

# 7 Detailed description of Course and Group Management Services

## 7.1 Overview

A Course Management service allows applications or services to access and manage courses, modules, and other units of learning. A Course Management service is a specialization of a Group Management service, which provides services to access and manage groups of all kinds, including organisation structures.

Both services offer a similar range of functions.

## 7.2 Services

A Group Management service consists of three sub-services, which are:

- Group Management - Supports creating, reading, updating and deleting groups
- Membership Management - Supports creating, reading, updating and deleting data regarding the membership of units of learning
- Member Management - Support creating, reading, updating and deleting information about members

The functions for a Course Management service are identical, with the difference that the kinds of Groups concerned are units of learning.

## 7.3 Deployment and use

Within an MLE architecture, Course and Group Management services would tend to be provided by the system of record for managing this information, such as a Management Information System (MIS) or Student Record System (SRS).

The information provided by these services is of use to a wide range of systems, including systems for delivering learning activities (such as Virtual Learning Environments), library and resource management applications, and portals.

## 7.4 Group Management

### 7.4.1 Service definition

This service provides a means to manage information about groups. A group management service needs to support the following features:

- Creating new groups
- Updating an existing group
- Deleting an existing group
- Requesting an existing group by its unique identifier
- Requesting a set of groups by query
- Requesting a set of groups by association

### 7.4.2 Interfaces and data models

The specification with most direct applicability to this service is the IMS Enterprise Services specification, v1.0, which contains both interfaces and data models.

There are two service definitions that apply: GroupManager and GroupsManager. The former is an interface that applies to single instances of groups, the latter to sets of groups.

The MIT Open Knowledge Initiative also provides two relevant Open Service Interface Definitions (OSIDs), called Course Management and Group Management. These operate at a different binding point to the IMS interfaces, and are intended to be implemented within client applications via adapters rather than as a service layer.

There are many basic similarities between the two sets of specifications, and it is possible to combine them within an implementation:

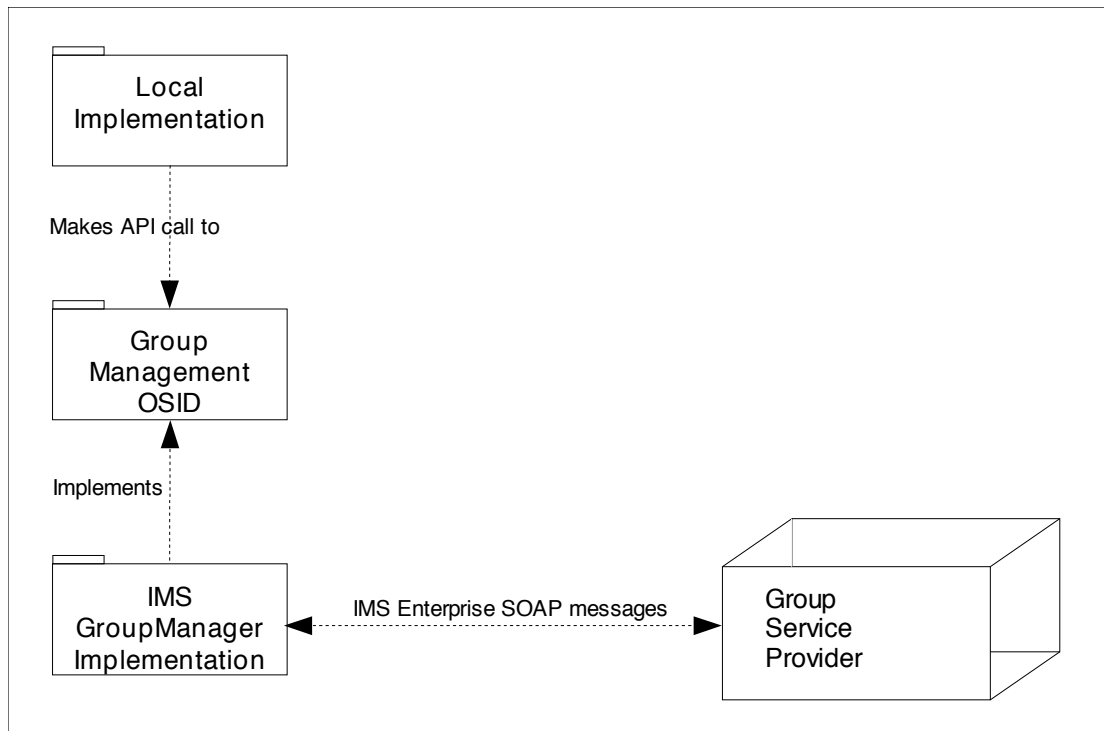


Figure 8. Shows the relationship between the various elements needed to implement the service

Here, the consumer implementation makes calls to the service using the API provided by OKI. The API is implemented to provide web services, defined using the IMS GroupManager specification.

Not all of the OKI API can be implemented using IMS Enterprise at present, as there are some differences between the data model implied by the OKI definition and that provided by IMS.

### 7.4.3 Bindings

IMS Group Manager and IMS GroupsManager have bindings for Web Services using the Web Services Definition Language (WSDL) and XML Schema (XSD).

The OKI OSIDs have Java API bindings.

### 7.4.4 Implementations

There is a library under development by CETIS that implements the IMS services for the J2EE platform using the Apache AXIS web services framework.

## 7.5 Membership Management

### 7.5.1 Service definition

This service provides a means to manage information about membership of groups. A membership management service needs to support the following features:

- Creating new memberships of a group by a person
- Updating an existing membership
- Deleting an existing membership
- Requesting an existing membership by a unique identifier
- Requesting a set of memberships by query
- Requesting a set of memberships associated with a group

- Requesting a set of memberships associated with a person

### 7.5.2 Interfaces and data models

The specification with most direct applicability to this service is the IMS Enterprise Services specification, v1.0, which contains both interfaces and data models.

There are two service definitions that apply: `MembershipManager` and `MembershipsManager`. The former is an interface that applies to single instances of a membership, the latter to sets of memberships.

The MIT Open Knowledge Initiative also provides two relevant Open Service Interface Definitions (OSIDs), called `Course Management` and `Group Management`. These operate at a different binding point to the IMS interfaces, and are intended to be implemented within client applications via adapters rather than as a service layer.

There are many basic similarities between the two sets of specifications, and it is possible to combine them within an implementation (see above, in the `Group Management` section).

Not all of the OKI API can be implemented using IMS Enterprise at present, as there are some differences between the data model implied by the OKI definition and that provided by IMS.

### 7.5.3 Bindings

IMS `MembershipManager` and IMS `MembershipsManager` have bindings for Web Services using the Web Services Definition Language (WSDL) and XML Schema (XSD).

The OKI OSIDs have Java API bindings.

### 7.5.4 Implementations

There is a library under development by CETIS that implements the IMS services for the J2EE platform using the Apache AXIS web services framework.

## 7.6 Member Management

### 7.6.1 Service definition

This service provides a means to manage information about people belonging to groups. A member management service needs to support the following features:

- Creating new members
- Updating an existing member
- Deleting an existing member
- Requesting an existing member by its unique identifier
- Requesting a set of members by query
- Requesting a set of members for a group

### 7.6.2 Interfaces and data models

The specification with most direct applicability to this service is the IMS Enterprise Services specification, v1.0, which contains both interfaces and data models.

There are two service definitions that apply: `PersonManager` and `PersonsManager`. The former is an interface that applies to single instances of members, the latter to sets of members.

The MIT Open Knowledge Initiative also provides two relevant Open Service Interface Definitions (OSIDs), called `Course Management` and `Group Management`. These operate at a different binding point to the IMS interfaces, and are intended to be implemented within client applications via adapters rather than as a service layer.

There are many basic similarities between the two sets of specifications, and it is possible to combine them within an implementation (see above).

Not all of the OKI API can be implemented using IMS Enterprise at present, as there are some differences between the data model implied by the OKI definition and that provided by IMS.

There is also a specification used in conjunction with LDAP called EduPerson that provides a relevant data model. There is a high degree of correspondence between the IMS Person and EduPerson data models.

### 7.6.3 Bindings

IMS Group Manager and IMS GroupsManager have bindings for Web Services using the Web Services Definition Language (WSDL) and XML Schema (XSD).

The OKI OSIDs have Java API bindings.

The EduPerson schema is provided as a flat-file binding for LDAP.

### 7.6.4 Implementations

There is a library under development by CETIS that implements the IMS services for the J2EE platform using the Apache AXIS web services framework.

## 8 Resources

The JISC Information Architecture <http://www.ukoln.ac.uk/distributed-systems/jisc-ie/arch/standards/>

IMS <http://www.imsglobal.org/>

OKI <http://web.mit.edu/oki/>

The Benefits of a Service-Oriented Architecture, Michael Stevens, Developer.com, <http://www.developer.com/services/article.php/1041191>

Service-Oriented Architecture Introduction (2 parts), Michael Stevens, Developer.com, <http://www.developer.com/services/article.php/1010451>

Web Services and Service-Oriented Architectures <http://www.service-architecture.com/>

Service-Oriented Architecture Explained, Sayed Hashimi, O'Reilly [http://www.ondotnet.com/pub/a/dotnet/2003/08/18/soa\\_explained.html](http://www.ondotnet.com/pub/a/dotnet/2003/08/18/soa_explained.html)

Succeeding at Service Oriented Architecture, Bill Ruh, ZDNet <http://www.zdnet.com.au/builder/architect/work/story/0,2000034884,20276810,00.htm>