#### Tutoriel de déploiement du back sur proxmox

# 1. Mettre à jour votre Ubuntu.

sudo apt update

```
The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.

Toot869-back:-# apt update

Get:1 http://security.debian.org bookworm-security/main and64 Packages [146 kB]

Get:2 http://security.debian.org bookworm-security/main translation-en [87.7 kB]

Get:4 http://security.debian.org bookworm-security/contrib and64 Packages [64 B]

Get:5 http://security.debian.org/debian bookworm-security/contrib Translation-en [372 B]

Get:6 http://deb.debian.org/debian bookworm-updates InRelease [55.4 kB]

Get:7 http://deb.debian.org/debian bookworm-updates InRelease [55.4 kB]

Get:8 http://deb.debian.org/debian bookworm/main translation-en [6109 kB]

Get:9 http://deb.debian.org/debian bookworm/contrib and64 Packages [54.1 kB]

Get:10 http://deb.debian.org/debian bookworm/contrib Translation-en [48.7 kB]

Get:11 http://deb.debian.org/debian bookworm/contrib Translation-en [48.7 kB]

Get:12 http://deb.debian.org/debian bookworm/contrib Translation-en [48.7 kB]

Get:12 http://deb.debian.org/debian bookworm/contrib and64 Packages [54.1 kB]

Get:13 http://deb.debian.org/debian bookworm-updates/contrib and64 Packages [151 kB]

Get:14 http://deb.debian.org/debian bookworm-updates/contrib and64 Packages T-2023-12-29-1403.39-F-2023-11-06-2008.27.pdiff [7638 B]

Get:14 http://deb.debian.org/debian bookworm-updates/contrib and64 Packages T-2023-12-29-1403.39-F-2023-11-06-2008.27.pdiff [7638 B]

Get:15 http://deb.debian.or
```

# 2. Installer Git, NodeJS, npm et mariadb-server

sudo apt install git nodejs npm mariadb-server

```
packages can be upgraded. Run 'apt list --upgradable' to see them.
Repository 'http://deb.debian.org/debian bookworm InRelease' changed its 'Version' value for
root@G9-back:~# apt install git nodejs mariadb-server
Reading package lists... Done
Building dependency tree... Done
The following additional packages will be installed:
  galera-4 gawk git-man libc-ares2 libcgi-fast-perl libcgi-pm-perl libclone-perl libconfig-inifiles-perl libdaxctl1 libdbd-mariadb-perl libdbi-perl
  libencode-locale-perl liberror-perl libfcgi-bin libfcgi-perl libfcgi0ldbl libgpm2
  libhtml-parser-perl libhtml-tagset-perl libhtml-template-perl libhttp-date-perl
  libhttp-message-perl libio-html-perl liblwp-mediatypes-perl liblzo2-2 libmariadb3
  libmpfr6 libncurses6 libndctl6 libnode108 libnuma1 libpmem1 libregexp-ipv6-perl libsigsegv2 libsnappy1v5 libterm-readkey-perl libtimedate-perl liburi-perl
  liburing2 mariadb-client mariadb-client-core mariadb-common
  mariadb-plugin-provider-bzip2 mariadb-plugin-provider-lz4
  mariadb-plugin-provider-lzma mariadb-plugin-provider-lzo
  mariadb-plugin-provider-snappy mariadb-server-core mysql-common node-acorn node-busboy node-cjs-module-lexer node-undici node-xtend nodejs-doc patch psmisc
  pv rsync socat
Suggested packages:
  gawk-doc git-daemon-run | git-daemon-sysvinit git-doc git-email git-gui gitk gitweb git-cvs git-mediawiki git-svn libmldbm-perl libnet-daemon-perl
   libsql-statement-perl gpm libdata-dump-perl libipc-sharedcache-perl
  libbusiness-isbn-perl libwww-perl mailx mariadb-test netcat-openbsd npm ed
  diffutils-doc doc-base python3-braceexpand
The following NEW packages will be installed:
  galera-4 gawk git git-man libc-ares2 libcgi-fast-perl libcgi-pm-perl libclone-perl
  libconfig-inifiles-perl libdaxctl1 libdbd-mariadb-perl libdbi-perl libercode-locale-perl libercor-perl libfcgi-bin libfcgi-perl libfcgi0ldbl libgpm2
  libhtml-parser-perl libhtml-tagset-perl libhtml-template-perl libhttp-date-perl
  libhttp-message-perl libio-html-perl liblwp-mediatypes-perl liblzo2-2 libmariadb3 libmpfr6 libncurses6 libndctl6 libnode108 libnuma1 libpmem1 libregexp-ipv6-perl
  libsigsegv2 libsnappy1v5 libterm-readkey-perl libtimedate-perl liburi-perl
```

```
Get:31 http://deb.debian.org/debian bookworm/main amd64 libregexp-ipv6-perl all 0.03-3 [5212 B]
Get:22 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 5.17-1 [90.4 kB]
Get:23 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 5.17-1 [90.4 kB]
Get:24 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 4.55-1 [220 kB]
Get:25 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 4.55-1 [220 kB]
Get:26 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 4.55-1 [22.2 kB]
Get:26 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 4.55-1 [22.2 kB]
Get:26 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 1.55-1 [12.1 kB]
Get:28 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 1.05-1 [12.2 kB]
Get:36 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 1.05-3 [12.9 kB]
Get:40 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 1.05-3 [12.9 kB]
Get:41 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 1.05-3 [12.9 kB]
Get:42 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 1.05-3 [12.9 kB]
Get:43 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 1.2.97-2 [66.5 kB]
Get:44 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 2.97-2 [10.5 kB]
Get:45 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 2.97-2 [10.5 kB]
Get:46 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 2.97-2 [10.5 kB]
Get:46 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 2.97-2 [10.5 kB]
Get:46 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 2.97-2 [10.5 kB]
Get:46 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 2.97-2 [10.5 kB]
Get:47 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 2.97-2 [10.5 kB]
Get:50 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 2.98-2 [30.1 kB]
Get:51 http://deb.debian.org/debian bookworm/main amd64 librar-perl all 2.98-2 [3
```

Configurer votre mariadb-server avec la commande 'mysql secure installation'

```
Get:59 http://deb.debian.org/debian bookworm/main amd64 mariadb-plugin-provider-lzma amd64 1:10.11
Get:60 http://deb.debian.org/debian bookworm/main amd64 mariadb-plugin-provider-lzo amd64 1:10.11
Get:61 http://deb.debian.org/debian bookworm/main amd64 mariadb-plugin-provider-snappy amd64 1:10.
Get:62 http://deb.debian.org/debian bookworm/main amd64 patch amd64 2.7.6-7 [128 kB]
Get:63 http://deb.debian.org/debian bookworm/main amd64 pv amd64 1.6.20-1 [53.5 kB]
Fetched 44.9 MB in 5s (8381 kB/s)
Extracting templates from packages: 100%
Preconfiguring packages ...
root@G9-back:~# my sql_secure_installation
root@G9-back:~# [MariaDB!e secure. of the above steps, your MariaDB far.e'.
```

 Avec Git, récupérer votre backend se trouvant sur GitLab ou GitHub et mettez le dans le dossier /opt.

cd /opt/ sudo git clone votreRepo

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```
root@G9-back:~# cd /opt
root@G9-back:/opt# git clone https://github.com/zaavali/BackM2LFinal.git
```

```
root@G9-back:~# cd/opt/git clonehttps://github.com/zaavali/BackM2LFinal.git
-bash: cd/opt/git: No such file or directory
root@G9-back:~# cd /opt
root@G9-back:/opt# git clone https://github.com/zaavali/BackM2LFinal.git
Cloning into 'BackM2LFinal'...
remote: Enumerating objects: 5905, done.
remote: Counting objects: 100% (5905/5905), done.
remote: Compressing objects: 100% (4483/4483), done.
remote: Total 5905 (delta 1169), reused 5905 (delta 1169), pack-reused 0
Receiving objects: 100% (5905/5905), 16.05 MiB | 11.95 MiB/s, done.
Resolving deltas: 100% (1169/1169), done.
root@G9-back:/opt# [
```

#### Problème d'internet

```
root@G9-back:/opt/BackM2LFinal# dhclient -v
Internet Systems Consortium DHCP Client 4.4.3-P1
Copyright 2004-2022 Internet Systems Consortium.
All rights reserved.
For info, please visit https://www.isc.org/software/dhcp/

Listening on LPF/eth0/2a:9c:5c:0e:7f:60
Sending on LPF/eth0/2a:9c:5c:0e:7f:60
Sending on Socket/fallback
DHCPDISCOVER on eth0 to 255.255.255.255 port 67 interval 6
DHCPOFFER of 192.168.1.42 from 192.168.1.1
DHCPREQUEST for 192.168.1.42 on eth0 to 255.255.255.255 port 67
```

```
root@G9-back:/opt/BackM2LFinal# ping google.fr
PING google.fr (172.217.18.195) 56(84) bytes of data.
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=1 ttl=113 time=2.20 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=2 ttl=113 time=1.89 ms 64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=3 ttl=113 time=11.6 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=4 ttl=113 time=7.54 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=5 ttl=113 time=4.69 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=6 ttl=113 time=10.4 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=7 ttl=113 time=4.60 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=8 ttl=113 time=1.94 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=9 ttl=113 time=2.99 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=10 ttl=113 time=2.58 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=11 ttl=113 time=2.54 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=12 ttl=113 time=8.86 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=13 ttl=113 time=2.46 ms 64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=14 ttl=113 time=3.13 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=15 ttl=113 time=6.52 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=16 ttl=113 time=4.66 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=17 ttl=113 time=6.53 ms 64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=18 ttl=113 time=2.52 ms
64 bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=19 ttl=113 time=3.22 ms
    bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=20 ttl=113 time=5.61 ms bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=21 ttl=113 time=4.71 ms bytes from par10s38-in-f3.1e100.net (172.217.18.195): icmp_seq=22 ttl=113 time=5.97 ms
```

Nous pouvons maintenant re pinger google

Git pull effectué afin de récupérer la base de données.



- Déployer votre BDD sur le serveur mysql d'ubuntu, puis créer un utilisateur qui aura accès à votre Base de données.
- sudo mysql -u root -p
- CREATE DATABASE nomDatabase;
- use nomDatabase;
- sudo mysql -u root -p nomDatabase < chemin/votreDatabase.sql (modificable en fonction des commandes situé dans le fichier .sql).
- GRANT ALL PRIVILEGES ON votreDatabase.\* TO user@localhost identified by «votreMotDePasse»;
- FLUSH PRIVILEGES:

```
44 packets transmitted, 44 received, 0% packet loss, time 43061ms rtt min/avg/max/mdev = 1.890/5.262/16.352/3.633 ms
root@G9-back:/opt/BackM2LFinal# git pull remote: Enumerating objects: 4, done. remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 3.60 KiB | 283.00 KiB/s, done.
From https://github.com/zaavali/BackM2LFinal
    76b2084..c762add main
                                                 -> origin/main
Updating 76b2084..c762add
 Fast-forward
 m21.sql | 79
 1 file changed, 79 insertions(+) create mode 100644 m21.sql
root@G9-back:/opt/BackM2LFinal# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \glash g.
Your MariaDB connection id is 31
Server version: 10.11.6-MariaDB-0+deb12u1 Debian 12
Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.
Type 'help;' or 'h' for help. Type 'c' to clear the current input statement.
MariaDB [(none)]>
```

Ajout de la base de donnée via le repo git hub

Ici nous retrouvons bien la base de données

```
MariaDB [m21] > GRANT ALL PRIVILEGES ON m21.* TO 'root'@'localhost' IDENTIFIED BY '';
Query OK, 0 rows affected (0.001 sec)
MariaDB [m21] > [
```

Nous donnons les privilèges.

```
MariaDB [m21] > FLUSH PRIVILEGES
-> ;
Query OK, 0 rows affected (0.001 sec)

MariaDB [m21] > [
```

 Créer le fichier .env dans le dossier de votre projet et donner la configuration nécessaire.

sudo nano /opt/votreServeurNode/.env

 Essayer de lancer votre serveur et d'y accéder via votre ordinateur (en tapant quelque chose du genre : http://adresseIpVm:port/path)

Pour voir l'adresse IP de la machine : (ip a). De + il faut s'être mis en connexion par pont sur la config de la VM.

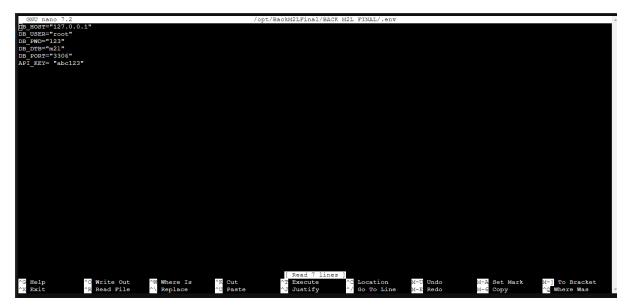
Pour lancer votre serveur : npm start à l'emplacement de votre server.js

 Maintenant, il faut mettre en place le fichier permettant de lancer le serveur au démarrage. Créer un fichier serveurnode.service dans le dossier etc/systemd/system/

sudo nano /etc/systemd/system/serveurnode.service

### Après avoir tapé

Nano /otp/BackM2LFinal/"BACKM2LFINAL/.env

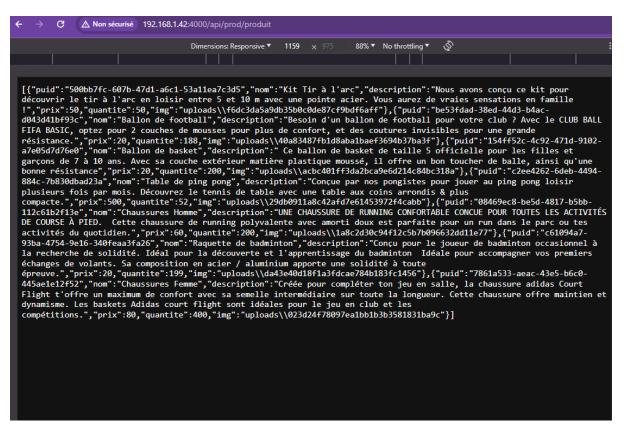


```
root@G9-back:/opt/BackM2LFinalf acd BACK M2L FINAL
root@G9-back:/opt/BackM2LFinalf back M2L FINALf npm start
> apsiteecommercebackend@1.0.0 start
> node server.js
node:internal/modules/cjs/loader:1452
return process.dlopen(module, path.toNamespacedPath(filename));

Error: /opt/BackM2LFinal/BACK M2L FINAL/node_modules/bcrypt/lib/binding/napi-v3/bcrypt_lib.node: invalid ELF header
at Module.load (node:internal/modules/cjs/loader:1452:18)
at Module.load (node:internal/modules/cjs/loader:1197:32)
at Module.load (node:internal/modules/cjs/loader:1097:32)
at Module.load (node:internal/modules/cjs/loader:1225:19)
at require (node:internal/modules/cjs/loader:1225:19)
at require (node:internal/modules/belpers:177:18)
at Object.<anonymous> (/opt/BackM2LFinal/BACK M2L FINAL/node_modules/bcrypt/bcrypt.js:6:16)
at Module._compile (node:internal/modules/cjs/loader:1356:14)
at Module._compile (node:internal/modules/cjs/loader:1312) {
    at Module._load (node:internal/modules/cjs/loader:1197:32)
    at Module._load (node:internal/mo
```

```
Node.js v18.19.0
root@G9-back:/opt/BackM2LFinal/BACK M2L FINAL# npm uninstall bcrypt
removed 39 packages, and audited 406 packages in 1s
46 packages are looking for funding
run `npm fund` for details
found 0 vulnerabilities
root@G9-back:/opt/BackM2LFinal/BACK M2L FINAL# npm install bcrypt
added 39 packages, and audited 445 packages in 3s
48 packages are looking for funding
run `npm fund` for details
found 0 vulnerabilities
root@G9-back:/opt/BackM2LFinal/BACK M2L FINAL# npm install
up to date, audited 445 packages in 1s
48 packages are looking for funding
run `npm fund` for details
found 0 vulnerabilities
root@G9-back:/opt/BackM2LFinal/BACK M2L FINAL# npm start
apsiteecommercebackend@1.0.0 start
> node server.js
Le serveur fonctionne sur le port 4000
```

```
root@G9-back:/opt/BackM2LFinal/BACK M2L FINAL# node server.js
Le serveur fonctionne sur le port 4000
getAllProduits
getAllProduits
```



Automatisation

GNU nano 7.2	/etc/systemd/syst
[Unit]	
Description=My Node.js App	
After=network.target	
[Service]	
User=root	
WorkingDirectory=/opt/BackM2LFinal/BACK M2L FINAL	
HOIRINGDITOCOOLY / Ope, BackMadillial, Back Mad lined	
ExecStart=/usr/bin/node/BackM2LFinal/'BACK M2L FINAL'/server	c.js
Restart=always	
Restart-arways	
RestartSec=10	
[Install]	
WantedBy=multi-user.target	
root@G9-back:/opt/BackM2LFinal/BACK M2L FINAL#	
1000gg Dack. / Opt/ DackM2Bi Indi/ Dack M2B 11MAB#	

root@G9-back:/opt/BackM2LFinal/BACK M2L FINAL# systemctl daemon-reload
root@G9-back:/opt/BackM2LFinal/BACK M2L FINAL# systemctl enable serveurnode.service
Created symlink /etc/systemd/system/multi-user.target.wants/serveurnode.service -> /etc/systemd/system/serveurnode.service.
root@G9-back:/opt/BackM2LFinal/BACK M2L FINAL# systemctl start serveurnode.service
root@G9-back:/opt/BackM2LFinal/BACK M2L FINAL# []

```
[Unit]
Description=My Node.js App
After=network.target

[Service]
User=root
WorkingDirectory=/opt/BackM2LFinal/BACK M2L FINAL

ExecStart=/usr/bin/node /opt/BackM2LFinal/'BACK M2L FINAL'/server.js
Restart=always
RestartSec=10
[Install]
WantedBy=multi-user.target
```