

QSG156: LTE-M Expansion Kit Quick-Start Guide

The LTE-M Expansion Kit is an excellent way to explore and evaluate the Digi XBee3™ LTE-M cellular module which allows you to add low-power long range wireless connectivity to your EFM32/EFR32 embedded application.

The Digi XBee3™ LTE-M cellular module is an easy to use cellular module. The LTE-M Expansion Kit easily integrates and brings LTE-M connectivity to compatible Silicon Labs Wireless and MCU Starter Kits through the expansion header.

Software examples for the LTE-M Expansion Kit for the EFM32GG11 Giant Gecko STK (SLSTK3701A) are available in Simplicity Studio™. This guide demonstrates how to download and run one of these examples.

LTE-M Expansion Kit Contents

- Expansion board with Digi XBee3™ wireless module socket
- Digi XBee3™ LTE-M cellular module
- Hologram SIM card
- Cellular patch antenna
- Quick Start card



1. Getting Started

Introduction

The Digi XBee3™ LTE-M cellular module is capable of sending and receiving SMS messages. This guide will walk through the steps necessary to run the Xbee SMS demo in Simplicity Studio, which demonstrates this capability.

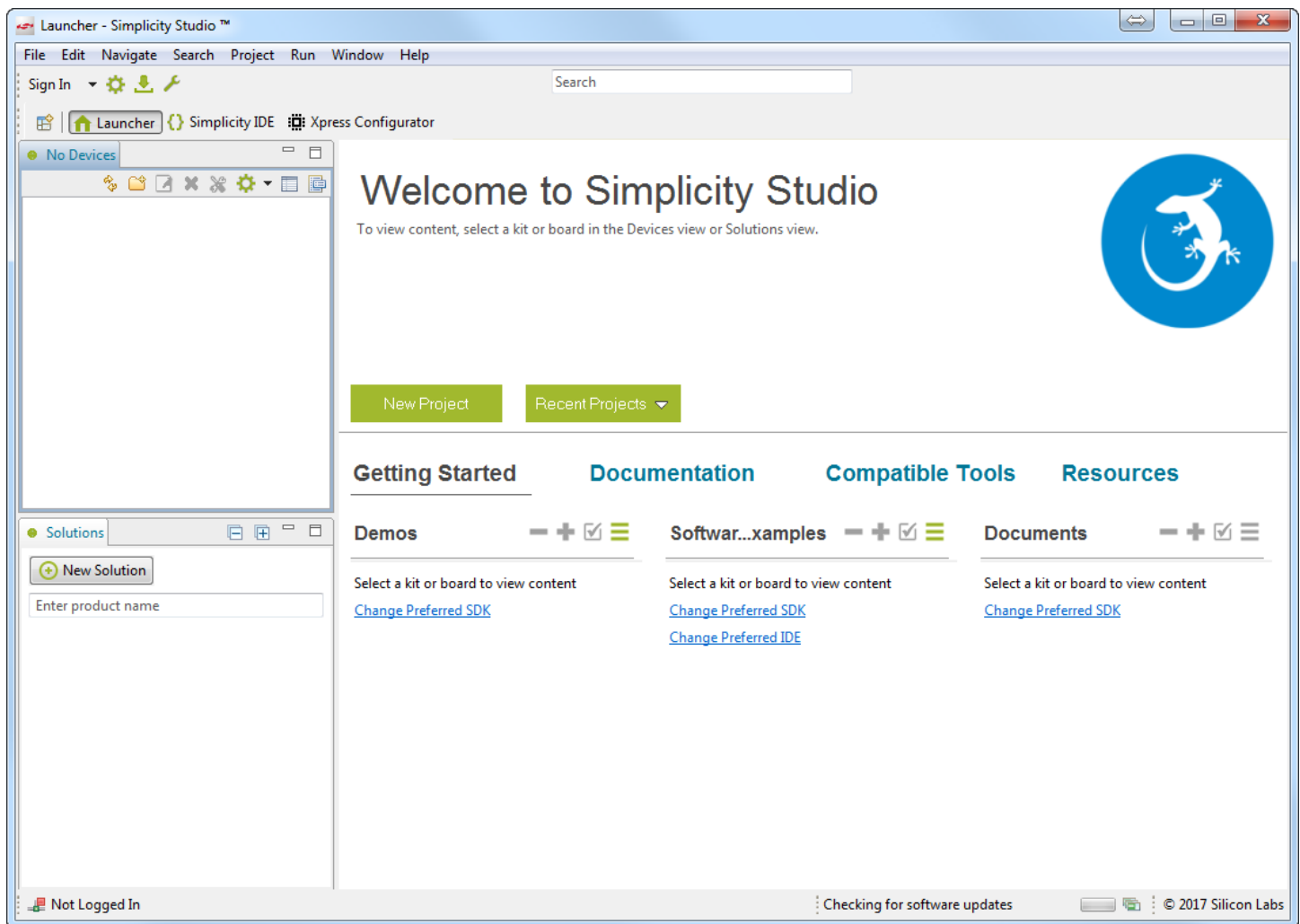
Note: An EFM32GG11 Giant Gecko STK (SLSTK3701A) is required for this demo. Please see the following guide for instructions on how to get started with the EFM32GG11 kit:

[QSG149: EFM32GG11-SLSTK3701A Quick-Start Guide](#)

Install Simplicity Studio

Simplicity Studio is a free software suite needed to start developing your application. Download the latest version of Simplicity Studio from the Silicon Labs website:

<http://www.silabs.com/simplicity-studio>



Activate the included SIM card

The included Hologram SIM card must be activated before it can be used with the Digi XBee3™ LTE-M cellular module. This can be done by following these instructions:

1. In a browser, navigate to <https://hologram.io/> and create a new account.
2. Once your account has been activated, navigate to <https://dashboard.hologram.io/activate> and follow the instructions to complete the activation of your SIM card.

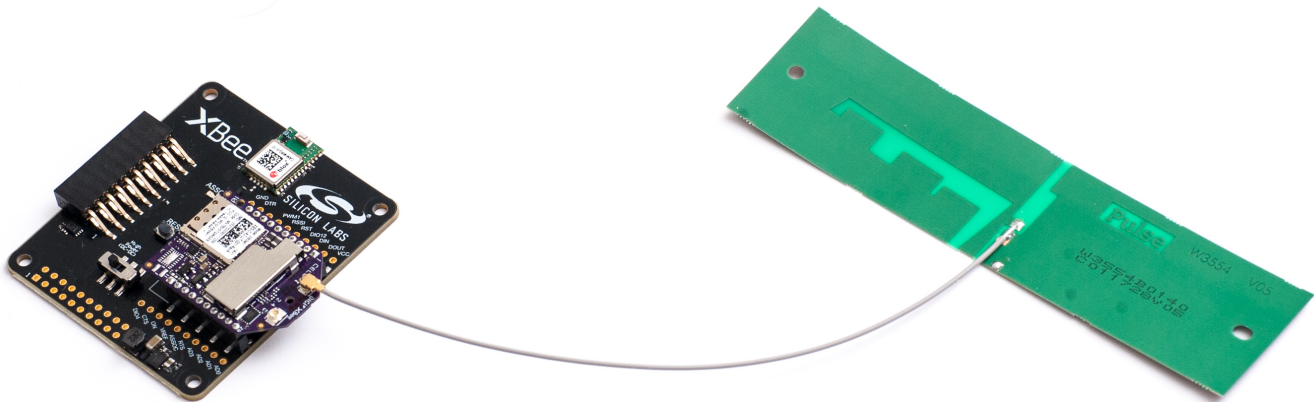
Note: The activation process will ask you to configure the SIM's APN to "hologram" with username and password empty. This will be done by automatically by the demo on the EFM32GG11 STK.

3. If desired, purchase a phone number for the SIM card on the dashboard in the card's Configuration page. Instructions for this step can be found here: <https://help.hologram.io/getting-started-with-hologram/how-can-i-get-a-phone-number-to-send-sms-messages-to-my-sim>

Note: Purchasing a phone number is not necessary, as you can still send and receive SMS messages through the Hologram dashboard without one.

Assemble the Expansion Board

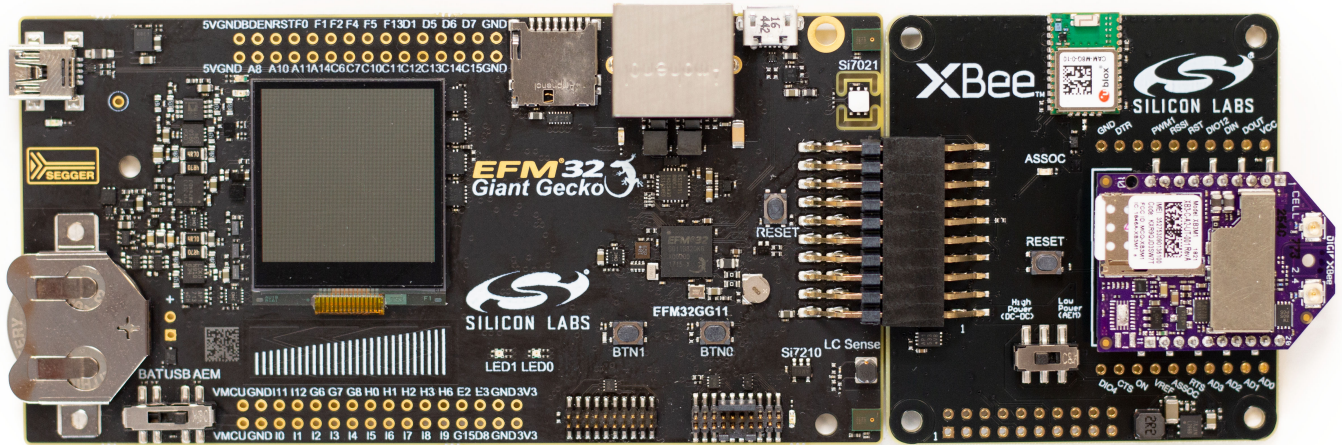
1. Place the Digi XBee3™ LTE-M cellular module into the socket on the expansion board.
2. Insert the Hologram SIM card into the SIM card slot on the module.
3. Connect the included patch antenna to the module's u.FL connector labeled 'CELL'. The completed assembly is shown in the figure below.



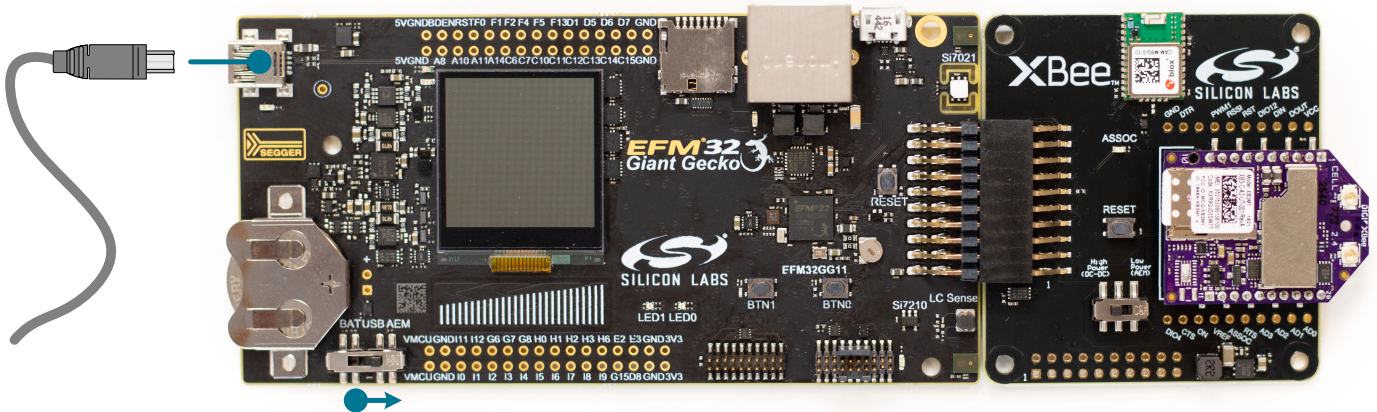
Download and Run the SMS Demo

The LTE-M Expansion Kit has several demos available for it that run on an EFM32GG11 Giant Gecko STK. To download and run the Xbee SMS demo:

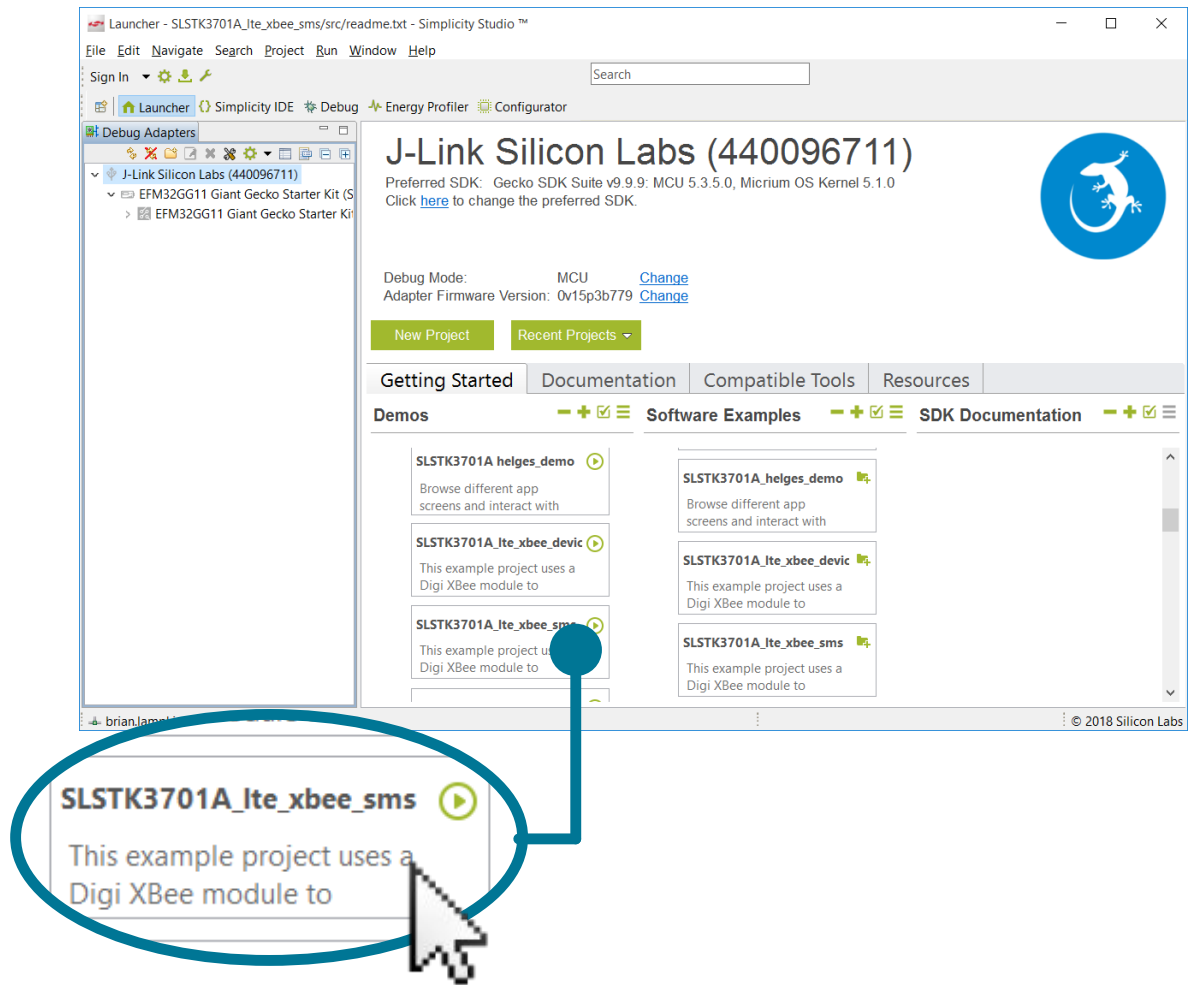
1. Once the expansion board is assembled, connect it to the expansion header of an EFM32GG11 STK, as shown below.



2. Once the expansion board is connected, the EFM32GG11 STK can then be powered by connecting the USB connector on the left and setting the switch to the AEM position.



- Launch the demo in Simplicity Studio by finding the [SLSTK3701A_lte_xbee_sms] demo under [Getting Started] in the Launcher, under [Demos].



- Follow the initialization sequence on the LCD.

Note: The initialization sequence, including finding a cell signal, may take up to one minute. If this process takes longer than a minute, try to find a location with a stronger cell signal.

Send and Receive SMS messages

If you have purchased a phone number for your Hologram SIM card, you may now send SMS messages to this phone number.

If you haven't purchased a phone number, you can send SMS messages through the Hologram dashboard instead.

The screenshot displays the Hologram dashboard interface. On the left is a blue sidebar with navigation icons for DEVICES, ROUTES, CONSOLE, ACCOUNT, STORE, DOCS, COMMUNITY, and SUPPORT. The main content area is titled 'Pilot (28390)' and includes a 'TAGS' dropdown set to 'None', 'USAGE THIS PERIOD' showing '0B', and a 'STATUS' section indicating the device is 'Live' and 'Last active 15 minutes ago on AT&T Mobility'. Below this is a 'Send a message' section with two tabs: 'via Cloud Data' and 'via SMS'. The 'via SMS' tab is active, showing a text input field with 'Hello world!' and a 'Send SMS message' button. Below the input field is a section to 'CONFIGURE THE "FROM NUMBER" (OPTIONAL)' with a text input field containing '+15125550100'. At the bottom of the dashboard, there is a footer with 'v3.2.8', a 'Report an issue' link, and navigation links for 'All activity' and 'Errors'.

The SMS message will be received and displayed on the EFM32GG11 STK's LCD, along with the sender's phone number. The demo will automatically respond back with the message "You are linked to this Xbee" to this phone number. Pressing BTN0 on the EFM32GG11 STK will also send a message stating the number of messages the demo has received so far.

Note: Sending and receiving SMS messages may take over a minute.

Note: The Hologram SIM card will cause the SMS response from the module to be from a different phone number than the one assigned to the SIM card. This response will be from a +88 number, and some carriers block these numbers automatically. If you receive no responses from the kit during this demo, you may contact your carrier and request that they allow messages from +88 numbers.

Note: The SMS demo will configure the Digi XBee3™ LTE-M cellular module to search for and use the strongest carrier, between Verizon and AT&T. The module also has the option to be configured to use a specific carrier, if desired.

2. Additional Resources

Additional Software Examples

Two additional software examples for the EFM32GG11 Giant Gecko STK are available within Simplicity Studio. These can be accessed from the **[Launcher]** perspective under **[Software Examples]** with the kit selected.

1. Digi XBee Device Cloud example: This example project uses a Digi XBee module to communicate via LTE-M. It transmits temperature data to the Digi Device Cloud and allows a Cloud user to modify LED's on the board.
2. Digi XBee Time Server example: This example project uses a Digi XBee module to receive the current time from an online timer server and displays the time on the LCD.

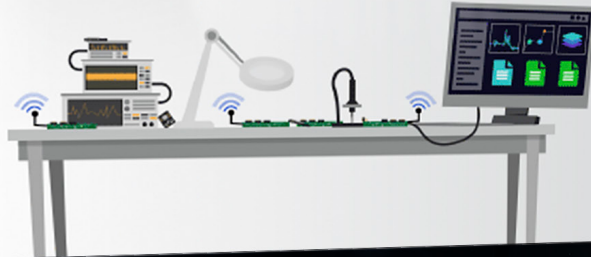
Additional Documentation

For more information, please review the following:

- [UG310: LTE-M Expansion Kit User's Guide](#)
- <https://www.digi.com/xbee>
- <https://hologram.io/>

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Simplicity Studio™4



Simplicity Studio

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