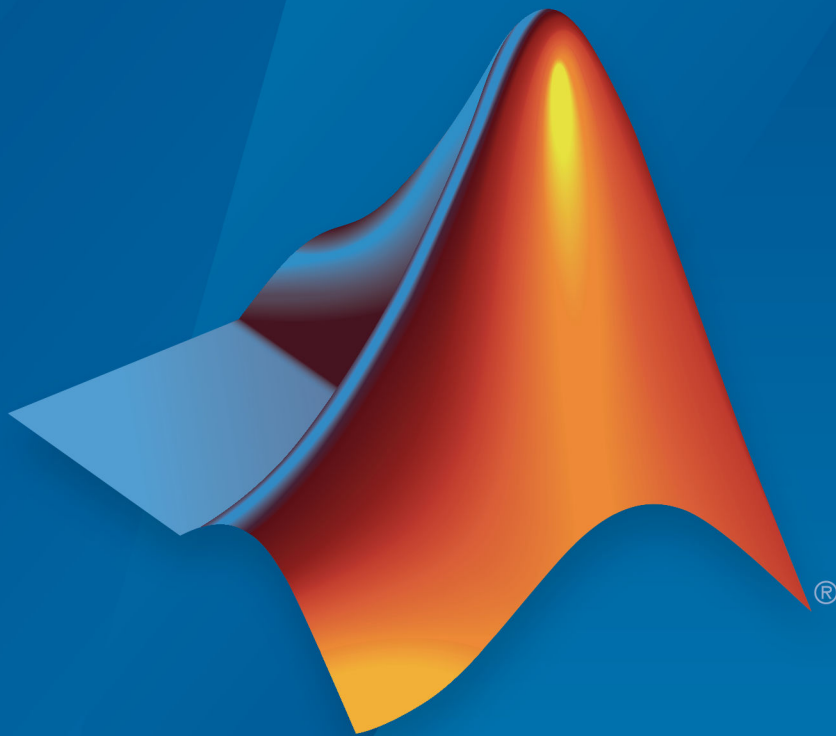


# 5G Toolbox™ Release Notes



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# R2018b

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**Version: 1.0**

**New Features**

## **Introducing 5G Toolbox**

5G Toolbox provides standard-compliant functions and reference examples for the modeling, simulation, and verification of 5G communications systems. The toolbox supports link-level simulation, golden reference verification and conformance testing, and test waveform generation.

With the toolbox you can configure, simulate, measure, and analyze end-to-end communications links. You can modify or customize the toolbox functions and use them as reference models for implementing 5G systems and devices.

The toolbox provides reference examples to help you explore baseband specifications and simulate the effects of RF designs and interference sources on system performance. You can generate waveforms and customize test benches to verify that your designs, prototypes, and implementations comply with the 3GPP 5G New Radio (NR) standard.

## **Standard-compliant models for 3GPP 5G NR Release 15**

5G Toolbox provides standard-compliant functions and reference examples for the modeling, simulation, and verification of 5G communications systems. For more information, see “Scope of 5G Toolbox”.

## **Link-level simulation with reference examples, including 5G NR PDSCH throughput simulation**

5G Toolbox provides standard-compliant functions for end-to-end physical layer transmit and receive processing. You can measure the PDSCH throughput for various propagation conditions and parameter sets. For an example, see “NR PDSCH Throughput”.

## **OFDM waveform generation with NR subcarrier spacings and frame numerologies**

With 5G Toolbox, you can generate NR waveforms, including physical signals and channels. The process includes all the stages from channel coding to OFDM modulation. You can explore the effect of different subcarrier spacings and frame numerologies.

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## **TR 38.901 propagation channel models, including tapped delay line (TDL) and clustered delay line (CDL)**

5G Toolbox provides TDL and CDL channel modeling capabilities. For more details, see the `nrCDLChannel` and `nrTDLChannel` System objects.

## **Downlink transport and physical channels (shared, control, broadcast); synchronization and demodulation reference signals**

5G Toolbox provides functions to model transport and physical channels, including shared, control, and broadcast channels. You can also model synchronization and demodulation reference signals. For more information, see “Downlink Channels”.

## **Signal processing functions, including channel coding (LDPC and polar codes), channel estimation, synchronization, and equalization**

5G Toolbox provides low-level functions that model subcomponents in the processing chain for transport channels, physical channels, and physical signals. For more information, see “Physical Layer Subcomponents”. The toolbox also provides signal reception capability. Using 5G Toolbox functions, you can perform channel estimation, timing estimation, synchronization, and minimum mean-squared error (MMSE) equalization. For more information, see “Signal Reception”.

## **C and C++ code generation support**

All 5G Toolbox functions and System objects support ANSI®/ISO® compliant C/C++ code generation.

