

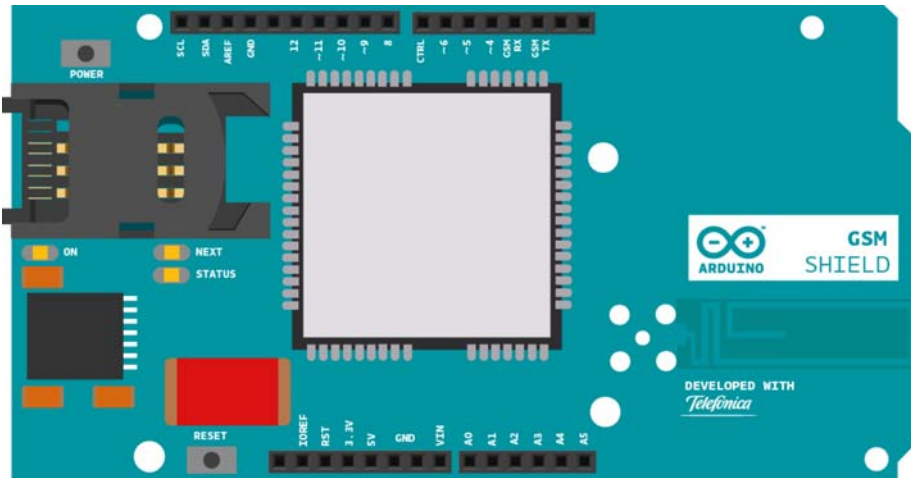
GSM Test Modem

This sketch tests the modem on the GSM shield to see if it is working correctly. You do not need a SIM card for this example.

Hardware Required

- Arduino or Genuino Board
- Arduino + Telefonica GSM/GPRS Shield ([//www.arduino.cc/en/Main/ArduinoGSMShield](http://www.arduino.cc/en/Main/ArduinoGSMShield))

Circuit



([//www.arduino.cc/en/uploads/Tutorial/GSMShield_ArduinoUno.jpg](http://www.arduino.cc/en/uploads/Tutorial/GSMShield_ArduinoUno.jpg))

image of the Arduino GSM Shield on top of an Arduino or Genuino board

Code

First, import the GSM library

```
#include <GSM.h>
```

Create an instance of the GSMModem class:

```
GSMModem modem;
```

Create a variable to hold the IMEI number of the modem

```
String IMEI = "";
```

[Get Code] ([//www.arduino.cc/en/Tutorial/GSMToolsTestModem?action=sourceblock&num=2](http://www.arduino.cc/en/Tutorial/GSMToolsTestModem?action=sourceblock&num=2))

In `setup` , open a serial connection to the computer. After opening the connection, send a message indicating the sketch has started.

```
void setup() {
  Serial.begin(9600);
  Serial.print("Starting modem test...");
```

[Get Code] (<http://www.arduino.cc/en/Tutorial/GSMToolsTestModem?action=sourceblock&num=3>)

Call `modem.begin()` to start the modem. Send a status message depending on the outcome, and end `setup()` .

```
if(modem.begin())
  Serial.println("modem.begin() succeeded");
else
  Serial.println("ERROR, no modem answer.");
}
```

[Get Code] (<http://www.arduino.cc/en/Tutorial/GSMToolsTestModem?action=sourceblock&num=4>)

Inside `loop` , use `modem.getIMEI()` to return the IMEI number of the modem. This number is unique to your GSM shield.

```
void loop()
{
  // get modem IMEI
  Serial.print("Checking IMEI...");
  IMEI = modem.getIMEI();
```

[Get Code] (<http://www.arduino.cc/en/Tutorial/GSMToolsTestModem?action=sourceblock&num=5>)

If there is a valid response from `getIMEI()` , print it to the serial monitor and reset the modem with `modem.begin()` .

```
if(IMEI != NULL)
{
  // show IMEI in serial monitor
  Serial.println("Modem's IMEI: " + IMEI);
  // reset modem to check booting:
  Serial.print("Resetting modem...");
  modem.begin();
```

[Get Code] (<http://www.arduino.cc/en/Tutorial/GSMToolsTestModem?action=sourceblock&num=6>)

Once reset, check the IMEI again. If it is a valid return again, the modem is functioning as expected.

```
if(modem.getIMEI() != NULL)
{
  Serial.println("Modem is functioning properly");
}
```

[Get Code] (<http://www.arduino.cc/en/Tutorial/GSMToolsTestModem?action=sourceblock&num=7>)

If, after resetting the modem, there is not a valid return from `getIMEI()` , report an error

```
else
{
  Serial.println("Error: getIMEI() failed after modem.begin()");
}
```

[Get Code] (<http://www.arduino.cc/en/Tutorial/GSMToolsTestModem?action=sourceblock&num=8>)

If you never received an IMEI after starting the sketch, report it, and end the program.

```
}
else
{
  Serial.println("Error: Could not get IMEI");
}
// do nothing:
while(true);
}
```

[Get Code] (<http://www.arduino.cc/en/Tutorial/GSMToolsTestModem?action=sourceblock&num=9>)

Once your code is uploaded, open the serial monitor. You should see the HTML of <http://arduino.cc> (<http://arduino.cc>) print out on screen when it is received.

The complete sketch is below.

```
/*

This example tests to see if the modem of the
GSM shield is working correctly. You do not need
a SIM card for this example.

Circuit:
* GSM shield attached

Created 12 Jun 2012
by David del Peral
modified 21 Nov 2012
by Tom Igoe

http://www.arduino.cc/en/Tutorial/GSMToolsTestModem

This sample code is part of the public domain

*/

// libraries
#include <GSM.h>

// modem verification object
GSMModem modem;

// IMEI variable
String IMEI = "";

void setup() {
  // initialize serial communications and wait for port to open:
  Serial.begin(9600);
  while (!Serial) {
    ; // wait for serial port to connect. Needed for Leonardo only
  }

  // start modem test (reset and check response)
  Serial.print("Starting modem test...");
  if (modem.begin()) {
    Serial.println("modem.begin() succeeded");
  } else {
    Serial.println("ERROR, no modem answer.");
  }
}

void loop() {
  // get modem IMEI
  Serial.print("Checking IMEI...");
  IMEI = modem.getIMEI();

  // check IMEI response
  if (IMEI != NULL) {
    // show IMEI in serial monitor
    Serial.println("Modem's IMEI: " + IMEI);
    // reset modem to check booting:
    Serial.print("Resetting modem...");
    modem.begin();
    // get and check IMEI one more time
    if (modem.getIMEI() != NULL) {
      Serial.println("Modem is functioning properly");
    } else {
      Serial.println("Error: getIMEI() failed after modem.begin()");
    }
  } else {
    Serial.println("Error: Could not get IMEI");
  }
  // do nothing:
  while (true);
}
```

[Get Code] (<http://www.arduino.cc/en/Tutorial/GSMToolsTestModem?action=sourceblock&num=1>)

See Also

- [Arduino GSM Shield \(//www.arduino.cc/en/Main/ArduinoGSMShield\)](http://www.arduino.cc/en/Main/ArduinoGSMShield) – Complete product description.
 - [Getting started with the GSM Shield \(//www.arduino.cc/en/Guide/ArduinoGSMShield\)](http://www.arduino.cc/en/Guide/ArduinoGSMShield) – Get everything set up in minutes.
 - [GSM library \(//www.arduino.cc/en/Reference/GSM\)](http://www.arduino.cc/en/Reference/GSM) – Your reference for the GSM Library.
-
- [GSMModem \(//www.arduino.cc/en/Reference/GSMModemConstructor\)](http://www.arduino.cc/en/Reference/GSMModemConstructor) Constructor
 - [begin \(//www.arduino.cc/en/Reference/GSMModemBegin\)\(\)](http://www.arduino.cc/en/Reference/GSMModemBegin)
 - [getIMEI \(//www.arduino.cc/en/Reference/GSMModemGetIMEI\)\(\)](http://www.arduino.cc/en/Reference/GSMModemGetIMEI)
-
- [GSMToolsTestGPRS \(//www.arduino.cc/en/Tutorial/GSMToolsTestGPRS\)](http://www.arduino.cc/en/Tutorial/GSMToolsTestGPRS) - Tries to access the internet over GPRS with supplied APN and credentials.
 - [GSMToolsBandManagement \(//www.arduino.cc/en/Tutorial/GSMToolsBandManagement\)](http://www.arduino.cc/en/Tutorial/GSMToolsBandManagement) - Checks the band currently configured in the modem and allows you to change it.
 - [GSMToolsGsmScanNetworks \(//www.arduino.cc/en/Tutorial/GSMToolsGsmScanNetworks\)](http://www.arduino.cc/en/Tutorial/GSMToolsGsmScanNetworks) - Scans the available networks and prints informations about IMEI and number of the SIM card.
 - [GSMToolsPinManagement \(//www.arduino.cc/en/Tutorial/GSMToolsPinManagement\)](http://www.arduino.cc/en/Tutorial/GSMToolsPinManagement) - How to to change or remove the PIN number.
 - [GSMToolsTestWebServer \(//www.arduino.cc/en/Tutorial/GSMToolsTestWebServer\)](http://www.arduino.cc/en/Tutorial/GSMToolsTestWebServer) - A simple web server that replies with nothing, but prints the client's request and the server IP address.
 - [GSMExamplesMakeVoiceCall \(//www.arduino.cc/en/Tutorial/GSMExamplesMakeVoiceCall\)](http://www.arduino.cc/en/Tutorial/GSMExamplesMakeVoiceCall) - How to make a voice call with mic and speaker.

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