Creating an Offline Wikipedia Using a Raspberry Pi

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What is a Raspberry Pi?

The **Raspberry Pi** is a single-board computer originally aimed to promote teaching of basic computer science in schools and in developing countries.
What is a Raspberry Pi?

The Raspberry Pi eventually became a gadget for DIY enthusiasts and hobbyists as well as a device that produces innovative projects such as home automation, weather station and NASA rover.
What is an Offline Wikipedia?

An **Offline Wikipedia** is a way of accessing Wikipedia articles without internet connection.
Internet-in-a-Box is a wireless access point digital library, which is one way of accessing an Offline Wikipedia. Its hardware may consist of a Raspberry Pi or a refurbished laptop or PC.
Aside from Wikipedia, **Internet-in-a-Box** contains modules, which may be pre-installed or user-selected, such as Khan Academy lite, OpenStreetMap, Moodle, Owncloud, PhET and TED Talks.
Internet-in-a-Box has been used in schools, libraries, hospitals and medical clinics in various places in the world.
How to make an Internet-in-a-Box (IIAB)

Ingredients:

- Raspberry Pi (Zero, 2, 3 or 4)
- microSD card (32 GB or higher recommended)
- Power supply with cable connector (models up to RPi 3 requires 2.5A microUSB while RPi 4 requires 3A USB-C connector; all models require 5.1V supply; optionally, you can connect the RPi to a power bank meeting the supply requirements)
- A Mac or PC (for downloading the IIAB image)
- balenaEtcher (a software to flash IIAB image to SD card; you may need an SD Card adapter to insert the microSD card to your PC or Mac.)
- Internet connection through Ethernet or wireless (to initially download content for the IIAB)
- Optional: External storage (for extra content)
- Optional: HDMI Display (for displaying output from the RPi but it can be headless and the content can be maintained through a browser accessing the IIAB)
- Optional: Casing
How to make an Internet-in-a-Box (IIAB)

Step 1:

You can either install IIAB from scratch or from a pre-installed image of IIAB.

For doing from scratch, follow instructions here:
https://github.com/iiab/iiab/wiki/IIAB-Installation#do-everything-from-scratch

In this presentation, we are going to concentrate on the pre-installed IIAB images, which can be downloaded here:
http://download.iiab.io/6.2/rpi/
How to make an Internet-in-a-Box (IIAB)

Step 2:

After downloading the IIAB from your PC or Mac, use balenaEtcher to flash IIAB to the microSD card.

You can download balenaEtcher here:

https://www.balena.io/etcher/
Step 3:

Insert the flashed microSD card containing the IIAB to your Raspberry Pi.

Step 4:

Connect the Raspberry Pi to a power source.
How to make an Internet-in-a-Box (IIAB)

Step 5:
From a client device (i.e. PC, Mac or smartphone), connect to IIAB Wi-Fi hotspot named “Internet in a Box.”

Step 6:
Open your browser such as Mozilla Firefox and type this in the address bar: http://box.lan

This is the home page of the IIAB where you can find the pre-installed content. You may want to add more modules. The succeeding steps show how to do this.
How to make an Internet-in-a-Box (IIAB)

Step 7:

Go to the admin page (http://box.lan/admin) and enter credentials when prompted.

The default username is xsce-admin and the password is g0adm1n.
How to make an Internet-in-a-Box (IIAB)

Step 8:

Go to Install Content > Get Zim Files from Kiwix.
To download IIAB content such as Wikipedia, make sure that your IIAB is connected to the internet via Ethernet or wireless.
Step 9:

Choose a ZIM file from the list and then click Install Selected Zims. Make sure that the size of the ZIM file fits to your remaining storage.

Step 10:

You can check the status of the installation by going to Installation > Display Job Status. Take note that downloading a ZIM file may take a very long time and may fail. You may need to restart your installation if that happens.
How to make an Internet-in-a-Box (IIAB)

Step 11:

When you have successfully installed a ZIM file, you may optionally disconnect the IIAB to the internet and client devices can now go to http://box.lan:3000 to browse the ZIM files. Then, choose a ZIM file and click Load.
Step 12:

You can now explore and view Offline Wikipedia articles.
Additional resources

- https://en.wikipedia.org/wiki/Internet-in-a-Box
- https://meta.wikimedia.org/wiki/Internet-in-a-Box
- https://github.com/iiab
- http://wiki.laptop.org/go/IIAB/FAQ
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