# Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub

Skill Level: Intermediate

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# Abstract

This tutorial takes you through the steps to generate a feed from an IMS transaction and to incorporate the feed into a Web 2.0 application by using IBM Rational® Developer for System z® and IBM Mashup Center.

# About this tutorial

This tutorial shows you how to use the Enterprise Service Tools (EST) wizard in IBM Rational Developer for System z and IBM Mashup Center to transform and modernize your IMS applications.

IBM Mashup Center includes two components:

- InfoSphere<sup>™</sup> MashupHub is a browser-based visual tool for creating, storing, transforming, and remixing feeds to be utilized in mashup and situational applications.
- Lotus® Mashups is a browser-based visual tool for mashing information from various sources into a single view of information to create a flexible and dynamic application. IMS feeds and other widgets can be arranged to create a rich user interface.

In this tutorial, you will learn how to:

- Use the EST wizard to generate the service artifacts, including the COBOL converter and the XML correlator from the IMS application source file
- Enable the IMS application as a service feed provider running on InfoSphere MashupHub
- Use Lotus Mashups to create a Web application from IMS feed and other widgets

## **Objectives**

To understand and gain hands on experience creating web applications from IMS assets using IBM Web 2.0 solutions. Web 2.0 enables users with little to no programming experience to create applications using the Web itself as a platform, therefore reducing development time and education costs.

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Upon completion of this study, you will be able to:

- Use Rational Developer for System z and its EST wizard to generate the required service artifacts for an IMS Web 2.0 project
- Use InfoSphere MashupHub and Lotus Mashups to create and transform an IMS feed and to create a dynamic Web application.

# System requirements for the tutorial:

- Software installed on Windows®
  - Rational Developer for System z Version 7.5
- System software installed on IBM z/OS®
  - IMS Version 10
  - o IMS Connect Version 10 with XML Adapter configured
  - o OTMA
  - o TCP/IP

## **Checklist for first-time implementation**

You may find it helpful to have the following checklist available before proceeding with your own implementation for the first time.

A tutorial checklist is provided for this exercise.

	Your environment	This tutorial:
COBOL copybook	This can be obtained from IMS application programmers.	C:\IMS Web 2.0 PhoneBook \IMSPHBW.cpy
IMS Connect host name (or IP address) and port number	This can be obtained from IMS system programmers.	Host name: ZSERVEROS.DFW.IBM.COM Port number: 9999
IMS data store	This can be obtained from IMS system programmers.	IMSC
Workspace directory and project name will be used by Rational Developer for System z when generating artifacts.	A naming standard is recommended.	Workspace directory: C: \Workspaces7.5\SANDBOX Project name: SampleFeedApp

 Table 1. Checklist for information and files you need for implementation

# **Overview of development tasks**

To complete this tutorial you will perform the following tasks:

#### • Task 1. Create an IMS Feed

- **Step 1.** Generate the XML converter driver and the correlator file by using the EST wizard in Rational Developer for System z
  - The XML converter driver is generated based on the IMS application source file that describes the input and output language structure. The driver must be deployed to IMS Connect. IMS Connect has an XML adapter function that converts the request and response messages between XML and bytes based on the specified XML converter driver.
  - The correlator file contains information about the transaction (such as transaction code and XML converter driver name) as well as a list of input parameters that the IMS application accepts. InfoSphere MashupHub needs this information in order to communicate with IMS and the application.
- Step 2. Deploy the XML converter driver file
- Step 3. Enable the IMS feed service using the InfoSphere MashupHub

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- Task 2. Create a mashup. Use Lotus Mashups to create a Web mashup from the IMS feed and other widgets
  - Step 1. Adding an IMS feed to Lotus Mashups
  - Step 2. Adding components (IMS feed and other widgets) to a mashup page
  - Step 3. Wiring the components on the page
- **Optional Task** Modify IMS feed to improve user experience

Figure 1 shows how various tools interact to help you accomplish the tutorial tasks.



Figure 1. Using Rational Developer for System z and IBM Mashup Center to accomplish lab objectives

# Task 1. Create an IMS Feed

# Step 1: Generating the XML converter driver and the correlator file by using the EST wizard in Rational Developer for System z

# 1-1. Using Rational Developer for System z and the Enterprise Service Tools perspective

1.1 The IBM Rational Developer for System z V 7.5 is started and you are using the Workspaces7.5 \SANDBOX



### **1-2.** Switching to the Enterprise Service Tools perspective

Switch from the default z/OS Projects perspective to the **Enterprise Service Tools** perspective. Within Eclipse, there are several ways to change perspectives.

1. From the Window menu, select **Open Perspective**  $\rightarrow$  **Other**.



Figure 2. Opening a perspective in RDz

2. Select Enterprise Service Tools from the Open Perspective dialog box.



Figure 3. Choosing the Enterprise Service Tools perspective

3. Press **OK** to switch to the **Enterprise Service Tools** Perspective.

What is a perspective? A perspective defines the initial set and layout of views in the Workbench window. Within the window, each perspective shares the same set of editors. Each perspective provides a set of functionality aimed at accomplishing a specific type of task or works with specific types of resources. For example, the Java™ perspective combines views that you would commonly use while editing Java source files, while the Debug perspective contains the views that you would use while debugging Java programs.

#### 1-3. Creating a new IMS Web 2.0 project using RDz

1. From the EST Project Explorer window, right click and select New  $\rightarrow$  IMS Web 2.0 Project.



Figure 4. Starting the IMS Web 2.0 Project

What is Web 2.0? Web 2.0 is the business revolution in the computer industry caused by the move to the Internet as a platform. Web 2.0 empowers users to manipulate data and combine various services into a single Web experience.

2. Specify the **Project name**:

💽 New IMS Web 2.0 Pr	oject	_ 🗆 🗙
Create an IMS Web	2.0 Project	
You can use this project t	o hold IMS Web 2.0 application components.	
(圖 Project name: Sam	pleFeedApp	
Options		
Development scenario:	Create New Service Interface (bottom-up)	-
Application mode:	Service Provider	-
Conversion type:	Compiled XML Conversion	-
Scenario description:		
Generate a Web servic processing from a high option when you expos	e description and runtime specific XML message level language data structure. You can use this se an application program as a service provider.	A V
?	Back Next > Finish	Cancel

Figure 5. Specifying the project name

- 3. Accept the default options as shown in the above screen capture and click Next.
- 4. Import the source program for the generation. In this tutorial, import the source from the local file system by clicking **File System**.



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Figure 6. Importing source files menu

5. Find the file C:\IMS Web 2.0 Phonebook\IMSPHBW.cpy and click Open.

Open					? ×
Look in:	MS Web 2.0	Phonebook	•	📀 🔊 😕 🖽	-
My Recent Documents	<b>Ϊ</b> MSPHBW.cpy				
My Documents					
My Computer					
My Network Places	File name: Files of type:	IMSPHBW.cpy		<b>•</b>	Open Cancel

Figure 7. The Open file dialog

6. Click **Finish**, as shown in the following figure.

💽 New IMS Web	2.0 Project	
Import source Import source file	<b>files</b> s from the workspace, filesyste	m and remote host
Source files to ir	nport	Import from:
C:\IMS Web 2.	) Phonebook\IMSPHBW.cpy	File System
		Workspace
		Remote
		Remove
C Overwrite exis	ting resources without warning	
(?)	< Back Next >	Finish Cancel

Figure 8. The Import source files menu

7. (*Optional*) In the **EST Project Explorer**, right click **IMSPHBW.cpy** and select **Open**, as shown in the following figure. This will open the COBOL data structure from which the service will be generated (as shown in Figure 10).



Figure 9. Opening the COBOL source file

Line 31 Column 1 Insert +-*A-1-B+2+3+4+5+6
+-*A-1-B+2+3+4+5+6
01 INPUT-MSG.
02 IN-LL PICTURE S9(3) COMP.
02 IN-ZZ PICTURE S9(3) COMP.
02 IN-TRCD PICTURE X(10).
02 IN-CMD PICTURE X(8).
02 IN-NAME1 PICTURE X(10).
02 IN-NAME2 PICTURE X(10).
02 IN-EXTN PICTURE X(10).
02 IN-ZIP PICTURE X(7).
01 OUTPUT-MSG.
02 OUT-LL PICTURE S9(3) COMP VALUE +0.
02 OUT-ZZ PICTURE S9(3) COMP VALUE +0.
02 OUT-MSG PICTURE X(40) VALUE SPACES.
02 OUT-CMD PICTURE X(8) VALUE SPACES.
02 OUT-NAME1 PICTURE X(10) VALUE SPACES.
02 OUT-NAME2 PICTURE X(10) VALUE SPACES.
02 OUT-EXTN PICTURE X(10) VALUE SPACES.
02 OUT-ZIP PICTURE X(7) VALUE SPACES.
02 OUT-SEGNO PICTURE X(4) VALUE SPACES.

Figure 10. COBOL source

8. Right-click the project and select Generate IMS Web 2.0 resources.

Enterprise Service Tools - SampleFeedApp/Source/IMSPHBK	K.cpy - IBM Rational Developer for System
File Edit Navigate Search Project Run Window Help	
] 📫 • 🔛 👜 ] 💁 • ] 🥖 ] 🖋 • ] 🖢 - 🕅 • 🤄 🗸	▶ • ⇒ • ] 🖑 💝   • • ●   ▲
🕼 EST Project Explorer 🛛 😤 🎦 🗖	Welcome to z/OS Projects 🛛 🚺 Welcom
🗆 🎼 SampleFeedApp	Line 31 Column 1
🖻 🗁 Source New 🕨	+-*A-1-B+2+-
IMSPHB* Import	01 INPUT-MSG.
E-Generation	02 IN-LL
Open Welcome Page	02 IN-ZZ
✓ Refresh	02 IN-TRCD
V Reinean	02 IN-CMD
💢 Delete	02 IN-NAME1
🐻 Cenerate IMS Web 2.0 resources	02 IN-NAME2
Kor Generate 1MS web 2.0 resources	02 IN-EXTN
Team N P	02 IN-ZIP
Compare With	
Properties	01 OUTPUT-MSG.
Froperues	02 OUT-LL
	02 OUT-ZZ

Figure 11. Selecting Generate IMS Web 2.0 resources

9. On the first page of the wizard, specify the data structures to be used for service request and response, as shown on Figures 12 and 13. Click **Next**.

IMS Web 2.0 - Create New 9	Service Interfa	ace (bottom-u	p)	_ 🗆 🗙
Language structures The language structures have be Specify request, response or bot	en imported. h language struc	tures.		
Request Language Structure for Select a language structure for IN-UT-MSG IN-U IN-TRCD IN-TRCD IN-TRCD IN-TRCD IN-TRCD IN-NAME1 IN-NAME2 IN-NAME2 IN-EXTN IN-EXTN IN-EXTN IN-ZIP IN-ZIP IN-ZIP IN-ZIP IN-ZIP	e Respon	se Language Stru ssage:	icture	
Change COBOL Preferences				
0	< Back	Next >	Finish	Cancel

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#### Figure 12. Specifying the Request Language Structure

IMS Web 2.0 - Create New Service Interface (bottom-up)	_ 🗆 ×
Language structures	
The language structures have been imported. Specify request, response or both language structures.	
🔲 Request Language Structure	
Select a language structure for the response message:	
INPUT-MSG         OUTPUT-MSG         OUT-LL         OUT-ZZ         OUT-MSG         OUT-CMD         OUT-NAME 1         OUT-NAME 2         OUT-EXTN         OUT-ZIP         OUT-SEGNO	
Change COBOL Preferences	
O < Back Next > Finish	Cancel

Figure 13 Specifying the Response Language Structure

10. In this tutorial, do not change any Generation options (Figure 14). Click Next.

AME COnverters	XML Sch	nemas 📔 Advanced Options 💧
Specify identificatio	on attributes	
Converter program	name prefix:	IMSPHBW
Author name:		WD4Z
Service program na	me:	IMSPHBW
Specify Enterprise ( Compiler level:	COBOL for z/	OS properties
Specify Enterprise ( Compiler level: XMLPARSE option: Ø Optimization	COBOL for z/ 4.1 COMPAT En	/OS properties
Specify Enterprise ( Compiler level: XMLPARSE option: Optimization	COBOL for z/ 4,1 COMPAT En	OS properties
Specify Enterprise ( Compiler level: XMLPARSE option: Optimization Specify character e Request code page	COBOL for z/ 4,1 COMPAT En encodings	/OS properties
Specify Enterprise ( Compiler level: XMLPARSE option: Optimization Specify character e Request code page Host code page:	COBOL for z/ 4.1 COMPAT En encodings : 1208 Un 1140 US	IdS properties

Figure 14. The Generation Options screen

11. Specify the name of the transaction that provides the service (IVTNO). Click Next.

IMS Web 2.	0 Correlator file	
-Specify target	s for the IMS Web 2.0 Correlator	file
Generate to:		location
File container:	/SampleFeedApp/Generation/T	Targets Browse
File name:	IMSPHBW	.xml
	Verwrite	
Specify IMS C	onnect interaction properties	
Transaction co	de: IVTNO	
Socket timeou	: 0	(in milliseconds)
Execution time	out: 0	(in milliseconds)

Figure 15. Specifying the transaction code

**Socket timeout** is the time in milliseconds for the server to receive a response from IMS Connect before disconnecting the socket. A value of 0 indicates that you want an interaction to run without a time limit.

**Execution timeout** is the time in milliseconds for IMS Connect to send a message to IMS and receive the response. A value of 0 indicates that you want to the timeout value that is specified in the IMS Connect configuration member.

12. Do not change any file generation options for this tutorial. Click Finish.

J XML Converters	as 🔲 Properties 🛛	
Select targets for the XML conversi	on programs	
Generate to:	• Same project C Re	E.
Converter file container:	/SampleFeedApp/Gener	Browsen
Converter driver file name:	IMSPHBWD	.cbl
Request Converter file name:	IMSPHBWD	.cbl
₩ Response Converter file name:	IMSPHBWD	.cbl
	Generate all to driver	

Figure 16. File generation options

The service artifacts are generated in the targets folder, as shown in the following figure.

Enterprise Service Tools - SampleFeedApp/Source/IMSPH	BW.	cpy - IBM Ration	al Developer for Syst
File Edit Navigate Search Project Run Window Help			
📬 • 📄 💩   💊 •   🌛   🔗 •   🛬 • 🖗 -	¢	• ÷ • ] 🖑 🤇	🔆   🗉 💿 🕨   .
🕼 EST Project Explorer 😫 😤 Navigator 📄 🤹 🍟 🗖		Welcome to EST	IMSPHBW.cpy
🖃 🎆 SampleFeedApp		Line 47	Column 96
🕀 🗁 Source		+-*A-1-	B+2+
🗄 🗁 Generation		01	INPUT-MSG.
Container.xml			02 IN-LL
PlatformProperties.xml			02 IN-ZZ
ServiceSpecification.xml			02 IN-TRCD
🖃 🗁 Targets			02 IN-CMD
IMSPHBW.xml			02 IN-NAME1
IMSPHBWD.cbl			02 IN-NAME2
IMSPHBWI.xsd			02 IN-EXTN
IMSPHBWO.xsd			02 IN-ZIP
		01	OUTPUT-MSG.



**IMSPHBW.xml** is the **XML correlator** file. It is to be deployed to the **InfoSphere MashupHub**.

Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved. 16 of 80 IMSPHBWD.cbl is the XML converter which is to be built and deployed to IMS Connect.

### Step 2: Deploying the XML converter driver file

For this tutorial, the IMSPHBWD.cbl XML converter file has been deployed to IMS Connect for you, so no action is needed.

For your own implementation in your environment, you would need to:

- 1. Ensure that the XML adapter function in IMS Connect is properly configured.
- 2. FTP the XML converter driver to your host data set.
- 3. Compile and link the XML converter driver into a data set that is concatenated to the STEPLIB in the IMS Connect startup JCL.

## Step 3: Enabling the IMS feed service using the InfoSphere MashupHub

- 1. Start InfoSphere MashupHub.
  - 1.1 Select Start  $\rightarrow$  Programs  $\rightarrow$  IBM Mashup Center  $\rightarrow$  Start Server. A console opens that displays informational messages about the status.
  - 1.2 After waiting for initialization status, the console indicates that the server is open for ebusiness, and you are prompted to press any key to continue. This may take a few minutes. Press **Enter**.
  - 1.3 Select Start → Programs → IBM Mashup Center → InfoSphere MashupHub. A Web browser will launch.
  - 1.4 If a security alert window pops up with some information about the security certificates and asks you if you want to proceed, click Yes.A login screen for the InfoSphere MashupHub displays, as shown in the following figure.

🖉 InfoSphere MashupHul	b Login - Windows Internet Explorer			
🚱 🕤 👻 🛃 https://lo	calhost:9448/mashuphub/client/auth/login.jsp		🔽 🍫 🗙 Google	<b>₽</b> -
🔆 🍄 🌈 InfoSphere M	lashupHub Login		🟠 • 🗟 • 🖷	🔹 🞲 Page 🔹 🎯 Tools 🔹 🎇
				<u> </u>
			IBM.	
	lafe Calcara Masharallah	<b>.</b>		
	InfoSphere Mashuphub	Sign In		
	Create. Catalog. Search. Publish.	*User ID:		
		*Password:		
		Sign In		
	3050	Jightin		
	~~~~			
	·····			
				<b>_</b>
Done			Trusted sites	s 🔍 100% 👻 //,

Figure 18. InfoSphere MashupHub login screen

- 2. Sign in using the following information:
  - User ID: admin
    - Password: password Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved.

Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved. 18 of 80 3. Once signed in, select New Feed under the Create group, as shown in the following figure.



Figure 19. Selecting New Feed

4. Select IMS Transaction and click Next.

Home Settings 🛛 Hel	p × New Feed ×
Select t	he feed data source.
*Source:	enterprise DB2 XML Columns (pureXML) Domino Server IBM Information Server IMS Transaction LDAP Directory Relational Database Query (SQL) SAP Application Functions Tivoli Directory Integrator Web Service departmental Access Data File Comma Separated Value File Excel Workbook Existing RSS or Atom Feed (Registration) XML Document
$(P_{1}, P_{2})$	Previous Cancel Next

Figure 20. Selecting IMS Transaction as the feed data source

Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved. 19 of 80 A new tab with a randomly generated feed number displays, as shown in the following figure. Note that the feed number you see is likely going to be different from the one shown in the screen capture.

5. Specify **Host Name, Port number, Data Store Name** and **XML File** as shown in the following figure. Use the following values:

Host Name or IP Address: ZSERVEROS.DFW.IBM.COM Port: 9999 Data Store Name: IMSC

The **XML File** (correlator file) generated from your IMS Web 2.0 project can be found at the following location:

Home	Feed 30 🖾		All	<u> </u>
	💑 Create an IMS Feed			
	IMS Host Information:			
	* Host Name or IP Address:	ZSERVEROS.DFW.IBM.COM		
	* Port:	9999 The range is 1 to 65535.		
	* Data Store Name:	IMSC		
	IMS Info 2.0 Correlator:			
	* XML File:	App\Generation\Targets\IMSPHBW.xml	rowse	

Figure 21. Specifying Feed properties

- 6. Do not specify Security Credentials for this tutorial. Click Next.
- 7. Next, specify the information to expose in this feed, and provide default values for these parameters, as shown in the following figure.

Home Settings 🛪 Help 🛪 Feed 31 🛛				
🕂 Create an IMS Feed				
<b>Customize the input parameters for the feed.</b> Hidden parameters will always use the default values that you specify here. For exposed parameters, if a value is passed in when the feed is invoked, it will override the default value.				
Parameter Name Hid	de 🥅 Default Value			
in_ll				
in_zz				
in_trcd				
in_cmd				
in_name1	SMITH			
in_name2				
in_extn				
in_zip				
Previous Cancel	Next			

Figure 22. Specifying Feed parameters

Parameters that you specify to hide in this page will not be exposed to feed users. In this tutorial:

- We want to hide the LL and ZZ information in the input message from our users.
- We want to hide the transaction code from feed users, but we do want to specify the transaction code for this feed. Otherwise, the feed will not work.
- We are allowing feed users to specify what information (first name, lastname, phone extension, or zip code) they want to look up (DISPLAY is the default value unless the users specify otherwise).

8. Finally, provide a title and description for this feed.

Home	Feed 31 🛛				
	Specify the	following in	nformation		
	* Title:	Sample Food App			
		Sample reed App			
-	* Description:	Sample Feed		4	
	* Version:	1.0			
	Tags:				
	Permissions:	Public (All users)	s can view the feed)		
		O Private (Feed is	s invisible to all other users)		
		C Custom (Custo	m permission settings)		
	Advanced:	Categories		0	
		Related entries alr	eady in the catalog	0	
		Technical Docume	ntation	0	
		Caching data		0	
	[	Previous	ancel Finish		

Figure 23. Specifying Feed title and description

9. The feed is created. Click View feed to test it, as shown in the following figure.

Home	Sample Feed App 🛛					
	Feed successfully saved					
	The feed named Sample Feed App has been saved in the catalog.					
2	What's Next2					
	what's Next?					
	View feed					
	View feed details					
	Edit feed details					
	Edit feed source					
	Create another feed					
	Close Tab					

#### Figure 24. Feed successfully created

10. Customize the parameters for your request, and click **Submit**, as shown in the following figure.

Home Sample Feed App	Parameters 🛛
👬 Please e	nter parameters for this feed.
in output	
in_extn:	
in_cmd:	DISPLAY
in_name1:	SMITH
in_name2:	
ın_zıp:	
	Submit
	°

Figure 25. Testing the feed

11. Take a look at the source of the feed to verify that the correct information is retrieved (You can right click in the browser window and select **View Source**, as shown in the following two screen captures.)



Figure 26. Selecting "View Source" to show the information returned by the feed



Figure 27. Correct information returned by the feed

**Congratulations!** You have successfully created a feed in InfoSphere MashupHub that accesses the phonebook application and retrieves the phonebook entry for SMITH.

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#### XML format for a feed

Each feed has an outmost element of <feed>. Each feed has:

- An <id> element that contains the URL in the MashupHub catalog that is assigned to the feed.
- A <subtitle> element that contains the description of the feed that is specified when the feed is created.
- A <title> element that contains the title of the feed that is specified when the feed is created.
- An <entry> element that contains the content that a feed viewer displays.
- The title is always Item 1 for an IMS feed.
- The <content> element contains the actual data from the feed. Inside the <content> element:
   There is only one occurrence of the <RepeatingElement> element.
  - The repeating element contains the <ResponseMessage> element that holds the data.

# Task 2. Create a mashup

### Objective

Use **IBM Lotus Mashups** to create a simple web application (also referred to as a "**mashup**") from the IMS phone book feed and other components. The application should enable users to look up a person's record in the phone book by entering his or her last name.

What is a mashup? A mashup is a web application that combines data from more than one source into a single integrated tool. The term mashup implies easy, fast integration of widgets, feeds and other data sources to produce results that were not the original goal of the data owners. An example is the use of cartographic data from Google Maps to add location information to real-estate data, thereby creating a new and distinct web service that was not originally provided by either source.

The following figure shows what we would like to create to utilize the IMS Phonebook feed. We would like to allow the users to enter the last name of the person to look up in the phonebook, and the mashup application will return the information for that person. When users click the zip code, and application will display a map for the area for that zip code.

Last name:	Simpson		Submit	Ð	NW Dustin Ln NW Cambray	Any Weaker Rd	
				9	NW Hentage Loop NWT ara S SW Heritage	SMN Strong SMN	emard A
Phonebook	Feed			ativ	dine St	Sw Sw	Stark St
Phonebook	Feed out_name2	out_extn	out_zip	centre Ri	dge St grand and g	7006 Sw	Stark St
Phonebook out_name1 SIMPSON	Feed out_name2 ANNA	out_extn	<b>out_zip</b> 97006	cartm Ri ≹ ter → <sup>ca</sup>	dge St st <sup>40</sup> SW11 OI US	SW 2006 Saverton ashington regon 3	Stark St.

Figure 28. A Web mashup application that uses the IMS phone book feed

## Step 1: Adding an IMS feed to Lotus Mashups

1. Start Lotus Mashups by selecting Start  $\rightarrow$  Programs  $\rightarrow$  IBM Mashup Center  $\rightarrow$  Lotus Mashups. A login screen for the Lotus Mashups displays in a new tab in the browser window, as shown on the following figure.

2	Lotus Mashups Remix Content. Uncover Insights. Lotus Mashups provides the simplest and fastest way to assemble enterprise and Internet content into new web applications, unleashing productivity and supporting new insights.	User ID: Password:	Sign in	
---	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------	---------	--

Figure 29. Lotus Mashups login screen

- 2. Sign in using the following information, if you are presented with the signin page:
  - User ID: admin
  - Password: password
- 1. Once signed in, switch back to the **InfoSphere MashupHub** for the moment by clicking its tab in the browser.
- 2. If you left **InfoSphere MashupHub** exactly as it was at the end of the previous part of the tutorial, your screen should look similar to the one in Figure 25, with a tab that says "Sample Feed App".
  - If this is the case, click the **"Sample Feed App"** tab, then click **"View feed details"** as shown in Figure 30, and proceed to Step 7.
  - If the **"Sample Feed App"** tab is missing for any reason (for example if you logged out of **InfoSphere MashupHub**), Steps 5 and 6 describe how to bring it back.



Figure 30. Selecting "View feed details"

3. On the "Home" tab, click "List Feeds" as shown in the following Figure.

InfoSphere Ma	ashupHub				
		Search	Scope	Setting:	s   Logout
Home					
	Catalog		Create		
	Work with feeds, widgets,	and pages in the catalog List Feeds	Create feeds and feed pages to the catalog	mashups, add widgets and Wew Feed New Feed Mashup Upload Widget Upload Page	
	Community		Getting Started		

Figure 31. InfoSphere MashupHub home screen

Find the "Sample Feed App" entry in the Title column (if it doesn't show up on the first page, you might need to click the blue arrow to go to the next page, as shown in the following Figure). Select the "Sample Feed App" to open Feed Details screen.

Home Feeds		
Title	Tags	Updated
😥 Aggregate Policies Mashup	aggregate functions, transform operator, example mashup	12/10/08 3:38 PM
CD Warehouse	cd, information, xml	12/10/08 3:38 PM
💮 CD Warehouse Mashup	group operator, xml, example mashup	12/10/08 3:38 PM
CSV Sample 1	csv, sample	12/10/08 3:38 PM
Country GMT Service	country, gmt, time, timezone	12/10/08 3:38 PM
Country List Service	country, list	12/10/08 3:38 PM
😥 Disease Outbreak Mashup	transform operator, merge operator, georss, tutorial	12/10/08 3:38 PM
Expiring Policies Mashup	variables, transform operator, functions, example mashup	12/10/08 3:38 PM
GPA Query	access, gpa, statistics	12/10/08 3:38 PM
IBM Emerging Tech Blog	emerging, technology, blog	12/10/08 3:38 PM
😥 Insurance Mashup	merge operator, example mashup, weather	12/10/08 3:38 PM
MyCo Customer list	excel, customer	12/10/08 3:38 PM
😥 National Park Forecast Mashup	for each operator, weather, example mashup	12/10/08 3:38 PM
National Park XML	national park, zipcode, xml	12/10/08 3:38 PM
New alphaWorks Technologies	alphaworks, emerging, technology	12/10/08 3:38 PM
Reriodic Table Lookup Service	element, atom, chemistry	12/10/08 3:38 PM
Policy Holders	sql, relational, insurance	12/10/08 3:38 PM
😥 Policy Holders Mashup	filter operator, example mashup	12/10/08 3:38 PM
Restaurants CSV	csv, restaurants	12/10/08 3:38 PM
Sample Feed App		1/15/09 2:48 PM
	Showing 1 t	o 20 of 31

Figure 32. Selecting "View feed details"

Notice the feed URL (as shown within the dashed box in Figure 33):

http://localhost:9080/mashuphub/client/plugin/generate/entryid/30/ pluginid/7?in\_cmd=DISPLAY&in\_name1=SMITH&in\_name2=&in\_extn=&in\_zip=

Clicking or manually entering the URL is another way of invoking an IMS feed. Notice that feed parameters (such as "DISPLAY" and "SMITH") are contained within the feed URL.

Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved. 29 of 80 4. Select Add to Lotus Mashups from the list of Actions.

Feeds X Sampl	e Feed App 🛛 🖪	arameters ×		
Sample Sample Feed http://localho in_cmd=DISPL	Feed App st:9080/mashuphu AY∈_name1=5M1	b/client/plugin/genera TH∈_name2=∈_ex1	te/entryid/30/pluginid/7? m=∈_zip=	Actions :: View Feed :: Add to Lotus Mashu :: Edit Details :: Edit Feed Source :: Delete
Details				
Source:	IMS Transaction	Creator:	admin	
Version:	1.0	Average Rating:	★★★★★by 0 user(s)	
Documentation:	None	My Rating:	****	
Times Accessed:	12	Categories:	None	
Last Updated:	1/28/09 4:41 PM	<b>Related Entries:</b>	None	
Saved:	Yes	Tags:		

Figure 33. Selecting "Add to Lotus Mashups"

5. Do not modify any options on the following screen; just click Next.

Home Feeds 🗴 Sam	ple Feed App 🖾
<u></u>	Add to Lotus Mashups
* Lotus Mashups Server:	http://localhost:9080/mum
	<ul> <li>Use current user's user ID and password</li> <li>Input user ID and password</li> </ul>
User ID:	
Password:	
	Previous Cancel Nex

Figure 34. Lotus Mashups server info

- 6. On the following screen (click **Yes** if security warning pops up), specify a feed title and the category this feed should belong to in Lotus Mashups. For this demo,
  - For the title, type Phonebook Feed.
  - Set the category to Demo.
  - Click Finish.

Home Feeds ×	Sample Feed App 🖾
<u></u>	Add to Lotus Mashups
* Title:	Phonebook Feed
Description:	Sample Feed
Feed Url:	http://localhost:9080/mashuphub/client/plugin/generate/
Parameters:	in_cmd DISPLAY (Type: )
	in_name1 SMITH (Type: )
	in_name2 (Type: )
	in_extn (Type: )
	in_zip (Type: )
Category:	Demo
Feed Viewer:	Data Viewer Change Widget
Icon:	Change Icon
	Preview
	Previous Cancel Finish

Figure 35. "Add to Lotus Mashups" screen

Notice the "Data Viewer" option for the "Feed Viewer" (Figure 35). When we added the Phonebook Feed to Lotus Mashups, we did not in fact create a brand new widget. Instead, we used an existing generic widget called Data Viewer and specified the URL of the Phonebook Feed as a parameter to it ("Feed URL" box on Figure 35). This notion will become important in the last optional task of this tutorial where we will create a different version of the Phonebook Feed. It will not be required to add this new feed to Lotus Mashups like we just did, but instead it will be sufficient to replace the URL of the existing Data Viewer widget (see Task 3, Step 36).

Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved. 31 of 80 You will be informed that the feed has been added to Lotus Mashups. Also notice the message asking to refresh **Lotus Mashups**. Click "**View feed details**" to go back to the feed details page. It will be needed once again later on.



Figure 36. Feed has been successfully added to Lotus Mashups

### Step 2: Adding components to a mashup page

1. Return to the IBM Lotus Mashups tab.



Figure 37. Back to Lotus Mashups

2. Refresh the Lotus Mashups by clicking the web browser's **Refresh** button. This is needed for the IMS feed to show up in the Lotus Mashups' palette.

😋 😔 🔻 🔞 http://localhost:9080/mum/ena	bler#pid=100	💌 🛃 🗙
😭 🏟 🔠 💌 🏉 InfoSphere MashupHub	📀 IBM Lotus Mashups 🛛 🗙	<b>公</b>
Lotus. Mashups 🛛 💿 Welcome Page	*	

Figure 38. Refreshing Lotus Mashups

3. Mouse over Welcome Page, and select Create a New Page from the drop down menu.



Figure 39. Creating a new page

4. Type "**Phone Book**" in the "**Create a New Page**" box and press **Enter**. The new Phone Book page displays and is automatically set to edit mode.

Lotus. Ma	shups 🛛 💮 Phone Book	+			
Phone I	Book				Go to View
÷	Collaboration -	Demo 🔻	Favorites -	Tools -	



Lotus Mashups has two modes—edit mode and view mode. When you create a new page, you are automatically set to edit mode. You can switch back and forth between the two modes by clicking the **Go to Edit** or **Go to View** button

In edit mode, the page editor screen contains four drop down tabs – **Collaboration**, **Demo**, **Favorites** and **Tools**. Each tab contains a collection of feeds or widgets that can be mashed together to create a

Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved. dynamic web application.

5. Click the "Favorites" tab to expand it. Mouse over the "Uer Input" widget.

Lotus. Mas	hups 💿 Phone Book 🔻			
Phone B	Book			
	Collaboration 👻	Demo 👻	Favorites 👻	Tools 🔻
i i i i i i i i i i i i i i i i i i i			🛄 Chart	
			🔠 Data Viewer	
			🔊 Feed Reader	
			🔯 Image	
			😔 OpenStreetMap	
			💻 Slide Show	
			📰 User Input 👝 📴	

Figure 41. Selecting User Input widget

6. Click and hold the left mouse button, and then drag the **User Input** widget onto the main editor area below. Position it in the top left corner area (as shown in Figure 41) and release the mouse button.

Lotus. Mas	hups 😑 Phone Book 🔻			
Phone B	look			
	Collaboration -	Demo 👻	Favorites 👻	Tools 👻
V:	ser Input			

Figure 42. Dragging and dropping the User Input widget into the editor

#### What is a Widget?

A web widget is a portable chunk of code that can be installed and executed within any separate HTML-based web page by an end user without requiring additional compilation. They are derived from the idea of code reuse.

Lotus Mashups includes a set of widgets to provide some common features required in a Web application. The User Input widget, for example, displays one or more input fields and generates events for each input field. The event sends over the value selected or entered by the user.

Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved. 34 of 80 Custom widgets can be created using the IWidget format and added to the MashupHub Catalog for reuse

7. User Input widget will appear. Reposition it as needed by dragging the gray header area.

User Input			
		-	
User Input	71 11 12 12 12		

Figure 43. User Input widget in the editor

8. Open Settings dialog of the User Input widget.



Figure 44. Selecting "Edit Settings"
9. You will now create a dialog that allows user of your application to search the phone book by entering a last name. In the **User Input Settings** dialog, click **Add** button. Then, in the **"New Field"** area, enter the following user prompt: **"Last name:"** (without quotes) and click **Save**.

User Input Edit	values that Then send	come from other widgets b the resulting URL to anothe	y wiring to Ac er widget by w	cept Parameters. viring from URL.
Add Remove Up Down				
Name		Туре	Action	
Last name:		text	Edit	<u> </u>
ŧ				
				Y
				F
			<u>Cancel</u>	Save



10. Now click the "Demo" tab to expand it. Mouse over the "Phonebook Feed".

F	Phone Book 🍯							
	÷	Collaboration -	Demo 👻	Favorites 👻	Tools 👻			
		lser Input	E Customer List	Phonebook Feed Sample Feed				
L	Last n.	ame:						

Figure 46. Phonebook Feed in the Demo tab

11. Drag and drop the **Phonebook Feed** below the **User Input** widget.

	Demo 👻	Favorites 👻	J.
🔜 User Input			
Last Name		1	
	Sub	mit	
" 			
Dhamphook Food			
Phonebook Feed			
Phonebook Feed	ResponseMessage	- out	
Phonebook Feed	ResponseMessage	out	

Figure 47. Dragging and dropping the Phonebook Feed into the editor

Phone Book 🔍			
Collaboration -	Demo 👻	Favorites 👻	Tools -
📰 User Input			
Last name:			
	Submit		
Phonebook Feed			
Phonebook Feed	Rename		
RepeatingElement	Select Skin		
	Edit Wiring		
	View Wiring Graph		
	Hide		
	Delete		

12. Click the Options icon located on the Phonebook Feed header and select "Edit Settings".

Figure 48. Selecting "Edit Settings"

13. Unselect the following columns: **RepeatingElement**, **ResponseMessage**, **out\_ll**, **out\_zz**, **out\_msg**, **out\_cmd** and **out\_segno** (scroll down to see **out\_segno**). This is done to prevent the mashup from displaying these utilitarian columns. Finally click **Save** to close the **Settings** dialog.

▼ Content					
URL to CSV data o ATOM feed	This Data Viewer widget is	wired to other	widget. No feed U	RL required.	
Rows per view:	5		~		
	Show column headers				
Columns:	RepeatingElement				^
	ResponseMessage		▲ <b>▼</b>		
	out_ll	<b>F</b> = 1			=
	out_zz				
	out_msg	E I I			
	out_cmd		A <b>T</b>		
	✓ out_name1	E Z I			
	✓ out_name2				
Style					
Advanced					
				Cancel	Save

Figure 49. Hiding columns

We now have two components on the page, one to allow users to provide input (the last name for the person to look up in the phone book), and the results from the phonebook feed. However, the user input widget is not yet hooked up to query the IMS feed (Sample Feed App), nor is the widget wired with the Phonebook Feed component on the page to display the query result.

We will use the URL Customizer widget to create dynamic URLs with customized parameters.

The URL Customizer lets you specify a parameterized feed URL from the catalog or a parameterized URL on the Web, and the parameter values can come from an event that is passed from another widget on the mashup page. The URL Customizer widget automatically parses the parameters from the URL.

- 1. With the URL Customizer widget, we'll specify the URL of the Sample Feed App to be the base URL. The widget will load in the parameters available for the feed.
- 2. We'll specify that the values of the parameters should come from the User Input widget.
- 3. We'll specify that the parameterized URL should be sent to the Phonebook Feed.

14. Expand **Tools** tab and select the **URL Customizer** widget. Drag and drop the widget into the editor.

Pho	Phone Book 🔍								
3	Collabor	ation 👻	Demo 👻		Favorites 👻	Tools -			
						C Action Timer			
	📰 User Input					🜃 Data Editor			
	Last name:				1. Sec. 1. Sec. 1.	Svent Explorer			
1				Submit		G Google Gadget			
				Submit		🖸 HTML Markup			
				and the second		js JavaScript Ad			
				- 1		🔀 Regular Expre			
	Phonebook	Feed				🛯 URL Customi			
						🔛 Web Site Disp			
	out_name1	out_name2	out_extn	out_zip		G You Tube			
	SMITH	JOHN	5639	91234					
	Page 1		Pr	revious   Next					

Figure 50. Selecting URL Customizer widget

	ration 👻	Demo 👻		Favorites 👻	Tools -	
				URL Cus	tomizer 🚓 😰 🔐	
🔜 User Input				😨 URI	. Customizer	
Last name:			Submit	Use the L widgets. To get st Load. Th	IRL Customizer widget to build a URL to arted, olick Edit Settings, enter or paste en customize the parameters of the URI	o go between other in a URL and click L dynamically with
				Then ser This wide hide the	d the resulting URL to another widget by whing to let is typically hidden, so once initially s widget.	wiring from URL.
= Phonebook	Feed			Then ser This widg hide the	d the resulting URL to another widget by whing to	set up, click Hide to
≓ Phonebook out_name1	Feed out_name2	out_extn	out_zip	Then ser This widų hide the	d the resulting URL to another widget by et is typically hidden, so once initially s widget.	wiving from URL.
E Phonebook out_name1 SMITH	Feed out_name2	<b>out_extn</b> 5639	<b>out_zip</b> 91234	Then ser This widd hide the	d offer norm offer wroged by woring to d the resulting URL to another widget b let is typically hidden, so once initially s widget.	Accept ratameters.

Figure 51. Placing URL Customizer into the editor area

Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved. 41 of 80 Remember that the **IMS feed** has its input parameters such as last name contained within URL. The reason we added the **URL Customizer** widget is to be able to modify the URL of the **IMS feed** with the last name provided by the **User Input** widget.

15. Open URL Customizer's Settings dialog.

ites 🔻	Tools -		
🔞 URL Customizer	2	· 🔶	
😢 URL Custor	nizer	Edit Settings 🛺	
Use the URL Custo	mizerwidge	Rename	
widgets.		Select Skin 🔹 🕨	
To get started, clic Load. Then custor	k Edit Settin nize the par.	Edit Wiring	
values that come f Then send the res	rom other wi ulting URL to	View Wiring Graph	
This widget is typic	ally hidden:	Hide	
inde the oraget.		Delete	

Figure 52. Opening URL Customizer's Settings dialog

16. Go to the **InfoSphere Mashuphub**, **Sample Feed App** details. Select and copy (*Ctrl-C*) the IMS feed URL.

InfoSphere Mashup	Hub	Search	Scope All
Home Feeds × Sa	mple Feed App 🗳		
Samp Sample Fe	le Feed App		
http://loc in_cmd=D	alhost:9080/mashuphub/ ISPLAY∈_name1=SMITH	'client/plugin/generate H∈ name2=∈ extn	e/entryid/30/pluginid/7? =∈_zip=
Details			
Source:	IMS Transaction	Creator:	evgueni
Version:	1.0	Average Rating:	*****by 0 user(s)

Figure 53. Copying IMS feed's URL

Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved. 42 of 80 17. Return to the Lotus Mashups, URL Customizer settings. Paste (*Ctrl-V*) the URL into the text box and click Load.

	URL Customizer Edit	This widget is typically hidden, so once initially set up, click Hide to hide the widget.	×
	Enter or paste a URL:		
ne2	yid/30/pluginid/7?in_cmd=DISPLA	Y∈_name1=SMITH∈_name2=∈_extn=∈_zip=	
	Values to customize URL request:		
	None		
		Cancel Save	

Figure 54. Pasting and loading URL of the IMS feed

18. Select in\_name1 as the parameter to receive a single value (following Figure). URL Customizer can receive and replace a value of one of the URL parameters. We want in\_name1, which corresponds to the last name, to be replaced. Finally, click Save.

	UR	L Customiz	er Edit		This widget is typically hidden, so or hide the widget.	nce initially set up, click H	ide to	×
me	-2	Enter or paste a yid/30/pluginid/	URL: 7?in_cmd=DISPL/	AY&	in_name1=SMITH∈_name2=8	kin_extn=∈_zip=	Load	_
	L	Values to custor	mize URL request:					
1		Enter or repla	ce custom default v	alues	3:			
T		in_cmd	DISPLAY					
		in_name1	SMITH					
		in_name2						
		in_extn						
		in_zip						
		Default paran	neter to receive sing	gle va	alue: in name1			
						Cancel	Save	
Ļ								

Figure 55. Changing the default parameter to receive single value

We are now going to wire the **User Input** widget with the **Phonebook** feed such that when the user enters last name and clicks **Submit** button, the **Phonebook** feed displays records of persons by that name.

## Step 3: Wiring components together

Now it is time to wire all components together to make them work in tandem.

19. Mouse over the User Input widget and click the Wiring icon located to the left of the **Options** icon:

Collabor	ation 👻	Demo 👻	Fa
User Input			
🔜 User Input			
Last name:			
		Submit	

Figure 56. Wiring icon

The wiring dialog has two tabs – **Receive** and **Send**. Within each tab you can specify which data is to be received from/send to other components.

The **User Input** widget allows sending data (last name in our case) as plain text. Remember however that an **IMS feed** has input parameters such as last name contained within URL. The reason we added the **URL Customizer** widget in **Step 14** is to be able to modify the URL of the **IMS feed** with the last name provided by the **User Input** widget.

20. Within the **Send** tab of the **Wiring** dialog, select "Last name: *as* Any Data" as the content to send.



Figure 57. Selecting content to send

21. Now select **URL Customizer** as the widget to receive content. Notice how the widget gets highlighted (useful if more than one widget of the same type is used).



Figure 58. Selecting a widget to receive content

22. Select the check box next to "Accept Parameters using Any Data" and click Done.



Figure 59. Selecting an action

23. Click the Wiring icon of the URL Customizer widget.



Figure 60. Wiring icon

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24. Select "URL *as* URL" as the content to be sent.

	Wiring Receive (1) Send (0)
name2 out_extn ou	Widget to send content           Widget to send content           Widget to send content
Which content do you want ' URL Customizer ' to send to another widget on the page ?	Select content to send
Step 1	Show Graph Done

Figure 61. Selecting content to send

25. Select **Phonebook Feed** as the widget to receive content.

E Phonebook Feed		Wiring
out_name1 out_n	ame2 out_extn	Widget to send content
SMITH JOHN	5639	91
Page 1	Pre	URL as URL
	Which widget on the page do you want to receive the content ' URL ' ?	Select a widget to receive content
	Step 2	Show Graph Done

Figure 62. Selecting a widget to receive content

26. Check the selection box next to "Table using URL (ATOM)" and click Done.

	Wiring	×
name2 out_extn N 5639 Pre	Widget to send content         Image: Widget to send content         Image: URL Customizer         Select content to send         Image: URL as URL	
	Select a widget to receive content	
Which action do you want to take place when ' Phonebook Feed ' receives the content ' URL ' ?	Select an action          Image: Table using URL (ATOM)         Image: Table using URL (Table)	
	Show Graph Done	

Figure 63. Selecting an action

27. Click **Hide** in the **Options** menu of the **URL Customizer** widget. This is done to hide **URL Customizer** from our Phonebook application user interface.



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#### Figure 64. Hiding the URL Customizer

Once hidden, the URL Customizer widget disappears from the editor screen. To view or edit its settings and wiring, or to unhide it, click the "View hidden widgets" icon (see following Figure).



### Figure 65. Viewing hidden widgets

28. Save your work by clicking the **Save** icon.

Figure 66. Saving your work

29. The mashup is now completed. It is time to try it out. Click **Go to View** to switch to the page viewing mode (clicking **Go to Edit** returns you to the editor).



Figure 67. Switching to viewing mode

30. In the viewing mode, enter one of the names that we have in the sample database (such as "Simpson") and click **Submit**. The record will be displayed in the Phonebook feed table.



Figure 68. Testing the application

You have now created a simple web mashup using IMS Phonebook feed and other widgets.

The following optional steps let you experiment another widget, OpenStreetMap. You will add the **OpenStreetMap** widget to the page and send **ZIP code** to it from the **Phonebook** feed as the **Location**. When you left-click a person's zip code info in the **Phonebook** feed, the map widget will display the area around that zip code.

- 31. Go to Edit mode by clicking the **Go to Edit** button.
- 32. Expand the Favorites tab, mouse over the OpenStreetMap widget, and drag and drop the widget into the editor area.You will now wire this widget with the Phonebook feed so the the zip code from the Phonebook Feed will become the input to the map.
- 33. Mouse over the OpenStreetMap widget and click the wiring icon with a green arrow and a blue arrow.
- 34. As shown in the following figure:
  - a. Click the **Receive** tab.
  - b. Under the Select content to receive section, click Accept Location using any Data.
  - c. Under the Select a widget to send content section, click Phonebook Feed.
  - d. Under the Select content to send section, click the checkbox for **out\_zip** as Text.
  - e. Click Done.



Figure 69. Wiring the OpenStreetMap with the Phonebook Feed

35. Click the zip code data (for example, 97006, for Anna Simpson) in the phonebook feed. The map widget is updated and shows the area around that zip code.

L	otus. Mashups 🛛 👄	Phone Book	-		
Ph	none Book				Go to Edit
	📰 User Input				OpenStreetMap
	Last name:	simpson		Submit	Pockcreek Tanasbourne
	E Phonebook	Feed			Elmonica
	out_name1	out_name2	out_extn	out_zip	97006 Beaverton Washington
	SIMPSON	ANNA	5634	97006	Oregon US uber OR (Peloy addited the
	Page 1		Pr	evious   Next	

Figure 70. Adding OpenStreetMap widget

### Important!

OpenStreetMap is a third party service and may not always be available

The next optional task shows how to improve the visual appearance of the **Phone Book** mashup. For example, the Phone Book table will have real column headers (such as **ZIP** instead of **out\_zip**).

# Task 3 (Optional). Improve the mashup page

## Objective

The previous task created a mashup page that lets users specify a last name to look up in the phonebook. The displayed phonebook entry, however, has column headers that are not very friendly to feed users. As shown in Figure 70 at the end of Task 2, the data field names out\_name1, out\_name2, out\_extn, and out\_zip are not appropriate for our intended users.

In this task, we will create a better looking, more user-friendly phonebook feed by first using the operators in InfoSphere MashupHub to transform the data before we add the transformed feed to Lotus Mashups. We want to change the feed output to just three fields—Name (firstname + lastname), Extension, and Zip. The final page will look as follows:



Figure 71. Final result

## Step 1: Creating a Feed mashup

1. Go back to the Home tab of the InfoSphere MashupHub and select "New Feed Mashup".



Figure 72. Selecting "New Feed Mashup"

A feed mashup is a feed that is created by taking one or more source feeds and applying operators and functions to filter and restructure the source data. MashupHub provides a feed mashup builder for creating feed mashups.

A **Feed Mashup editor** will open in a new tab, with a randomly generated feed mashup number. Note that the feed mashup number you see is likely going to be different from the one shown in the screen capture.

InfoSphere MashupHub				
	Search		Scope All	▼ 🔍
Home Feed Mashup 43	and and			
Save Run Arrange Clear	_	_	_	_
# Operators 📀				
□→ Source				
Combine				
Filter				
For Each				
Group				
Merge				
J↑ Sort				
± Transform		Drag Ope	rators He	ere

Figure 73. Feed Mashup Editor

2. Drag and drop the **Source** operator to the area that says "**Drag Operators Here**". The "**Details for the Source operator**" window will automatically pop up.

InfoSphere MashupHub	
	Search Scope All V Settings   Logout
Home Feed Mashup 43	
Save Run Arrange Cle	
:: Operators 💿	
Source	
C Combine	Source
Filter	Details for the Source operator (source4683)
B For Each	Properties Preview Comments Advanced
Group	Name: Source 4683
Merge	r Source
41 Sort	URL: http://www-01.ibm.com/software/swnews/swnews.nsf/swnewsrss? Load
Transform	C From Catalog:
	Publish

Figure 74. Adding "Source" operator

Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved. 57 of 80 3. You can specify the URL of a feed or select it from the catalog. Let's select the feed from the catalog this time. Click "**From Catalog**" radio button and then click "**Browse**".

Details for	the Source	e operator (s	ource4683)		X
Properties	Preview	Comments	Advanced		0
Name: source	4683				
Source					
O URL: http	://www-01.ibm	n.com/software/sv	vnews/swnews.n	sf/swnewsrss?( Load	
• From Cat	alog:			Brow	/se
N.					-2-
$-\lambda -$					
					1

Figure 75. Selecting Feed Mashup source

4. Find **Sample Feed App** in the list (use arrow buttons to navigate the list). Click the **Sample Feed App** entry row and then click **OK**.

Choose From Catalog	
	Search
Title	Author
😥 Insurance Mashup	admin
MyCo Customer list	admin
额 National Park Forecast Mashup	admin
National Park XML	admin
New alphaWorks Technologies	admin
Periodic Table Lookup Service	admin
Policy Holders	admin
Policy Holders Mashup	admin
Restaurants CSV	admin
Sample Feed App	admin
Showing 11 - 20 of 29 total.	€ 🖸 ◄
	OK Cancel

Figure 76. Selecting Sample Feed App

5. Click Show URL Parameters.

Details for the Source operator (source4683)	X
Properties Preview Comments Advanced	0
Name: source4683	
Source -	
O URL: http://www-01.ibm.com/software/swnews/swnews.nsf/swnew	Load
From Catalog: Sample Feed App	Browse
Source loaded.	
Show URL Parameters	
Z	

Figure 77. Selecting "Show URL Parameters"

A list of all the available URL parameters that are associated with the feed source displays.

6. Scroll the list of parameters all the way down.

Properties Pr	eview Comments Advanced	(
ame: source4683		
Source		
O URL: http://ww	w-01.ibm.com/software/swnews/swnews.nsf/swnewsrss	Pope Load
From Catalog	Sample Feed App	Browse
	Source loaded.	
Hide URL Parar	Source loaded.	
Hide URL Parar	Source loaded. meters Value	
Hide URL Parar <b>URL Parameter</b> domain	Source loaded. meters Value localhost:9080	T O
Hide URL Parar U <b>RL Parameter</b> domain path1	Source loaded. meters Value localhost:9080 mashuphub	I 0
Hide URL Parar URL Parameter domain path1 path2	Source loaded. meters Value localhost:9080 mashuphub client	T O T O

Figure 78. List of URL parameters

7. Click the grey drop down arrow next to "SMITH" and select the Use a variable to return the value option.

Properties	Preview Comments Advanced	(			
path4	generate	TO			
path5	entryid	entryid II o			
path6	30	TO			
path7	pluginid	TO			
path8	7	T O			
in_cmd	DISPLAY	O II			
in_name1	SMITH	TO			
in_name2	Specify a text value Use a variable to return the value				
in_extn					
in_zip		TO			
1	nii (				

Figure 79. Defining return value as a variable

We chose "Use a variable to return the value" to turn this parameter into a variable.

8. Enter the word "lastname" (no spaces) in the **Name** field and "SMITH" in the **Default Value** field. Click **OK**.

Variables		X
Define or select varia	bles for this feed mashup	0
Name	Default Value	Description
lastname	SMITH	
+ 0		
		OK Cancel

Figure 80. Defining a variable

9. Close the "**Details...**" screen by clicking **x** button.

Details for	the Source operator (source4683)	
Properties	Preview Comments Advanced	~
path4	generate	TO
path5	entryid	IO
path6	30	TO
path7	pluginid	TO
path8	7	TO
in_cmd	DISPLAY	TO

Figure 81. Closing "Details..." screen

10. Drag and drop the **Transform** operator into the area between the **Source** and the **Publish** operators.

InfoSphere MashupHub				
	Search	Scope All	<b>* 🔍</b> Se	ettings
Home Feed Mashup 43 🛛				
Save Run Arrange Clear				_
:: Operators 📀				
Source				
Combine				
Filter				
For Each	1	ransform		
- Group				
↓↑ Sort			Publish	
🛨 Transform 🚸				

Figure 82. Adding Transform operator

The Transform operator lets you restructure an incoming feed. You can create new elements, remove elements, add attributes to elements, apply a mathematical or text function to an element, and manipulate the values of the elements.

We will use the Transform operator to transform the data coming from the feed (out\_name1, out\_name2, out\_ext, and out\_zip) to something that's more user-friendly (Name, Extension, and ZIP) in the actual output on the mashup page.

Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved. 62 of 80 11. Connect operators by dragging and dropping the plug  $\checkmark$  from the **Source** to the **Transform** and from the **Transform** to the **Publish** operator.



Figure 83. Connecting operators

12. Click the Transform operator to edit its details.





We want to first create the output structure that we want our users to see, so we will first create new elements in the Output tree and then specify how these elements get their values from the Input tree.

XML structure of a feed

Your feed output must have a "content" element to hold the feed content. Under this content element, you then define the sub-elements to hold the data for each field.

13. Create a new element in the Output tree. Right click on the **entry** element in the **Output** panel and select **New Element**.



Figure 85. Selecting New Element

14. Enter "content" as the name of the new element.



Figure 86. Creating 'content' element

15. Create a new element called "Name" under content element. Right click content, select New Element and call it "Name".

Figure 87. Creating 'Name' element

16. Using the same procedure, create two more elements - "Extension" and "ZIP".



Figure 88. Creating 'Extension' and 'ZIP' elements

17. Right click the "Name" element and select Specify a function value.



Figure 89. Selecting 'Specify a function value'

18. In the function selection dialog, choose **Concat** as the function to perform.



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19. Expand the drop down menu for the **First String** and select **Specify a value from the Input tree**.

Choose Function ×			
Concat			
Name	Value		
First String		TO	
Second String	Specify a text value Specify a value from the Input tree Specify a function value Use a variable to return the value	6	
Comments:			

Figure 91. Selecting "Specify a value from the Input tree"

20. In the Input tree display window, expand content, RepeatingElement and OUTPUTMSG elements, then select out\_name2 and click OK.

Choose from the tree	X
中 summary	^
🖻 content	
type = application/xml	
RepeatingElement	
ResponseMessage	
中out_ll	
₽-out_zz	
₽ <sup>-</sup> out_msg	
₽ <sup>-</sup> out_cmd	
₽ <sup>-</sup> out_name1	THE SECOND
🔁 out_extn	
₽ <sup>_</sup> out_zip	
<sup>È⊢</sup> out_segno	~
OK Cance	E H

Figure 92. Selecting out\_name1

### 21. For the Second String,

a. Expand the drop down menu for Second String and select Specify a text value.

Choose Functi	ion 🛛	
Concat		
Name	Value	
First String	/atom:content/ns4:RepeatingElei	
Second String	TO	
+ 💼 Comments:	Specify a text value Specify a value from the Input tree Specify a function value Use a variable to return the value	
	OKICancel	

Figure 93. Set this second string to be of text value

b. Enter quotation marks with a single space in between (""), as shown in the following figure. This will be the delimiter between the first and the last name. Then click + to add one more string to be concatenated.

Choose Function		
Concat		?
Name	Value	
First String	/atom:content/ns3:RepeatingElei	0
Second String		0
+		
Comments:		

Figure 94. Specifying space character as a delimiter

22. For the new Custom string, select "Specify a value from the Input tree" again.

Choose Function		
Concat 🔽 🕜		
Value		
./atom:content/ns3:RepeatingEleite 🖸		
" " <b>T Q</b>		
Specify a text value Specify a value from the Input tree Specify a function value Use a variable to return the value		

Figure 95. Selecting "Specify a value from the Input tree"

23. In the Input tree display window, expand **content**, **RepeatingElement** and **OUTPUTMSG** elements, then select **out\_name1** and click **OK**.

Choose from the tree	×
u thauthor	<u> </u>
summary	
Ercontent	
type = application/xml	
RepeatingElement	
₽-out_ll	
🕂 out_zz	
🗗 out_msg	
₽-out_cmd	
🗄 out_name1 🔶 🗕	I
🕂 out_name2	
🖻 out_extn	
₽-out_zip	<b>•</b>
	OK Cancel

Figure 96. Selecting out\_name2

### 24. Click Ok to close Function dialog.

Choose Function			
Concat	•		
Name	Value		
First String	./atom:content/ns3:RepeatingEler⊯ ⊙ Edit Clear		
Second String	" " <b>T O</b>		
Custom	./atom:content/ns3:RepeatingEler		
+ 🛍			
Comments:	Comments:		
	OK Cancel		

Figure 97. Closing function dialog

25. Expand the elements of the **Input** tree on the **Details** screen, as shown in the following figure.



Figure 98. Expanding input tree elements

26. Drag and drop "5639" onto the "Extension" element in the Output tree, drag and drop "91234" onto the "ZIP" element.



Figure 99. Dragging and dropping elements

- 27. Close the "Details for the Transform operator" window.
- 28. Click the Publish operator to open its "Details.." screen. Select ATOM as the Feed Type.



Figure 100. Selecting ATOM feed type

29. If you get a message saying the data is out of sync, click the **Refresh** button.

Properties	Preview	Comments	
Properties	Preview	Comments	

Figure 101. Refreshing the data

30. Provide required header elements, such as Title and Author the close the Details dialog.

Details	for the Publish operator (publish1)
Propert	ies Preview Comments
Feed Typ Common	De: ATOM 💌 Atom header elements:
*Title:	Better Phone Book
*Id:	https://localhost:9443/mashuphub/client/plugin/generate/entryid/33/pluginid/
*Link:	https://localhost:9443/mashuphub/client/plugin/generate/entryid/33/pluginid/
*Author:	Your name
Rights:	

Figure 102. Entering required header elements
31. Click the Save button on the left side of the Feed Mashup editor.

InfoSphere Mashup	łub			
		Se	arch	Scope All
Home Feed Mashup	43 🖬			
Save Run Arrang	e Clear	-	_	_
:: Saves the feed mashup in t	ne catalog.			
Source				
Combine		Source		
<b>Filter</b>				
For Each				
Group				Transform

Figure 103. Saving feed mashup

32. Enter required information as shown in the following figure and click Finish.

Specify the following information         * Title:       Phone Book Feed Mashup         * Description:       better looking phone book         * Version:       1.0         Tags:
Specify the following information         * Title:       Phone Book Feed Mashup         * Description:       better looking phone book         * Version:       1.0         Tags:
* Title:       Phone Book Feed Mashup         * Description:       better looking phone book         * Version:       1.0         Tags:
* Description:       better looking phone book         * Version:       1.0         Tags:
* Version:       1.0         Tags:
Tags:         Permissions:          • Public (All users can view the Feed Mashup)         • Private (Feed Mashup is invisible to all other users)         • Custom (Custom permission settings)         • Custom (Custom permissio
Permissions:          • Public (All users can view the Feed Mashup)         • Private (Feed Mashup is invisible to all other users)         • Custom (Custom permission settings)         • Custom (Custom per
<ul> <li>Private (Feed Mashup is invisible to all other users)</li> <li>Custom (Custom permission settings)</li> </ul>
C Custom (Custom permission settings)
Advanced:
Related entries already in the catalog
Technical Documentation
Caching data
Previous Cancel Finish

Figure 104. Entering required information

Generate an IMS feed using IMS Web 2.0 Solution for InfoSphere MashupHub © Copyright IBM Corporation 2009. All rights reserved. 73 of 80 Now we need to change the **Phonebook Feed** widget in **Lotus Mashups** so that it displays the new better looking phonebook. Like noted earlier in the tutorial (Task 2, Step 1, sub-step 8), we do not need to add the new feed to **Lotus Mashups** and replace the old one with it. Instead, since we used the generic **Data Viewer** widget, we simply need to provide the URL of the new feed to the **Data Viewer**.



33. Go back to the InfoSphere MashupHub Home screen and select List Feeds.

Figure 105. InfoSphere MashupHub home screen

34. Find the "**Phone Book Feed Mashup**" in the list and select it. While on the **Details** screen, select and copy (Ctrl-C) the feed URL.

Home Feeds Phone	Book F		
🛞 Phone B	ook Feed Ma	shup	
better looking	phone book		
http://localho lastname=SMI	st:9085/mashuphub/clio TH	ent/plugin/generate	/entryid/43/pluginid/10?
Details			
Source:	Mashup	Creator:	evgueni
Version:	1.0	Average Rating:	*****by 0 user(s)
Documentation:	None	My Rating:	
Times Accessed:	11	Categories:	None

Figure 106. Copying the feed URL

Since widgets in our application are wired in such a way that the **Data Viewer** widget (**Phonebook** feed) receives data via the URL provided by the URL Customizer, we actually need to replace the URL Customizer's input URL with the new one.

35. Go back to Lotus Mashups. If you are in View mode (you will see the Go to Edit button), click the Go to Edit button to go to Edit mode.



Figure 107. Going to Edit mode

### 36. Click the Hidden Widgets icon.



Figure 108. Revealing hidden widgets

37. Click the options menu of the URL Customizer and select "Edit Settings".



Figure 109. Selecting URL Customizer options menu

38. Delete the existing URL and paste (CTRL-V) the URL of the new **Phone Book Feed Mashup**. Click **Load**. Since this new feed only has one parameter (**lastname**), it will be selected automatically, so just click **Save** to close the dialog.

Enter or paste	a URL:			
alhost:9080/n	nashuphub/client	t/plugin/generate/entryid/3	3/pluginid/10?lastname	SMITH
Values to cust	omize URL reque	st.		
Enter or rep	lace custom defa	ult values:		
lastname	SMITH			
Default par	ameter to receive	single value: lastname	~	
				1.0

Figure 110. Replacing feed URL in URL Customizer

The **Phonebook Feed** widget will get automatically refreshed with new contents. Notice the new and improved column names and table format.

Lotus. Mashups 😑 Phone Book 👻			
Phone Book			Go to View
Collaboration - Dem	0 -	Favorites 👻	Tools *
User Input		OpenStre	etMap
Last name: SMITH		A	and the second
	Submit	V V	1
			A A
			12-1
Phonebook Feed			United States of America
Name Extension	ZIP		En la companya de la comp
	05120		Bahamas
	90139	1000 mi	Mexico Cuba Data ly <u>overcities itau</u> Cuba Data ly <u>overcities itau</u> Cayman Islands i Haiti
Page 1	Previous   Next		Bell20 -66.93122, 16.59072

Figure 111. New Phonebook Feed widget

39. In the top right corner of the editor pane you can find the **page layout options icon** (it will only appear when your mouse cursor is within the editor area). Click the icon to open **page layout options** dialog.



Figure 112. Page layout options icon

40. Select a different default skin that will apply to all widgets and click **Save**. Observe how the visual appearance of your application changes. Try different skins to see which one suits your taste better.

Page Properties for Free Page Properties Background Color: Background Image None URL url(/mum/images/layoutBa Image Properties Center More Options	eform Layout Widget Properties Default skin	×
Restore Defaul	Restore Defaul	
	Cancel Save	

Figure 113. Selecting different skin

ione Book			Go
Last name:		Submit	
Name	Extension	ZIP	95139
JOHN SMITH	5639	95139	San Jose Santa Clara California
Page 1	ß	Previous   Next	

The "Frosted Glass" skin gives the application more streamlined appearance by removing title bars:

Figure 114. Final result after applying the "Frosted Glass" skin

# Congratulations! You have completed the IMS Web 2.0 solution tutorial.

Resources

- Visit the <u>IMS Web 2.0 Solution Web site</u> and <u>IBM Mashup Center Web site</u> for more information and demo on IMS Web 2.0 solutions.
- To learn more about Web 2.0 and how businesses can gain value from Web 2.0 technologies, visit Web 2.0 goes to work for business.
- For more overview information on Web 2.0 concepts and terminology and how IMS Web 2.0 solution fits in with the IMS On Demand solutions, see the <u>teleconference: IMS and Web 2.0 Go to Work</u>.
- For more information on what RESTful services are and how to transform IMS assets into Weboriented architecture, see the <u>teleconference: Web 2.0: Transforming IMS Enterprise SOA to Web</u> <u>Oriented Architecture</u>.

#### Get products and technologies

- Download trial versions of IBM Rational software.
- Download a trial version of <u>IBM Rational Developer for system z</u>.

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