

# SoftwareSerialLibrary

The Arduino hardware has built-in support for serial communication on pins 0 and 1 (which also goes to the computer via the USB connection). The native serial support happens via a piece of hardware (built into the chip) called a [UART](#). This hardware allows the Atmega chip to receive serial communication even while working on other tasks, as long as there room in the 64 byte serial buffer.

The SoftwareSerial library has been developed to allow serial communication on other digital pins of the Arduino, using software to replicate the functionality (hence the name "SoftwareSerial"). It is possible to have multiple software serial ports with speeds up to 115200 bps. A parameter enables inverted signaling for devices which require that protocol.

The version of SoftwareSerial included in 1.0 and later is based on the [NewSoftSerial library](#) by Mikal Hart.

## Limitations

The library has the following known limitations:

- If using multiple software serial ports, only one can receive data at a time.

- Not all pins on the Mega and Mega 2560 support change interrupts, so only the following can be used for RX: 10, 11, 12, 13, 14, 15, 50, 51, 52, 53, A8 (62), A9 (63), A10 (64), A11 (65), A12 (66), A13 (67), A14 (68), A15 (69).

- Not all pins on the Leonardo support change interrupts, so only the following can be used for RX: 8, 9, 10, 11, 14 (MISO), 15 (SCK), 16 (MOSI).

If your project requires simultaneous data flows, see Paul Stoffregen's [AltSoftSerial library](#). AltSoftSerial overcomes a number of other

## Example

```

/*
  Software serial multiple serial test

  Receives from the hardware serial, sends to software serial.
  Receives from software serial, sends to hardware serial.

  The circuit:
  * RX is digital pin 10 (connect to TX of other device)
  * TX is digital pin 11 (connect to RX of other device)

  Note:
  Not all pins on the Mega and Mega 2560 support change interrupts,
  so only the following can be used for RX:
  10, 11, 12, 13, 50, 51, 52, 53, 62, 63, 64, 65, 66, 67, 68, 69

  Not all pins on the Leonardo support change interrupts,
  so only the following can be used for RX:
  8, 9, 10, 11, 14 (MISO), 15 (SCK), 16 (MOSI).

  created back in the mists of time
  modified 25 May 2012
  by Tom Igoe
  based on Mikal Hart's example

  This example code is in the public domain.

  */
#include <SoftwareSerial.h>

SoftwareSerial mySerial(10, 11); // RX, TX

void setup()
{
  // Open serial communications and wait for port to open:
  Serial.begin(57600);
  while (!Serial) {
    ; // wait for serial port to connect. Needed for Leonardo only
  }

  Serial.println("Goodnight moon!");

  // set the data rate for the SoftwareSerial port
  mySerial.begin(4800);
  mySerial.println("Hello, world?");
}

void loop() // run over and over
{
  if (mySerial.available())
    Serial.write(mySerial.read());
  if (Serial.available())
    mySerial.write(Serial.read());
}

```

[\[Get Cc\]](#)

## Functions

[begin\(\)](#)  
[isListening\(\)](#)  
[overflow\(\)](#)  
[peek\(\)](#)  
[read\(\)](#)  
[print\(\)](#)  
[println\(\)](#)  
[listen\(\)](#)  
[write\(\)](#)