



# IMS Learner Information Package Summary of Changes

## Version 1.0.1 Final Specification

Date Issued: 04 January 2005  
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Document Name: IMS Learner Information Package Summary of Changes

Date: 4 January 2005

# Table of Contents

<b>1.</b>	<b>INTRODUCTION .....</b>	<b>5</b>
1.1	LEARNER INFORMATION PACKAGE OVERVIEW .....	5
1.2	SCOPE AND CONTEXT .....	5
1.3	STRUCTURE OF THIS DOCUMENT .....	5
1.4	NOMENCLATURE .....	6
1.5	REFERENCES .....	6
<b>2.</b>	<b>AMENDMENTS AND ERRATA INSTRUCTIONS .....</b>	<b>7</b>
2.1	LIP SCHEMA OUT OF DATE .....	7
2.1.1	<i>Reference to LIP Issues List .....</i>	<i>7</i>
2.1.2	<i>Information Model Changes .....</i>	<i>7</i>
2.1.3	<i>XML Binding Changes .....</i>	<i>7</i>
2.1.4	<i>Best Practice Changes .....</i>	<i>7</i>
2.2	DATES AND TIMES IN IMS LIP .....	8
2.2.1	<i>Reference to LIP Issues List .....</i>	<i>8</i>
2.2.2	<i>Information Model Changes .....</i>	<i>8</i>
2.2.3	<i>XML Binding Changes .....</i>	<i>8</i>
2.2.4	<i>Best Practice Changes .....</i>	<i>8</i>
2.3	WRONG ISO8601 DATE FORMAT .....	9
2.3.1	<i>Reference to LIP Issues List .....</i>	<i>9</i>
2.3.2	<i>Information Model Changes .....</i>	<i>9</i>
2.3.3	<i>XML Binding Changes .....</i>	<i>9</i>
2.3.4	<i>Best Practice Changes .....</i>	<i>9</i>
2.4	INCONSISTENT CARDINALITY OF 'DESCRIPTION' .....	10
2.4.1	<i>Reference to LIP Issues List .....</i>	<i>10</i>
2.4.2	<i>Information Model Changes .....</i>	<i>10</i>
2.4.3	<i>XML Binding Changes .....</i>	<i>10</i>
2.4.4	<i>Best Practice Changes .....</i>	<i>10</i>
2.5	USAGE OF 'SOURCEDID' .....	11
2.5.1	<i>Reference to LIP Issues List .....</i>	<i>11</i>
2.5.2	<i>Information Model Changes .....</i>	<i>11</i>
2.5.3	<i>XML Binding Changes .....</i>	<i>11</i>
2.5.4	<i>Best Practice Changes .....</i>	<i>11</i>
2.6	'EXREFRECORD:RECFORMAT:ENTITYREF' .....	12
2.6.1	<i>Reference to LIP Issues List .....</i>	<i>12</i>
2.6.2	<i>Information Model Changes .....</i>	<i>12</i>
2.6.3	<i>XML Binding Changes .....</i>	<i>12</i>
2.6.4	<i>Best Practice Changes .....</i>	<i>12</i>
2.7	'EXREFRECORD: RECDATA: ENTITYREF' .....	13
2.7.1	<i>Reference to LIP Issues List .....</i>	<i>13</i>
2.7.2	<i>Information Model Changes .....</i>	<i>13</i>
2.7.3	<i>XML Binding Changes .....</i>	<i>13</i>
2.7.4	<i>Best Practice Changes .....</i>	<i>13</i>
2.8	CARDINALITY OF 'DEMOGRAPHICS' .....	14
2.8.1	<i>Reference to LIP Issues List .....</i>	<i>14</i>
2.8.2	<i>Information Model Changes .....</i>	<i>14</i>
2.8.3	<i>XML Binding Changes .....</i>	<i>14</i>
2.8.4	<i>Best Practice Changes .....</i>	<i>14</i>

2.9	CARDINALITY OF 'ADDRESS' .....	15
2.9.1	Reference to LIP Issues List .....	15
2.9.2	Information Model Changes.....	15
2.9.3	XML Binding Changes .....	15
2.9.4	Best Practice Changes .....	15
2.10	CARDINALITY OF 'AFFILIATION' .....	16
2.10.1	Reference to LIP Issues List .....	16
2.10.2	Information Model Changes.....	16
2.10.3	XML Binding Changes .....	16
2.10.4	Best Practice Changes .....	16
2.11	CARDINALITY OF 'FORMNAME' .....	17
2.11.1	Reference to LIP Issues List .....	17
2.11.2	Information Model Changes.....	17
2.11.3	XML Binding Changes .....	17
2.11.4	Best Practice Changes .....	17
2.12	CARDINALITY OF 'GEO' .....	18
2.12.1	Reference to LIP Issues List .....	18
2.12.2	Information Model Changes.....	18
2.12.3	XML Binding Changes .....	18
2.12.4	Best Practice Changes .....	18
2.13	CARDINALITY OF 'GOAL' .....	19
2.13.1	Reference to LIP Issues List .....	19
2.13.2	Information Model Changes.....	19
2.13.3	XML Binding Changes .....	19
2.13.4	Best Practice Changes .....	19
2.14	CARDINALITY OF 'QCL.TITLE' .....	20
2.14.1	Reference to LIP Issues List .....	20
2.14.2	Information Model Changes.....	20
2.14.3	XML Binding Changes .....	20
2.14.4	Best Practice Changes .....	20
2.15	CARDINALITY OF 'QCL.DATE' .....	21
2.15.1	Reference to LIP Issues List .....	21
2.15.2	Information Model Changes.....	21
2.15.3	XML Binding Changes .....	21
2.15.4	Best Practice Changes .....	21
2.16	CARDINALITY OF 'REPRESENTATION.DATE' .....	22
2.16.1	Reference to LIP Issues List .....	22
2.16.2	Information Model Changes.....	22
2.16.3	XML Binding Changes .....	22
2.16.4	Best Practice Changes .....	22
2.17	NAMING OF 'LEARNINGACTIVITYREF' .....	23
2.17.1	Reference to LIP Issues List .....	23
2.17.2	Information Model Changes.....	23
2.17.3	XML Binding Changes .....	23
2.17.4	Best Practice Changes .....	23
2.18	TELEPHONY ITEMS .....	24
2.18.1	Reference to LIP Issues List .....	24
2.18.2	Information Model Changes.....	24
2.18.3	XML Binding Changes .....	24

2.18.4	<i>Best Practice Changes</i> .....	24
<b>3.</b>	<b>DELIVERABLES</b> .....	<b>25</b>
<b>APPENDIX A - THE INITIAL ISSUES</b> .....		<b>26</b>
<b>ABOUT THIS DOCUMENT</b> .....		<b>28</b>
<b>REVISION HISTORY</b> .....		<b>29</b>

# 1. Introduction

## 1.1 Learner Information Package Overview

During the development of the Learner Information Package (LIP) specification the XML Binding was based upon the Document Type Definition (DTD). The equivalent XML Schema Definition (XSD) for LIP was not an official part of the specification but developed as a tool for the community. The DTD should be considered the definitive description for LIP v1.0. The changes in this document bring the XSD in line with the DTD and ensure that the DTD and Information Model correspond. Therefore, in all cases the LIP v1.0.1 XSD should be used in place of the LIP v1.0 schema.

The version 1.0 XSD is replaced by the version 1.0.1 XSD. The version 1.0.1 XSD is backwards compatible with the DTD and therefore no custom user types have been introduced that could not be supported by the DTD.

The LIP specification describes data structures, XML binding and accompanying best practices that are used for the formatting, storage, and exchange of learner information [LIP, 01a][LIP, 01b][LIP, 01c]. The specification supports the exchange of learner information among learning management systems, human resource systems, student information systems, enterprise e-learning systems, knowledge management systems, resume repositories, and other systems used in the learning process. In this document, such systems will be called learner information systems regardless of any other functionality they possess or roles they fulfil. The LIP specification does not address requests for learner information or the exchange transaction mechanism.

At the current time, it is the LIP v1.0 specification that is available in Final Release form to the public.

## 1.2 Scope and Context

This document describes amendments to be made by adopters of the LIP v1.0 specification, thereby creating the LIP v1.0.1 specification. Many typographical and elaborative changes were made to clarify and correct the supporting documents. The substantive differences between the v1.0 and the v1.0.1 specifications are limited to:

- Updating the XML schema to use formally recommended XML Schema definitions;
- Correcting typographical errors in the binding of the <learningactivityref> element in the Binding document;
- <address> <street> Setting cardinality to O in the Binding in line with the Information Model;
- <affiliation> <date> Setting cardinality to O n in the Binding in line with the Information Model;
- <demographics> <date> Setting cardinality to O in the Binding in line with the Information Model;
- <formname> <text> Setting cardinality to M in the Binding in line with the Information Model;
- <goal><status> Setting cardinality to O in the Binding in line with the Information Model;
- <qcl><title> Setting cardinality to M in the Binding in line with the Information Model;
- <qcl><date> Setting cardinality to M n in the Binding in line with the Information Model;
- <representation> <date> Setting cardinality to M n in the Binding in line with the Information Model;
- <description><full> Setting cardinality to O in the Binding in line with the Information Model;
- <description><long> Setting cardinality to O in the Binding in line with the Information Model;
- Clarification for use of the <sourcedid> element;
- Bringing XSD in line with the DTD.

## 1.3 Structure of this Document

The structure of this document is:

2. Amendments And Errata Instructions	The resolution of the issues that were not deferred until a later release. Each instruction describes the changes to be made to the documentation;
3. Deliverables	The set of documents and supporting information that is released to form the IMS Learner Information Package v1.0.1 specification;
Appendix A - The Initial Issues Presentation	The initial set of issues that were introduced as a part of this revision of the LIP specification.

## 1.4 Nomenclature

DTD	Document Type Definition
LIP	Learner Information Package
LMS	Learning Management System
PLIRI	Persistent Location Independent Resource Identifier
URI	Universal Resource Identifier
URL	Universal Resource Locator
W3C	World Wide Web Consortium
XML	Extensible Mark-up Language
XSD	XML Schema Definition
XSD	XML Schema Definition

## 1.5 References

[LIP, 01a]	<i>IMS Learner Information Package Information Model v1.0</i> , R.Robson, C.Smythe, F.Tansey, <u>IMS/GLC</u> , March 2001.
[LIP, 01b]	<i>IMS Learner Information Package XML Binding v1.0</i> , R.Robson, C.Smythe, F.Tansey, <u>IMS/GLC</u> , March 2001.
[LIP, 01c]	<i>IMS Learner Information Package Best Practice &amp; Implementation Guidelines v1.0</i> , R.Robson, C.Smythe, F.Tansey, <u>IMS/GLC</u> , March 2001.

## 2. Amendments and Errata Instructions

### 2.1 LIP Schema Out of Date

#### 2.1.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-23	LIP schemas to use the correct W3C version.

#### 2.1.2 Information Model Changes

None.

#### 2.1.3 XML Binding Changes

<b>Amendment Instructions:</b>	Within the <xsd:schema> element change the xmlns:xsd attribute from:  xmlns:xsd="http://www.w3.org/2000/10/XMLSchema"  to:  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
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#### 2.1.4 Best Practice Changes

None.

## 2.2 Dates and Times in IMS LIP

### 2.2.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-43	Dates and times in IMS LIP.

### 2.2.2 Information Model Changes

None.

### 2.2.3 XML Binding Changes

The Schema should be brought in line with the DTD.

### 2.2.4 Best Practice Changes

None.



## 2.3 Wrong ISO8601 Date format

### 2.3.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-43	Wrong ISO8601 format.
LIP 1-46	Wrong ISO8601 format - DTD perspective.

### 2.3.2 Information Model Changes

None.

### 2.3.3 XML Binding Changes

<b>Amendment Instructions:</b>	<p>Section 3.13.4 &lt;date&gt; Elements of the XML Binding document currently reads</p> <p><b>Example:</b></p> <pre>&lt;date&gt;   &lt;typename&gt;     &lt;tysource sourcetype="imsdefault"/&gt;     &lt;tyvalue&gt;Award&lt;/tyvalue&gt;   &lt;/typename&gt;   &lt;datetime&gt;2000:11:06&lt;/datetime&gt;   &lt;description&gt;     &lt;short&gt;The date of the ward&lt;/short&gt;   &lt;/description&gt; &lt;/date&gt;</pre> <p>This should be changed to:</p> <pre>&lt;date&gt;   &lt;typename&gt;     &lt;tysource sourcetype="imsdefault"/&gt;     &lt;tyvalue&gt;Award&lt;/tyvalue&gt;   &lt;/typename&gt;   &lt;datetime&gt;2000-11-06&lt;/datetime&gt;   &lt;description&gt;     &lt;short&gt;The date of the ward&lt;/short&gt;   &lt;/description&gt; &lt;/date&gt;</pre> <p>in line with ISO8601 format of YYYY-MM-DD. In addition the following examples also need to be changed</p> <pre>3.3.4    &lt;date&gt; 3.4.8    &lt;date&gt; 3.5.4    &lt;date&gt; 3.10.8   &lt;date&gt; 3.10.9   &lt;status&gt;</pre>
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### 2.3.4 Best Practice Changes

None.

## 2.4 Inconsistent Cardinality of ‘description’

### 2.4.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-95	Description: inconsistent cardinality.
LIP 1-98	Description: inconsistent cardinality of Full.
LIP 1-98	Description: inconsistent cardinality of Long.

### 2.4.2 Information Model Changes

None.

### 2.4.3 XML Binding Changes

<b>Amendment Instructions:</b>	<p>The Information Model describes short description as being a mandatory child of description but the Binding describes it as optional. Therefore:</p> <p>‘Section 3.13.3 Multiplicity: Occurs zero or more times within the &lt;description&gt; element.’</p> <p>should, be altered to read:</p> <p>‘Section 3.13.3 Multiplicity: Occurs once or more times within the &lt;description&gt; element.’</p> <p>The diagram should be altered to read:</p> <pre> classDiagram     class description {         "1"     }     class short {         "1"     }     class long {         "1"     }     class full {         "1"     }     class comment {         "1"     }     class media {         "1"     }     description "1" -- "1" short     description "1" -- "1" long     description "1" -- "1" full     full "1" -- "1" comment     full "1" -- "1" media   </pre> <p>The examples should be changed appropriately.</p>
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### 2.4.4 Best Practice Changes

None.

## 2.5 Usage of ‘sourcedId’

### 2.5.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-99	SourcedId: Clarification required.

### 2.5.2 Information Model Changes

<b>Amendment Instructions:</b>	Definition is given as “global user identifier”- if this is the case, it cannot be used to identify a component of LIP outside of a document.						
	Section 13.3.1.1 of the Information Model should be altered to read:						
	13.3.1.1	sourcedid	The initiating system’s source identification for the learner information.	C			If the entry is not defined as a ‘sourcedid’ it MUST be an ‘indexid’. sourcedid is only to be used to identify the subject

### 2.5.3 XML Binding Changes

None.

### 2.5.4 Best Practice Changes

None.

## 2.6 ‘exrefrecord:recformat:entityref’

### 2.6.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-100	Exrefrecord: Entityref undefined in original XSD binding.

### 2.6.2 Information Model Changes

None.

### 2.6.3 XML Binding Changes

Bring the Schema in line with the DTD.

### 2.6.4 Best Practice Changes

None.

## 2.7 ‘exrefrecord: recdata: entityref’

### 2.7.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-101	Exrefrecord: RecData.Entityref undefined in original XSD binding.

### 2.7.2 Information Model Changes

None.

### 2.7.3 XML Binding Changes

Bring the Schema in line with the DTD.

### 2.7.4 Best Practice Changes

None.

## 2.8 Cardinality of ‘demographics’

### 2.8.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-102	General: Various cardinality inconsistencies.

### 2.8.2 Information Model Changes

<b>Amendment Instructions:</b>	<demographics> <date> Cardinality is inconsistent: between the Information Model which has O n, and the Binding has zero or once. Section 2.7.4.1 should be altered to read:					
	2.7.4.1	date	Recorded dates appropriate to the representation.	O		As per structure 13.6 (Table 6.13).

### 2.8.3 XML Binding Changes

None.

### 2.8.4 Best Practice Changes

None.

## 2.9 Cardinality of ‘address’

### 2.9.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-102	General: Various cardinality inconsistencies.

### 2.9.2 Information Model Changes

None.

### 2.9.3 XML Binding Changes

<b>Amendment Instructions:</b>	<p>&lt;address&gt; &lt;street&gt;</p> <p>Cardinality is inconsistent: The Information Model has zero; Binding has zero or more. Binding document section 3.2.5.5 &lt;street&gt; element’s multiplicity should be changed to read:</p> <p><b>Multiplicity:</b> Occurs zero or once within the &lt;address&gt; element.</p> <p>The diagram is correct.</p>
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### 2.9.4 Best Practice Changes

None.

## 2.10 Cardinality of ‘affiliation’

### 2.10.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-102	General: Various cardinality inconsistencies.

### 2.10.2 Information Model Changes

None.

### 2.10.3 XML Binding Changes

<b>Amendment Instructions:</b>	<p>&lt;affiliation&gt; &lt;date&gt;</p> <p>Binding document section 3.10.6.4 &lt;date&gt; element’s multiplicity should be changed to read:</p> <p><b>Multiplicity:</b> Occurs zero or many times within the &lt;affiliation&gt; element.</p> <p>The diagram is correct.</p> <p>The DTD and XSD are valid.</p>
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### 2.10.4 Best Practice Changes

None.



## 2.11 Cardinality of ‘formname’

### 2.11.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-102	General: Various cardinality inconsistencies.

### 2.11.2 Information Model Changes

<b>Amendment</b>	<formname> <text>
<b>Instructions:</b>	Cardinality is inconsistent: Information Model has M, Binding has zero or once. The Information Model should be changed to O.

### 2.11.3 XML Binding Changes

None.

### 2.11.4 Best Practice Changes

None.

## 2.12 Cardinality of ‘geo’

### 2.12.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-102	General: Various cardinality inconsistencies.

### 2.12.2 Information Model Changes

None.

### 2.12.3 XML Binding Changes

Bring the Schema in line with the DTD.

### 2.12.4 Best Practice Changes

None.

## 2.13 Cardinality of ‘goal’

### 2.13.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-102	General: Various cardinality inconsistencies.

### 2.13.2 Information Model Changes

<b>Amendment Instructions:</b>	<goal><status> Cardinality is inconsistent between the Information Model and the Binding. Section 4.6 of the Information Model should be altered to read:					
	4.6	Status	Recorded status of the goal.	O		As per structure 13.8 (Table 6.13).

### 2.13.3 XML Binding Changes

None.

### 2.13.4 Best Practice Changes

None.

## 2.14 Cardinality of ‘qcl.title’

### 2.14.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-102	General: Various cardinality inconsistencies.

### 2.14.2 Information Model Changes

None.

### 2.14.3 XML Binding Changes

Bring the Schema in line with the DTD.

### 2.14.4 Best Practice Changes

None.

## 2.15 Cardinality of ‘qcl.date’

### 2.15.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-102	General: Various cardinality inconsistencies.

### 2.15.2 Information Model Changes

None.

### 2.15.3 XML Binding Changes

Bring the Schema in line with the DTD.

### 2.15.4 Best Practice Changes

None.

## 2.16 Cardinality of ‘representation.date’

### 2.16.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-102	General: Various cardinality inconsistencies.

### 2.16.2 Information Model Changes

None.

### 2.16.3 XML Binding Changes

<b>Amendment Instructions:</b>	<p>In Section 3.2.7.6 &lt;date&gt; of the Binding document Multiplicity should be altered to read:</p> <p><b>Multiplicity:</b> Occurs zero or many times within the &lt;demographics&gt; and &lt;representation&gt; elements.</p> <p>Replace Figure 3.8 with:</p> <pre> classDiagram     class demographics {         ? typename         ? comment string         ? contenttype         * representation         ? gender         * date         ? placeofbirth string         ? uid string     }     class representation {         ? typename         * date         * description     }     demographics "1" -- "?" representation     representation "1" -- "?" typename     representation "1" -- "*" date     representation "1" -- "*" description   </pre>
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### 2.16.4 Best Practice Changes

None.

## 2.17 Naming of ‘learningactivityref’

### 2.17.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-103	Typo: learning activity ref.

### 2.17.2 Information Model Changes

None.

### 2.17.3 XML Binding Changes

<b>Amendment Instructions:</b>	<p>Learningactivityref is misspelled as “learneractivityref” in Binding section 3.5.7 Amend the example in section 3.5.7 of the Binding document from:</p> <pre>&lt;learneractivityref&gt;   &lt;sourcedid&gt;     &lt;source&gt;IMS_LIP_V1p0_Example&lt;/source&gt;     &lt;id&gt;course_101&lt;/id&gt;   &lt;/sourcedid&gt; &lt;/learneractivityref&gt;</pre> <p>to the correct spelling:</p> <pre>&lt;learningactivityref&gt;   &lt;sourcedid&gt;     &lt;source&gt;IMS_LIP_V1p0_Example&lt;/source&gt;     &lt;id&gt;course_101&lt;/id&gt;   &lt;/sourcedid&gt; &lt;/learningactivityref&gt;</pre> <p>The DTD and XSD Bindings and the diagram are correct.</p>
--------------------------------	---

### 2.17.4 Best Practice Changes

None.

## 2.18 Telephony Items

### 2.18.1 Reference to LIP Issues List

Identifier	Issue
LIP 1-143	Binding of telephony as Integers in XSD (from BSI).

### 2.18.2 Information Model Changes

None.

### 2.18.3 XML Binding Changes

<b>Amendment Instructions:</b>	<p>Telephony items (numbers, codes, etc.) are defined in the Binding document as being declared as String, but are defined as Integer within the XML schemas.</p> <p>The following datatypes should be changed from xsd:int to xsd:string:</p> <ul style="list-style-type: none"><li>• &lt;areacode&gt;</li><li>• &lt;countrycode&gt;</li><li>• &lt;extnumber&gt;</li><li>• &lt;indnumber&gt;</li></ul>
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### 2.18.4 Best Practice Changes

None.



### 3. Deliverables

The set of deliverables to be issued as the IMS Content Packaging v1.1.4 specification and documentation set is:

- IMS Learner Information Package Summary of Changes, Version 1.0.1 (this document);
- IMS Learner Information Package v1.0.1 XSD;
- IMS Learner Information Package v1.0.1 Examples set.

## Appendix A - The Initial Issues

In Table A1 is the list of original issues that were reviewed as part of the maintenance process. There are four possible states for the issue:

- Resolved - the resolution of this issue has been addressed in this document;
- Rejected - the issue has been considered and rejected due to various reasons, e.g., a wrongly identified fault;
- Duplicated - this issue is a duplicate of another in the list. An associated note identifies the other entry;
- Deferred - this issue can only be resolved by the addition of new functionality or making changes that will cause problems with backwards compatibility. These issues will be considered as a part of a LIP v1.1 development.

### Key:

Type:    O = Other  
           CI = Conflicting Information  
           LC = Lacks Clarity  
           T = Typographic error  
           DC = Document Content  
           FR = Feature Request

**Table A1 List of LIP issues.**

Issue	Type	Document	Title	Status
23	O	Schema	LIP Schemas out of date	Resolved
43	CI	Schema	Dates and times in IMS LIP	Resolved
92	CI	Information Model	Temporal: Cardinality Inconsistent	Resolved
93	CI	Information Model	Privacy: Cardinality Inconsistent	Resolved
94	CI	Information Model	Privacy: Cardinality Inconsistent	Resolved
95	CI	Information Model	Description: Cardinality Inconsistent	Resolved
96	O	Information Model	Description: Type Inconsistent	Resolved
97	CI	Information Model	Description: Cardinality Inconsistent	Resolved
98	CI	Information Model	Description: Cardinality Inconsistent	Resolved
99	LC	Information Model	Sourcedid Clarification Required	Resolved
100	CI	Information Model	Exrefrecord: entityref undefined in binding	Resolved
101	CI	Information Model	xrefrecord.recdata.entityref undefined in binding	Resolved
102	CI	Information Model	General: various Cardinality Inconsistencies	Resolved
103	T	Information Model	Typo: Learning activity ref	Resolved
104	DC	Information Model	Datetime: does not conform to IS8601	Resolved
105	DC	Information Model	Area Code: Cardinality Inappropriate	Deferred
106	O	Information Model	General: inconsistency in string lengths	Resolved
107	FR	Information Model	Identification Support Legacy Address Formats	Resolved
108	DC	Information Model	Activity units cardinality too restrictive	Deferred
109	DC	Information Model	Accessibility: Not consistent with ACCLIP	Deferred
111	O	Information Model	IndexID Binding	Resolved
114	O	Information Model	Product	Deferred
115	O	Information Model	Bring Extension Mechanism in line with more recent practice	Deferred

Issue	Type	Document	Title	Status
116	O	Information Model	Langstring-Various Issues	Deferred
131	FR	Schema	LIP/ACCLIP integration issues	Deferred
117	FR	Information Model	Need new statement	Deferred
118	O	Information Model	Bundling resource type identifiers	Deferred
119	O	Information Model	Result Hierarchy	Deferred
120	O	Information Model	UID Issues	Deferred
121	O	Information Model	Formatted Addresses	Deferred
122	O	Information Model	Representation of geographic information	Deferred
123	FR	Information Model	Ownership/Contribution rights – changes to identification and contenttype	Deferred
124	O	Information Model	Issues around vocabularies	Deferred
125	O	Information Model	LIP/Enterprise person reconciliation	Deferred
130	CI	Schema	LIP/ACCLIP integration issues	Deferred
143	CI	Schema	Binding of telephony as integers in XSD	Resolved
144	DC	Information Model	Datetimes and ISO8601: Length restriction	Resolved
145	DC	Information Model	Area code should be optional	Deferred
132	LC	Information Model	Demographics	Deferred
133	FR	Information Model	Reflection	Deferred
135	O	Information Model	Nationality	Deferred
137	DC	Information Model	Geo should conform to ISO 6709	Deferred
138	FR	Information Model	Owner and Creator Metadata	Deferred
139	DC	Information Model	Vocabularies	Deferred
140	FR	Information Model	Affiliation	Deferred
141	FR	Information Model	Name Context	Deferred
142	FR	Information Model	Review of identification	Deferred
146	FR	Information Model	Ink color in screenEnhancement	Deferred
151	FR	Information Model	Modularity in avoiding color combinations	Deferred

## About This Document

<b>Title</b>	IMS Learner Information Package Summary of Changes
<b>Editor</b>	Colin Smythe (IMS)
<b>Version</b>	1.0.1
<b>Version Date</b>	04 January 2005
<b>Status</b>	<b>Final Specification</b>
<b>Summary</b>	This document describes the changes made to the Learner Information Package specification documents.
<b>Revision Information</b>	04 January 2005
<b>Purpose</b>	This document has been approved by the IMS Technical Board and is made available for adoption.
<b>Document Location</b>	<a href="http://www.imsglobal.org/profiles/lipv1p0p1/imslip_sumcv1p0p1.html">http://www.imsglobal.org/profiles/lipv1p0p1/imslip_sumcv1p0p1.html</a>

To register any comments or questions about this specification please visit:  
<http://www.imsglobal.org/developers/ims/imsforum/>

## Revision History

Version No.	Release Date	Comments
Final 1.0.1	04 January 2005	The 'IMS Learner Information Package Summary of Changes' document describes the amendments and errata changes made to the LIP v1.0 specification.

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*Please refer to Document Name: IMS Learner Information Package Summary of Changes*

*Date: 04 January 2005*