

SINGAPORE STANDARD

Specification for eLearning framework

– Part 6 : Singapore enterprise integration



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Foreword

This Singapore Standard was prepared by the Learning Standards Technical Committee (LSTC) under the direction of the IT Standards Committee. The LSTC is responsible for tracking, developing and promoting standards on learning in Singapore.

SS 496 on eLearning framework currently consists of 6 parts. Part 6 defines interoperability between Learning Management Systems (LMSs) and other enterprise systems residing within the same enterprise or organisation.

In preparing this standard, reference was made to the IMS Enterprise Specification and prevailing international standards and best practices, such as:

- 1) IMS Enterprise Specification Version 1.1 (final release)
<http://www.imsglobal.org/specifications.cfm>
- 2) IMS Enterprise Information Model
http://www.imsglobal.org/enterprise/entv1p1/imsent_infov1p1.html
- 3) IMS Enterprise XML Binding Specification
http://www.imsglobal.org/enterprise/entv1p1/imsent_bindv1p1.html
- 4) IMS Enterprise Best Practices and Implementation Guide,
http://www.imsglobal.org/enterprise/entv1p1/imsent_bestv1p1.html

Explanations of selected technical terms can be found in Annex B – Glossary of terms.

This standard is related to other IMS specifications and other parts of SS 496 – “Specification for eLearning framework” (complete and in-progress). This specification is intended to be consistent with these other initiatives wherever possible, in order to reduce redundancy and confusion between specifications. The related parts of SS 496 are:

- Part 2 : Learning resource identification – recommends the usage, where appropriate, to support the meta-data entities to be used in the context of the enterprise objects;
- Part 3 : Learning content packaging – recommends the usage, where appropriate, to support packaging of multiple IMS Enterprise XML instances;
- Part 4 : Assessment and progress tracking – recommends the usage, where appropriate, to support the exchange of assessment results in the context of the enterprise objects.
- Part 9 : Learner profile (scheduled for development at a later stage) – recommends the usage, where appropriate, to support the exchange of personal profile data in the context of the enterprise objects.

The LSTC also has had the privilege of working with practitioners from various companies and institutions of higher learning.

This standard is expected to gain the widespread acceptance of the practitioners in the eLearning industry in Singapore. However, as specifications are still evolving, this standard will be reviewed and revised regularly. The LTSC will be responsible for incorporating new elements or features in this specification on Singapore enterprise integration.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. SPRING Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

1. *Singapore Standards are subject to periodic review to keep abreast of technological changes and new technical developments. The revisions of Singapore Standards are announced through the issue of either amendment slips or revised editions.*
2. *Compliance with a Singapore Standard does not exempt users from legal obligations.*

Specification for e-Learning framework – Part 6 : Singapore enterprise integration

1 Introduction to the Singapore enterprise integration

1.1 Overview

The objective of the specification is to support interoperability between Learning Management Systems (LMS) and other Enterprise Systems. The following are four possible examples of Enterprise Systems, which will benefit from the Enterprise specifications:

1.1.1 Human resource management system

Human Resource Management Systems (HRMS) manage personnel records, payroll, benefits, competency management, and other educational functions for an enterprise. Interoperability that can be supported by this specification includes:

- Passing employees' personal data from HRMS to LMS;
- Passing of Information of an HR department to LMS as a group and the employees of the department as members;
- Passing of information of training groups of new to LMS;
- Passing back of course information and results after the completion of course from LMS to HRMS as groups or as membership in those groups.

1.1.2 Corporate training management system

These workforce Training Management Systems (TMS) track employees' training plans, schedule training courses with instructors and resources, enroll people in training, record training completed, etc. Interoperability that can be supported by this specification includes:

- Passing the list of available courses from LMS to TMS;
- Passing employees' personal data from TMS to LMS;
- Passing results and course completion records from LMS to TMS.

Refer to 3.1 for example.

1.1.3 Student administration system

Student Administration Systems (SA) support course cataloging, class scheduling, academic program registration, class enrollment, attendance tracking, grading, and many other education functions. Interoperability that can be supported by this specification includes:

- Passing groups of students' data from SA to LMS;
- Passing of grade information from SA to LMS for updating;
- Returning of final grades from LMS to SA for updates.

Refer to 3.2 for example.

1.1.4 Library management system

Library Management Systems track library patrons, manage and track collections of physical and electronic learning materials. IMS Enterprise specification can be used to support interfaces from other enterprise systems to Library Management systems. Interoperability that can be supported by this specification includes:

- Passing data of people from HRMS or SA to Library System
- Passing information about HR department from HRMS to Library System,
- Passing information about alumni groups from SA to Library System,
- Exchanging and updating group membership between Enterprise Systems.

1.2 Scope

This specification deals with exchanging of information about students, groups, and enrollments between Learning Management Systems (LMS) and Enterprise Systems within an organisation. It specifies on the exchange format in XML form.

The scope of this specification is expandable and includes:

- applying Enterprise specification across institutions when a student is transferred from one institution to another;
- switching to different LMS using the same Student Admin (SA) System without do major data conversion
- Integrating with IMS Learner Information Package (LIP) specification to have a portable certification whereby the records of students can be transferred through educational systems, MOE, MOM and other national database of students' competencies.

This specification however does not cover:

- how/when the systems should produce the data;
- which system is originating/receiving;
- delivery mechanism (refer to Annex A);
- security and negotiations within the organisation;
- privacy issues.

The basic architectural model for the Enterprise Integration is shown in Figure 1 below. In this architecture the scope of the Enterprise Integration Specification is shown as the dotted line. The scope of the interoperability is the data model of the objects being exchanged and not the associated behavioural model or the required communications infrastructure.

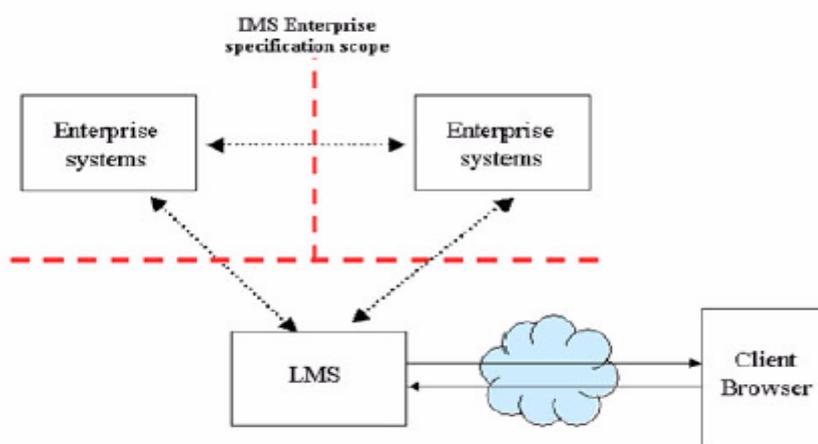


Figure 1 – Basic architectural model

1.3 Target audience

The following is a list of the target users of this specification:

- a) Education technologist;
- b) Courseware developer;
- c) Learning assessment system developer;
- d) Instructional designer;
- e) System integrator;
- f) eLearning specialist;
- g) eLearning programmer;
- h) Learning management system specialist;