Getting Started with the TI-Nspire™ CX II and the BBC micro:bit

TEXAS INSTRUMENTS

Overview: These three steps will prepare your TI-Nspire CX II calculator to program the micro:bit using the calculator's built-in Python application. The micro:bit can be programmed using the standard micro:bit commands listed on the micro:bit documents website.

Required Equipment:
- TI-Nspire CX II Graphing Calculator
- TI-Nspire CX Premium Teacher Software Get a 90-day trial here
- BBC micro:bit
- TI-Nspire CX II <-> micro:bit USB cable. Request a cable here (While supplies last. Other restrictions apply; see form.)
- Computer <-> micro:bit USB cable, supplied with micro:bit
- Computer <-> calculator USB cable, supplied with the calculator

Required Software:
- TI-Nspire CX II Graphing Calculator OS 5.3 or higher. Get the latest OS here, and a how-to video here
- TI-Nspire CX Premium Teacher Software version 5.3. Get the latest version here.
- microbit.tns (Part of the .zip file download)
- TI_Runtime.hex (Part of the .zip file download)
- My first program.tns (Part of the .zip file download)

Directions:
1. Load TI_Runtime.hex on the micro:bit card:

   a. Locate the TI_Runtime.hex in the download folder.
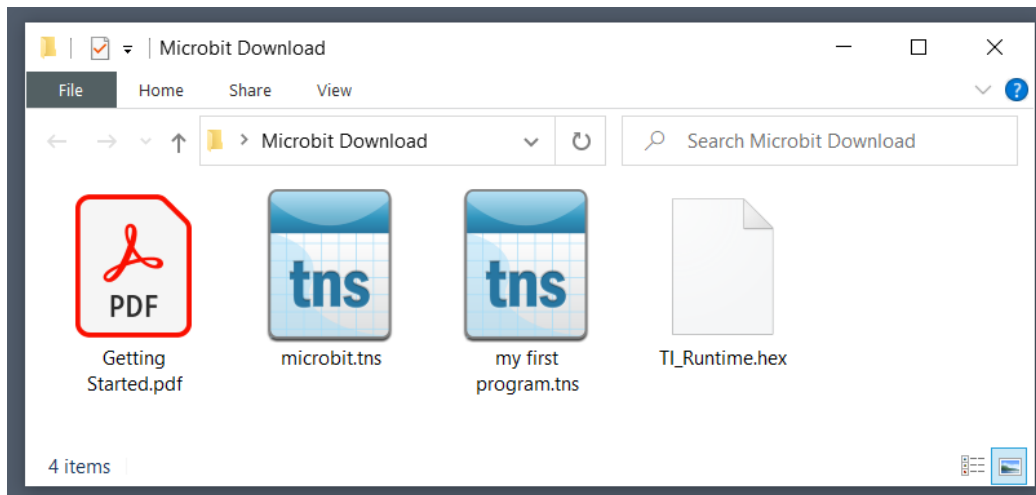
   b. Connect the BBC micro:bit to your computer using the cable that came with the micro:bit card.

   c. Drag and drop or copy the TI_Runtime.hex to the micro:bit; this is the same as transferring any file to a USB flash storage device such as the "thumb drive". Once the transfer is complete, the 5x5 LED display on the micro:bit card will show a Texas logo.
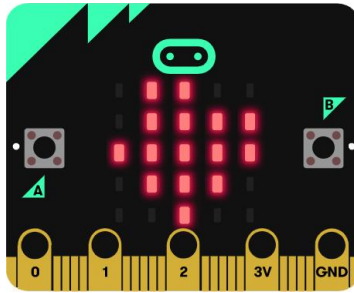
d. Success looks like this→

e. Disconnect the micro:bit card from the computer.

2. Install the **micro:bit** module onto the TI-Nspire CX II calculator:

   a. Open the TI-Nspire CX Premium Teacher [desktop software](#) on your computer and within the desktop software, open the **microbit.tns** module file from the download folder.

   b. Connect the TI-Nspire CX II to the Computer with the Computer to unit cable and transfer the **microbit.tns** to the calculator by selecting "Save to Handheld" from the file menu.
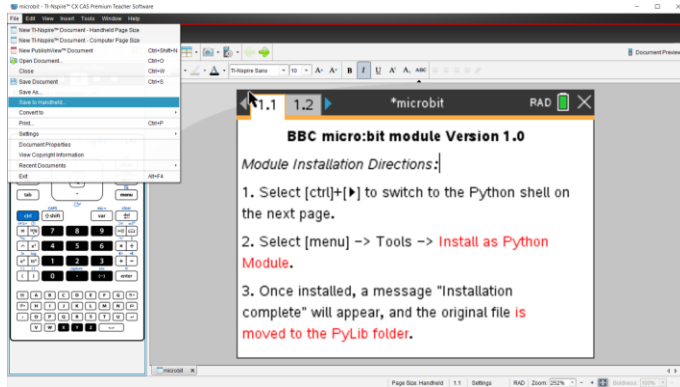

   c. You will see a dialog box titled, "Document Received" when the file is transferred. Select "OK".
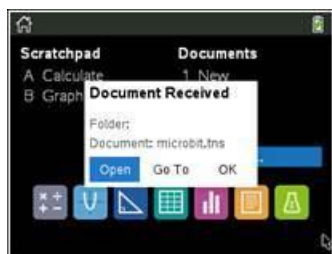
   d. Repeat steps b through d to also transfer **my first program.tns** to the calculator.

e. After the transfer is complete, disconnect the calculator from the computer and open the **microbit.tns** file on the calculator and read the directions (Press the Home/On key, then "Browse", and then select "**microbit.tns**" to open it).
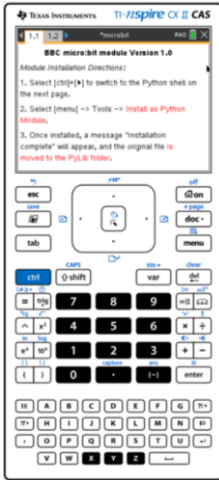

f. Advance to the next page 1.2 by pressing ctrl + clickpad to the right. Select Install as Python module from the Tools menu. Once the module has been installed, you will no longer see it appear in the Browse folder.
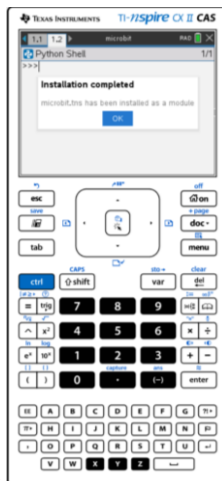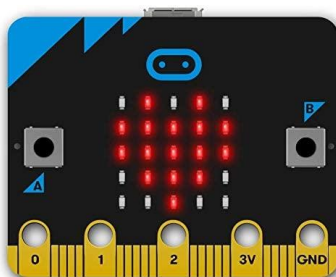

g. Success looks like this→

3. Run the test program:
    a. Connect the calculator to the micro:bit card with the TI-Nspire CX II to the micro:bit cable and open **my first program.tns** on the calculator (Press the Home/On key, then select "Browse", select "my first program.tns" to open).
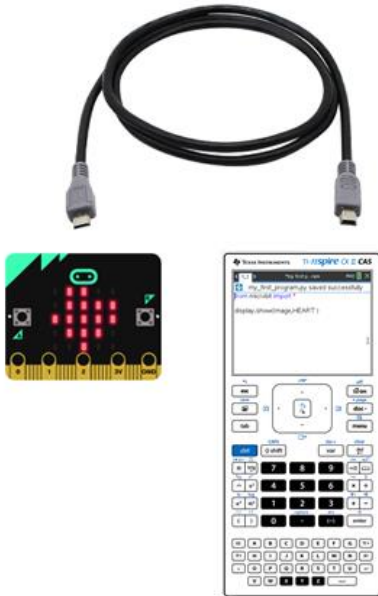
    b. Press the [menu] key and then select Run(Ctrl+R) from the Run menu.

    c. Success looks like this →

Congratulations! You have successfully prepared the TI-Nspire CX II graphing calculator and micro:bit card for programming in Python. Here are a few next steps for going further.

    a. Complete the Skill Builders and Application in Unit 6 of 10 Minutes of Code (when available) with Python found here
    b. Try some of the activities on the micro:bit's Make it:Code it website.

FAQ's

- To break a continuous loop program on the calculator and software (common when using "while True:" when following coding examples on the micro:bit Make it: code it website).
  - Press [F12] on PC.
  - Press and hold [fn] while then also pressing [f5] on Mac.
  - Calculator: press and hold the "on" key.
  - To avoid this we suggest to instead use **while get_key !="esc":**
    - **while get_key != "esc":** is found under the Commands menu in the BBC micro:bit module men selections.

- If you have difficulty dragging-dropping the hex file, instead use the micro:bit Python IDE to flash the TI_Runtime.hex. Go to https://python.microbit.org/v/2.0

- If you run into any problems:
  - Problems installing the .tns module file or flashing the hex file, contact TI-Cares Customer Support: https://education.ti.com/en/customer-support/support-worldwide
  - Troubleshooting issues, coding and other topics, contact the TI STEM Team: Stem-Team@ti.com