The Knowledge Repository Module stores and orchestrates all concepts inside the knowledge representations (KR), i.e. device descriptions, user profiles, content items etc. Each KR concept in the system is referenced by a unique URI and all changes in the system are communicated using semantically formatted messages.

The Knowledge Repository Module cares for the message propagation between modules and provides several utilities to simplify the work with the KR, e.g. rule based reasoning capabilities or semantic listeners to enable uncomplicated and efficient access on the managed KR.

Technically, the Knowledge Repository module is based on an adapted version of the Tip ‘n Tell 2 semantic middleware developed by the USAAR team, which is mainly based on the JENA framework. The version adapted for the Aml case encompasses several subcomponents to provide the following capabilities:

- Retrieval and junction of OWL ontologies representing all KR concepts required to describe all contextual (Aml case ODPs developed by CNR) and situational aspects (Pre-Artifacts developed by USAAR) of the situation in the bathroom environment.

In re-iteration the Stanbol Ontology Store component has been integrated using the REST interface as a standardized storage layer for the knowledge representations formalized in OWL.

This change enhances the system with several debugging capabilities provided by the Stanbol Ontology Store, e.g. to explore the knowledge representation using the provided web interface.

The Knowledge Repository Module is used by all modules that require access on the knowledge representation. It is also used by all modules that want to listen to messages or broadcast messages that indicate changes in the KR. Beside this it is requested by all modules that want to access cached content items (e.g., audio or video files).

Centralized management of KR

Provision of simplified access to KR by means of optimized request opportunities and structured results

Inter-module message broadcast service

Publications: