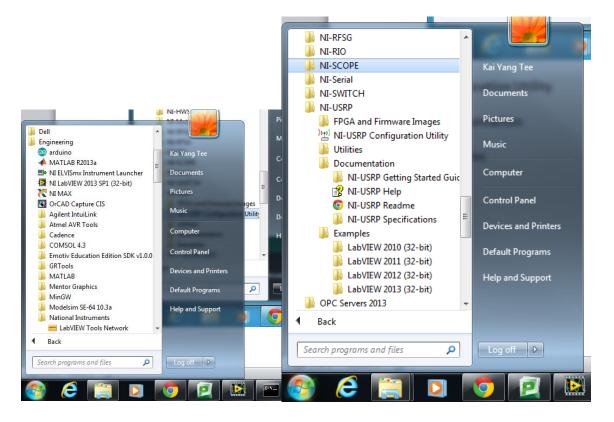
Getting Started with the USRP

1. Connect the (2) USRPs to the 2nd Ethernet port on (2) lab computers. The IP for the 2nd port on the lab computer should be set to 192.168.10.1. The IP for the USRP is labeled on the chassis.



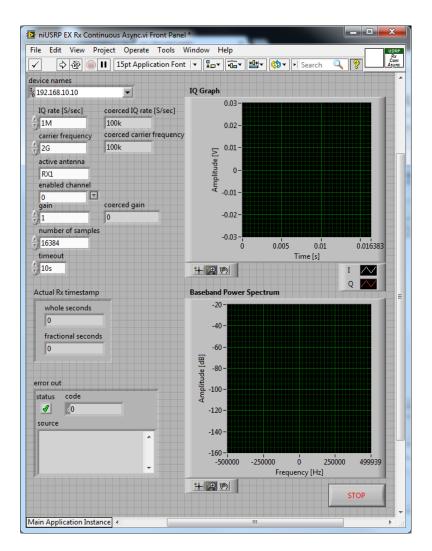
 Click on Start -> Engineering -> National Instruments -> NI-USRP. You will see the Utilities, Documentation and Example code. Click on USRP Configuration Utility to make sure you USRP is connected.

ng	NI-USRP Configurat	tion Utility						
	Devices USRP2 SD (
	Device ID	Connection	Type/Revision	IP Address	Image Status			
	UHD Device 0	evice 0 Ethernet NI USRP-2920		192.168.10.10		Selected IP Address		
						· · ·		
					New IP Address			
						· · ·		
						Select Port Type		
						Port 0 (1G)		
						Change IP Address		
	•		III		ł.	Refresh Devices List		
-								

- 3. If you device is connected correctly then you will see it listed as shown above. Close this windows if you don't get an error.
 - a. If you get a warning about the firmware version, then update it by clicking on the N2xx/NI-29xx Image Updater tab, select the device and click Write Image.

	Name	Date modified	Туре	Size		
Favorites				Size		
Desktop	ModulationToolkitExamples	8/15/2014 12:32 PM	File folder			
🗼 Downloads 📃 Recent Places	😼 ctlVIstates.ctl	1/28/2015 9:08 PM	LabVIEW Control	5 KB		
Recent Places	niUSRP EX Command Delay.vi iusep EX Either Devices on Systematic	5/7/2014 8:39 AM	LabVIEW Instrume	35 KB 27 KB		
Libraries	niUSRP EX Filter Devices on System.vi niUSRP EX Find and Connect.vi	5/7/2014 8:39 AM 5/7/2014 8:39 AM	LabVIEW Instrume	27 KB 16 KB		
Documents				16 KB 34 KB		
Music	niUSRP EX Fine-Tune LO Frequency.vi interpretation of the second secon	5/7/2014 8:39 AM	LabVIEW Instrume	34 KB 56 KB		
Pictures	niUSRP EX Full Duplex (Single Device, Mu niUSRP EX One Shot Rx.vi		LabVIEW Instrume			
Subversion		5/7/2014 8:39 AM	LabVIEW Instrume	30 KB		
Videos	iuls P EX Rx Continuous Async Reconfi	5/7/2014 8:39 AM	LabVIEW Instrume	32 KB		
Videos	iulsep EX Rx Continuous Async.vi	5/7/2014 8:39 AM	LabVIEW Instrume	63 KB		
Connector	Sync.vi	5/7/2014 8:39 AM	LabVIEW Instrume	34 KB		
Computer	iUSRP EX Rx Customize Fetch Type and	5/7/2014 8:39 AM	LabVIEW Instrume	39 KB		
Windows (C:)	iUSRP EX Rx Finite Sync.vi	5/7/2014 8:39 AM	LabVIEW Instrume	37 KB		
kaiyang.tee (\\wareł	iUSRP EX Rx Multiple Inputs (Single Devi		LabVIEW Instrume	39 KB		
🚽 pcapps (\\warehous	iuls PEX Rx Multiple Synchronized Inpu		LabVIEW Instrume	40 KB		
Network	niUSRP EX Rx Multiple Synchronized Inpu niUSRP Ex Rx with GPS.vi		LabVIEW Instrume	45 KB		
Network		5/7/2014 8:39 AM	LabVIEW Instrume	36 KB 38 KB		
	,	5/7/2014 8:39 AM	LabVIEW Instrume			
	iuls period and a second	1/28/2015 9:08 PM	LabVIEW Instrume	46 KB		
	IniUSRP EX Synchronize Clocks.vi IniuSRP EX Synchronize Clocks.vi IniuSRP EX To Control	5/7/2014 8:39 AM	LabVIEW Instrume	41 KB		
	INVESTIGATION CONTINUOUS ASYNC (CDB CI	5/7/2014 8:39 AM	LabVIEW Instrume	30 KB		
	iUSRP EX Tx Continuous Async Reconfi	5/7/2014 8:39 AM	LabVIEW Instrume	30 KB		
	iniUSRP EX Tx Continuous Async.vi	5/7/2014 8:39 AM	LabVIEW Instrume	28 KB		
	niUSRP EX Tx Customize Write Type and	5/7/2014 8:39 AM	LabVIEW Instrume	44 KB		
	iUSRP EX Tx Finite Sync.vi	5/7/2014 8:39 AM	LabVIEW Instrume	34 KB		
		-, . ,				
	 niUSRP EX Tx MIMO with GPS.vi niUSRP EX Tx Multiple Outputs (Single D niUSRP EX Tx Multiple Synchronized Out niUSRP EX Tx Multiple Synchronized Out niUSRP EX Tx with GPS.vi 	5/7/2014 8:39 AM 5/7/2014 8:39 AM 5/7/2014 8:39 AM 5/7/2014 8:39 AM 5/7/2014 8:39 AM	LabVIEW Instrume LabVIEW Instrume LabVIEW Instrume LabVIEW Instrume LabVIEW Instrume	46 KB 36 KB 37 KB 42 KB 39 KB		

 Click on Start -> Engineering -> National Instruments -> NI-USRP -> Examples and double click on niUSRP EX Tx Continuous Async.vi on 1 computer and niUSRP EX Rx Continuous Async.vi on another computer.



- 5. Set the device names to the correct IP. Set the IQ rate to 200k and the carrier frequency to a frequency that is appropriate for both the USRP and the antenna.
 - a. There are 2 carrier frequency ranges for the USRP:
 - i. 2.4, 5 GHz
 - ii. 0.05 2.2 GHz

You can believe the carrier frequencies printed on the front of the chassis unless there is a label on the top of the chassis stating otherwise. If there is a label then someone has swapped out the daughterboard inside the USRP to change the carrier frequency range. In that case, you should either believe the label or open up the box and see what daughter board is installed. The WBX daughterboard works in the 0.05 - 2.2 GHz range.

b. There are 3 different antennas in the boxes:



i. 2.4 GHz: Digikey Part Number <u>740-1017-ND</u>, No color band at top.



- ii. 1.4 GHz: 1.4GHz Monopole Swivel Antenna, Digikey Part Number <u>ANT-1.4-CW-</u> <u>HWR-SMA-ND</u>, Purple band at top
- iii. Blue band at top. I can't find the datasheet on these antennas so I'm not sure what wavelength this is designed for ☺. Please let me know if you figure it out.