Kiwix Hotspot Installer

User Guide

Kiwix Hotspot allows you to share Kiwix content via a local “Hotspot”

A Hotspot is comprised of two features; a “RasperryPi” and a microSD card, which contains the “Pi” operating system and all the educational content installed.

Kiwix Hotspot Installer is an installation programme which aims to configure the SD card to make the RaspberryPi work.

Note: it is highly recommended to use *good quality* microSD card to ensure proper compatibility and performances with RaspberryPi devices.

# Hotspot Operation:

* The Hotspot creates a network which can be seen within about 20 metres
* It usually accommodates 20 simultaneous users, depending on usage
* Users can see this network on their tablet or computer and then connect to it
* Their web browser will direct them to the Hotspot homepage which lists the available content (fig. 1)
* The content is a copy of what can be found on the Internet. On the Hotspot, this is available without the user or the RaspberryPi being connected to the internet, as the content is copied onto the SD card



Fig. 1: Example of a Hotspot homepage once installed

# Hotspot Creation

Kiwix Hotspot allows you to create the microSD card and/or image file that will contain the operating system and contents for your Hotspot.

To deploy your Hotspot, you will have to :

1. **Buy a raspberryPi**: <https://www.raspberrypi.org/products/>  
   We advise you buy the latest compatible available raspberryPi version as each new version comes with significant performance improvements (and thus better comfort and user capacity for your Hotspot).   
   Compatible raspberryPi versions:
   * Pi 3, 3-A+, 3-B+: yes
   * Pi 2-B : no (unsure)
   * Pi 0, 0-W, 1-A, 1-B, 1-B+: coming soon.
2. **Buy a microSD card**, of your desired capacity.  
   Minimal required size is 8GB but content will increase this number drastically. Use Kiwix-Hotspot for simulations in order to find out which capacity will fit your Hotspot needs.  
   Buy a **good quality card**. Low-cost cards quality is random and failures are both frequent and hard to diagnose.  
   *Card speed* (sometimes advertised) will only be useful for the one-time writing of the image file onto the card in the case of the Hotspot.
3. **Prepare your card or image file with Kiwix-Hotspot**.  
   That’s the step this document is about: configure your options, select your desired content and launch the creation process.  
   If you selected an SD-card at this step, skip the next one.
4. **Write the image file onto the SD card**. (If step 3 was in Image File mode).  
   Download a tool like Etcher (<https://www.balena.io/etcher/>), choose your previously created image file and microSD card, Etcher will copy all of its content onto the card.
5. **Deploy the Hotspot**.  
   Insert the microSD card into the raspberryPi and connect it to a power source: voilà ! Your Hotspot starts and you can connect to its WiFi network.  
   You’ll be able to access it by pointing your web browser to <http://kiwix.hotspot/>.

# Minimum Configuration Required

* Windows 7/8/10, Linux or macOS (10.12+)
* An administrator account on the computer (with permission to install new programs)
* A high-speed, stable internet connection. Should you lose connectivity during the process, the whole creation might fail and you’ll have to restart it.
* A lot of disk space; although the tool will tell you the space needed to create the card. Generally, one and a half times the size of the card that you want to create is good benchmark figure. E.g. 96GB to create a 64GB card.
* The download time for 50GB with a 100Mbps connection will be 1 hour 10 minutes
* With a 10Mbps connection, it will take 11 hours 20 minutes
* The process of creating the card will take between 45 minutes and 4 hours depending on the power of the computer in use and the content chosen. During this time, the computer will be slowed down significantly. The process cannot be paused.
* However, the user does not need to be in front of the computer while the card is being created, therefore this can be left to run overnight
* If working from a business network with a proxy, see page 8 for configuration instructions

It is important to note that Kiwix Hotspot allows content to be chosen by the user, and the list can then be exported to a .JSON file. This can be sent by email to another user with a more powerful or better connection (see page 9 “Export”).

# Installation

Kiwix Hotspot can be downloaded from: [http://download.kiwix.org/release/kiwix-hotspot/](http://download.kiwix.org/release/kiwix-hotspot/v2.0-rc13/)

(.dmg files for macOS, .exe for Windows).

For Windows, the downloaded file is the executable program.

On start up, you will be asked to confirm that you are authorised to perform these changes to the system. These rights are required to be able to flash files onto the SD card.

# Personalising your Hotspot

You are able to choose:

* The name of the WiFi network that the users will be connected to
* A password for the WiFi network, or leave it as an open network (recommended)
* The language used for the Hotspot homepage (French, English, Arabic etc*.*)
* The time zone used by the Hotspot (useful for tools adding dated information)
* The logo for the Hotspot home page
* The password for the administrator account (required to manage certain options)
* The content loaded onto the SD card: by adding dynamic tools (Edupi, KA-Lite, Aflatoun, WikiFundi) or *Static* Contents (ZIM) : archives of websites like Wikipedia, TED videos and many more.

# Configuration and Content Choice



Fig.2. The main window of the installer.

### Hotspot Name

The name of the Hotspot will also be used as the WiFi network name, and as the access address.

By accepting “Kiwix” the hotspot will create a WiFi network outside with this name outside of the RaspberryPi activation. The users which connect to it will be able to access the content by entering the following address into their web browser: <http://kiwix.hotspot> (without www). By choosing “school” it would be <http://school.hotspot>

### Favicon (optional)

Advanced functionality which will allow you to select an image (in PNG or ICO format) which will appear in the address bar or the browser tab to allow the user to locate the homepage for the Hotspot more easily.

### Logo (optional)

This allows an image to be selected (in PNG format) which will be displayed instead of the Kiwix logo at the top of the Hotspot homepage.

### CSS Style (optional)

Advanced functionality which will allow you to select a CSS file, allowing for further personalisation of the graphics on the Hotspot homepage. Most notably, this allows for colour changes.

### Language

Select the language for the homepage of the Hotspot.

### Open WiFi

This selector allows you to choose if the WiFi network for the Hotspot will be open (no password) or not.

By choosing *OFF*, a text box will allow you to create a password for the WiFi network.

### Admin Login and Admin Password

These two fields will allow you to personalise the username and password for the administrator account.

The administrator account allows access to certain configurations within the interactive content. It is important to note that it this will be needed to add files in EduPi.

### Time zone (optional)

This allows you to select the time zone for the Hotspot.

Choice based on the location of installation for the Hotspot.

The time zone is most useful for interactive projects which register and display the date and time of certain actions.

**Warning**: A *RaspberryPi* which does not have an internal clock, if disconnected from the internet once activated (configuration being the most likely), these internal dates and times will be out of sync.

An external module is available to add on a physical clock (see <https://framagit.org/ideascube/pibox-installer/wikis/Keeping-Time>).

### Build Path

The build path allows the software directory to be selected.

All content will be downloaded to this directory, then the Hotspot image will be created. This means the file containing the entirety of the card to be written.

Therefore, this directory must have a lot of free space available. This can be located on an external disk for example.

Once selected, a *Clean* button will appear. This will allow you to clean the cache file if you wish to delete any old downloaded files from previous use.

W*ipe* will delete all files, while *Clean* will proceed to intelligently delete, by removing only unnecessary files and those for which a newer version is available on the Kiwix servers.

### Output, SD card and File Size

Allows you to choose the microSD card to be used at the end of the process, or to choose to write only to a file on your computer and not onto a card. This second method will allow you to reuse the created imageon several cards at the same time.

The *Refresh* button will allow you to update the list of available cards on the computer.

Should your card not appear after hitting the *Refresh* button, try to unplug then plug-it again to your computer, wait a few seconds and hit the *Refresh* button again.

It is safe to retry this several times.





By choosing the *File* option, you will be able to choose your desired size for the image, corresponding to the size of the microSD card you would like to use.

### Free Space

This states the quantity of space available for content, which will be created on the microSD card.

This *remaining disk space* is calculated using:

* The size of the microSD card selected
* The size of the base system (mandatory, about 7GB)
* The size of the content selected

If the gauge is red and a negative value is displayed, you will have to deselect certain content that was chosen, before the creation of the card can be started.

### EduPi

EduPi is an interactive tool which allows the administrator to share files. It does not use up disk space, as the administrator will add the files onto the displayed Hotspot.

On activation, a new option, *EduPi Initial Data* will appear. This allows you to provide a ZIP file containing files to be imported to EduPi when the *image* is created.

Please note that:

* The file must be in ZIP format
* It can contain files, folders, and sub-folders
* This does not prevent the administrator of the Hotspot from overwriting files in the future
* The administrator will be able to delete files from the Hotspot

### KA-Lite, WikiFundi and Aflatoun

KA-Lite (Khan Academy), WikiFundi and Aflatoun are interactive tools. These options can be selected for the chosen languages.

### Static Content



Because of the vast amount of static content available, these can be selected in a separate window.

This window will display four sections:

* On the left, a list of languages allowing the available content to be filtered (single click)
* On the top right, a list of the available content for the language selected, which can be selected by double-clicking above
* On the bottom right, the list of content selected
* Options can be deselected by double-clicking above
* On the bottom left, the remaining disk space available

It should be noted that some content might have several variants. For example, with or without image or video.

Note (advanced usage) : it is possible to reuse ZIM files downloaded outside Kiwix-Hotspot to save time on a slower connection. To do this:

1. Place the ZIM file into the kiwix-hotspot.cache folder inside the *Build Folder*.
2. Rename the ZIM file according to this pattern :  
   package\_<package\_name>.<language\_code>-<zim\_date>.zim  
   Example : package\_wikipedia\_fr\_tunisie\_novid.fr-2018-10-08.zim.  
   Language code, package name and ZIM date can be found in the appropriate sub folders of <http://download.kiwix.org/zim/>.

Be aware that Kiwix-Hotspot always looks for the latest version of a ZIM file so if a newer-than-your-file version exists, i twill be downloaded (even if you renamed your file to make it look like the newest one).

# Use: Launching the Installer

By clicking the button *Run Installation*, you will launch the (long) process of creating the image and potentially writing it onto the SD card if you have chosen SD card mode.

The disk space required for your computer in order for the installation to run smoothly will be checked at each stage. You will then see an error message stating exactly how much additional disk space is needed (*Space missing*).

Remember that you will be able to store the *Build path* directory on an external disk.



This window shows the actions taken by the software and gives you a summary of the progress of the installation.

You do not need to read or even follow the text which stacks up in this window, as this is purely technical information which will only be used if you run into a problem.

Simply wait for the end message (*Installation done* or *Installation failed*)

 

Normally, the message will read *Installation done*. In either case:

* The configuration on the SD card – the card has been written and can be ejected and inserted into a *RaspberryPi*
* The configuration on the *image* file – the *image* file is available in the directory chosen in the *Build path* option
* It can be written (saved) onto an CD card via a third-party tool (see "install with Etcher" below)

If the installation has failed, you will find an error message in the main window. The *Copy Log* button will allow you to copy the whole text from this window to send it to the software developers. They will be able to diagnose the problem and help you to solve it.

If the installation lasts an abnormally long time (over 6 hours), copy the content from *Copy Log* and send it to the developers at [contact@kiwix.org](mailto:contact@kiwix.org) .

# Other Features

Other additional features are available from the *File* menu.

## Connection via a Proxy

Some internal business networks will require the use of a *proxy* for an internet connection.

In this case, the software will not work as a large part of the installation process consists of downloading files.

Dans ce cas de figure, le logiciel ne fonctionnera pas car une grande part du processus consiste à télécharger des fichiers.

 

If the software alerts you that it is unable to connect to the internet while your internet connection is functioning correctly, configure the settings of the proxy in the window *Proxy Settings* via the *File* menu.

The information to be provided is the same as what is found in your internet connection settings on your web browser or Internet Explore/IE Edge under Windows.

Unless contradictory advice is received from your administrator network, provide the HTTPS and HTTPS lines copied exactly.

## Exporting the Configuration

Exporting the configuration allows for all the options and content selected to be saved, at any time, into a file to be reused or shared with another user.

You will only need to select *Save configuration to file* in the *File* menu and choose the file where you want to save the configuration.

## Importing the Configuration

This allows you to select a file to export (in JSON format) to duplicate the configuration within the file.

The import can be done via *Import configuration from file* from the *File* menu.

This option allows you to pre-fill fields and pre-select the content. After this you will not have to launch the installation directly.

## Manual Installation and Uninstallation of imDisk

Under Windows, a third-party software is used for specific stages of the installation process.

If there is an error at this stage, the software will suggest you reinstall this third-party software manually, using the guidelines provided in this menu.

## Writing the SD Card via Etcher

Flashing an *image* file on the SD card is a sensitive process which is liable to failures.

The flashing process is performed after the (long) creation of an image file. If there is a failure in the writing onto the SD card, the software will suggest you use a third-party tool to write files onto the card.

This third-party tool is called “Etcher“, and can be downloaded from the start-up menu.

Etcher can also save one image onto several SD cards at the same time.

# If an Error Occurs

The creation of a personalised Hotspot involves a number of complicated tasks, so errors are always possible.

The software will try to keep you as well informed as possible if an error occurs, so that you can take appropriate action.

Therefore, it is important to:

* Read the error messages at the bottom of the window, particularly those in red
* Check if these indicate that there is a problem on your side (e.g. internet connection, disk space)
* In all other cases, use the *Copy Log* button, and send its contents to the developers

To send the *log* to the developers, go to: <https://framagit.org/ideascube/pibox-installer/issues/new> and follow the instructions.

# Content

Kiwix Hotspot recommends two different types of content; interactive tools and static content.

## Interactive Tools

### EduPi File Sharing

*EduPi* is a file-sharing tool. It allows the administrator to share any type of file or folder.

All Hotspot users can browse the file directory copied onto the *Pi* by the administrator and download the files.

Some files (such as images, videos, or even PDF documents) can be viewed on the tool itself without downloading.

### Khan Academy Learning

The Khan Academy tool is a streamlined version of the online learning platform on khanacademy.org. Khan Academy will recommend training exercises, course videos and a learning platform, allowing users to learn and progress at their own pace.

The tool is available in English, Spanish, and French. The variety of *subjects* recommended depends on the language (this is originally in English project).  
<https://www.khanacademy.org/>

### Aflatoun Teaching Training

Based on the technical platform from Khan Academy, Aflatoun is a learning platform aimed at teachers.

Using Aflatoun, teachers can undertake training using a curriculum and the Aflatoun International learning method.

Aflatoun is multilingual, in English and French.  
<https://www.aflatoun.org>

### WikiFundi: The offline edition of Wikipedia

WikiFundi is a copy of the *wiki* platform used by Wikipedia.

Its objective is twofold:

* To allow learning from the online collaborative edition, e.g. for future editions connected to Wikipedia
* To provide a collaborative edition platform to Hotspot users

WikiFundi also includes articles and documents for training and self-training through the wiki page.

WikiFundi is available in English and French.  
<http://www.wikifundi.org/>

## Static Content

Static content is a copy of a website. There are a wide range of them, with the most popular being:

* The Wikipedia Encyclopedia
* Other Wikimedia projects such as Wikibooks, Wikiversity, etc*.*
* Wikimed, a selection of medical content from Wikipedia
* The Gutenberg project, a collection of publications from the public domain
* TED videos (Technology, Entertainment and Design)

Some large content, such as Wikipedia, are recommended in different variants (without video or without images), allowing the user to save disk space.  
<https://www.kiwix.org/>