

# MeshScape<sup>®</sup> 5.0

MeshScape<sup>®</sup> 5.0 is Millennial Net's advanced system for commercial- and industrial-class wireless sensor networks. MeshScape5.0 uses an extremely efficient networking protocol for the highest performance in reliability, power efficiency, scalability, and responsiveness.

## The MeshScape 5.0 Technology

- Patent pending virtually-on frequency hopping technology.
- Patented Persistent Dynamic Routing (PDR) techniques to form a self-configuring, wireless mesh network. PDR uses a node-initiated network formation for efficient topology discovery, and uses "best route" information for network re-formation (required in ever-changing RF environments).
- MeshScape 5.0 networking utilizes standard IEEE 802.15.4 unlicensed radio band.

## MeshScape 5.0 Features

MeshScape 5.0 is an optimized industrial-class wireless mesh network for more robust interference resistance, higher scalability in real world environments and lower power operation:

- **Virtually-On** technology to enable mesh nodes to run at low power for battery operations over several years.
- **Active Frequency Hopping** to avoid potential interferences for robust operation in highly noisy environments.
- **Low Latency** capability to reduce the end-to-end packet delivery time to below seconds within a multi-hop environment, even with battery operated mesh node.
- **Highly Scalable Dynamic Addressing** to ease installation and commissioning for large and complex networks.
- **2.4 GHz** DSSS frequency-selectable radio

## MeshScape 5.0 Software

MeshScape offers a series of features that are configurable through the MeshGate gateway:

- **MeshScape-ULP**: MeshScape Ultra-Low Power software allows mesh nodes to go into a very low-power sleep mode. Time synchronization ensures that all mesh nodes wake up simultaneously to communicate data traffic.
- **MeshScape-QR**: MeshScape Query-Response software supports Modbus and other industry standard query-response serial protocols.
- **MeshScape Installer**: The MeshScape Installer is a software installation utility for configuring network and upgrading firmware.

## MeshScape 5.0 Modules

- **MeshGate**: MeshGate, the MeshScape gateway, aggregates data from the network, configures network parameters, enables network features, and acts as a portal to monitor network performance. MeshGate has data ports for RS-232 and RS-485, as well as a console port for network configuration and monitoring.
- **End nodes**: End nodes integrate with sensors and actuators to capture data in star and hybrid star-mesh configurations.
- **Mesh nodes**: Mesh nodes extend network area coverage, route around obstacles, and provide backup routes in case of network congestion or device failure. Mesh nodes can also integrate directly with sensor and actuators in mesh and hybrid star-mesh configurations.

## Try It for Yourself

Setting up a wireless sensor network is fast and easy with the MeshScape 5.0 Reference Kit. You can prototype your application in a matter of hours. For more information, visit [www.millennialnet.com/refkit](http://www.millennialnet.com/refkit).

