

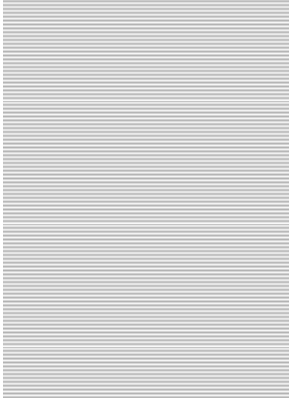


SAP Learning Solution Web Services in LS 6.00

Information for External Knowledge Provider and Partner

©SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP 



© SAP AG 2005

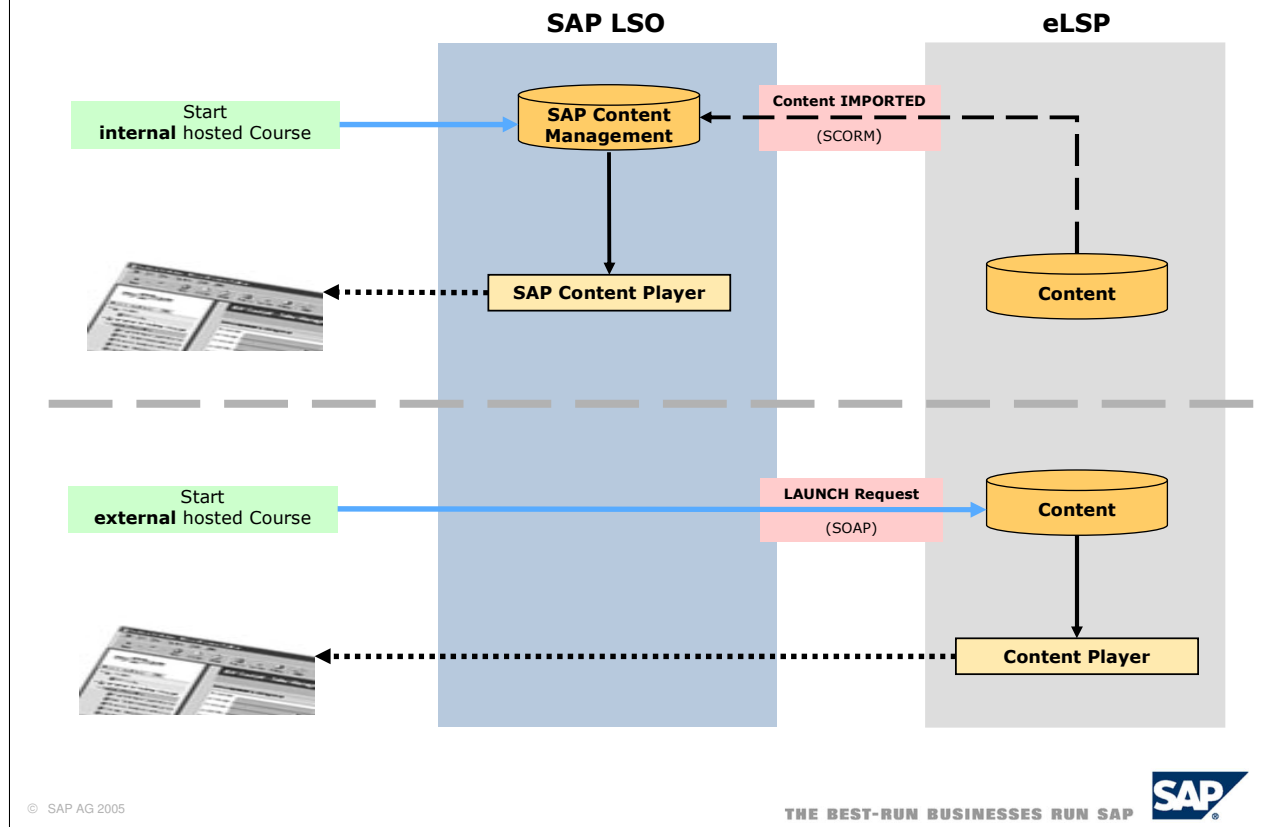
■ **Overview/Background**

■ **Interface**

■ **Learning Portal view**

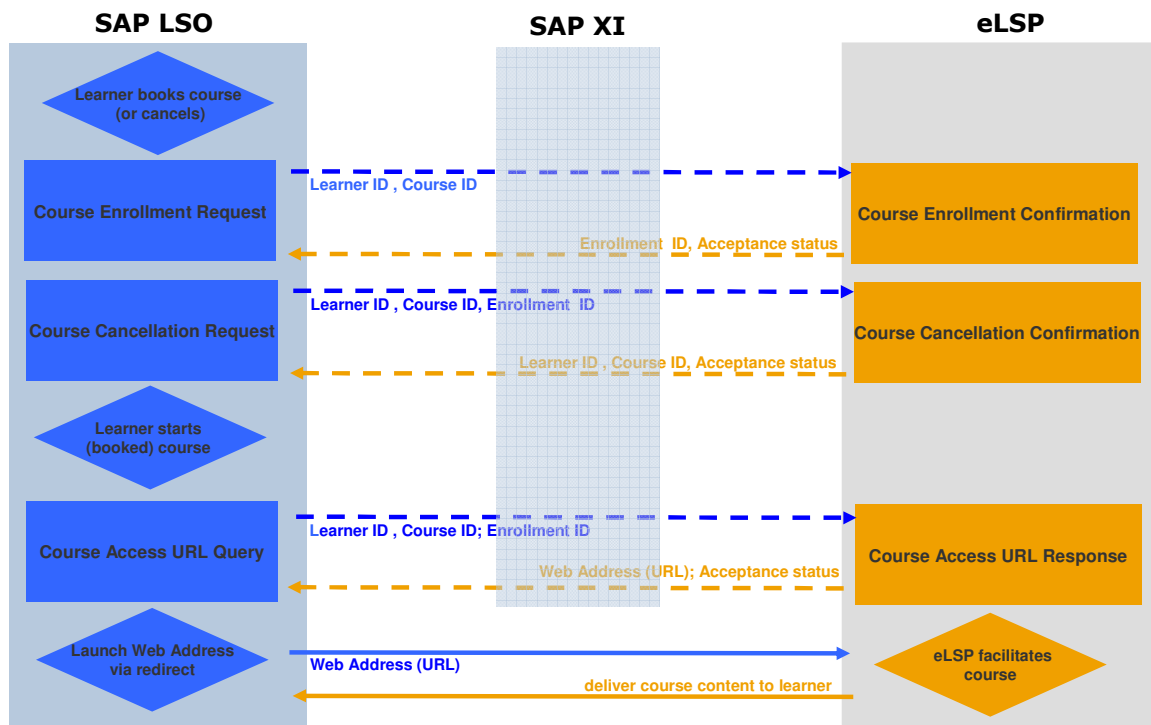
THE BEST-RUN BUSINESSES RUN SAP 

Internal hosted Content vs. External hosted Content



- The general consideration behind offering web services regarding training offers is that without web services all offered learning content would have to be internal.
- The learning content would have to be checked in via SCORM interface and had to be played via Learning Solution's Content Player.
- To provide a function where the content can stay unconverted and be played via original content player of the content provider an interface to external hosted content should be provided.

Services Outline I

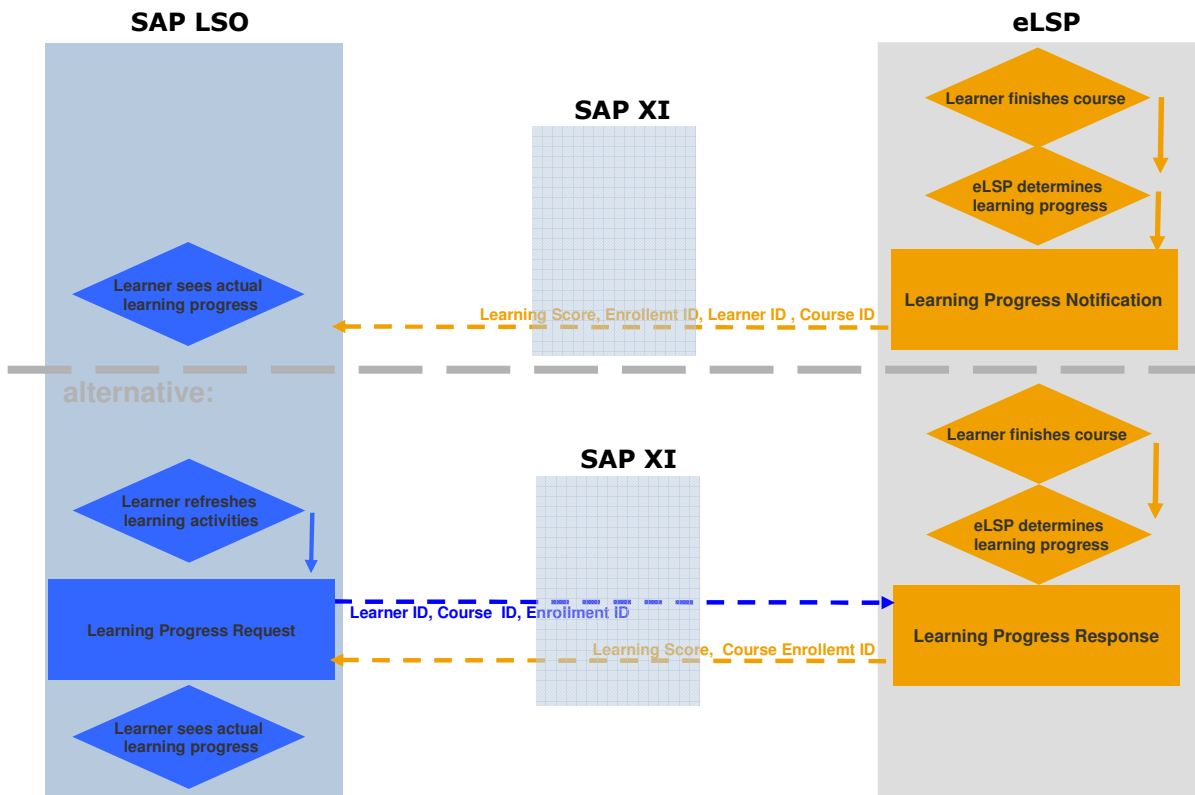


© SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP



Services Outline II Learning Progress



© SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP

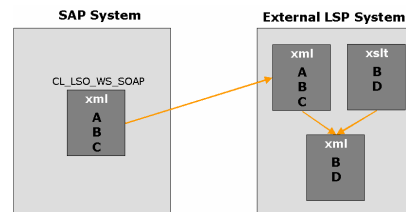


Usage of external Web Services in the LSO 600

LSO 300

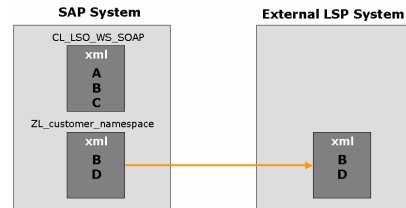
Option 1

External LSP adapts own services



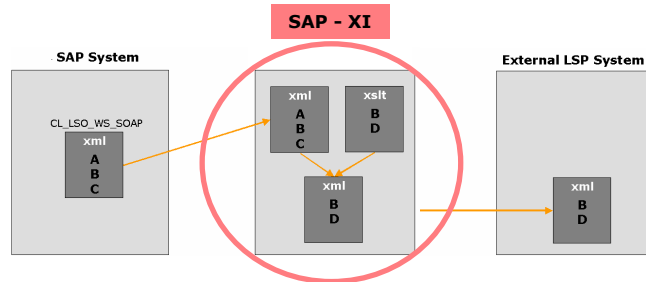
Option 2

eLSP Web Services in LSO's Service Class in customer's namespace



LSO 600 and 300

SAP XI



© SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP



The way to integrate external content to LSO 300 was:

- The external learning service providers adapted their services to the SAP Learning Solution services (option 1)
- Within SAP Learning Solution an own service class was provided for the external learning service provider (option 2 → SOAP interface)

The way to integrate external content with LSO 600 is the SAP Exchange Infrastructure (SAP XI):

- SAP's strategic process integration platform (is part of SAP NetWeaver)
- open and standards based
- Routing Editor
- Mapping Editor

The SOAP based web services (without XI) that existed in LS 3.00 can still be used in LS 6.00.

The XI-based web services are available in LS3.00 (downported, special support package requirement) and LS 6.00



■ **Overview/Background**

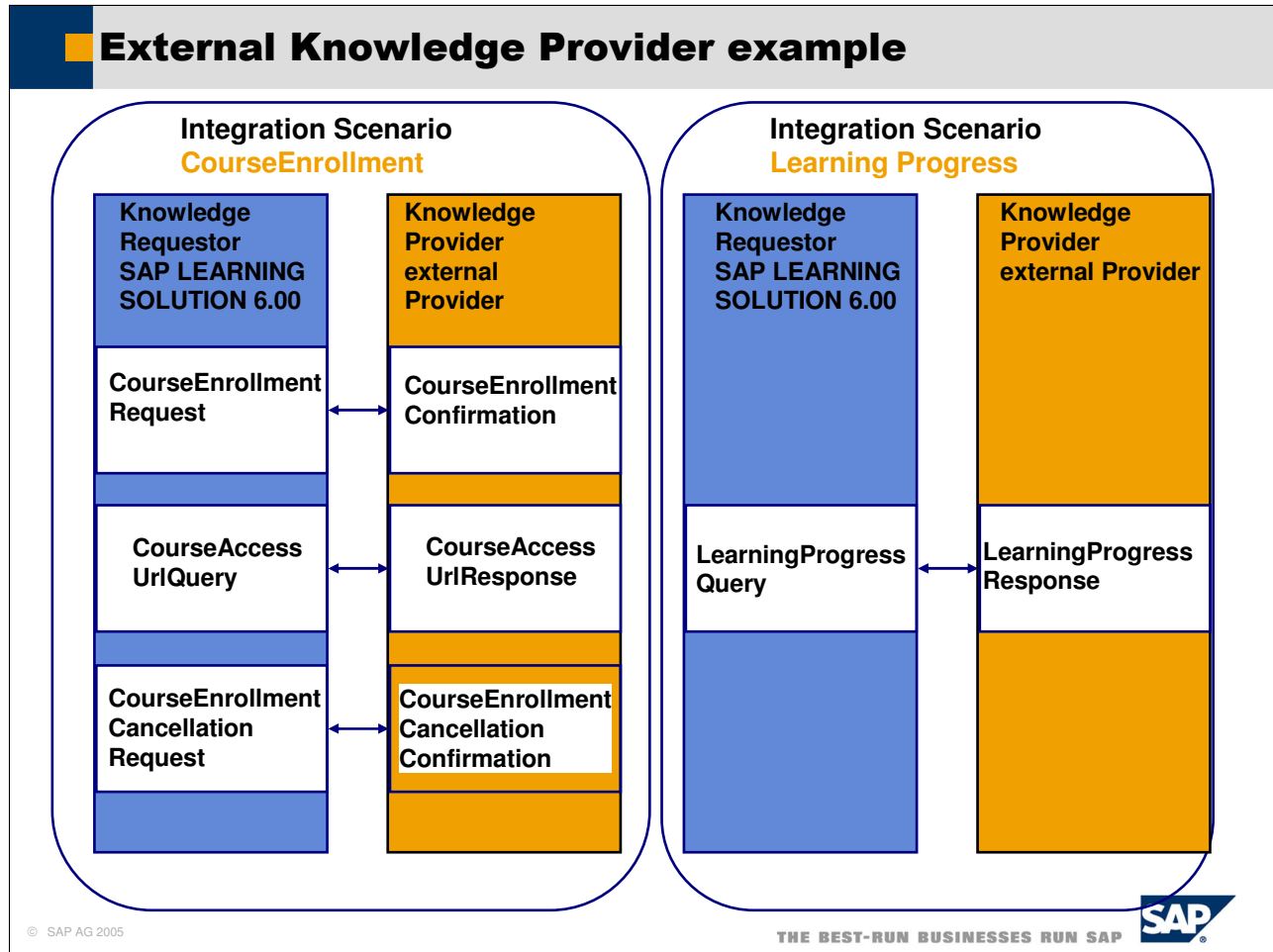
■ **Interface**

■ **Learning Portal view**

© SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP 

External Knowledge Provider example



- This is an example of an SAP system to an SAP system. The SAP system will request and query the information from the External Provider which will confirm and respond.
- There are 3 mandatory services SAP supports – Course Enrollment, Course Access, Course Enrollment Cancellation
- Some external providers may not support “learning progress”. This is not mandatory for our webservice

Create Mappings in the XI Integration Repository

The screenshot shows the SAP XI Integration Repository interface for creating a message mapping. The main window is titled "Display Message Mapping (Software component version cannot be changed)" and shows the message type "CourseAccessUriResponse" with namespace "http://sap.com/xi/EA-HR/Global" and software component version "EA-HR 600". The interface is divided into two panes, each showing a tree view of the message type structure. The left pane shows the source message type, and the right pane shows the target message type. Red lines indicate the mapping between elements in the two trees. The elements being mapped are: MessageHeader, ID, CreationDateTime, CourseAccessUriResponse, AcceptanceStatusCode, WebAddress, Log, MaximumLogItemSeverityCode, and Item. The right pane also shows additional elements like TypeID, SeverityCode, Note, and WebAddress.

© SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP



- Providers need to know the service for getting the URL:
- (1:1 relationship is mandatory)
- Acceptance Status code value = AP (approved) which signifies that it was successful and we can proceed. This will come from the external provider.
- RE (rejected) which signifies that it failed and we cannot proceed. This will come from the external provider.
- It will be the same for Enrollment and Cancellation
- Mandatory field: Course ID (enter the External Provider's system)

What the External Knowledge Provider needs to know:

CourseEnrollment & CourseEnrollmentCancellation REQUEST

Structure	Category	Type	Occurrence	Details
CourseEnrollmentRequest	Element	CourseEnrollmentRequestMessage		
MessageHeader	Element	BusinessDocumentMessageHeader	1	
ID	Element	BusinessDocumentMessageID	1	
CreationDateTime	Element	DateTime	1	
CourseEnrollmentRequest	Element	CourseEnrollmentRequest	1	
BuyerParty	Element	CourseBuyerParty	0..1	
BuyerID	Element	PartyPartyID	0..1	
SellerID	Element	PartyPartyID	0..1	
ContactPerson	Element	EnrollmentContactPerson	0..1	
BuyerID	Element	ContactPersonPartyID	0..1	
SellerID	Element	ContactPersonPartyID	0..1	
Address	Element	EnrollmentCPAddress	0..1	
PersonName	Element	PersonName	0..1	
GivenName	Element	xsd:string	0..1	maxLength="40"
Family	Element		0..1	
FamilyName	Element	xsd:string	1	maxLength="40"
FunctionalTitleName	Element	xsd:string	0..1	maxLength="40"
SellerParty	Element	CourseSellerParty	0..1	
BuyerID	Element	PartyPartyID	0..1	
SellerID	Element	PartyPartyID	0..1	
LearnerParty	Element	LearnerParty	1	
ID	Element	LearnerID	1	
PersonName	Element	PersonName	0..1	
GivenName	Element	xsd:string	0..1	maxLength="40"
Family	Element		0..1	
FamilyName	Element	xsd:string	1	maxLength="40"
EmailAddress	Element	EmailAddress	0..1	
Item	Element	CourseEnrollmentRequestItem	1..unbounded	
CourseEnrollmentID	Element	CourseEnrollmentID	0..1	
Course	Element	Course	1	
ID	Element	CourseID	1	
LanguageCode	Element	LanguageCode	0..1	
ParticipationDatePeriod	Element	ParticipationDatePeriod	0..1	
StartDate	Element	Date	0..1	
EndDate	Element	Date	0..1	



CourseEnrollmentRequest.xsd



CourseEnrollmentCancellationRequest_Out.xml



CourseEnrollmentRequest_Out.xml

Mandatory fields are: LearnerParty-ID; Course-ID

© SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP



- The external Knowledge Provider needs to know how the interface looks in detail and which fields are mandatory
- This is an example of the SAP system

What the External Knowledge Provider needs to know:

CourseEnrollment & CourseEnrollmentCancellation RESPONSE

Structure	Category	Type	Occurrence	Details
CourseEnrollmentConfirmation	Element	CourseEnrollmentConfirmationMessage		
MessageHeader	Element	BusinessDocumentMessageHeader	1	
ID	Element	BusinessDocumentMessageID	1	
CreationDateTime	Element	DateTime	1	
CourseEnrollmentConfirmation	Element	CourseEnrollmentConfirmation	1	
Item	Element	CourseEnrollmentConfirmationItem	1..unbounded	
CourseEnrollmentID	Element	CourseEnrollmentID	0..1	
AcceptanceStatusCode	Element	AcceptanceStatusCode	1	
Course	Element	Course	1	
ID	Element	CourseID	1	
LanguageCode	Element	LanguageCode	0..1	
ParticipationDatePeriod	Element	ParticipationDatePeriod	0..1	
StartDate	Element	Date	0..1	
EndDate	Element	Date	0..1	
Log	Element	Log	0..1	
MaximumLogItemSeverityCode	Element	LogItemSeverityCode	0..1	
Item	Element	LogItem	1..unbounded	
TypeID	Element	xsd:token	0..1	minLength="1"; maxLength="40"
SeverityCode	Element	LogItemSeverityCode	0..1	
Note	Element	xsd:string	1	maxLength="200"
WebAddress	Element	WebAddress	0..1	



CourseEnrollmentConfirmation.xsd

Mandatory fields are: AcceptanceStatusCode (RE=rejected/AP=approved); Course-ID

- The external Knowledge Provider needs to know how the interface looks in detail and which fields are mandatory
- This is an example of what will come from the External Provider

What the External Knowledge Provider needs to know:

CourseAccessUrl & LearningProgress REQUEST

Structure	Category	Type	Occurrence	Details
CourseQuery	Element	CourseQueryMessage		
MessageHeader	Element	BusinessDocumentMessageHeader	1	
ID	Element	BusinessDocumentMessageID	1	
CreationDateTime	Element	DateTime	1	
CourseQuery	Element	CourseQuery	1	
BuyerParty	Element	CourseBuyerParty	0..1	
BuyerID	Element	PartyPartyID	0..1	
SellerID	Element	PartyPartyID	0..1	
ContactPerson	Element	EnrollmentContactPerson	0..1	
BuyerID	Element	ContactPersonPartyID	0..1	
SellerID	Element	ContactPersonPartyID	0..1	
Address	Element	EnrollmentCPAddress	0..1	
PersonName	Element	PersonName	0..1	
GivenName	Element	xsd:string	0..1	maxLength="40"
Family	Element	xsd:string	0..1	
FamilyName	Element	xsd:string	1	maxLength="40"
FunctionalTitleName	Element	xsd:string	0..1	maxLength="40"
SellerParty	Element	CourseSellerParty	0..1	
BuyerID	Element	PartyPartyID	0..1	
SellerID	Element	PartyPartyID	0..1	
LearnerParty	Element	LearnerParty	1	
ID	Element	LearnerID	1	
PersonName	Element	PersonName	0..1	
GivenName	Element	xsd:string	0..1	maxLength="40"
Family	Element	xsd:string	0..1	
FamilyName	Element	xsd:string	1	maxLength="40"
EmailAddress	Element	EmailAddress	0..1	
Course	Element	Course	1	
ID	Element	CourseID	1	
LanguageCode	Element	LanguageCode	0..1	
CourseEnrollmentID	Element	CourseEnrollmentID	0..1	
SelectionDate	Element	Date	0..1	



CourseQuery.xsd



CourseAccessUrlQuery_Out.xml



LearningProgressQuery_Out.xml

Mandatory fields are: LearnerParty-ID; Course-ID

© SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP



- The external Knowledge Provider needs to know how the interface looks in detail and which fields are mandatory
- This is an example of the SAP system

What the External Knowledge Provider needs to know:

CourseAccessUrl RESPONSE

Structure	Category	Type	Occurrence	Details
CourseAccessUrlResponse	Element	CourseAccessUrlResponseMessage		
MessageHeader	Element	BusinessDocumentMessageHeader	1	
ID	Element	BusinessDocumentMessageID	1	
CreationDateTime	Element	DateTime	1	
CourseAccessUrlResponse	Element	CourseAccessUrlResponse	1	
AcceptanceStatusCode	Element	AcceptanceStatusCode	1	
WebAddress	Element	WebAddress	1	
Log	Element	Log	0..1	
MaximumLogItemSeverityCode	Element	LogItemSeverityCode	0..1	
Item	Element	LogItem	1..unbounded	
TypeID	Element	xsd:token	0..1	minLength="1"; maxLength="40"
SeverityCode	Element	LogItemSeverityCode	0..1	
Note	Element	xsd:string	1	maxLength="200"
WebAddress	Element	WebAddress	0..1	

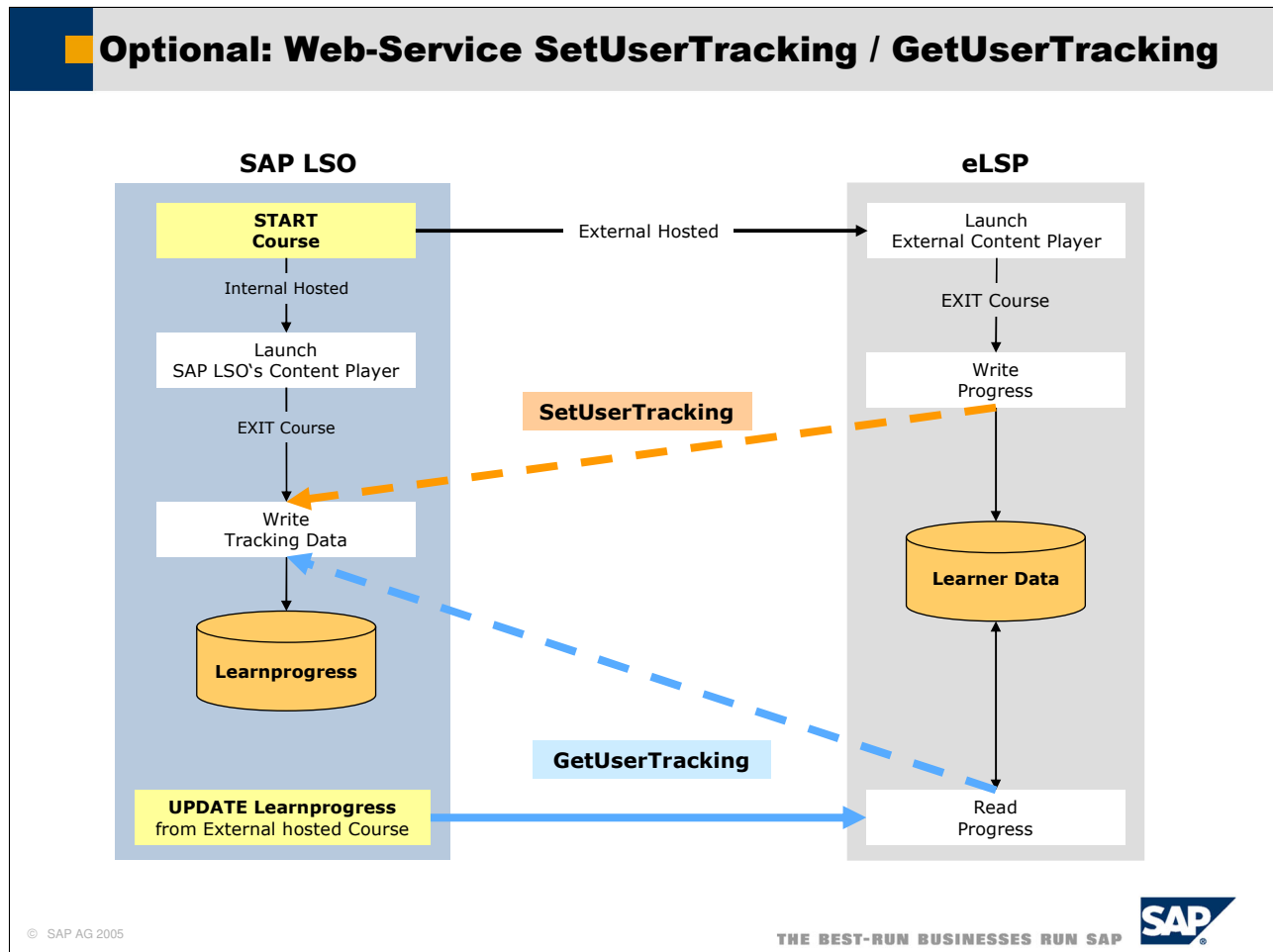


CourseAccessUrlResponse.xsd

Mandatory fields are: AcceptanceStatusCode (RE=rejected/AP=approved); WebAddress

- The external Knowledge Provider needs to know how the interface looks in detail and which fields are mandatory
- This is an example of what will come from the External Provider

Optional: Web-Service SetUserTracking / GetUserTracking



- For a Scenario with external Knowledge Provider usually the Process ,Get User Tracking‘ is relevant.
- If the external Knowledge Provider pushes Learning Data to the SAP System, the inbound interface for ,Set User Tracking‘ can be used.
- Basically, the SAP system reads the learning data from the external provider and then posts the data back to the SAP system.

What the External Knowledge Provider needs to know:

LearningProgress RESPONSE

Structure	Category	Type	Occurrence	Details
LearningProgressResponse	Element	LearningProgressMessage	1	
MessageHeader	Element	BusinessDocumentMessageHeader	1	
ID	Element	BusinessDocumentMessageID	1	
CreationDateTime	Element	DateTime	1	
LearningProgress	Element	LearningProgress	1	
Item	Element	LearningProgressItem	1..unbounded	
CourseEnrollmentID	Element	CourseEnrollmentID	0..1	
AcceptanceStatusCode	Element	AcceptanceStatusCode	1	
LearnerParty	Element	LearnerParty	1	
ID	Element	LearnerID	1	
PersonName	Element	PersonName	0..1	
GivenName	Element	xsd:string	0..1	maxLength="40"
Family	Element	xsd:string	0..1	maxLength="40"
FamilyName	Element	xsd:string	1	maxLength="40"
EmailAddress	Element	EmailAddress	0..1	
Course	Element	Course	1	
ID	Element	CourseID	1	
LanguageCode	Element	LanguageCode	0..1	
LearningProgressData	Element	LearningProgressData	1	
LearningStatus	Element	LearningStatus	0..1	
LearningDateTimePeriod	Element	LearningDateTimePeriod	0..1	
FirstAccessDateTime	Element	FirstAccessDateTime	0..1	
LastAccessDateTime	Element	DateTime	0..1	
LearningDuration	Element	Duration	0..1	
LearningProgress	Element	LearnProgress	0..1	
LearningResult	Element	LearningResult	0..1	
LearningScore	Element	LearningScore	0..1	
ScoreReachedValue	Element	ScoreReachedValue	0..1	
ScoreMinimum	Element	ScoreMinimum	0..1	
ScoreMaximum	Element	ScoreMaximum	0..1	
AccessCounterValue	Element	CounterValue	0..1	
Log	Element	Log	0..1	
MaximumLogItemSeverityCode	Element	LogItemSeverityCode	0..1	
Item	Element	LogItem	1..unbounded	
TypeID	Element	xsd:token	0..1	minLength="1", maxLength="40"
SeverityCode	Element	LogItemSeverityCode	0..1	
Note	Element	xsd:string	1	maxLength="200"
WebAddress	Element	WebAddress	0..1	

Mandatory fields are: AcceptanceStatus (RE=rejected/AP=approved); Course-ID



LearningProgressResponse.xsd

© SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP



- The external Knowledge Provider needs to know how the interface looks in detail and which fields are mandatory

- **learning_status**

' Course not yet started

- 1 Course started
- 2 Course ended
- 3 Course followed up / completed / confirmed

- **learning_result**

' No Result

- 0 Fail
- 1 Pass

What the External Knowledge Provider needs to know:

LearningProgress POST

Structure	Category	Type	Occurrence	Details
LearningProgressNotification	Element	LearningProgressNotificationMessage		
MessageHeader	Element	BusinessDocumentMessageHeader	1	
LearningProgressNotification	Element	LearningProgressNotification	1	
CourseBuyerParty	Element	CourseBuyerParty	1	
BuyerID	Element	PartyPartyID	0..1	
SellerID	Element	PartyPartyID	0..1	
ContactPerson	Element	EnrollmentContactPerson	0..1	
BuyerID	Element	ContactPersonPartyID	0..1	
SellerID	Element	ContactPersonPartyID	0..1	
Address	Element	EnrollmentCPAddress	0..1	
PersonName	Element	PersonName	0..1	
GivenName	Element	xsd:string	0..1	maxLength="40"
Family	Element	xsd:string	0..1	
FamilyName	Element	xsd:string	1	maxLength="40"
FunctionalTitleName	Element	xsd:string	0..1	maxLength="40"
CourseSellerParty	Element	CourseSellerParty	1	
BuyerID	Element	PartyPartyID	0..1	
SellerID	Element	PartyPartyID	0..1	
LearningProgress	Element	LearningProgress	1	
Item	Element	LearningProgressItem	1..unbounded	
CourseEnrollmentID	Element	CourseEnrollmentID	0..1	
AcceptanceStatusCode	Element	AcceptanceStatusCode	1	
LearnerParty	Element	LearnerParty	1	
ID	Element	LearnerID	1	
PersonName	Element	PersonName	0..1	
GivenName	Element	xsd:string	0..1	maxLength="40"
Family	Element	xsd:string	0..1	
FamilyName	Element	xsd:string	1	maxLength="40"
EmailAddress	Element	EmailAddress	0..1	
Course	Element	Course	1	
ID	Element	CourseID	1	
LanguageCode	Element	LanguageCode	0..1	
LearningProgressData	Element	LearningProgressData	1	
LearningStatus	Element	LearningStatus	0..1	
LearningDateTimePeriod	Element	LearningDateTimePeriod	0..1	
FirstAccessDateTime	Element	FirstAccessDateTime	0..1	
LastAccessDateTime	Element	DateTime	0..1	
LearningDuration	Element	Duration	0..1	
LearningProgress	Element	LearnProgress	0..1	
LearningResult	Element	LearningResult	0..1	
LearningScore	Element	LearningScore	0..1	
ScoreReachedValue	Element	ScoreReachedValue	0..1	
ScoreMinimum	Element	ScoreMinimum	0..1	
ScoreMaximum	Element	ScoreMaximum	0..1	
AccessCounterValue	Element	CounterValue	0..1	
Log	Element	Log	0..1	

Mandatory fields are: LearnerParty-ID; Course-ID

© SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP



LearningProgressNotification.xsd



LearningProgressNotification_In.xml

- The external Knowledge Provider needs to know how the interface looks in detail and which fields are mandatory

■ learning_status

'Course not yet started

1 Course started

2 Course ended

3 Course followed up / completed / confirmed

■ learning_result

'No Result

0 Fail

1 Pass



■ **Overview/Background**

■ **Interface**

■ **Learning Portal view**

© SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP 

Learning Portal view

browsing the course catalog in the Learning Portal of the Learning Solution

The screenshot displays the SAP Learning Portal interface. At the top, there's a browser window titled 'DigitalThink L5 Delivery - Microsoft Internet Explorer provided by SAP IT'. The main content area shows a course catalog with a 'book' annotation. Below this, a detailed view of the course 'Red Hat Linux Networking Services (a)' is shown, with a 'track' annotation. The 'My Training Activities' section features a table with columns for Course, Schedule, Learning Progress, and Start. A 'launch' annotation points to the 'Start now' button in the 'Start' column.

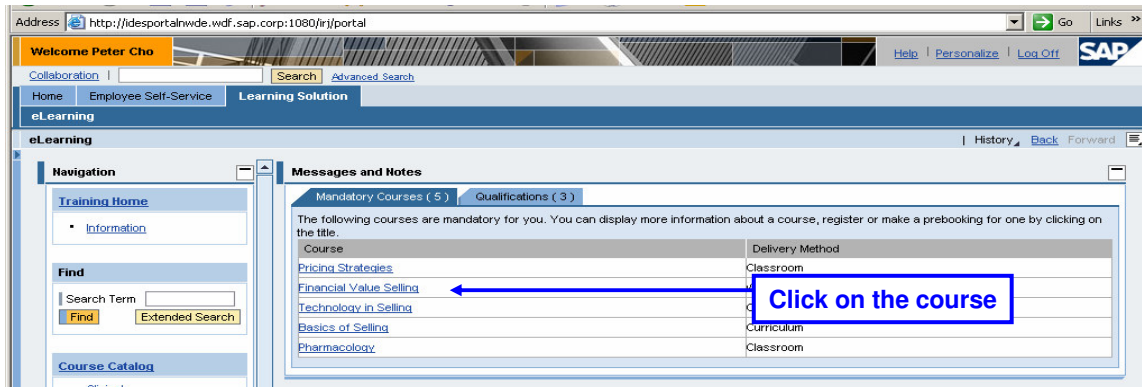
Course	Schedule	Learning Progress	Start
Introduction to Red Hat Linux	Released until Unlimited	Accesses 0 Progress 100% Duration 0 min	Start now Start now

© SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP

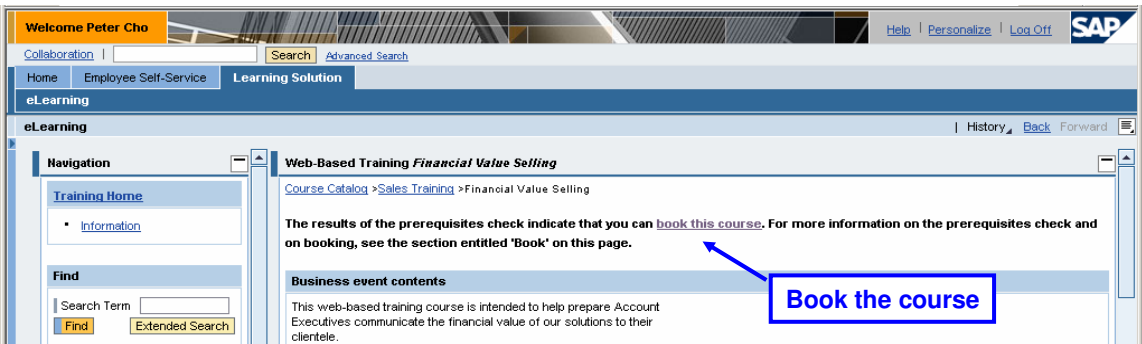
- The Learner can work in his familiar user interface – the Learning Portal of the SAP Learning Solution.
- The Learner can – depending on the supported services – book, cancel and launch external courses and can retrieve learning progress from the external system.

Screenshot of Course Booking



This screenshot shows the SAP eLearning interface. The user is logged in as Peter Cho. The page displays a list of mandatory courses. A blue box highlights the 'Financial Value Selling' course, with an arrow pointing to it and the text 'Click on the course'.

Course	Delivery Method
Pricing Strategies	Classroom
Financial Value Selling	Classroom
Technology in Selling	Classroom
Basics of Selling	Curriculum
Pharmacology	Classroom



This screenshot shows the SAP eLearning interface for the 'Financial Value Selling' course. The page displays the course details and a message indicating that the prerequisites check is successful. A blue box highlights the 'Book this course' link, with an arrow pointing to it and the text 'Book the course'.

Web-Based Training *Financial Value Selling*

Course Catalog > Sales Training > Financial Value Selling

The results of the prerequisites check indicate that you can [book this course](#). For more information on the prerequisites check and on booking, see the section entitled 'Book' on this page.

Business event contents

This web-based training course is intended to help prepare Account Executives communicate the financial value of our solutions to their clientele.

© SAP AG 2005

THE BEST-RUN BUSINESSES RUN SAP



- Note: the Application Expert should provide the XI Expert with a Test case for the external course or external WBT.

Screenshot of the Learning Progress

©2004 by SAP AG

Learning My ESS Home

Welcome Maria Jordan

Search Personalize Page Portal Log Off Add To Favorites

Learning

Object Handling

Course Catalog

- Core Employee Development
- Core Employee Development
- Environmental Training
- Handheld Tools
- Technical Training
- Information Systems
- JetBlue Training Catalog
- Languages
- Management and Leadership Development
- Sales & Marketing Workshops
- SAP Technology Training
- SAP Learning Solution
- Sales Network Trainings
- Training Korea
- Culture & Development

My Learner Account

- Training Activities
- Course Prebookings
- My Favorites
- Qualifications Profile
- Profile Matchup
- Settings

Fee

50.00 EUR

Training Provider

- Development and Training Admin - (US)

Learning Progress

Booking Date	06/03/2003
Licensed as of	06/03/2003
Day of first course access	06/20/2003
Course last accessed on:	08/19/2004
Total Completion Time To Date	227 Minutes
Completed Learning Objects	67%
Course Completion Progress	67%
Target Achievement	74%
Learning Status	The course has not yet been passed.

My Favorites

[Add Course to Favorites](#)

Start Course

[Start Course Now](#)

More information

Public information about XI:

<https://www.sdn.sap.com/irj/sdn/developerareas/xi>

Partner and customer information about SAP Learning Solution
(OSS User and Password required):

<http://service.sap.com/learningsolution>

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft, Windows, Outlook, and PowerPoint are registered trademarks of Microsoft Corporation.

IBM, DB2, DB2 Universal Database, OS/2, Parallel Sysplex, MVS/ESA, AIX, S/390, AS/400, OS/390, OS/400, iSeries, pSeries, xSeries, zSeries, z/OS, AFP, Intelligent Miner, WebSphere, Netfinity, Tivoli, and Informix are trademarks or registered trademarks of IBM Corporation in the United States and/or other countries.

Oracle is a registered trademark of Oracle Corporation.

UNIX, X/Open, OSF/1, and Motif are registered trademarks of the Open Group.

Citrix, ICA, Program Neighborhood, MetaFrame, WinFrame, VideoFrame, and MultiWin are trademarks or registered trademarks of Citrix Systems, Inc.

HTML, XML, XHTML and W3C are trademarks or registered trademarks of W3C®, World Wide Web Consortium, Massachusetts Institute of Technology.

Java is a registered trademark of Sun Microsystems, Inc.

JavaScript is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.

MaxDB is a trademark of MySQL AB, Sweden.

SAP, R/3, mySAP, mySAP.com, xApps, xApp, SAP NetWeaver and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other product and service names mentioned are the trademarks of their respective companies. Data contained in this document serves informational purposes only. National product specifications may vary.

The information in this document is proprietary to SAP. No part of this document may be reproduced, copied, or transmitted in any form or for any purpose without the express prior written permission of SAP AG.

This document is a preliminary version and not subject to your license agreement or any other agreement with SAP. This document contains only intended strategies, developments, and functionalities of the SAP® product and is not intended to be binding upon SAP to any particular course of business, product strategy, and/or development. Please note that this document is subject to change and may be changed by SAP at any time without notice.

SAP assumes no responsibility for errors or omissions in this document. SAP does not warrant the accuracy or completeness of the information, text, graphics, links, or other items contained within this material. This document is provided without a warranty of any kind, either express or implied, including but not limited to the implied warranties of merchantability, fitness for a particular purpose, or non-infringement.

SAP shall have no liability for damages of any kind including without limitation direct, special, indirect, or consequential damages that may result from the use of these materials. This limitation shall not apply in cases of intent or gross negligence.

The statutory liability for personal injury and defective products is not affected. SAP has no control over the information that you may access through the use of hot links contained in these materials and does not endorse your use of third-party Web pages nor provide any warranty whatsoever relating to third-party Web pages.