compilation

```
sudo apt install -y unixodbc-dev gcc g++ make libgssapi-krb5-2
```

## Ajout du dépôt Microsoft et installation des pilotes ODBC

```
curl -sSL -o https://packages.microsoft.com/config/debian/$(grep VERSION_ID
/etc/os-release | cut -d '"' -f 2 | cut -d '.' -f 1)/packages-microsoft-prod.deb
sudo dpkg -i packages-microsoft-prod.deb
rm -f packages-microsoft-prod.deb
sudo apt-get update
sudo ACCEPT_EULA=Y apt-get install -y msodbcsql18 mssql-tools18
echo 'export PATH="$PATH:/opt/mssql-tools18/bin"' >> ~/.bashrc
source ~/.bashrc
```

## Configuration de la locale UTF-8

```
sudo sed -i 's/# en_US.UTF-8 UTF-8/en_US.UTF-8 UTF-8/g' /etc/locale.gen
sudo locale-gen
```

## Installation des extensions PECL SQLSRV et PDO\_SQLSRV

```
sudo pecl install -f sqlsrv  
sudo pecl install -f pdo_sqlsrv
```

## Création des fichiers `.ini` pour PHP

```
sudo mkdir -p /etc/php/8.2/mods-available  
sudo bash -c 'printf "%s\n"; priority=20\\nextension=sqlsrv.so\\n" > /etc/php/8.2/mods-available/sqlsrv.ini'  
sudo bash -c 'printf "%s\n"; priority=30\\nextension=pdo_sqlsrv.so\\n" >  
/etc/php/8.2/mods-available/pdo_sqlsrv.ini'
```

## Activation des modules PHP

```
sudo phpenmod -v 8.2 sqlsrv pdo_sqlsrv
```

## Configuration d'Apache

```
sudo apt install -y apache2 libapache2-mod-php8.2  
sudo a2dismod mpm_event || true  
sudo a2enmod mpm_prefork  
sudo a2enmod php8.2
```

## Liens `conf.d` pour Apache

```
sudo mkdir -p /etc/php/8.2/apache2/conf.d  
sudo ln -sf /etc/php/8.2/mods-available/sqlsrv.ini /etc/php/8.2/apache2/conf.d/20-sqlsrv.ini  
sudo ln -sf /etc/php/8.2/mods-available/pdo_sqlsrv.ini  
/etc/php/8.2/apache2/conf.d/30-pdo_sqlsrv.ini
```

## Redémarrage des services

```
sudo systemctl enable --now apache2  
sudo systemctl restart php8.2-fpm  
sudo systemctl restart apache2
```

## 4. Configuration HTTPS et structure du site Web

### Création du dossier web

```
sudo mkdir /var/www/epoka  
sudo chown www-data /var/www/epoka/ -R
```

### Configuration du site HTTP

```
sudoedit /etc/apache2/sites-available/epoka.fr.conf
```

```
<VirtualHost *:80>  
    DocumentRoot /var/www/epoka  
</VirtualHost>
```

```
sudo a2ensite epoka.fr.conf  
sudo a2dissite 000-default.conf  
sudo systemctl restart apache2
```

### Activation du module HTTPS

```
sudo a2enmod ssl
```

### Création du certificat SSL

```
sudo mkdir -p /etc/apache2/ssl/  
sudo openssl req -x509 -nodes -days 365 \  
    -newkey rsa:2048 \  
    -keyout /etc/apache2/ssl/epoka.key \  
    -out /etc/apache2/ssl/epoka.crt \  
    -subj "/C=FR/ST=Centre-Val-de-Loire/L=Tours/O=Epoka/OU=IT/CN=172.16.29.3"  
sudo chmod 600 /etc/apache2/ssl/epoka.key
```

### Configuration du site HTTPS

```
sudo nano /etc/apache2/sites-available/epoka.fr-ssl.conf
```

```

<VirtualHost *:443>
    DocumentRoot /var/www/epoka
    SSLEngine on
    SSLCertificateFile /etc/apache2/ssl/epoka.crt
    SSLCertificateKeyFile /etc/apache2/ssl/epoka.key

    <Directory /var/www/epoka>
        Options Indexes FollowSymLinks
        AllowOverride All
        Require all granted
    </Directory>

    ErrorLog ${APACHE_LOG_DIR}/epoka-ssl-error.log
    CustomLog ${APACHE_LOG_DIR}/epoka-ssl-access.log combined
</VirtualHost>

```

```

sudo a2ensite epoka.fr-ssl.conf
sudo systemctl restart apache2

```



## 5. Installation et configuration de SFTP

### Installation du service

```

sudo apt install openssh-server -y

```

### Création Utilisateur SFTP

```

sudo adduser sftpuser

```

### Configuration de SFTP

```

sudo nano /etc/ssh/sshd_config

```

```

Match User sftpuser
    ForceCommand internal-sftp

```

```
PasswordAuthentication yes
ChrootDirectory /var/www
PermitTunnel no
AllowAgentForwarding no
AllowTcpForwarding no
X11Forwarding no
```

Redémarrage du service :

```
sudo systemctl restart ssh
```

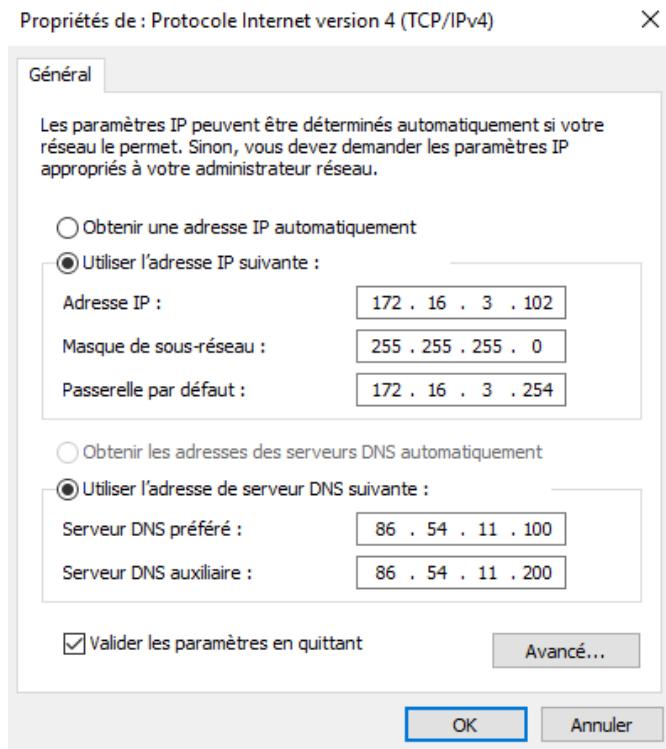
## Redirection des ports NAT

Ports à ouvrir : 22

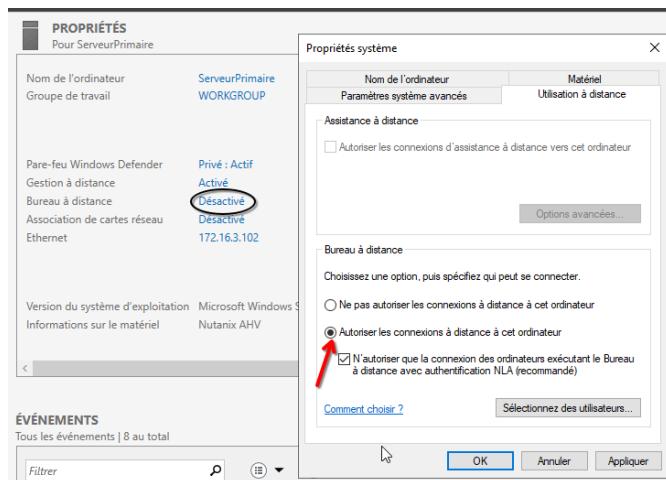


# Serveur SITERGESTREVUES

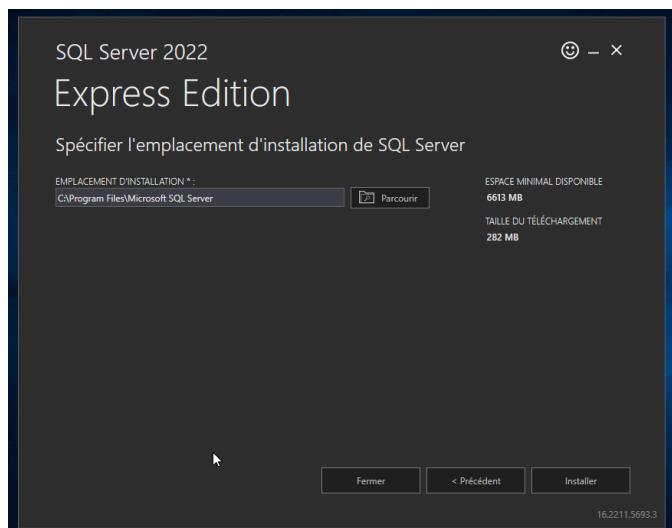
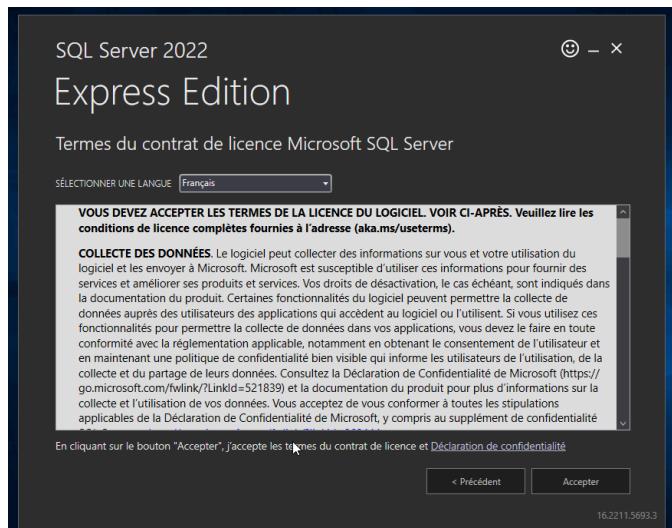
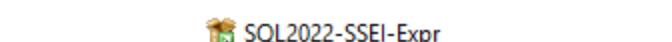
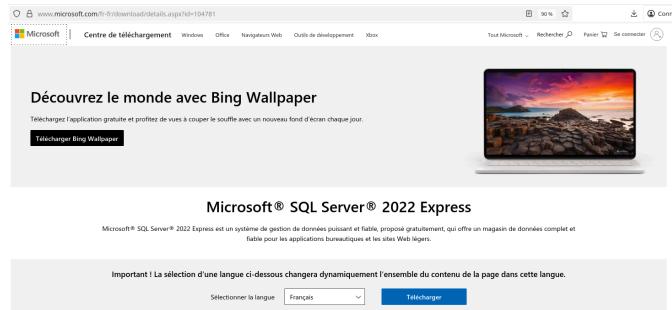
## 1. Configuration réseau

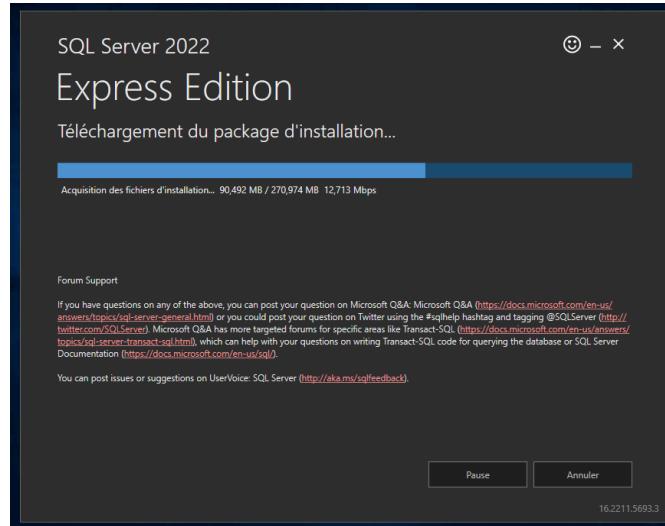


## 2. Activation du bureau à distance

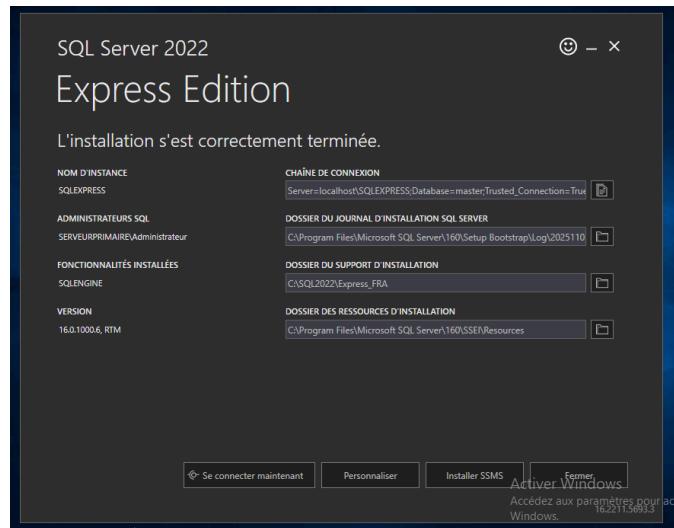


### 3. Installation de SQL Server 2022 Express



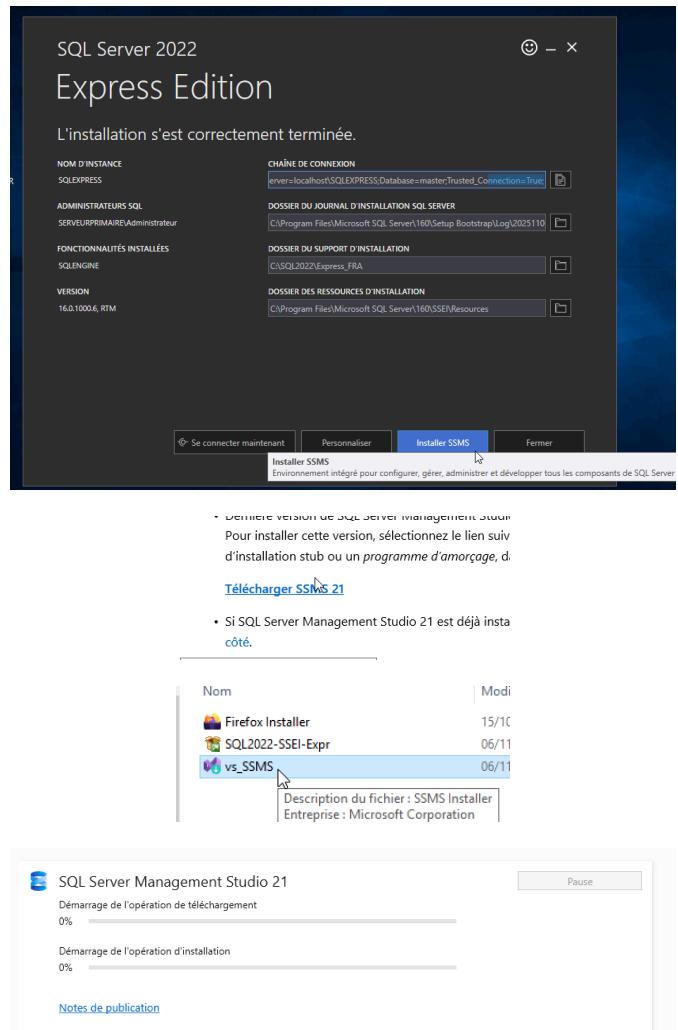


## Informations serveur à conserver

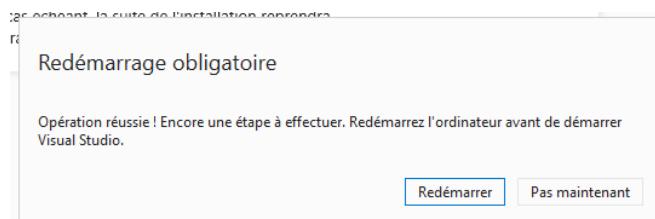


```
Server=localhost\SQLEXPRESS;Database=master;Trusted_Connection=True;  
  
C:\Program Files\Microsoft SQL Server\160\Setup Bootstrap\Log\20251105_201622  
C:\SQL2022\Express_FRA  
C:\Program Files\Microsoft SQL Server\160\SSEI\Resources
```

## 4. Installation de SSMS (SQL Server Management Studio)

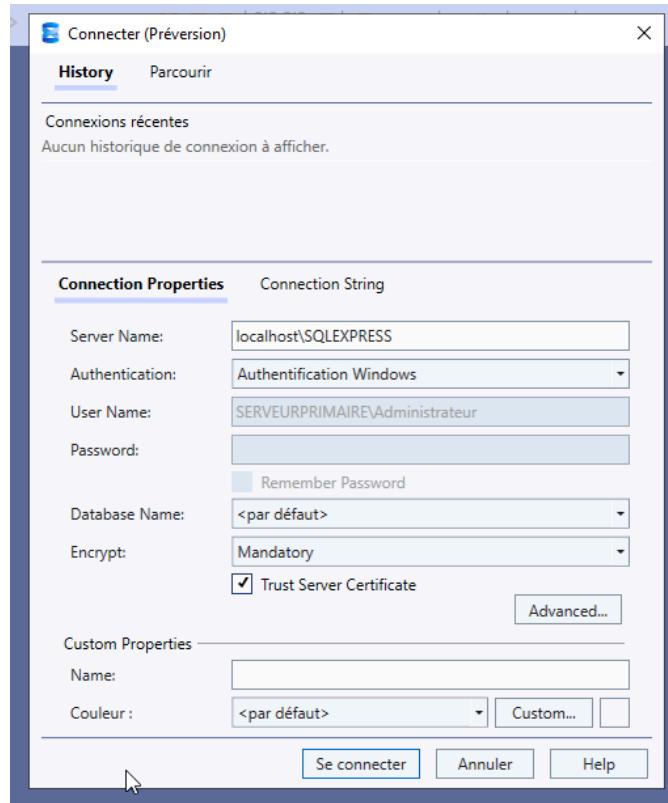


Redémarrage de la machine après l'installation :

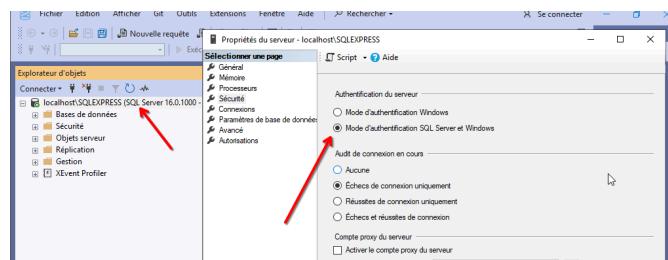


## 5. Connexion et configuration du serveur SQL

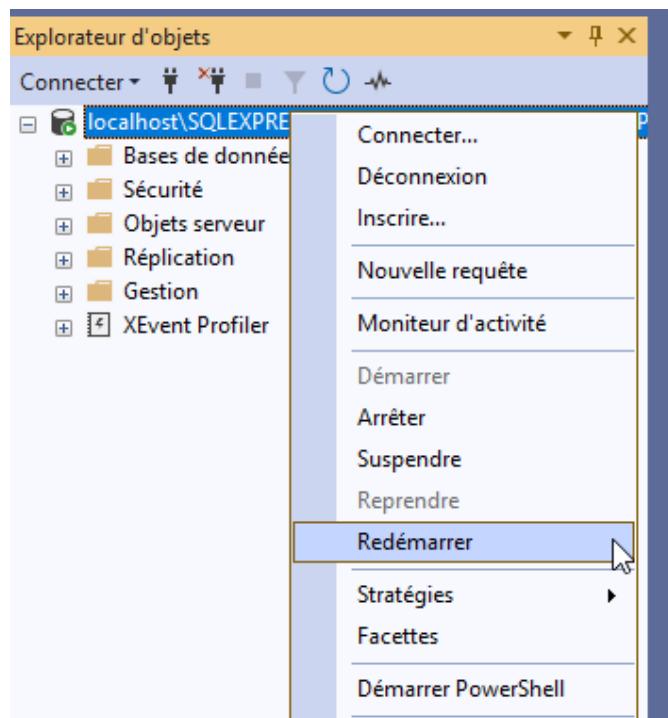
Connexion au serveur local :



Autoriser la connexion SQL :



Redémarrage du service SQL :



## Ajout des règles pare-feu

```
netsh advfirewall firewall add rule name="SQL Server TCP 1433" dir=in action=allow
protocol=TCP localport=1433
netsh advfirewall firewall add rule name="SQL Browser UDP 1434" dir=in
action=allow protocol=UDP localport=1434
```

## Création d'un utilisateur SQL

```
sqlcmd -S .\SQLEXPRESS -E
```

```
CREATE LOGIN [etudiant] WITH PASSWORD = '700_buc700_buc';
ALTER SERVER ROLE sysadmin ADD MEMBER [etudiant];
GO
```

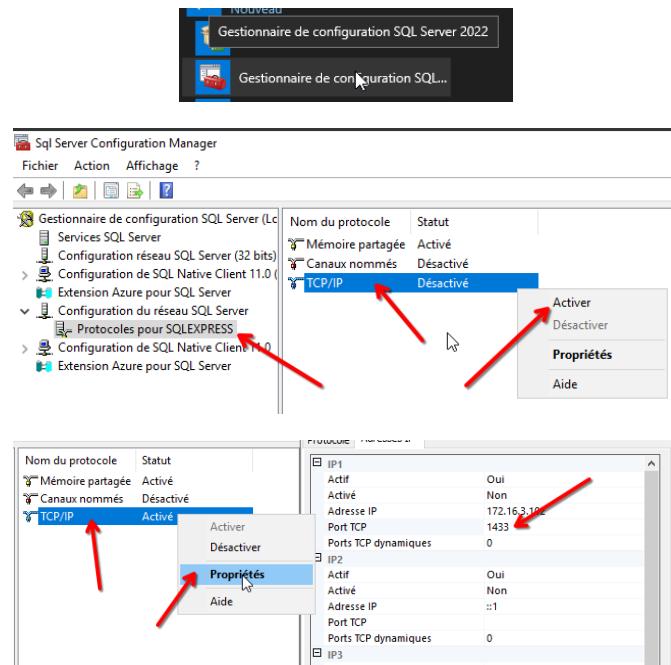
## Redémarrage du service SQL

```
Restart-Service -Name 'MSSQL$SQLEXPRESS' -Force
```

## Test de connexion

```
sqlcmd -S localhost\SQLEXPRESS -U etudiant -P '700_buc700_buc'
```

## 6. Autorisation des connexions distantes



## 7. Test de connexion depuis un serveur externe

The screenshot shows the 'Connection Properties' dialog and the 'Object Explorer' interface.

**Connection Properties:**

- Server Name: 172.16.3.102
- Authentication: Authentification SQL Server
- User Name: etudiant
- Password: (redacted)
- Database Name: <par défaut>
- Encrypt: Mandatory
- Trust Server Certificate: checked
- Advanced...

**Object Explorer:**

- 172.16.3.102 (SQL Server 16.0.1000 - etudiant)
  - Bases de données
  - Sécurité
  - Objets serveur
  - RéPLICATION
  - Gestion
  - XEvent Profiler

## 8. Règle NAT pour le serveur SQL

Nom de l'objet: SITERGESTREVUES

Adresse IPv4: 172.16.3.102

Adresse MAC: 01:23:45:67:89:ab (Facultatif)

Résolution

Filtrage NAT

		Trafic original (avant translation)			Trafic après translation		
	État	Source	Destination	Port dest.	Source	Port src.	Destination
1	on	LAN-NAT	Internet interface: out	* Any	Firewall_out	* Any	Any
2	on	LAN-DMZPUBI	Internet interface: out	* Any	Firewall_out	* Any	Any
3	on	Internet interface: out	Firewall_out	http	Firewall_out	* Any	WEBEPOKA
4	on	Internet interface: out	Firewall_out	https	Firewall_out	* Any	WEBEPOKA
5	on	Internet interface: out	Firewall_out	ms-sql-s	Firewall_out	* Any	SITERGESTREVUES