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Development Framework for Simulating Routing Behavior in Software-Defined Wireless Networks

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Wireless technologies play an important role in the Internet of Things (IoT) and they facilitate the deployment of various types of sensor networks. Nodes in a sensor network don't always have a direct connection to the central sink node, therefore they route packets through other nodes in the network. In the emerging Software-Defined Networking (SDN) architecture, a main controller is responsible for coordinating the network functions including the routing operation. The current article presents a Java-based simulation framework developed for testing the routing mechanism in a wireless SDN. The goal of the implemented framework is to create a working framework that can be used to perform various routing simulations. The framework is constructed to be multi-purpose, it can be used on a local machine, but is also compatible with the Mininet-WiFi network simulator. Routing simulations are performed locally and in Mininet-WiFi in IPv4 networks and they prove the framework's functionality and its working features.

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