



Network configuration, deployment, remote monitoring

# Software Solutions for Smart Metering



Coronis is a world-leading provider of wireless gas, electric and water utility metering solutions. Leveraging Wavenis® ultra-low-power and long-range wireless technology, Coronis solutions offer unprecedented last-mile network performance for integrating residential, commercial and industrial meter data quickly and efficiently with head-end customer management and billing systems. Heterogeneous communications solutions, such as GPRS and Ethernet, complete the offer to pave a smooth 2-way data path from the field to the head office.

With its a complete line of complementary software applications, Coronis brings customers' metering networks to life, covering all tasks ranging from module installation to daily data collection and secure integration with corporate databases. Based on many years experience successfully deploying smart metering solutions around the world, each application is adapted to a specific purpose:

- Wavenet Manager™** Remote monitoring, network administration, database middleware/interface
- Wavewalk™** End-point setup and walk-by meter monitoring
- Wavesync™** Wireless repeater installation



# Wavenet Manager™

## Fixed network management and remote monitoring

This browser-based application enables you to manage your entire Wavenis-based smart metering solution, including meter and end-point configuration, network sector organization, automated and walk-by data collection, reporting, and more. Wavenet Manager also provides a secure database interface and WAN connectivity via a dedicated communications platform.

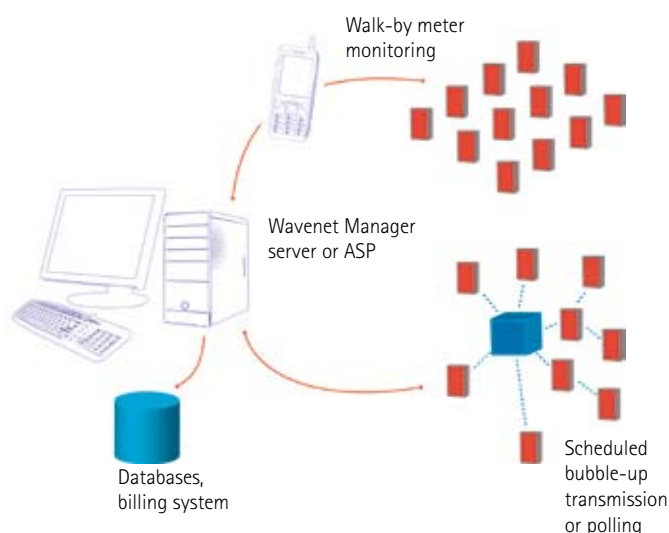


- Collects meter index readings and network events
- Coordinates bubble-up transmission from network end-points
- Handles on-demand reads at any time
- Issues alerts for leaks, tampering, backflow, low battery
- Administrator interface for entire Coronis Smart Metering networks

## The cornerstone of Coronis Smart Metering

In addition to its network management features, Wavenet Manager has two primary roles: manage Wavenis networks and collect remote meter data. Whether based on readings transmitted over the network via scheduled bubble-up, or synchronized from walk-by rounds conducted by field agents, this data may then be used in your corporate billing and reporting system quickly and easily.

- Complete wireless sensor network monitoring solution for Wavenis-enabled devices
- Full support for Coronis Waveflow™, Wavetalk™ and Wavegate™ product lines, and certified third-party products
- Manage and configure network infrastructure
- Web-based application can be installed locally at your site or accessed as a hosted service<sup>(2)</sup>
- Customize interface with your logo, color theme and specific features
- Seamless integration with Wavewalk and Wavesync applications



*Wavenet Manager offers complete Wavenis network management and remote meter monitoring services*

### Save time with hosted services

Wavenet Manager is also available as a hosted service running on a remote site managed by Coronis. This fully secure solution eliminates the need for local installation and maintenance of specialized software services and databases. Wavenet Manager ASP offers all the same features as the local version, plus the added advantages of guaranteed quality of service, backups, transparent upgrades, and more.

Wavenet Manager ASP specific features:

- Completely hosted solution for Wavenis 2-way end-point monitoring, scheduled polling and remote reading
- Guaranteed quality of service and bandwidth, 7/7, 24/24
- Daily backups
- Automatic software and database system upgrades
- Includes technical support

## Wavesync™

### Repeater set-up and synchronization

Wavesync simplifies Wavenis wireless network deployment by providing field agents with a dedicated tool to synchronize Wavetalk 2 repeaters with Wavegate cellular/Ethernet gateways.

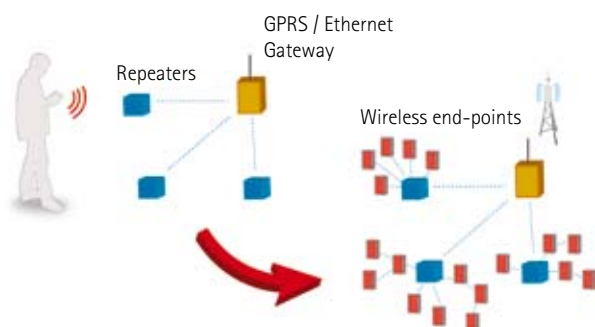


Using Wavesync to establish a network infrastructure for each sector greatly facilitates the subsequent installation of Wavenis end-points, such as those connected to utility meters.

Wavesync runs on a standard Windows Mobile® handheld computer, either with an integrated Wavenis Waveport Compact Flash card or with Bluetooth, via the Waveport Bluetooth.<sup>(4)</sup>

This application is tightly integrated with Wavenet Manager, updating and synchronizing network sector information via ActiveSync® or Web services. This ensures that the system administrator maintains full control of the overall system.

- Synchronizes Wavetalk 2 repeaters with Wavegate gateways using Self Discovery Protocol (SDP)
- Synchronize updated repeater information with Wavenet Manager via ActiveSync or Web Services
- Simplifies field operations with barcode scanner and automated GPS recording
- Reads repeater status and information
- Tests RSSI levels and battery life (repeater/repeater, repeater/gateway, repeater/end-point)

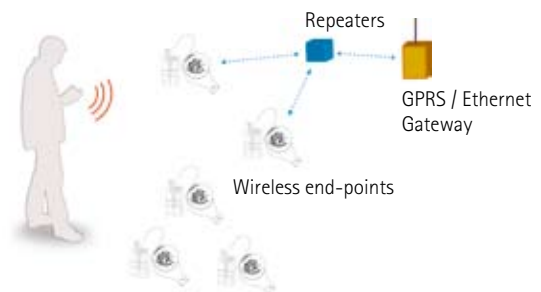


Wavesync enables you to establish the network backbone with repeaters, simplifying installation of end-points

## Wavewalk™

### End-point set-up and data monitoring

Wavewalk is a key application for deploying Wavenis-based gas, electric and water metering systems and other types of wireless sensor monitoring solutions. This practical field tool is used both to configure and to monitor Wavenis-enabled end-points. Wavewalk runs on a Windows Mobile handheld computer, connecting to Wavenis end-points either via an integrated Wavenis Compact Flash card or via Bluetooth connected to a Waveport Bluetooth<sup>(4)</sup>.



Configure end-points in smart metering networks or monitor non-networked end-points directly

Coronis smart metering solutions offer flexibility in installations of any size. End-points can be networked together in battery-efficient wireless mesh clusters, in which case Wavewalk is used to configure them and connect them to repeaters and cellular/Ethernet gateways. With special support for Wavenis v2 synchronized networks, Wavewalk offers a complete interface for adding end-points to the fixed network infrastructure.

### Walk-by meter monitoring

While Wavenis wireless technology enables seamless remote metering, there are some cases in which a traditional walk-by solution is more appropriate. In this case, Wavewalk is synchronized with a back-end data management or billing system, then used by field agents to conduct walk-by rounds. Meter-reading personnel can collect meter data, view various alerts, and update customer and meter information as necessary.

- Wavenis-based walk-by wireless utility metering and end-point installation application
- Fast on-site collection with Wavenis wireless meter access
- Back-up field data securely on memory card
- Supports Windows Mobile® handhelds
- Synchronize updated meter and end-module information with Wavenet Manager via ActiveSync or Web Services
- Tests end-point signal strength (RSSI) and battery life levels



## Wavenet Manager™

### Meter monitoring services

- Collect readings from entire Wavenis-based wireless metering networks automatically
- Initiates end-point bubble-up configuration
- Run on-demand queries to retrieve data from remote sensors
- Organize walk-by rounds<sup>(3)</sup> for wireless meter reading in the field
- Exchange data files with Wavewalk handheld software via ActiveSync or Web services
- Setup and monitor individual devices and meters or entire network remotely
- Compatible with Wavenis-based sensor nodes, including utility meters, temperature sensors, UHF RFID modules and more
- Centralize data from walk-by rounds and bubble-up transmission
- Listen for spontaneous alerts from remote meters in fixed networks
- Runs on corporate servers or as hosted ASP solution<sup>(3)</sup>

### Wavenis network administration

- Manage gateways, repeaters and end-nodes from a centralized location
- Use 2-way end-to-end communications to reach any remote network node over local and cellular network connections
- Create user accounts with task-oriented permission structure
- Connect transparently with wide-area-network services via Ethernet/Internet

### Database

- Synchronize meter data with corporate information systems and databases
- Integrate securely with customer service and billing procedures
- Supports Oracle 10g R2 and MySQL 4.x
- Includes interface daemon for secure data exchange with corporate RDBMS
- Supports Wavenis synchronous or asynchronous networks

### System requirements

- Apache Tomcat 5.0/Apache 2 Web server, Oracle Server 10g R2 or MySQL 4.x server, Java JDK 1.4<sup>(5)</sup>
- Microsoft IIS, .NET 2.0 for communications platform
- Minimum 200 MB for applications, 1 GB for data
- 2 GB or more RAM
- 3 GHz or faster CPU

<sup>(1)</sup> Bubble-up: programmed 1-way daily transmission by end-points. Available only with synchronous mode network operation. <sup>(2)</sup> Data export into Wavewalk for walk-by rounds. <sup>(3)</sup> Server administration and hosting. <sup>(4)</sup> Compact Flash and Waveport Bluetooth sold separately. <sup>(5)</sup> Public domain and open-source services included in installation.

## Wavesync™

### Related products

- Wavenet Manager
- Wavetalk and Wavetalk 2
- Waveport Bluetooth
- Waveport Compact Flash card

### System requirements

- Recommended: mobile phone/PDA device with barcode scanner, integrated GPS, Bluetooth™ (e.g. Opticon H19)
- Wavenis wireless connectivity via Wavenis Compact Flash card or Waveport Bluetooth<sup>(7)</sup>
- Windows Mobile 2005 Professional or higher
- .NET 2.0
- 30 MB free disk space
- ActiveSync 4.5 or higher

## Wavewalk™

### Meter monitoring services

- Wireless meter monitoring
- Read and store individual meter index data logs
- Display alerts in case of consumption anomalies (leaks, tampering, broken cables, unexpected consumption patterns)
- Synchronize meter data with corporate information systems and databases
- Import and export configured rounds with Wavenet Manager<sup>(7)</sup>

### Network setup

- Configure and synchronize end-points<sup>(6)</sup> in fixed networks using automatic routing
- Automatic installation available in synchronous networks only

### Device configuration

- Pair Wavenis wireless sensors<sup>(8)</sup> and supported utility meters
- Program alarms and security thresholds
- Set meter starting index values
- Enter and update customer information

### System requirements

- Windows PC running Microsoft ActiveSync 4.5 (or higher)
- Handheld computer running Windows Mobile 2003 - 2005 or Windows CE
- Wavenis wireless connectivity via Wavenis Compact Flash card or Waveport Bluetooth<sup>(7)</sup>
- .NET 1.2
- 30 MB free disk space

<sup>(6)</sup> Wearable gateway that transparently connects Bluetooth-enabled devices to Wavenis devices. <sup>(7)</sup> Sold separately. <sup>(8)</sup> Generally Waveflow Wavenis-enabled transceivers.



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