

# The OSGi platform and device access model

## Subject

The presentation includes an overview of OSGi (Open Services Gateway Initiative) and Gatespace's OSGi based distributed service platform. The OSGi model for managing devices and drivers in a distributed and embedded environment will be presented. The device access model will be exemplified using 1-Wire and UPnP devices.

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## Abstract

OSGi defines a model for service platforms where applications written in Java can be installed and executed. The applications typically consist of a number of components - "bundles" - that together solve a problem. These bundles are provided by different vendors and must be configured to cooperate on a service platform (Framework). A large number of service platforms can be remotely administrated by an operator responsible for their continuous operation. Existing services can be upgraded and services can be installed without physical access to the platform. Great emphasis is placed on securing the platform against unauthorized access. The platform must be capable of running autonomously without requiring user interaction.

Gatespace is very active in the OSGi standardization effort and are contributing the majority of the official reference implementation. Gatespace has also developed an optimized version of the OSGi framework as well as a number of horizontal services. They include messaging, remote management, application server connectivity, a flexible user concept, media distribution, connection to payment systems and network bridging.

The base platform together with the horizontal services greatly simplify implementation of distributed services such as home entertainment applications, alarm functions, energy management and mobile services such as positioning, navigation, traffic information and weather reporting.

The platform should also mediate between applications and different types of hardware devices and provide a suitable level of abstraction of devices so that applications and devices can be independently replaced. New devices can be connected at any time (hot plugging). Suitable device drivers should automatically be activated (plug and play). A complication is that previously unknown devices may be connected, for which there are no device drivers. The OSGi device access model supports identification of new devices and additional device drivers can be downloaded on demand. This allows machines with limited local resources to support any number of device types and to always use the latest version of every driver.

The presentation gives an overview of the OSGi specification and of Gatespace's OSGi-related products and some example applications. The device access model will be demonstrated using 1-Wire and UPnP device discovery and configuration as examples.