

# Cellular Connectivity Kit getting started

Included items:

BeagleBone Black – part # [1597-1187-ND](#)

BeagleBone IoT Cape – [NL-AB-BBBC](#)

BeagleBone Grove Cape – part # [1597-1369-ND](#)

NimbeLink HSPA+ Skywire Module – part # [NL-SW-HSPAP](#)

Aeris Neo Cellular Connectivity Micro SIM (3FF) – part # [AE-3C-WNGZ-005619-0202-X001](#)

Taoglas Apex Antenna – part # [TG.30.8113](#)

[USB Cable](#)

[Power Supply](#)

[USA Clip for Power Supply](#)

Additional Requirements

Open Tera Term or Similar terminal emulator

PC with USB port

## Aeris Neo Account and SIM Activation

Digi-key has partnered with Aeris to provide instant access to IoT cellular connectivity, eliminating delays using traditional SIM acquisition channels and getting you connected immediately.

Include in this development kit is the 2G/3G Aeris Neo SIM card, in the 3FF Micro SIM form factor, that is provided along with access to the Neo Connectivity Management platform. Click [Here](#) to check coverage, see pricing options, and learn more about the Neo Connectivity offering. NEO is available in the US only.

Active your SIM card the minute it arrives by following the simple instructions provided along with the SIM card:

1. The SIM package contains an information sheet with a unique code. Make sure you have it at your fingertips.
2. [Signup](#) for a Neo account, enter your billing information for the recurring connectivity charges.
3. Use the six digit code to assign your SIM(s) to your account.
4. Navigate to SIM inventory on the Devices tab, select the specific SIM(s) you would like to provision using the check boxes on the left next to the ICCID then click the 'Provision' button.
5. Select the desired rate plans for the SIM(s) you selected (rate plan details are available [here](#)).
6. Now your SIM is live on the Aeris network and ready for use.

## Development Kit Assembly Steps – Connecting the Hardware

1. Insert the Aeris Neo Micro SIM into the Skywire Cellular Modem.
2. Go to the NimbeLink BeagleBone IoT Dev Kit [User Manual](#) and review the Get Started section in chapter 2.
3. Follow the instructions in section 2.2 to mount the cape to the BeagleBone Black board. Make sure the P9/P8 headers are lined up and the square cutout is aligned with the BeagleBone Black Ethernet port. Then gently push the P9/P8 headers together.
4. Follow the instructions in section 2.3 to mount the Skywire modem. Orient the Skywire Cellular Modems U.FL connectors with the two circles inside the Skywire Cellular Modem Sock footprint on the cape.
5. Take the antenna and attach it to the antenna connector (ANT3)
6. Plug in the 5V power supply to the BeagleBone Green. LEDs D2, D3, and D14 will illuminate on your cape. Open Tera Term and initiate a connection to the Beaglebone Black.

7. On devices running Debian 3.8.13Bone68, the device tree overlay will automatically load upon bootup. The device tree overlay for the cape will configure the cape to initiate UART 2 (for the XBee socket), UART4 (for the Skywire™ socket), CAN1, and 2 GPIOs to control the Skywire's DTR and on/off signals. Check that there are no jumpers connected to J5 or J8-6. This will cause the Skywire™ sockets to connect to its default UART connection (UART4). The Skywire™ Cellular Modems have a default UART baud rate of 115200. Initiate the UART connection on the Beaglebone Black using picocom by issuing the following command: `picocom -b 115200 /dev/ttyO4`
8. In the terminal program type AT. It should respond with OK.
9. Program the APN – in the terminal program type the following command `AT+CGDCONT=1, "IP", "neo.iot.net"` – make sure Data roaming is enabled, this will not impact your charges in the US.
10. Ping Test: Follow the instructions [here](#) to run a quick ping test. If this works, you are operating successfully in Aeris Neo.

## Other reference Pages

### **EEWiki BeagleBone page**

<https://eewiki.net/display/linuxonarm/BeagleBone+Black>

### **EEWiki NimbeLink Cape on Beagle page**

<https://eewiki.net/display/linuxonarm/NimbeLink+on+BeagleBone+Black+and+Green>