

Wireless Testbench™ Release Notes



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Wireless Testbench™ Release Notes

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New Features

Introducing Wireless Testbench

Wireless Testbench™ provides reference applications that are ready to run on off-the-shelf software-defined radio (SDR) hardware such as USRP™ using over-the-air signals for high-speed data transmit, capture, and spectrum monitoring.

Using MATLAB® command line instructions, you can connect to supported SDR hardware, configure and execute prebuilt FPGA bitstreams as reference applications, and perform real-time measurements.

Using the configurable preamble detector, you can define a trigger to capture only the signal of interest for offline analysis in MATLAB.

Support for NI USRP radios

The Wireless Testbench Support Package for NI™ USRP Radios provides support for these USRP Networked Series radios.

- USRP N310
- USRP N320
- USRP N321

To configure these radios for use in Wireless Testbench, you must install the support package. For more information, see “Install Support Package for NI USRP Radios” and “Connect and Set Up NI USRP Radios”.

Transmit and capture IQ data over the air for use in simulation, testing, and validation

The objects listed in this table are reference applications that enable you to configure your radio for high-speed data capture and transmit. You can use the captured data to analyze, simulate, test, and validate wireless systems.

Object	Description	Related Example
<code>basebandReceiver</code>	Configure SDR as baseband receiver	The “Capture from Frequency Band” and “Capture from Frequency Band with Multiple Antennas” examples show how to capture IQ data from the air by using the <code>basebandReceiver</code> object.
<code>basebandTransceiver</code>	Configure SDR as baseband transceiver	The “Loopback Transmit and Capture” example shows how to transmit and capture a custom wireless waveform over the air by using the <code>basebandTransceiver</code> object.

Object	Description	Related Example
basebandTransmitter	Configure SDR as baseband transmitter	The “Transmit Waveform” example shows how to transmit a custom wireless waveform to the air by using the basebandTransmitter object.

Triggered data capture from the air using preamble detection

The `preambleDetector` object is a reference application that enables you to configure your radio to detect and capture a signal of interest from the air using preamble detection. You can specify standard-based or custom waveforms for detection by using a programmable FIR filter.

- The “Triggered Capture Using Preamble Detection” example shows how to use the `preambleDetector` object to calibrate the thresholding and triggering operation of a triggered capture.
- The “Triggered WLAN Waveform Capture Using Preamble Detection” example shows how to use the `preambleDetector` object to capture a WLAN waveform from the air by detecting the legacy long training field (L-LTF).

OFDM WiFi scanner using preamble detection

The “OFDM WiFi Scanner Using SDR Preamble Detection” example shows how to capture OFDM packets from the air and how to retrieve information about WLAN networks by decoding the captured OFDM packets.

Model triggered data capture in Simulink without a radio

The “Simulate Triggered Capture Using Preamble Detection” example shows how to model triggered data capture without a connected radio using a Simulink® model.

