Software for Deploying a Sensorgnome

Quick Links: **Downloads**   **Release History**

Introduction

The software here turns your Beaglebone computer into (part of) a SensorGnome. You **must** install this software in your beaglebone in order to use your SensorGnome for telemetry, acoustic monitoring, etc. As of February 2014, we support both Beaglebone Black and Beaglebone White computers with a single downloadable image, regardless of what computer you intend to use for creating the micro SD card.

The image must be downloaded to your computer, and written to the micro SD card from there (i.e. not from the SG). If your computer does not have an SD or microSD card slot, you'll need to use an external one like this. Aim for the $15 to $20 range; cheaper ones can be flaky. The unit needs to be able to write to micro SDHC cards (or regular-sized SDHC cards if you have a microSD/SD adapter).

We give instructions separately for each beaglebone model, as the details are a bit different.

Beaglebone Black (BBB)

bbb.jpg

You can create a **single** micro SD card, and use it to install the software on the internal 2 gigabyte flash drive of any number of beaglebone blacks. The micro SD card is removed after software installation and should **not** be left in the beaglebone black when deployed. Instead, a blank, DOS (VFAT)-formatted micro SD card of up to 32 gigabyte capacity is installed as a data disk for deployment. In a pinch, you can get away without a micro SD data card (provided you have already installed the software on the BBB's internal flash memory), but this will only give you 1 gigabyte of storage (space left over in the BBB's internal flash memory). You can also add storage by

plugging a USB memory stick into the USB hub, although we have found this less reliable in practice.

Instructions (BBB)

- download the image file from [here](#)

- use [7zip](#) to decompress the image (download and install 7zip if you don't already have it),

  OS X: 7zip is not available, but [Keka](#) is an unofficial package that works on newer OS (has been tested and works on High Sierra); for older OS, you can also use [The Unarchiver](#) or [StuffIt Expander](#) (the latter has been tested and works well on El Capitan)

- write the uncompressed image to a 4GB micro SD card:
    - **Windows**: download and use [Win32DiskImager](#) (Note: the link is to Win32DiskImager version 0.8; version 0.9 does not appear to work).

    - **Macintosh**: download and use [PiWriter](#), [Apple Pi Baker](#) (Note: PiWriter doesn't play well with newer OS; use Apple Pi Baker if using most recent OS)

    - **Linux** (or OS/X command shell): you can write directly from the compressed image to an SD card:

      ```
      7z e -so IMAGE_FILE_NAME | dd of=DRIVE bs=64M ; sync
      ```

      Warning: make sure to use the correct drive in the place of DRIVE (e.g. /dev/sdd). This step can destroy your computer's disk drive if you choose the wrong disk!

- disconnect the power and all USB cables from your beaglebone black.

- gently insert the 4 GB micro SD card into the micro SD card slot; the printed side of the card should face **toward** the BBB

circuit board.

- hold down the "boot" button (see image to right for location) for several seconds while connecting power to the beaglebone black
(If you are using the orange metal case from logicsupply.com, you'll need to have the lid removed to access the "boot" button. **This first software installation is the only time you'll need to use the boot button; subsequent re-imaging will happen without holding down the boot button.)**

- the blue   beaglebone_black_image_showing_boot_button.jpg LEDs will indicate progress (follow links for animations of the patterns):
  - two LEDs [flickering sporadically](#) for ~65 seconds indicates the BBB is booting, hopefully from the inserted SD card

  - four LEDs [flashing in unison](#) for 10 seconds is a warning that the BBBs internal flash memory is about to be updated from the micro SD card.

  - a slow [crawling or pulsing](#) pattern involving all 4 LEDs for up to 5 or 10 minutes indicates the software is being updated from the SD card to the internal flash memory

  - all 4 LEDs [on constantly](#) indicates updating is finished

- power down the BBB by unplugging the power cable

- remove the micro SD card by gently pushing it inward (it will spring back out). This card is only used to install the software, and is not needed for deployment.
You can use it to install the software on multiple BBB.

- insert a micro SD data (32 GB or less; higher capacity cards are not supported) card into the BBB. This card will be used for data storage, and should be formatted as DOS (VFAT) - most micro SD cards come suitably pre-formatted. Instead, you can use a USB flash drive attached to the USB hub, formatted the same way.

- power up the BBB

You should now be able to access the web interface.

Note: booting and loading up the web interface takes up to 2 minutes. During this time, the LED flashing pattern is like [this](#).

Beaglebone White (BBW)

bbw.jpg

You will need one micro SD card for each BBW, because the card must remain inserted in the beaglebone when deployed. The card can be 4, 8, 16, or 32 gigabytes. Larger cards are not supported. Smaller cards do not have enough space for software and data.
You can also add storage by plugging a USB memory stick into the USB hub, although we have found this less reliable in practice.

Instructions (BBW)

- downlod the image file from [here](#)

- use [7zip](#) to decompress the image (download and install 7zip if you don't already have it)

  OS X: 7zip is not available; use [The Unarchiver](#) [untested - can someone confirm this works?]

- write the uncompressed image to a 4, 8, 16, or 32 GB micro SD card:
  - **Windows**: download and use [Win32DiskImager](#) (Note: the link is to Win32DiskImager version 0.8; version 0.9 does not appear to work).

- **Macintosh**: download and use [PiWriter](#)

- **Linux** (or OS/X command shell): you can write directly from the compressed image to an SD card:

  ```
  7z e -so IMAGE_FILE_NAME | dd of=DRIVE bs=64M ; sync
  ```

  Warning: make sure to use the correct drive in the place of DRIVE (e.g. /dev/sdd). This step can destroy your computer's disk drive if you choose the wrong disk

- disconnect the power and all USB cables from your beaglebone white

- gently insert the 4 GB micro SD card into the micro SD card slot; the printed side of the card should face **away** from the BBW circuit board.

- power up the BBB

You should now be able to access the web interface.

Note: booting and loading up the web interface takes up to 2 minutes. During this time, the LED flashing pattern is like [this](#).