



Fondation
Mérieux

LabBook v3.6

Manual LabBook-dev

V3

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Fondation **Mérieux**

Lutte contre les maladies infectieuses depuis 1967

www.fondation-merieux.org



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Foreword

This manual is dedicated to computer scientists, developers and experts wishing to modify LabBook source code directly.

It describes how to install LabBook in development mode, in order to add and/or modify the source code, based on the readme tutorial available on Fondation Mérieux's github.

Installation procedure

To install a labbook development machine, you need a computer running Ubuntu 22.04 with at least 4GB of RAM (ideally 8) and 75GB of disk storage. The installation steps are described below.

Step 1: Install dependencies: Git; Make; podman; mysql

```
→ sudo apt-get upgrade
→ sudo apt-get update
→ sudo apt-get install
make → sudo apt-get install
git
→ sudo apt-get install -y podman
→ sudo apt-get install mysql-
server
→ sudo systemctl start mysql.service
```

To check that the dependencies have been installed correctly:

```
→ make --version
→ git --version
→ mysql --version
→ podman --
version
```

Step 2: Clone labbook's remote repository locally

To clone the remote labbook repository locally, open a terminal and enter the following command:

```
git clone https://github.com/fondationmerieux/labbook\_python.git
```

Step 3: Modify configuration in labbook.conf

There's a copy of the labbook.conf file in docs (in the labbook folder obtained after cloning). Copy this file outside the labbook_python folder, then modify it by adding the following information:

```
LABBOOK_DB_USER=nomUser
```

```
LABBOOK_DB_PWD=mdpUser
```

```
LABBOOK_DB_NAME=SIGL
```

```
LABBOOK_DB_HOST=192.168.255.209
```

```
LABBOOK_DEBUG=1
```

```
LABBOOK_TEST_OK=
```

```
LABBOOK_TEST_KO=
```

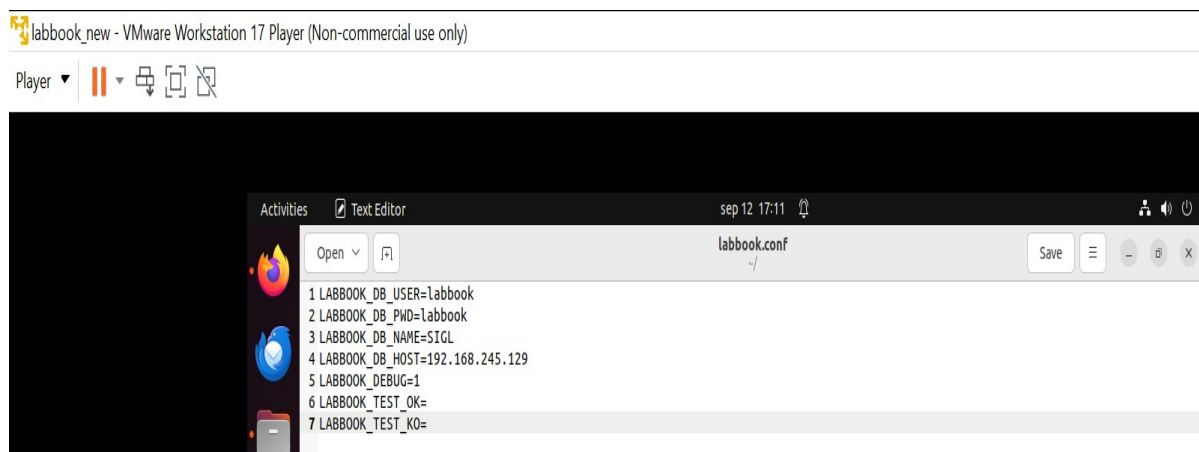
Note:

Replace 192.168.255.209 by the machine's ip address. To

find its @ ip :

Run the ifconfig command on terminal. If ifconfig cannot be found, download it with `sudo apt-get install net-tools`.

Also replace `nomUser` and `mdpUser` with the mysql username and password created on mysql. (see below [étape5](#))



Step 4: Modify Mysql configuration

Run the following command on your terminal: `cd`

`/etc/mysql/mysql.conf.d` Then `sudo nano mysql.d.cnf`

Step 5: Configuring the database

To configure the database, log on as root:

- `sudo mysql -u root -h localhost`
- `CREATE USER nomUser@'192.168.255.209' IDENTIFIED BY 'mdpUser';`
- `GRANT ALL PRIVILEGES ON *. * TO nomUser@'192.168.255.209';`
- `CREATE USER nomUser@'localhost' IDENTIFIED BY 'mdpUser';` →
- `GRANT ALL PRIVILEGES ON *. * TO nomUser@'localhost';`
- `FLUSH PRIVILEGES ;`

Restart Mysql with: `sudo systemctl restart`

mysql

```
fatou@fatou-virtual-machine: /etc/mysql/mysql.conf.d
8b622f2175fb3f09238d6edf6d637edc28304728d3cabdb4938a7adae08678d9
fatou@fatou-virtual-machine:~/labbook_python$ sudo mysql -u root -h localhost
[sudo] password for fatou:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 8.0.39-0ubuntu0.22.04.1 (Ubuntu)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> select user,host from mysql.user;
+-----+-----+
| user          | host          |
+-----+-----+
| labbook       | 192.168.245.129 |
| debian-sys-maint | localhost    |
| labbook       | localhost     |
| mysql.infoschema | localhost    |
| mysql.session | localhost     |
| mysql.sys     | localhost     |
| root          | localhost     |
+-----+-----+
7 rows in set (0,01 sec)

mysql> quit
Bye
fatou@fatou-virtual-machine:~/labbook_python$ cd /etc/mysql/mysql.conf
```

```

fatou@fatou-virtual-machine: /etc/mysql/mysql.conf.d
GNU nano 6.2                                mysqld.cnf
# The MySQL database server configuration file.
#
# One can use all long options that the program supports.
# Run program with --help to get a list of available options and with
# --print-defaults to see which it would actually understand and use.
#
# For explanations see
# http://dev.mysql.com/doc/mysql/en/server-system-variables.html
#
# Here is entries for some specific programs
# The following values assume you have at least 32M ram
[mysqld]
#
# * Basic Settings
#
user                = mysql
pid-file            = /var/run/mysqld/mysqld.pid
socket              = /var/run/mysqld/mysqld.sock
port                = 3306
datadir             = /var/lib/mysql
#
# If MySQL is running as a replication slave, this should be
# changed. Ref https://dev.mysql.com/doc/refman/8.0/en/server-system-variables.html#sysvar_tmpdir
tmpdir              = /tmp
#
# Instead of skip-networking the default is now to listen only on
# localhost which is more compatible and is not less secure.
bind-address        = 0.0.0.0
mysqlx-bind-address = 127.0.0.1
sql_mode=
#
# * Fine Tuning
#

```

Step 6: Run make commands

Once all the configurations have been made, the make commands are executed to build the image, test the database, add default data to the database, launch labbook on the browser and also stop it.

To do this, open a terminal and go to the labbook_python folder using the cd command, or open the labbook_python folder in file explorer, right-click and click on "open in terminal".

Then run the following commands:

- Make devbuild è This builds the labbook image, and is the longest part.
- Make dbtest è This tests the connection between the labbook application and the SIGL database.
- Make dbinit è This command initializes the SIGL database by filling the tables with test data.
- Make devrun è this command launches labbook on the browser at localhost :5000/.
- Make devstop è stops the running labbook instance.

→ Make devclean è this command deletes the image previously created by devbuild.

The screenshot shows a VMware Workstation 17 Player window titled 'labbook_new - VMware Workstation 17 Player (Non-commercial use only)'. Inside the player, a terminal window is open with the title 'fatou@fatou-virtual-machine: ~/labbook_python'. The terminal displays the following commands and output:

```
fatou@fatou-virtual-machine:~/labbook_python$ make devrun
mkdir -p /home/fatou/labbook_python/logs
mkdir -p /home/fatou/labbook_python/devrun_storage
rsync -a ./storage/ /home/fatou/labbook_python/devrun_storage
podman pod exists labbook || podman pod create --name=labbook --network=slirp4netns:allow_host_loopback=true --publish=5000:80
5395c8c8d571ad64f22288a03ceab7a7c38e30468a067aaa4c9b4e26b02ca897
podman run --rm --detach --pod=labbook --name=labbook_python --tz=local --env TZ --env TERM --env LANG --env LABBOOK_DB_USER=labbook
--env LABBOOK_DB_PWD=labbook --env LABBOOK_DB_NAME=SIGL --env LABBOOK_DB_HOST=192.168.245.129 --env LABBOOK_DEBUG=1 --env LABBOOK_T
EST_OK= --env LABBOOK_TEST_KO= --env LABBOOK_USER= --env LABBOOK_ROOTLESS= --env LABBOOK_URL_PREFIX= --env LABBOOK_POD_NAME=labbook
--env LABBOOK_MEDIA_DIR= --env LABBOOK_DUMP_COL_STATS= --env LABBOOK_MAP_STORAGE=/home/fatou/labbook_python/devrun_storage/storage:
Z --volume=/home/fatou/labbook_python/devrun_storage:/storage:Z --volume=/home/fatou/labbook_python/logs:/home/apps/logs --volume=/
labbook_FE/app:/home/apps/labbook_FE/labbook_FE/app --volume=,/labbook_BE/alemnic:/home/apps/labbook_BE/labbook_BE/alemnic --volume=
,/labbook_BE/app:/home/apps/labbook_BE/labbook_BE/app --volume=,/labbook_BE/script:/home/apps/labbook_BE/labbook_BE/script localhos
t/labbook-python:latest
8b622f2175fb3f09238d6edf6d637edc28304728d3cabdb4938a7adae08678d9
fatou@fatou-virtual-machine:~/labbook_python$
```

LabBook update generation

To generate a labbook update file, you need to modify and save the code of the part concerned, and check that it is functional. Code modifications are visible directly in the browser, so there's no need to recreate the image or restart the labbook instance.

For the update there are 2 commands:

→ **make build**

```
fatou@fatou-virtual-machine: ~/labbook_python

STEP 26/37: COPY apache/apache.sh /home/apps/apache/
--> Using cache acd53f7ce7ee57d276a60cf104cd0238b896cda7f0bf20b0dd1dce251e43a651
--> acd53f7ce7e
STEP 27/37: COPY labbook_FE/Pipfile /home/apps/labbook_FE/labbook_FE
--> Using cache a3153219610680c4b219ab9753e9e0f76840213beb2fa0d5583cce5806200d70
--> a3153219610
STEP 28/37: WORKDIR /home/apps/labbook_FE/labbook_FE
--> Using cache 1f140d3715bce1b6eb48899e2ebb71e227b2698176e739ae27ae365ad10c618d
--> 1f140d3715b
STEP 29/37: RUN python3 -m venv venv
--> Using cache 7786e643fe243ebe87c5b7947f418a9db13225ed37dd0ea81b74bdb4305fd086
--> 7786e643fe2
STEP 30/37: RUN source venv/bin/activate && pip install --upgrade pip && pip install pipenv && pipenv install
--> Using cache 713ee57c8c750963a3cdf992065f40ad78f86e8ac26bfbe376c8fbb94bb82cb
--> 713ee57c8c
STEP 31/37: COPY labbook_BE/Pipfile /home/apps/labbook_BE/labbook_BE
--> Using cache 7952b2d3fcd6e2e06db7dd001d460479d4033166ef0ed3aaace7c2e117e83824
--> 7952b2d3fcd
STEP 32/37: WORKDIR /home/apps/labbook_BE/labbook_BE
--> Using cache 1ea5a79bb4fcf12b96f9c7856cf032ff6cabf51696723bb9466b924e1ee1e01
--> 1ea5a79bb4f
STEP 33/37: RUN python3 -m venv venv
--> Using cache 2c965136dac91587438c89e44785c72b01f0b5d446a5ccc570af3d43cb4a0df2
--> 2c965136dac
STEP 34/37: RUN source venv/bin/activate && pip install --upgrade pip && pip install pipenv && pipenv install
--> Using cache 807ad042652294193b082aefcebc7708f82f5ecacc63de136f74d1eb2f4320e
--> 807ad042652
STEP 35/37: COPY labbook_FE /home/apps/labbook_FE/labbook_FE
--> Using cache 91389dfccc628c1d294232f7303e4b8dcc1f67cfdff3b742a991c3acd94cf984
--> 91389dfccc6
STEP 36/37: COPY labbook_BE /home/apps/labbook_BE/labbook_BE
--> Using cache aa0d59dc1e7b94b8680b354408a74ad15556dda3075d88011fdf2455a3e49ebe
--> aa0d59dc1e7
STEP 37/37: CMD ["supervisord", "-c", "/home/supervisor/etc/supervisor.conf", "--pidfile", "/home/supervisor/tmp/supervisor.",
id", "--user", "root"]
--> Using cache ca429519cec5ee1717d8190cbb65a2d47abfd209972cc6d2ca3e1b026b03a3e9
COMMIT localhost/labbook-python:3.4.11
--> ca429519cec
Successfully tagged localhost/labbook-python:3.4.11
Successfully tagged localhost/labbook-python:latest
ca429519cec5ee1717d8190cbb65a2d47abfd209972cc6d2ca3e1b026b03a3e9
git checkout master
M      labbook_BE/default_settings.py
M      labbook_FE/app/templates/login.html
Basculement sur la branche 'master'
Votre branche est à jour avec 'origin/master'.
fatou@fatou-virtual-machine:~/labbook_python$
```

→ make save

```
fatou@fatou-virtual-machine:~/labbook_python$ make save
rm -f /tmp/labbook-python-3.4.11.tar /tmp/labbook-python-3.4.11.tar.xz
podman save --output=/tmp/labbook-python-3.4.11.tar localhost/labbook-python:3.4.11
Copying blob b97f5cdd369d done
Copying blob b06b0612ddd6 done
Copying blob 340da03852e4 done
Copying blob 676017fb7fcc done
Copying blob d0651719be2a done
Copying blob 2c3b5fc2c73d done
Copying blob e34f5f48a01f done
Copying blob 2a16af92147a done
Copying blob 4c29ed538b59 done
Copying blob fdcc58bae23e done
Copying blob 938eb785a19a done
Copying blob 950b486f20d8 done
Copying blob 27aab195b997 done
Copying blob 99a78bd0ae3c done
Copying blob 7a979e6c7af6 done
Copying blob ef4b1d9f570f done
Copying blob 8eb8794d4153 done
Copying blob 31ff1048d7be done
Copying blob 78245e876e3d done
Copying blob 01eda8a4fc0c done
Copying blob 86e2bbd166b9 done
Copying blob feb808dac97a done
Copying blob 52cf0760eb2f done
Copying blob 170231dea53 done
Copying blob 710f0866eeca done
Copying blob 7ed50d17e94c done
Copying blob 548da3bfff365 done
Copying blob 8894458bae2e done
Copying blob 4a9212c7e04c done
Copying blob c6ceb499bb49 done
Copying blob dd914ed3073f done
Copying blob 8bcb71b86436 done
Copying blob 021926e6d74d done
Copying blob 4016689d3983 done
Copying config ca429519ce done
Writing manifest to image destination
Storing signatures
xz --keep /tmp/labbook-python-3.4.11.tar
(cd /tmp && \
md5sum labbook-python-3.4.11.tar > labbook-python-3.4.11.tar.md5sum && \
md5sum labbook-python-3.4.11.tar.xz > labbook-python-3.4.11.tar.xz.md5sum)
fatou@fatou-virtual-machine:~/labbook_python$
```

Note:

If, after executing the make build command, you get an error concerning the tag, try the following commands:

→ git fetch

```
fatou@fatou-virtual-machine:~/labbook_python$ git fetch
Depuis https://github.com/fondationmerieux/labbook_python
* [nouvelle étiquette] v3.3.0 -> v3.3.0
* [nouvelle étiquette] v3.3.1 -> v3.3.1
* [nouvelle étiquette] v3.3.10 -> v3.3.10
* [nouvelle étiquette] v3.3.11 -> v3.3.11
* [nouvelle étiquette] v3.3.12 -> v3.3.12
* [nouvelle étiquette] v3.3.13 -> v3.3.13
* [nouvelle étiquette] v3.3.14 -> v3.3.14
* [nouvelle étiquette] v3.3.15 -> v3.3.15
* [nouvelle étiquette] v3.3.2 -> v3.3.2
* [nouvelle étiquette] v3.3.3 -> v3.3.3
* [nouvelle étiquette] v3.3.4 -> v3.3.4
* [nouvelle étiquette] v3.3.5 -> v3.3.5
* [nouvelle étiquette] v3.3.6 -> v3.3.6
* [nouvelle étiquette] v3.3.7 -> v3.3.7
* [nouvelle étiquette] v3.3.8 -> v3.3.8
* [nouvelle étiquette] v3.3.9 -> v3.3.9
* [nouvelle étiquette] v3.4.0 -> v3.4.0
* [nouvelle étiquette] v3.4.1 -> v3.4.1
* [nouvelle étiquette] v3.4.10 -> v3.4.10
* [nouvelle étiquette] v3.4.11 -> v3.4.11
* [nouvelle étiquette] v3.4.2 -> v3.4.2
* [nouvelle étiquette] v3.4.3 -> v3.4.3
* [nouvelle étiquette] v3.4.4 -> v3.4.4
* [nouvelle étiquette] v3.4.5 -> v3.4.5
* [nouvelle étiquette] v3.4.6 -> v3.4.6
* [nouvelle étiquette] v3.4.7 -> v3.4.7
* [nouvelle étiquette] v3.4.8 -> v3.4.8
* [nouvelle étiquette] v3.4.9 -> v3.4.9
fatou@fatou-virtual-machine:~/labbook_python$
```

→ git log

```
fatou@fatou-virtual-machine:~/labbook_python$ git log
commit 5e2871a0fa3dfe32152493ffee87a03c4293c9f4 (HEAD -> master, tag: v3.4.11, origin/master, origin/HEAD)
Author: Alexandre CHARLES <ac@aegle.fr>
Date: Sun Sep 8 15:44:41 2024 +0200

    Release 3.4.11

commit d7976bf92a0a651e7859c4dfda938afad2f07bb1 (tag: v3.4.10)
Author: Alexandre CHARLES <ac@aegle.fr>
Date: Mon Jul 29 08:39:46 2024 +0200

    Release 3.4.10

commit 3ac5d9bb8e1903f76c80253a2ba329cbbba45bfe (tag: v3.4.9)
Author: Alexandre CHARLES <ac@aegle.fr>
Date: Wed Jul 10 11:39:58 2024 +0200

    Release 3.4.9

commit 0878f86eee000a364db1fcbe279a62d33df06e84 (tag: v3.4.8)
Author: Alexandre CHARLES <ac@aegle.fr>
Date: Wed Jun 26 14:40:37 2024 +0200

    Release 3.4.8

commit 768098b7143fdf5f7a96c0d23ec3d2adf26ee26f (tag: v3.4.7)
Author: Alexandre CHARLES <ac@aegle.fr>
Date: Mon Jun 24 17:48:34 2024 +0200

    Release 3.4.7

commit c627aa98bde948e9ae57b07b070254bdf7fa62b8
Author: Alexandre CHARLES <ac@aegle.fr>
Date: Mon Jun 24 17:07:41 2024 +0200

    Release 3.4.7

commit 5d672fa5d7ee2ab107cd7a58b87865826f891445 (tag: v3.4.6)
Author: Alexandre CHARLES <ac@aegle.fr>
Date: Mon Jun 17 12:13:48 2024 +0200

    Added checkbox ana_ast
```

→ Then run make build again.

Generating a LabBook iso

To generate a LabBook iso, you need a certain configuration and a few files.

Prerequisites :

- Ubuntu 22.04 → Having an Ubuntu 22.04 LTS iso
- Install the CUBIC iso generator software.
- On the host machine: momentarily disable mysql with `sudo systemctl stop mysql`
- Then `sudo systemctl status mysql` to check →

Have the files below available:

- Folder: Manual
- Tar files :
 1. formation-FMX-LabBook.tar.xz
 2. labbook-connect-1.0.0.tar.xz
 3. labbook-pod.tar.xz
 4. labbook-python-3.4.10.tar.xz
- Other files :
 5. exec_update_labbook.sh
 6. Export_labbook3
 7. grub.cfg
 8. lab-book.org.desktop
 9. Labbook
 10. labbook.desktop
 11. labbook.service
 12. labbook-elearning.desktop
 13. labbook_postinstall.sh
 14. MysqlLabBook.tgz
 15. README.md
 16. rustdesk-1.2.3-2-x86_64.deb
 17. sources.list
 18. sudoers_labbook
 19. ubuntu.seed
 20. update_labbook.sh

- 21. user
- Images :
 - 1. labbook.png
 - 2. labbook-screen-background.png
 - 3. ubuntu-wallpapers.xml

Usefulness of key files :

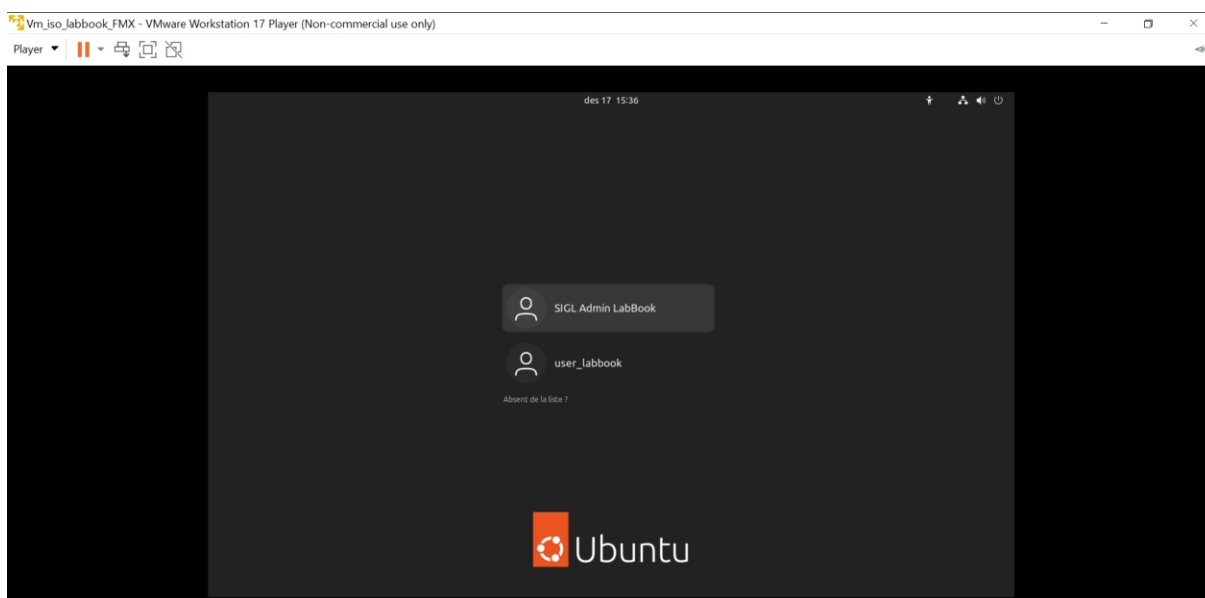
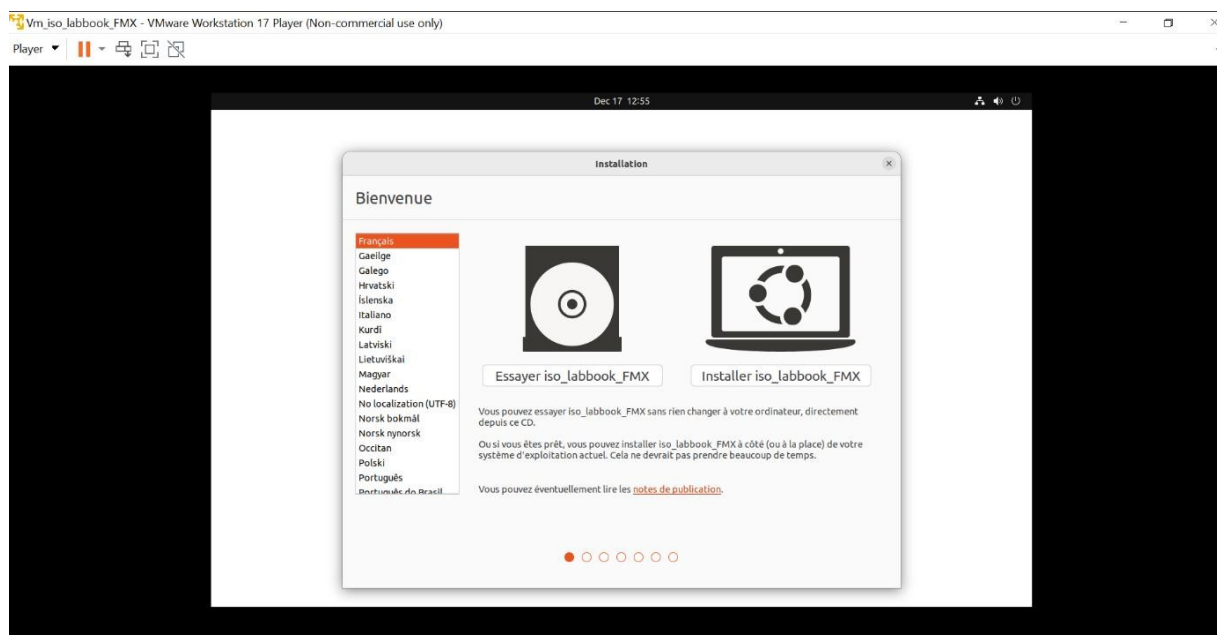
- ➔ labbook.desktop, labbook-elearning.desktop, lab-book.org.desktop: launch shortcuts
- ➔ labbook.png, labbook-screen-background.png, ubuntu-wallpapers.xml: labbook images
- ➔ labbook.service: starts LB services ➔
- sudoers_labbook
- ➔ export_labbook3: export of MySQL DB. This is for information only, as the database has already been created for performance reasons at startup.
- ➔ Check that these files labbook_postinstall.sh, create.sh and labbook have execution permissions, otherwise grant rights with the command: `sudo chmod +x /home/create.sh`

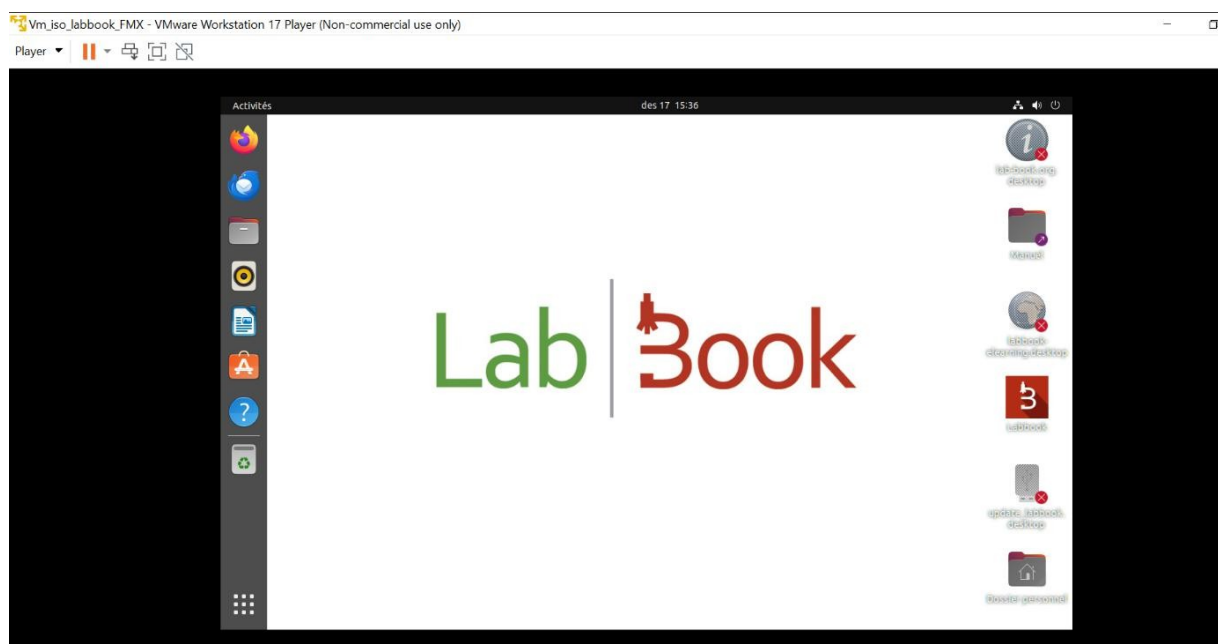
These files can be found in the /home directory of an already installed Labbook: formation-FMX-LabBook.tar.xz, MySQLLabBook.tgz, Manual directory, compressed containers labbook-connect-1.0.0.tar.xz, labbook-python-3.4.10.tar.xz labbook-pod.tar.xz etc...

Steps :

- ➔ 1)Launch cubic and select the folder already containing all the above-mentioned files, in which the iso will be generated.
- ➔ 2)click on Next and choose the ubuntu 22.04 iso
- ➔ 3)customize (in the fields on the right) the name, id and version of the future iso to be created, then click on Next
- ➔ 4)you'll be redirected to a chroot cubic terminal,
- ➔ 5)open a terminal on the host machine and position yourself on the iso creation folder, then run the command `cp /create.sh /custom-root/home`
- ➔ On the physical machine, run the following commands: ➔ `cp ubuntu.seed /custom-disk/preseed`
- ➔ `cp grub.cfg /custom-disk/boot/grub.`

- 6) return to the cubic terminal and run the command `/home/create.sh | tee /home/create.log` to execute all the commands needed to generate an iso labbook and save the output in a create.log file.
- 7) Click on Next, Next. For zip selection, select xz then next, then click on close.
- 8) To test the generated iso : The easiest way is to test it directly on VMWare by creating a virtual machine. Alternatively, you can boot a key with Rufus and install it on a physical machine.



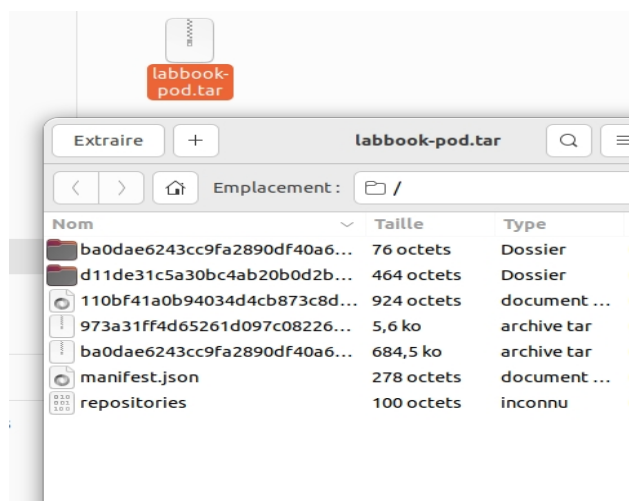


In both cases, once installation is complete and you've rebooted, you can launch labbook directly by :

Right-click on the labbook icon -> authorize execution then double-click. Please

note

For .tar.xz files, make sure you have the correct files without double compression, i.e. if the file is decompressed, you should come across the files directly.



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