GNU Radio is an open-source toolkit for building, testing and deploying software defined radios.
What is **Software Define Radio**?!
A Typical FM Radio

Antenna

RF Amp → Mixer → IF Amp → FM Demod → Audio Amp → Speaker

Oscillator
What if...
What if...

Antenna

Some HW + Software Logic

Speaker
What if...

Antenna

FM
AM
HDTV
Satellite
Anything!

Some HW + Software Logic

Speaker
Software Defined Radio

Antenna

Analog-to-Digital Convertor (ADC) → Your Code! → Speaker
Software Defined Radio

Antenna

RF Front-end → Analog-to-Digital Convertor (ADC) → Your Code! → Speaker

Monday, October 25, 2010
USRP

- Has four 64 MS/s 12 bit ADCs
- Has four 128 MS/s 14 bit D to A converters
- Communicates using USB 2.0
- Can process 16 MHz wide band of spectrum
- Can range between 0 and 5.9 GHz
Where does GNURadio fit in?

Antenna

RF Front-end → Analog-to-Digital Convertor (ADC) → Your Code! → Speaker
GNU Radio Block Schematic

- Antenna
- RF Front-end
- Analog-to-Digital Converter (ADC)
- GNU Radio SW Toolkit

USRP Hardware

Software
GNU Radio

- Signal Processing Modules (FFT, Filters etc.)
- 3 Tier architecture
- Python for scheduling and GUI
- C++ for core signal processing modules
Enough of the boring details, Let's look at a few **Live Demos**!
Download GNURadio

http://www.cs.washington.edu/homes/sidhant/UbiCompLinux.zip