The opportunities presented by the burgeoning Internet of Things (IoT) may be new, but Wind River® has been providing the intelligence that powers interconnected, automated systems for decades. Wind River Intelligent Device Platform is a scalable, sustainable, and secure development environment that simplifies the development, integration, and deployment of IoT gateways. It is based on Wind River industry-leading operating systems, which are standards-compliant and fully tested, as well as Wind River development tools. The platform provides device security, smart connectivity, rich network options, and device management; and it includes ready-to-use components built exclusively for developing machine-to-machine (M2M) applications. Intelligent Device Platform provides outstanding software and expertise to fuel the rapid innovation and deployment of safe, secure, and reliable intelligent devices through more efficient development cycles, standards-based data connections, and intuitive management tools.
TECHNICAL SPECIFICATIONS

Connectivity
Connectivity options include both local connectivity and IoT system or cloud connectivity. Popular IoT application protocols such as MQTT (Message Queue Telemetry Transport) are included. Intelligent Device Platform is designed to take advantage of drivers and systems software available in the operating environment—lowering development cost, optimizing reuse, and saving development time.

**MQTT**
- Lightweight (low power, low network bandwidth) publish-and-subscribe messaging protocol
- Paho client
- Command-line utilities for publishing and subscribing to MQTT topics
- Mosquito server

**ZigBee**
- Local wireless connectivity
- Complete, robust implementation that allows manufacturers and software developers to easily incorporate ZigBee connectivity into their designs

**Cloud Connector**
- Device connector to cloud-based services
- Flexible interface

**Bluetooth**
- Local wireless connectivity
- Bluetooth 4.0 with BLE support

Management
Device management requires facilities for provisioning, software, and configuration updates, along with providing device status. Intelligent Device Platform provides a wide range of options for device management. Along with the standard device management protocols, the platform also offers a lightweight web-based management tool.

**Secure Updates**
- Package updates
- Firmware updates

**Device Authentication**
- Certificate-based remote attestation

**Standards-Based Management Protocols**
- OMA DM
- TR-069

**Web Interface**
- webif UI
Security

Security is a primary design consideration for connected devices within an IoT system. Intelligent Device Platform includes features to implement a robust security plan for a wide array of IoT systems. Security features include access control of critical system resources and digital signature validation for trusted software, in addition to the network security features, such as IPsec or L2TP, of the supporting operating environment.

TCG Standards

- TSS Service Provider Interface (TSPI)
- TSS Core Services Interface (TCSI)
- TSS Device Driver Interface (TSDI)

Integrity Monitoring

- Verification of the RSA signature before running an application
- Ability to set policies for integrity failure
- No execution of an application without the signature of an authorized certificate
- No execution of an application that has been tampered with

Role-Based Access Control

- System protection from applications
- Ability to set resource access policies for each application
- Protection of system resources, including memory, CPU cycles, files, and network resources

Bluetooth

- Certificate-based signing tool for boot-loader, kernel, and applications
- Trusted stack for critical software

Application Programming Interface

The application programming interface (API) layer is designed to support popular application environments for IoT software, including Java, OSGi, and Lua. These environments are configurable and can be selected by a system developer via the development tools for inclusion into a particular IoT gateway or device.

OpenJDK

- Support for both Java SE 6 and 7
- Usage of system libraries such as zlib
- Support for different virtual machines (VMs) such as Zero and Cacao

SQLite

- Embedded SQL lightweight database
- Storage and organization of local data store
- Simple command interface

Lua VM

- Portable application environment
- Small footprint (500K)
- Proven language used in many industrial applications

OSGi

- Addition of Java applications to an IoT gateway
- Independent application lifecycles
- Run-time controls for Java applications
Wind River Operating Environments

Intelligent Device Platform is built on the Wind River market-leading operating environments, so developers and system integrators can reuse software assets already deployed in these environments.

Wind River Linux Development Tools

Intelligent Device Platform is a flexible platform that includes the development tools needed to build and customize the target system. Developers can add their own software and still apply service updates to their software stack.

Web-Based Configuration Management

Intelligent Device Platform includes an easy-to-use web-based configuration tool for device provision, setup, and management.

Supported Hardware

Intelligent Device Platform runs in conjunction with Wind River operating environments, and therefore supports a wide array of hardware platforms. The platform comes with pre-integrated hardware support from leading manufactures, and its development tools can be used to optimize the IoT stack for a given hardware platform. Wind River Professional Services also offers assistance in optimizing hardware integration. Contact Wind River for more information.

DOCUMENTATION

Wind River provides documentation that contains configuration and build instructions for Intelligent Device Platform and describes the configurations that enable IoT technologies on the platform.

WIND RIVER CUSTOMER SUPPORT

Intelligent Device Platform—including its integrated partner technologies—is backed by the award-winning Wind River global support team, which offers multilingual support through six support centers and 21 hubs worldwide.

HOW TO PURCHASE

Visit www.windriver.com/company/contact to find your local Wind River sales contact. To have a sales representative contact you, call 800-545-WIND.