



Introduction to creating mashups using IBM Mashup Center

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Chapter 1. Tutorial: Introduction to creating mashups using IBM Mashup Center

In this tutorial, you will learn the end-to-end process of using IBM® Mashup Center to create a real-world mashup and publish it to the catalog for others to use. You will learn how to turn data from a spreadsheet into a format that you can use in your mashups and then display the data in a widget. You will also learn how to create a new feed by manipulating the output of an existing feed and then adding it your mashup.

Learning objectives

After completing this tutorial, you will learn how to achieve the following objectives:

- Assemble and wire a mashup
- Create a new feed using a spreadsheet as a data source
- Restructure incoming feed data to create a new feed
- Publish mashups to the catalog
- Add feeds to IBM Lotus® Mashups and display the data in widgets

Time required

Two hours

Chapter 2. Introduction

In this tutorial, you will learn the end-to-end process of using IBM Mashup Center to create a real-world mashup and publish it to the catalog for others to use. You will learn how to turn data from a spreadsheet into a format that you can use in your mashups and then display the data in a widget. You will also learn how to create a new feed by manipulating the output of an existing feed and then adding it your mashup.

This tutorial is divided into five modules. Each module contains a set of lessons that walk you through the tasks required to meet the learning objectives of the module. We encourage you to complete each module in order, but you can skip modules if desired. Each module ends with a summary topic that recaps the lessons learned. This summary topic also provides links to additional resources, when available.

See the following table for brief descriptions of each module:

Table 1. Module descriptions

Module	Description
Module A: Introducing IBM Mashup Center	Provides an overview of Mashup Center. Teaches you some important terminology and takes you through a tour of the user interface.
Module B: Assembling and wiring your mashup	Teaches you how to create, assemble, and wire a mashup using both out-of-the-box and sample demo widgets. Based on a real-world scenario.
Module C: Using spreadsheet data in your mashup	Teaches you how to convert spreadsheet data into a feed and then display the data in a widget in your mashup.
Module D: Creating a feed mashup and adding it to IBM Lotus Mashups	Explains the difference between a feed and a feed mashup. Teaches you how to create a new feed by manipulating the data from an existing feed and add it to Lotus Mashups.
Module E: Publishing and sharing your mashup	Teaches you how to publish widgets and mashups to the catalog for others to discover and reuse.

Learning objectives

By completing this tutorial, you will achieve the following learning objectives:

- Understand basic terminology and the user interface
- Assemble and wire a mashup
- Convert data in a spreadsheet into a feed and add it to your mashup
- Restructure feed data into a feed mashup and add it to your mashup
- Publish your mashup to the catalog for others to discover and reuse

Time required

This tutorial should take approximately two hours to finish. If you explore other concepts related to this tutorial, it could take longer to complete.

Audience


Line-of-business users who want to learn how to use Mashup Center to create and share mashups to solve everyday situations at work.

Supplemental reading

As you follow along with this tutorial, you may want to consult the following sources for additional information. These sources are located in the IBM Mashup Center wiki at <http://www-10.lotus.com/ldd/mashupswiki.nsf>.

- *IBM Mashup Center glossary* – provides a list of terms and definitions used throughout the Mashup Center product user interface
- *Frequently asked questions* – provides information in a question-and-answer format to help you understand and learn basic concepts and tasks within Mashup Center
- *Widget help* – describes Lotus Mashups widgets, including the types of data they can consume, configuration tips, and example usage scenarios

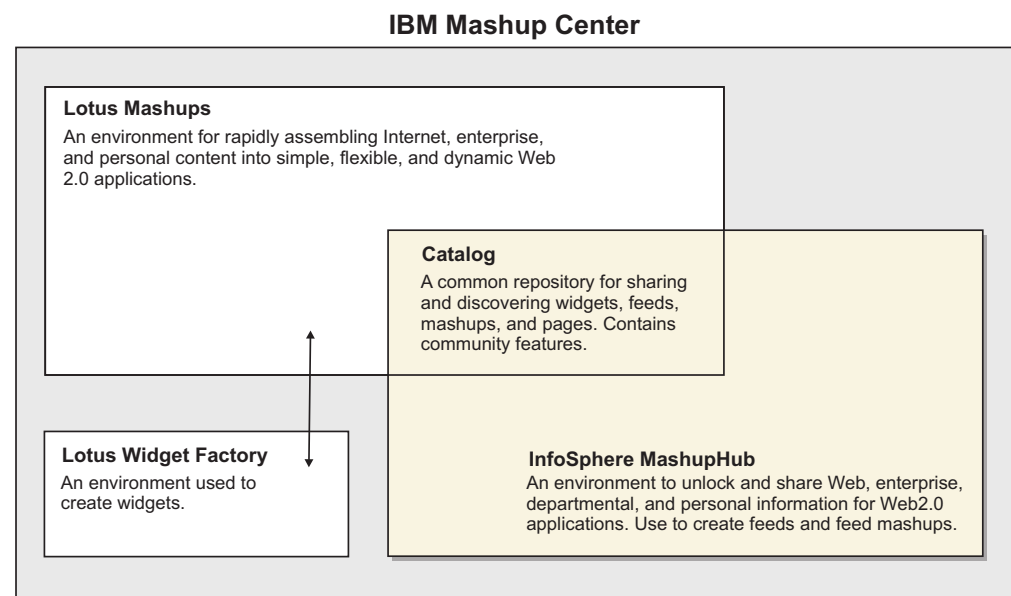
Conventions used in this tutorial

Whenever you see this image beside a word, , hover your cursor over the image to see a definition of the word.

Chapter 3. Module A: Introducing IBM Mashup Center

In this module, you will learn about IBM Mashup Center, including some important terminology. You will also take a tour of the user interface.

Mashup Center is a product offering that provides a complete, end-to-end mashup platform for assembling flexible, dynamic Web applications to address everyday business situations. Mashup Center is designed for Web-savvy business people like you who want to be able to access and remix data in ways that will make your job easier, more productive, more efficient – without relying on your IT department. Mashup Center combines the functionality of IBM Lotus Mashups, IBM InfoSphere MashupHub, and IBM Lotus Widget Factory. The following diagram shows all the components of Mashup Center:



Lotus Mashups is the graphical, browser-based *workshop* environment in which you assemble and wire widgets into mashups. MashupHub is the platform that contains the visual tools for creating, storing, transforming, and remixing feeds that you can use in your mashups. Both products share a feature-rich catalog for sharing and discovering mashups, widgets, feeds, and pages, with built-in community features like ratings, tagging, commenting. With the addition of Lotus Widget Factory, Mashup Center provides an environment for creating and customizing widgets.

Note: This tutorial does not contain information about creating widgets using Lotus Widget Factory. For more information about creating widgets, see the Lotus Widget Factory product help.

Learning objectives

By completing the lessons in this module, you will meet the following objectives:

- Learn common Mashup Center terminology
- Take a tour of the user interface

Time required

This module should take approximately 15 minutes to complete.

Lesson 1: Learning terminology

In this lesson, you will learn some common terminology used in IBM Mashup Center.

As you complete the modules in this tutorial, refer back to this lesson to understand terms and definitions. You can also access the Mashup Center glossary on the product wiki at <http://www-10.lotus.com/ldd/mashupswiki.nsf>.

Here is a list of some of the most common terms used in Mashup Center:

catalog

The catalog is a common repository for sharing and discovering widgets, feeds, and mashups, with built-in community features like ratings, tagging, and commenting.

feed A feed is a data format that allows Web sites to distribute frequently updated content to users. In Lotus Mashups, you can create widgets that display content from feeds. Feeds can be of various formats, including Atom Syndication Format and Really Simple Syndication (RSS). For more information about feeds, see http://en.wikipedia.org/wiki/Web_feed.

feed mashup

A feed mashup is a feed that you manipulate in some way. For example, you can manipulate a feed so that the data that gets displayed is filtered based on some sort of condition. In IBM InfoSphere MashupHub, you create feed mashup using the feed mashup builder. The feed mashup builder includes a set of operators and functions that allow you import feed data, perform operations on the data, and then publish the outcome as a new feed. In the end, feed mashups behave the same way as feeds. You can add them to the catalog for others to use, tag, rate, and add comments. You can also add them to Lotus Mashups so that they display feed data in either the **Feed Reader** or **Data Viewer** widgets.

mashup

A mashup is a lightweight Web application that blends (or mashes) together information from two or more data sources into an integrated and new experience. Mashups typically mash data either to create a new data source or a new application that presents data in a single graphical interface. In a business environment, a mashup typically combines enterprise and Web-based data from an assembly of widgets into a single, dynamic application to address a specific situation or problem. Widgets do not need to be aware of each other before the mashing occurs.

page In Lotus Mashups, a page is the canvas area on which you view, create, edit, and wire mashups. In edit mode, you can customize page layouts to achieve a unique look for your mashups.

widget

A widget is a small, portable application or piece of dynamic content that can easily be placed into a Web page or an embedded browser within a rich client. Widgets can be written in any language (Java™, .NET, PHP, and more) or can be a simple HTML fragment. Widgets that pass events can be wired together to create mashups. Widgets are called different names by different vendors, for example gadgets, blocks, and flakes.

You can create widgets with a variety of tools, including Eclipse, IBM WebSphere® sMash, or even Notepad. To ease the widget creation and deployment process, Lotus Mashups includes Lotus Widget Factory, an Eclipse-based rapid widget creation environment.

Lesson checkpoint

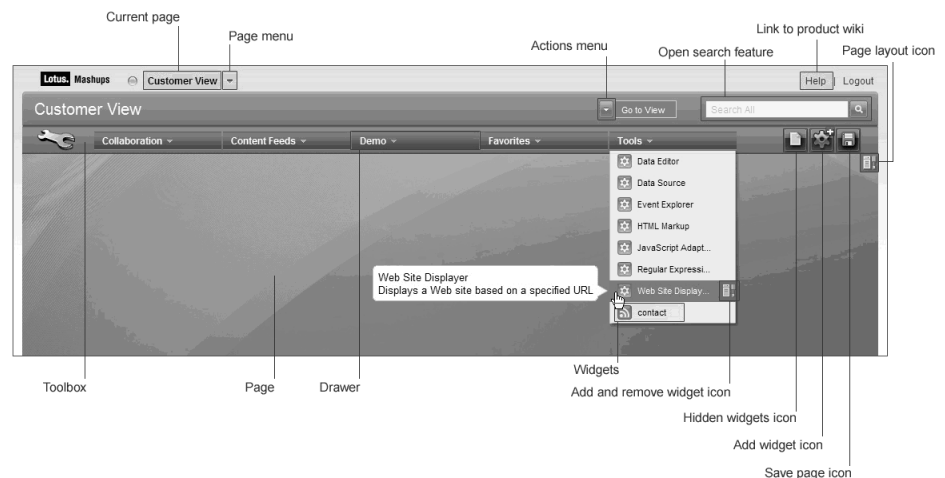
In this lesson, you learned some important terms and definitions used in Mashup Center.

Lesson 2: Touring the user interface


In this lesson, you will take a tour of the IBM Mashup Center user interface to understand how to navigate and perform important tasks such as creating a mashup and publishing it to the catalog.

To tour the user interface, do the following steps:

1. Let's start by opening IBM Lotus Mashups Workplace™, the graphical, browser-based tool for assembling and wiring mashups. To open the tool, go to **Start** → **Programs** → **IBM Mashup Center** → **Lotus Mashups**. By default, when you first open the browser, the tool's default page displays in view mode. Since you are in view mode, you can only view the page. At this point, you cannot edit the page setting or add any widgets.
2. Now, let's change to edit mode so you can see all the pieces of the interface that are necessary for creating mashups. To change to edit mode, simply click **Go to Edit** next to the actions menu. This opens the toolbox and displays all the pieces you need to get started, as shown in the following image:



Notice how the toolbox displays at the top of the browser. By default, the toolbox comes equipped with a set of drawers that contain widgets for dragging onto the page. Later in this tutorial when you create your own mashup, you will download additional widgets from the Web to add to the toolbox.

Note: The Lotus Mashups user interface is a perfect example of a mashup. The entire interface is made up of individual widgets  that are wired together to create a seamless work environment.

3. Next, let's take a tour of the catalog. To open the catalog, click the actions menu that you clicked in the previous step and select **Go to Catalog**. Notice how IBM InfoSphere MashupHub opens in a separate browser. In the **Catalog** section, you can display a list all the available feeds, widgets, and mashup pages. You can view details about them and provide your own comments, ratings, and tags. In the **Community** section, you can see what other community members have recommended. As you locate widgets, feeds, and mashup pages that you want, you can add them to your toolbox with a simple click.
4. Finally, let's take a look at how you create and manipulate feeds in MashupHub. In the **Create** section, you can create a new feed based on an existing data source, or you can create a feed mashup that consists of operators used to import feed sources and restructure the data. Finally, you can upload mashup pages and widgets from Lotus Mashups to MashupHub.

Lesson checkpoint

In this lesson, you learned how to navigate around Lotus Mashups. You also learned how to open the catalog and use MashupHub to create feeds and upload widgets and mashup pages from Lotus Mashups.

Module A: Summary

In Module A, you learned some common terminology used in IBM Mashup Center and also took a brief tour of the user interface. Now you are ready to go to the next module to learn how to create, assemble, and wire a mashup.

Lessons learned

By completing this module, you achieved the following objectives:

- Learn common Mashup Center terminology
- Take a tour of the user interface


Additional resources

Use the following resources to learn more about Mashup Center:

- The IBM Mashup Center wiki at <http://www-10.lotus.com/ldd/mashupswiki.nsf> provides product information, including tutorials, frequently asked questions, widget help, glossary of terms, and more.
- The **Getting Started** section of the IBM InfoSphere MashupHub user interface provides links to tutorials and examples.

Chapter 4. Module B: Assembling and wiring your mashup

In this module, you will learn how to create a mashup by assembling and wiring several widgets on a single page.

The mashup  that you will create in this module is based on a common business scenario. In the scenario, you are a sales person who is preparing for a customer site visit. You want to gather all the information you can about your customer and study it before you arrive at the site, but you don't have much time. You decide to create a simple mashup that allows you to pull customer data from multiple sources and display that data in a single, dynamic application. The goal of the mashup is to save you time by providing you with the information you need quickly and easily as you prepare for the visit.

As you plan your mashup, you decide which pieces of customer data you want to see in your mashup. You want the data to come from a variety of sources, including internal data from your human resources department as well as external data from the Web. You make the following list:

- A table view of customer names, locations, and other pertinent information
- Weather conditions at customer sites
- Customer Web sites
- Stock charts

With all this information at your fingertips in a single interface and available in a simple click, your task of preparing for the site visit will be much easier.

Understanding widgets and the wiring process

As you will learn in this module, in your mashup, each piece of customer data will be contained within its own widget. A widget is a small, portable application or piece of dynamic content that you can reuse across mashups or embed in Web pages. Widgets are called different names by different vendors, for example gadgets, blocks, and flakes. You can publish widgets to the catalog for others to use, or you can search the catalog and add widgets that others have created to your mashups.


Many widgets can be wired together. When you wire two widgets, you are essentially introducing the widgets to each other and opening the doors for communication. After the wiring takes place, when something happens in one widget, for example a user clicks a cell in a table, content gets passed to a second widget. When the second widget receives the content, a designated action takes place, for example a page refreshes and displays updated information.

At a high level, when you wire two widgets, you either start with the sending widget or the receiving widget. In the case where you start with the sending widget, you follow these steps:

1. Identify the two widgets that you want to wire together.
2. Identify which widget will initiate the communication. In other words, you identify which widget will send content based on some sort of event, such as clicking a link.

3. Specify the exact piece of content that you want the widget to send. This may be necessary if the sending widget is capable of passing multiple types of content.
4. Determine the action that should take place when the receiving widget receives the content. Typically, the action is some sort of page refresh or information update.

In our tutorial mashup, the widget that contains the customer names will be the sending widget, and the rest of the widgets will be the receiving widgets. In the final mashup, when you click a customer name in the sending widget, the sending widget passes content to the rest of the widgets. When the other widgets receive the content, they refresh, and the information that displays in those widgets updates to show data for the selected customer.

In the first lesson of this module, you will download the tutorial widgets from the widget repository site and add them to the IBM Lotus Mashups toolbox . Then, you will be ready to drag the widgets onto a mashup page and wire them together.

Learning objectives

By completing the lessons in this module, you will meet the following objectives:

- Learn how to add widgets to the Lotus Mashups toolbox
- Learn how to drag and assemble widgets on the page
- Learn how to configure widgets
- Learn how to save the page

Time required

This module should take approximately 30 minutes to complete.

Lesson 1: Adding the tutorial widgets to your toolbox

In this lesson, you will locate the **Google Gadget** and **AccuWeather** widgets in the Lotus Greenhouse catalog and add them to your IBM Lotus Mashups toolbox. We have made this external catalog available so you can access widgets samples, third party widgets, and other widgets that we would like to share with you for feedback before integrating them into future releases of the product.

This lesson is broken into two sets of steps. If you are using the Lotus Greenhouse version of Lotus Mashups, follow the first set of steps. If you are using a local version of Lotus Mashups, follow the second set of steps.

Lotus Greenhouse version

If you are using the Lotus Greenhouse version of Lotus Mashups, do the following steps to add the tutorial widgets to your toolbox:

1. In the Lotus Greenhouse Lotus Mashups browser, type **Google Gadget** in the search field in the top, right corner.
2. In the **Search the Catalog** window, find the **Google Gadget** widget that is not designated as a WAR file, and click **Add to Toolbox**.
3. In the **Add Widget to Toolbox** window, specify the drawer and the icon to represent the widget. Leave the title and description as is.

4. Click **Add**, and then **Done**.
5. Repeat these steps for the **AccuWeather** widget.
6. Now open the toolbox and confirm that the two new widgets were added successfully. If the widgets are not there, you may need to refresh your browser or log out and log back in.
7. Proceed to the next lesson in this tutorial.

Local version

If you are using a local version of Lotus Mashups, do the following steps to add the tutorial widgets to your toolbox:

1. Go to the Lotus Greenhouse Web site at <http://greenhouse.lotus.com>.
2. Click the **Join Now!** button at the top, right corner of the page.
3. Fill in the fields with your information, and click **Submit Information**.
4. Within a few minutes, you will receive an e-mail from the Lotus Greenhouse team that contains a URL for you to use to complete your registration.
5. After completing your registration, you will be taken to a page that lists all the products available on the Lotus Greenhouse site. You can either click the link to go to IBM Mashup Center, or you can go there directly by clicking <http://greenhouse.lotus.com/mashups>.
6. On the Lotus Mashups landing page, click **Launch MashupHub**. Note that you need to be logged into the Lotus Greenhouse site in order to see this button.
7. Locate the **Google Gadget** and **AccuWeather** widgets in either of the following ways:
 - Type the widget names one at a time in the search field, set the scope to **Widgets**, and click the search icon.
 - In the **Catalog** section, click **List Widgets** to show a list of all the widgets in the catalog. You can find **Google Gadget** and **AccuWeather** in the list.
8. Now that you've located the **Google Gadget** and **AccuWeather** widgets, find the versions that are designated as WAR files.
9. For each WAR file-based widget, view the widget details, and then click **Download Widget** in the **Actions** section of the page.
10. Download both WAR files to your local machine.
11. Navigate back to your local version of Lotus Mashups.
12. In the Lotus Mashups browser, click **Go to Catalog** in the actions menu to open IBM InfoSphere MashupHub in a separate browser.
13. To upload the widgets into the catalog, do the following steps:
 - a. In the **Create** section, click **Upload Widget** to open the **Select the widget type source** window.
 - b. In the **Source** field, select **iWidgets**.
 - c. Click **Next** to open the **Upload or Register a Widget** window.
 - d. For **Widget source**, select **Upload a Widget Package**.
 - e. In the **Widget file path** field, browse to the location of one of the two WAR files.
 - f. Click **Next**.
 - g. In the **Specify the following information** window, type the widget title and description. Also provide some useful tags and set the permissions to **Public**. Leave the default settings in the **Advanced** section.


- h. Click **Finish**. You should see a message telling you that the widget was saved to the catalog successfully.
 - i. Repeat the steps above for the second WAR file.
14. Back on the home page of the catalog, click **List Widgets**, and confirm that the new widgets are listed.
 15. Switch to Lotus Mashups.
 16. To add the widgets to your toolbox, do the following steps:
 - a. In the search field at the top, right corner of the browser, type **Google Gadget**.
 - b. In the **Search the Catalog** window, find the **Google Gadget** widget, and click **Add to Toolbox**.
 - c. In the **Add Widget to Toolbox** window, specify the drawer and the icon to represent the widget. Leave the title and description as is.
 - d. Click **Add**, and then **Done**.
 - e. Repeat these steps for the **AccuWeather** widget.
 17. Now open the toolbox and confirm that the two new widgets were added successfully. If so, you are ready to proceed to the next lesson.

Lesson checkpoint


In this lesson, you added the **Google Gadget** and **AccuWeather** widgets to your Lotus Mashups toolbox. Now you are ready to use them to create your mashup.

Lesson 2: Creating a new page for your mashup

In this lesson, you will create a new page for your mashup. The page is the canvas area on which you assemble and wire mashups.

Now that you have downloaded the tutorial widgets from the Web site and added them to your toolbox, you are ready to create a page  for your mashup. In IBM Lotus Mashups, you create mashups by dragging widgets onto a page. You can rearrange widgets and customize the page layout and theme. You can also set permissions to specify which groups of users have editing access after you publish the mashup to the catalog.

To create a new page for your mashup, do the following steps:

1. Open the IBM Lotus Mashups browser and go to edit mode.
2. At the top of the browser, click the default page.
3. Click **New Page**.
4. In the **Name** field, type Customer Tutorial.
5. Press the **Enter** to create your page.
6. In the toolbox, click the save icon  to save the page.

Now you should see your new page called **Customer Tutorial** listed in the page navigation area above the toolbox.

Lesson checkpoint

In this lesson, you learned how to create and save a new page in Lotus Mashups.

Lesson 3: Adding customer data to your mashup

In this lesson, you will add the **Customer List** widget to your mashup. The **Customer List** widget displays data for several customers in a table.


The **Customer List** widget contains the following information about customers:

- Company names
- Addresses
- Zip codes
- Contact information
- Ticker symbols
- Web sites
- Feed URLs

This is the main widget that will send content to the other widgets on your page. As you drag each of the other widgets onto the page in later lessons, you will wire those widgets to the **Customer List** widget so that they can communicate with each other. In the final mashup, you will be able to click individual customer names in the **Customer List** widget and send content to the other widgets so that they refresh with information about that customer.

Note: Although we use real company names in our examples, do not assume that any other data is factual. The sample **Customer List** widget is provided for demo purposes only.

To add the **Customer List** widget to the page, do the following steps:

1. In the toolbox, open the **Demo** drawer.
2. Use your mouse to drag the **Customer List** widget onto an empty area on the page.
3. Click the save icon  in the toolbox to save the page.

The **Customer List** widget displays data in a table format. Scroll left to right to see all the columns.

Lesson checkpoint

In this lesson, you learned how to add the **Customer List** widget to the page and display important data about customers in a table.


Lesson 4: Showing weather conditions at customer sites

In this lesson, you will add the **AccuWeather** widget to your mashup and wire it to the **Customer List** widget. The **AccuWeather** widget displays current weather conditions at customer sites.


As you plan a trip to a customer site, you will probably want to know what type of weather that area is experiencing. Inclement weather conditions can affect your ability to reach the site. Even if you are able to reach the site, the key people that you want to meet with may not be able to get to the office. Bad weather may also affect customer profits negatively for the week, which reduces your chances of making a sale. By adding a quick view of weather conditions to your mashup, you can more easily make decisions about postponing your trip.

The best way to see a quick view of weather conditions at customer sites is to add an interactive weather map to your mashup and wire it to the **Customer List** widget. You can do this by wiring the **Customer List** to the **AccuWeather** widget that you downloaded earlier from the Web. After wiring the two widgets, you will be able to click a customer name and immediately see an update on weather conditions at that customer site.

To add the **AccuWeather** widget to the page and wire it to the **Customer List** widget, do the following steps:

1. Use your mouse to drag the **AccuWeather** widget from the toolbox onto an empty area on the page.
2. At the top, right corner of the **Customer List** widget, click the wiring icon
3.  In the wiring panel, in the **Select content to send** area, select **string from Zip**. This tells the **Customer List** widget to send the customer's zip code to the **AccuWeather** widget so it can use the zip code when searching for weather conditions.
4. In the **Select a widget to receive content** area, select **AccuWeather**.
5. In the list of possible actions that can occur when the **AccuWeather** widget receives the zip code from the **Customer List** widget, select **Zipcode**. This tells the **AccuWeather** widget to display the current weather conditions at the zip code that it receives. Now the wiring panel should look like this:



6. Click **Done**. The wiring panel closes automatically.
7. Confirm the wiring is successful by clicking different customer names in the **Customer List** widget. Each time you click a different customer name, the **AccuWeather** map should update to show the current weather conditions at the company site of the currently selected customer.
8. Click the save icon  in the toolbox to save the page.

Lesson checkpoint


In this lesson, you learned how to add the **AccuWeather** widget to your mashup and wire it to the **Customer List** widget. Now, when you click a customer name in the mashup, the map updates to show the current weather conditions at that customer site.

Lesson 6: Displaying customer Web sites


In this lesson, you will add the **Web Site Displayer** widget to your mashup and wire it to the **Customer List** widget. The **Web Site Displayer** widget displays customers' company Web sites.

Before you visit a customer site, you will probably want to take a look at the company Web site to look for any information that may help you make a sale. For example, you can read the top stories on the home page to find out about any recent investments or projects that the company is involved with. This is a good way to look for opportunities to make a sale. It's also a good way to be let the key players know that you are truly interested in their company. The easiest way to view company Web sites in your mashup is to add the **Web Site Displayer** widget and wire it to the **Customer List** widget.

To add the **Web Site Displayer** widget to the page and wire it to the **Customer List** widget, do the following steps:

1. In the toolbox, open the **Tools** drawer.
2. Use your mouse to drag the **Web Site Displayer** widget onto an empty area on the page.
3. At the top, right corner of the **Customer List** widget, click the wiring icon
4.  In the wiring panel, in the **Select content to send** area, select **string from URL**. This tells the **Customer List** widget to send the customer's Web address to the **Web Site Displayer** widget so it can search for and display the customer's Web site.
5. In the **Select a widget to receive content** area, select **Web Site Displayer**.
6. In the list of possible actions that can occur when the **Web Site Displayer** widget receives the string from **URL**, select **displayhtml**. This tells the **Web Site Displayer** widget to display the customer's Web site when it receives the URL. Now the wiring panel should look like this:



7. Click **Done**. The wiring panel closes automatically.
8. Confirm the wiring is successful by clicking different customer names in the **Customer List** widget. Each time you click a different customer name, the **Web Site Displayer** widget should update to show the customer's Web site.
9. Click the save icon  in the toolbox to save the page.

Lesson checkpoint

In this lesson, you learned how to add the **Web Site Displayer** widget to your mashup and wire it to the **Customer List** widget. Now, when you click a customer name in the mashup, the **Web Site Displayer** widget updates to show the customer's company Web site.

Lesson 8: Displaying customer stock charts

In this lesson, you will add the **Google Gadget** widget to your mashup, select a stock chart gadget to add to the widget, and then wire it to the **Customer List** widget.


When you visit a customer site, most likely your top priority is to make a sale. As you plan your strategy, you will probably want to know if the customer is having a good week in the stock market. If so, your chances of making a sale are better. If the customer is having a bad week, you may decide to postpone your visit until stock numbers improve.

One of the easiest ways to view this type of data in a mashup is by adding a stock chart. You can do this by adding a **Google Gadget** widget to the page and then configuring it to use a stock chart gadget. Then, after you wire it to the **Customer List** widget, you can click a customer name and see the latest company stock chart.

To add a **Google Gadget** widget to your mashup, configure it to display a stock chart gadget, and then wire it to the **Customer List** widget, do the following steps:

1. Use your mouse to drag the **Google Gadget** widget from the toolbox onto an empty area on the page.

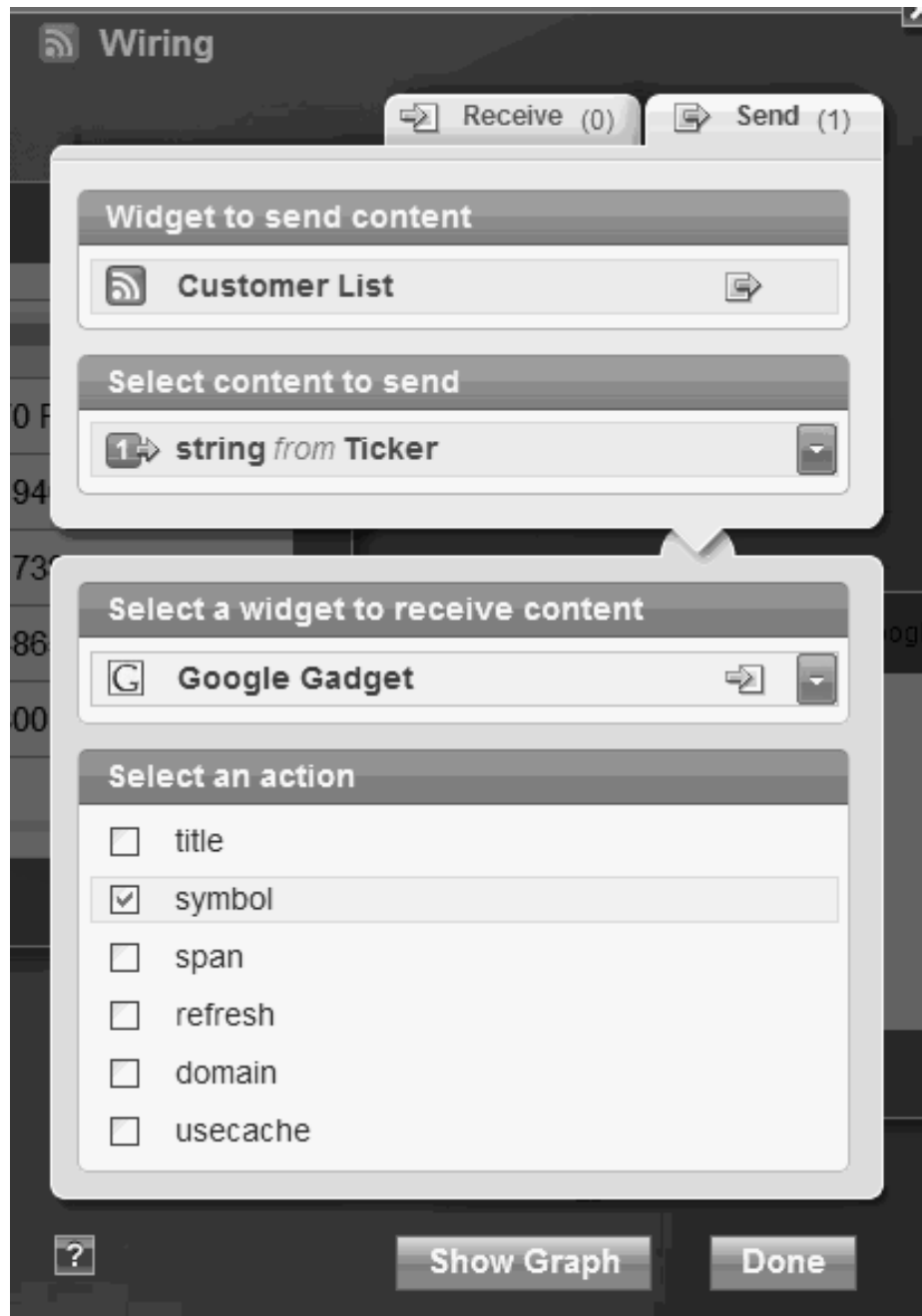



2. Click the menu icon  to display a list of options.
3. In the list, select **Edit Settings**.
4. In the configuration window, click **Select a Google Gadget**. This opens the Google Gadget Web site, where you can find gadgets to add to your mashup.
5. In the search field, type stock chart and then click **Search Homepage Content**.
6. Click the stock chart and add it to the widget. Now you should see a generic stock chart display in the widget on the page.
7. To wire the **Customer List** widget to the stock chart widget, do the following steps:

- a. At the top, right corner of the **Customer List** widget, click the wiring icon



- b. In the wiring panel, in the **Select content to send** area, select **string from Ticker**. This tells the **Customer List** widget to send the customer's information to the **Google Gadget** widget so it can display the customer's stock chart.
- c. In the **Select a widget to receive content** area, select **Google Gadget**.
- d. In the list of possible actions that can occur when the **Google Gadget** widget receives the customer's information, select **symbol**. This tells the **Google Gadget** widget to display the customer's stock chart when it receives the customer information. Now the wiring panel should look like this:



- e. Click **Done**. The wiring panel closes automatically.
8. Confirm the wiring is successful by clicking different customer names in the **Customer List** widget. Each time you click a different customer name, the stock chart should update with the stock numbers for the currently selected customer.
9. Click the save icon  in the toolbox to save the page.

Lesson checkpoint


In this lesson, you learned how to add the **Google Gadget** widget to your mashup, configure it to use a stock chart gadget, and wire it to the **Customer List** widget.

Now, when you click a customer name in the mashup, the **Google Gadget** widget updates to show the latest stock chart for that customer.


Lesson 9: Viewing the wiring graph

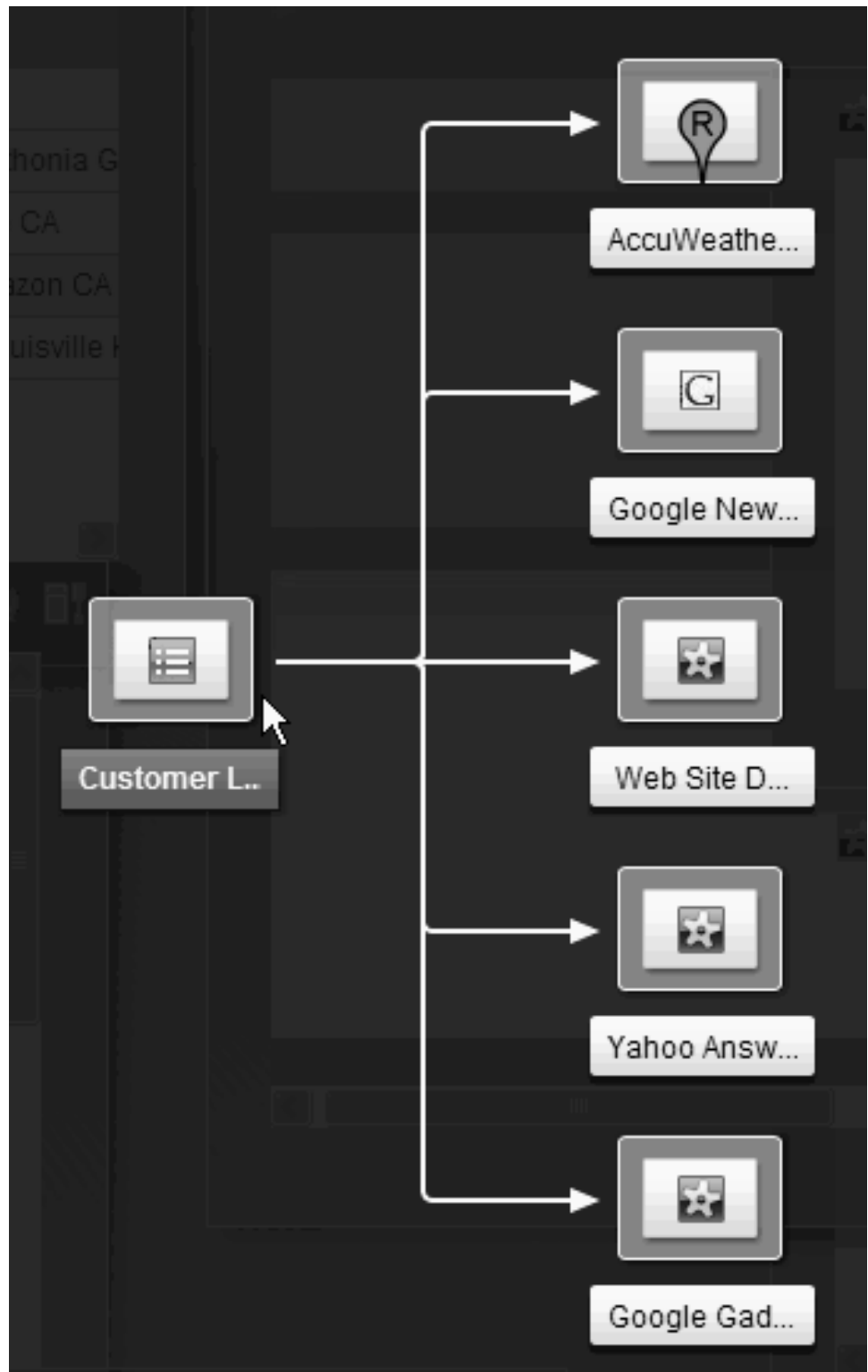
In this lesson, you will view the wiring graph of your mashup. This provides a visual confirmation that all the wires you created in the previous steps are in place.

As you created your mashup in the previous steps, you confirmed along the way that the wires were working correctly by simply clicking in the **Customer List** widget to update the other widgets. For example, when you click a customer name in the **Customer List** widget, suddenly the **AccuWeather** widget displays the weather conditions at the customer site, and the **Web Site Displayer** widget displays the customer's Web site. If all these pieces are working correctly, you know that you wired your mashup successfully.

In this step, you are simply viewing the wiring graph  to see a graphical overview of your wiring job. The wiring graph is just one more way to confirm visually that all the wires are set up correctly and working.

To view the wiring graph, do the following steps:

1. On the **Customer List** widget, click the menu icon  to display a list of options.
2. In the list, select **View Wiring Graph**. This opens the IBM Lotus Mashups wiring graph. Note that you can click **View Graph** in any wiring panel to open the wiring graph.
3. Check to make sure that you have a total of three wires, and that each wire is being sent from the **Customer List** widget to the other widgets in your mashup. Your mashup is wired correctly if the wiring graph displays as follows:



4. Click the save icon  in the toolbox to save the page.

Lesson checkpoint

In this lesson, you learned how to use the **Wiring Graph** to confirm that the wires in your mashup are set up correctly.

Module B: Summary

In Module B, you learned how to create, assemble, and wire a real-world mashup in which you are a sales person is preparing for a customer site visit. You built the mashup by assembling widgets on a page and then wiring them together to communicate. The widgets display data from multiple sources, including internal data from your human resources department as well as external data from the Web.

Lessons learned

By completing this module, you achieved the following objectives:

- Learn how to add widgets to the IBM Lotus Mashups toolbox
- Learn how to drag and assemble widgets on the mashup page
- Learn how to configure widgets
- Learn how to save the page

Additional resources

Use the following resources to learn more about Mashup Center:


- The IBM Mashup Center wiki at <http://www-10.lotus.com/ldd/mashupswiki.nsf> provides product information, including tutorials, frequently asked questions, widget help, glossary of terms, and more.
- The **Getting Started** section of the IBM InfoSphere MashupHub user interface provides links to tutorials and examples.

Chapter 5. Module C: Using spreadsheet data in your mashup

In this module, you will learn how to convert data that resides in a spreadsheet into a feed, add it to IBM Lotus Mashups, and then wire it to other widgets.

As you create mashups to solve everyday situations that arise in your job, most likely you will need to work with departmental data in spreadsheets and other data sources. But how do you get that data into a format that you can use in your mashups? In other words, how do you make that data *mashable*? Fortunately IBM InfoSphere MashupHub makes this process very easy. You simply convert the data into a feed. This conversion reformats the data into an XML-based set of entries that allows other widgets to be able to parse, format, and display the data.

In Module B, you created a mashup that provides a sales person with a quick view of customer data, for example the weather conditions at the customer site, the customer's Web site, and more. To accomplish this, you wired the **Customer List** widget provided with Lotus Mashups to several other widgets on the page. As the sender widget, the **Customer List** widget sent event data to all the other widgets. When the other widget received the event data, they refreshed to display updated information.

In this module, you will recreate the **Customer List** widget by creating an Atom feed  from a spreadsheet, adding the new feed to Lotus Mashups, and then displaying the data from the feed in a **Data Viewer** widget. As you will see, the new widget will be identical to the original **Customer List** widget and will be able to send the same event data and invoke the same actions in the other widgets on the page.

Learning objectives

By completing the lessons in this module, you will meet the following objectives:

- Learn how to create a new feed from a spreadsheet
- Learn how to add a feed to Lotus Mashups and display the data in a **Data Viewer** widget
- Learn how to wire the new widget to other widgets on the page

Time required

This module should take approximately 20 minutes to complete.

Lesson 1: Creating a new feed

In this lesson, you will learn how to use IBM InfoSphere MashupHub to create a new feed from a spreadsheet.

If you recall from Module B, the **Customer List** widget contains several pieces of data, including the following: :

- Customer name
- Address
- Zip code

- Contact person
- Ticker symbol
- Company Web site
- Company feed URL

Now, you will recreate this widget by downloading a spreadsheet that contains the exact same data and converting it to an Atom feed. This conversion reformats the data into an XML-based set of entries that allows other widgets to be able to parse, format, and display the data. Without this step, the data in the spreadsheet is not mashable and cannot communicate with other widgets.

To create a new feed, do the following steps:

1. Confirm that you have downloaded the CustomerList.xls file to your desktop. If not, you can download it from this page in the IBM Mashup Center wiki: <http://www-10.lotus.com/ldd/mashupswiki.nsf/dx/tutorial-introduction-to-creating-mashups-using-ibm-mashup-center>.
2. From the **Home** tab of MashupHub, click **New Feed** in the **Create** category. On the next screen, notice that data sources are divided into two categories – **enterprise** and **departmental**. Enterprise data typically comes from more company-wide, IT-managed sources such as databases, servers, and Web services. Departmental data generally comes from more organization-specific, personal sources such as spreadsheets and XML documents. In this tutorial, we are working with departmental data.
3. In the **Source** field, in the **departmental** section, select **Excel Workbook**.
4. Click **Next**.
5. On the next page, do the following steps:
 - a. In the **Header row** field, type 1. This indicates that the first row of the spreadsheet will be used as the column headers when the data displays in the mashup page.
 - b. Leave the **Range** and **Worksheet number** fields empty.
 - c. For the **Input type**, select **Upload File**. This will upload the entire XLS file definition and all associated artifacts to the catalog.
 - d. In the **Filepath** field, click **Browse** and point to the spreadsheet file on your desktop.
 - e. Click **Next**.
6. On the next screen, do the following steps:
 - a. In the **Title** field, type Customer List 2. This helps distinguish it from the original **Customer List** widget provided with Lotus Mashups
 - b. In the **Description** field, retype Customer List 2.
 - c. In the **Version** field, type 1.0. It should already be filled in by default.
 - d. In the **Tags** field, type some tags that you think users may use to search for your feed, for example Excel, customers, and data.
 - e. In the **Permissions** section, select **Public**. This allows all users to be able to view the feed. For more information about setting permissions on feeds, see the MashupHub help.
 - f. In the **Advanced** section, leave all the default options. If you want to learn more about these options for future tasks, see the MashupHub help.
 - g. Click **Finish**.

The next screen informs you that the information for the new **Customer List 2** feed has been saved.

7. In the **What's Next** section, click **View feed**. A new browser tab or window will appear. Here is an example of the first entry tag in the feed:

```
<entry xmlns="http://www.w3.org/2005/Atom">
  <title type="text">Sheet1</title>
  <id>urn:uuid:2</id>
  <updated>2008-05-21T19:01:00.718Z</updated>
  <author>
    <name>agoneal</name>
  </author>

  <summary type="text">Atom Feed entry 2</summary>
  <content type="application/xml">
    <row xmlns="http://www.ibm.com/xmlns/atom/content/datarow/1.0">
      <Customer_Name>American International Group</Customer_Name>
      <Address>70 PINE ST New York NY</Address>
      <Zip>10270</Zip>
      <Contact>Kent E. Price</Contact>

      <Ticker>AIG</Ticker>
      <URL>http://www.aig.com</URL>
      <Feed_URL>http://news.google.com/news?q=aig&output=rss</Feed_URL>
    </row>
  </content>
</entry>
```

Note: If you are using a Firefox browser, you will need to select **View** → **Page Source** to see the XML code.

8. Still in the **What's Next** section, click **View the feed details**. In the screen that displays next, notice how you can click a link to view the feed in your browser. You can also edit tags and view comments. In the next step, we are going to provide a high rating so that the feed shows up as highly rated in user searches.
9. In the **Details** section, click the last star in the **My Rating** field to give the feed a high rating of five. The information is saved automatically.
10. To confirm that the feed was created successfully, click the **Home** tab.
11. In the **Catalog** section, click **List feeds**, and then find **Customer List 2** in the list.

Lesson checkpoint

In this lesson, you learned how to create a new feed from a spreadsheet. You also learned how to view the feed data as XML code and provide a rating. In the next lesson, you will add the new feed to Lotus Mashups and display the data in a **Data Viewer** widget.


Lesson 2: Adding the feed to Lotus Mashups

In this lesson, you will learn how to add your new feed to IBM Lotus Mashups and display the data in a **Data Viewer** widget.

The open search feature in Lotus Mashups makes it very easy to find feeds in the catalog and add them to your toolbox. In this lesson, you will add the **Customer List 2** feed that you created in the previous lesson to Lotus Mashups.

To add the **Customer List 2** feed to Lotus Mashups and then display it in a **Data Viewer** widget, do the following steps:

Note: You can also add the feed to Lotus Mashups from the catalog. See the IBM InfoSphere MashupHub help for more information.

1. In the search field at the top, right corner of the Lotus Mashups browser, type **Customer List 2**, and then click the search icon . In the results list, you should see **Customer List 2**.
2. Click **Add to Toolbox**.
3. In the window, do the following steps:
 - a. In the **Drawer** field, select the drawer that you want to contain the new widget.
 - b. Required: In the next field, select **Data Viewer** as the widget to display the feed.
 - c. In the **Feed Information** section, leave **Customer List 2** in the title and description fields.
 - d. Select an icon for the feed.
 - e. Click **Add**.
4. Click **Done**.
5. In the toolbox, open the drawer you selected above and confirm that the new **Customer List 2** widget is there.

Lesson checkpoint

In this lesson, you learned how to add a feed to Lotus Mashups and display the data in a **Data Viewer** widget. Now you are ready to add the widget to a page and wire it to another widget on the page.

Lesson 3: Wiring the widgets

In this lesson, you will add the **Customer List 2** widget to a page and wire it to another widget.

In Module 2, you learned how to add the **Customer List** widget provided with IBM Lotus Mashups to a page and wire it to other widgets to create a mashup that allows a sales person to see a quick view of customer data. The goal of this lesson is to show that you can recreate this same mashup using customer data that resides in a spreadsheet. You will see that the original **Customer List** widget is identical to the new **Customer List 2** widget and can be wired to other widgets in the same way.

In this lesson, you will test to confirm that you can successfully wire your new **Customer List 2** widget to another widget on the page. You will use the **Web Site Displayer** widget in your test.

To wire the two widgets, do the following steps:


1. In Lotus Mashups, create a new page.
2. Drag the **Customer List 2** onto the blank page.
3. Drag the **Web Site Displayer** widget onto an empty area on the page.
4. At the top, right corner of the **Customer List 2** widget, click the wiring icon



5. In the wiring panel, in the **Select content to send** area, select **string from URL**. This tells the **Customer List 2** widget to send the customer's Web address to the **Web Site Displayer** widget so it can search for and display the customer's Web site.

6. In the **Select a widget to receive content** area, select **Web Site Displayer**.
7. In the list of possible actions that can occur when the **Web Site Displayer** widget receives the string from **URL**, select **displayhtml**. This tells the **Web Site Displayer** widget to display the customer's Web site when it receives the URL. Now the wiring panel should look like this:



8. Click **Done**. The wiring panel closes automatically.
9. Confirm the wiring is successful by clicking different customer names in the **Customer List** widget. Each time you click a different customer name, the **Web Site Displayer** widget should update to show the customer's Web site.
10. Click the save icon  in the toolbox to save the page.

Note: Whenever you want to refresh the **Customer List 2** widget with updated data, you will need to delete the widget from the Lotus Mashups toolbox, edit the feed in IBM InfoSphere MashupHub to point to the updated spreadsheet, and then add it back to Lotus Mashups.

Lesson checkpoint

In this lesson, you confirmed that you can wire the new **Customer List 2** widget to other widgets on the page in the same way that you wired the **Customer List** in Module B. This shows that you can convert spreadsheet data into a mashable format.

Module C: Summary

In Module C, you learned how to convert data that resides in spreadsheets into a *mashable* format so that you can use it in your mashups.

Lessons learned

By completing this module, you achieved the following objectives:

- Learn how to create a new feed from a spreadsheet
- Learn how to add a feed to Lotus Mashups and display the data in the **Data Viewer** widget
- Learn how to wire the new widget to another widget on a page

Additional resources

Use the following resources to learn more about Mashup Center:

- The IBM Mashup Center wiki at <http://www-10.lotus.com/idd/mashupswiki.nsf> provides product information, including tutorials, frequently asked questions, widget help, glossary of terms, and more.
- The **Getting Started** section of the IBM InfoSphere MashupHub user interface provides links to tutorials and examples.

Chapter 6. Module D: Creating a feed mashup and adding it to Lotus Mashups

In this module, you will create a new feed mashup, transform and filter data, and add it to IBM Lotus Mashups.

In Module B, you created a mashup that allows you, a sales person, to see a quick view of customer data, including their company Web site, recent news, weather conditions at the company location, and more. In Module C, you learned how to convert customer data from a spreadsheet into a format that can be consumed by other widgets. In this module, we will take this same scenario a step further by creating a feed mashup that transforms, filters, and publishes data about customer's sales patterns over the past two months. The goal is to add the final piece of data to the mashup to help you make a decision whether or not to visit the customer site. Specifically, you will create a feed mashup that shows you which customers have experienced an 80% or higher drop in sales based on data from the last two months.

Before we get started, let's review the difference between a feed and a feed mashup. In simple terms, a *feed* is a stream of data that you can display with a feed reader, whereas a *feed mashup* is a feed that you manipulate in some way. For example, you can manipulate a feed so that the data that gets displayed is filtered based on some sort of condition. In IBM InfoSphere MashupHub, you create feed mashup using the feed mashup builder. The feed mashup builder includes a set of operators and functions that allow you import feed data, perform operations on the data, and then publish the outcome as a new feed. In the end, feed mashups behave the same way as feeds. You can add them to the catalog for others to use, tag, rate, and add comments. You can also add them to Lotus Mashups so that they display feed data in either the **Feed Reader** or **Data Viewer** widgets.

Learning objectives

By completing the lessons in this module, you will meet the following objectives:

- Learn how to create a new feed from a spreadsheet
- Learn how to import data from a feed into the feed mashup builder
- Learn how to restructure the feed data to create a new output
- Learn how to filter data in the feed mashup
- Learn how to publish data as an Atom feed
- Learn how to add the new feed to Lotus Mashups

Time required


This module should take approximately 30 minutes to complete.

Lesson 1: Creating a new feed

In this lesson, you will learn how to use IBM InfoSphere MashupHub to create a new feed from a spreadsheet.

In your company, your sales department records monthly sales data in a spreadsheet. The spreadsheet allows a sales person like you to be able to see a

quick glimpse of total sales revenue for each company over the last two months. It also has a column in which you can add a date when the spreadsheet was last updated. In the upcoming lessons, you will transform and filter this data so that the feed mashup displays only the data for companies that have experienced an 80% or higher drop in sales over the past two months.

In this lesson, you will create a feed  from this spreadsheet. This will convert the data into a format that will allow you to manipulate the data and create a feed mashup.

To create a new feed, do the following steps:

1. Confirm that you have downloaded the CustomerSales.xls file to your desktop. If not, you can download it from this page in the IBM Mashup Center wiki: <http://www-10.lotus.com/ldd/mashupswiki.nsf/dx/tutorial-introduction-to-creating-mashups-using-ibm-mashup-center>.
2. From the **Home** tab of MashupHub, click **New Feed** in the **Create** category. On the next screen, notice that data sources are divided into two categories – **enterprise** and **departmental**. Enterprise data typically comes from more company-wide, IT-managed sources such as databases, servers, and Web services. Departmental data generally comes from more organization-specific, personal sources such as spreadsheets and XML documents. In this lesson, we are working with departmental data.
3. In the **Source** field, in the **departmental** section, select **Excel Workbook**.
4. Click **Next**.
5. On the next page, do the following steps:
 - a. In the **Header row** field, type 1. This indicates that the first row of the spreadsheet will be used as the column headers when the data displays in the mashup page.
 - b. In the **Range** field, type A1:E6.
 - c. In the **Worksheet number** field, type 1.
 - d. For the **Input type**, select **Upload File**. This will upload the entire XLS file definition and all associated artifacts to the catalog.
 - e. In the **Filepath** field, click **Browse** and point to the spreadsheet file on your desktop.
 - f. Click **Next**.
6. On the next screen, do the following steps:
 - a. In the **Title** field, type Customer Sales Feed.
 - b. In the **Description** field, retype Customer Sales Feed.
 - c. In the **Version** field, type 1.0. It should already be filled in by default.
 - d. In the **Tags** field, type some tags that you think users may use to search for your feed, for example Excel, customers, and sales.
 - e. In the **Permissions** section, select **Public**. This allows all users to be able to view the feed. For more information about setting permissions on feeds, see the MashupHub help.
 - f. In the **Advanced** section, leave all the default options. If you want to learn more about these options for future tasks, see the MashupHub help.
 - g. Click **Finish**.

The next screen informs you that the information for the new **Customer Sales Feed** feed has been saved.

7. In the **What's Next** section, click **View feed**. A new browser tab or window will appear. Here is an example of the first entry tag in the feed:

```
<entry xmlns="http://www.w3.org/2005/Atom">
  <title type="text">Sheet1</title>
  <id>urn:uuid:2</id>
  <updated>2008-05-21T19:39:58.046Z</updated>
  <author>
    <name>agoneal</name>
  </author>

  <summary type="text">Atom Feed entry 2</summary>
  <content type="application/xml">
    <row xmlns="http://www.ibm.com/xmlns/atom/content/datarow/1.0">
      <Ticker>AIG</Ticker>
      <CustomerName>American International Group</CustomerName>
      <Two_Months_Ago>500000</Two_Months_Ago>
      <Last_Month>456800</Last_Month>

      <Date_Updated>6/12/2008</Date_Updated>
    </row>
  </content>
</entry>
```

Note: If you are using a Firefox browser, you will need to select **View** → **Page Source** to see the XML code.

8. In the **What's Next** section, click **View the feed details**. In the screen that displays next, notice how you can click a link to view the feed in your browser. You can also edit tags and view comments. In the next step, we are going to provide a high rating so that the feed shows up as highly rated in user searches.
9. In the **Details** section, click the last star in the **My Rating** field to give the feed a high rating of five. The information is saved automatically.
10. To confirm that the feed was created successfully, click the **Home** tab.
11. In the **Catalog** section, click **List feeds**, and then find **Customer Sales Feed** in the list.

Lesson checkpoint

In this lesson, you learned how to create a new feed from a spreadsheet. You also learned how to view the feed data as XML code and provide a rating.

Lesson 2: Importing the feed data

In this lesson, you will import the customer sales feed into a feed mashup.

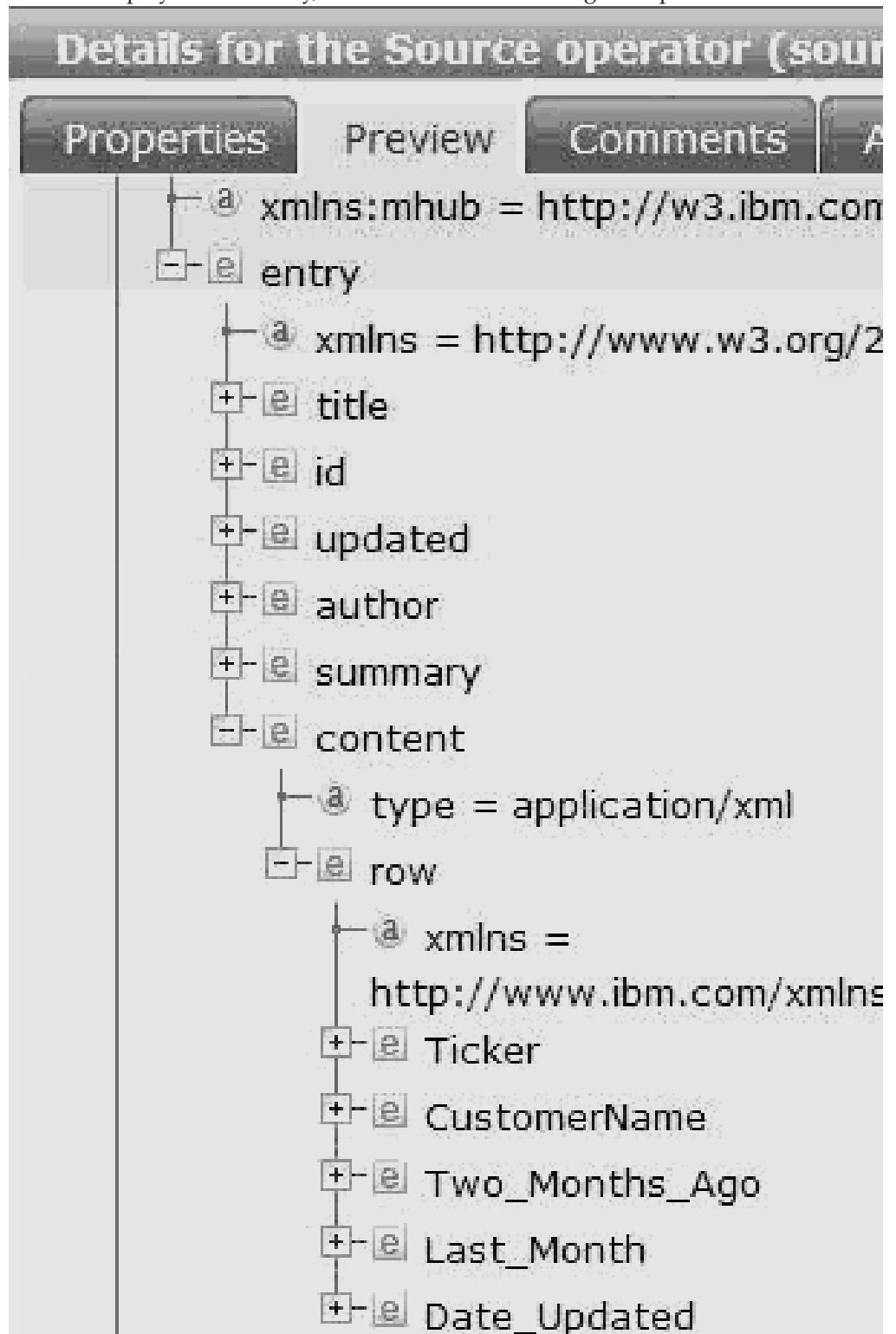
Now that you have created a feed from the customer sales spreadsheet, the data is in a format that you can use in your mashups. Your next step is to use the feed mashup builder to import the data from the new feed. This breaks down the data so that you can apply the built-in operators and functions and restructure the data.

To import the feed data, do the following steps:

1. From the **Home** tab of IBM InfoSphere MashupHub, click **New Feed Mashup** in the **Create** section. This opens the feed mashup builder.
2. Find **Source** in the list of operators on the left side of the browser, and drag it onto the canvas area. Notice how it has a plug on one end and a socket on the other. This is how you connect operators and control how data flows from one operator to the next. Also notice that the feed mashup builder automatically adds a **Publish** operator to the canvas.

3. In the details window, do the following steps:
 - a. In the **Source** section, select **From Catalog**.
 - b. Click **Browse**.
 - c. In the list of feeds, select **Customer Sales Feed** and click **OK**. The details window displays the message **Source loaded** when the data has been successfully imported.
4. Click the **Advanced** tab, and do the following steps:
 - a. In the **Feed Type** field, select **XML**.
 - b. In the **Refresh Interval** field, select **1 day**. This is a common interval for data that is refreshed constantly. Selecting longer intervals may also improve performance for end users because the data does not have to be fetched as often.

5. Click the **Preview** tab. Expand the sections to make sure that the column headers display in each entry, as shown in the following example:



6. Close the **Source** operator details window. Your data is automatically saved.

Lesson checkpoint

In this lesson, you learned how to use the **Source** operator to import data from a feed.

Lesson 3: Restructuring the feed data

In this lesson, you will manipulate the data output of the feed mashup by restructuring the incoming feed data. This helps prepare for the filtering process in the next lesson.

As a sales person, you are very concerned when you see a drop in sales from one month to the month. You are particularly concerned when that drop is 80% or higher. When this occurs, you flag that customer as someone you need to visit as soon as possible to find out the reason for the drop. In addition to the other pieces of information in your mashup, this sales data can help you make a quick decision about whether or not to visit the customer.

In this lesson, your goal is to create a new output data structure so that you can set conditions and filter the data in the next lesson. Specifically, you will use the **Transform** operator to carry over several elements from the feed data (called input data) and add them to a new output structure. You will also create a new element in the output structure to contain a month value of when sales information was last updated for each customer. By containing this value in its own element, you will be able to perform a comparison and filter it based on the results. Basically, when you transform data, you are preparing it for the filtering process.

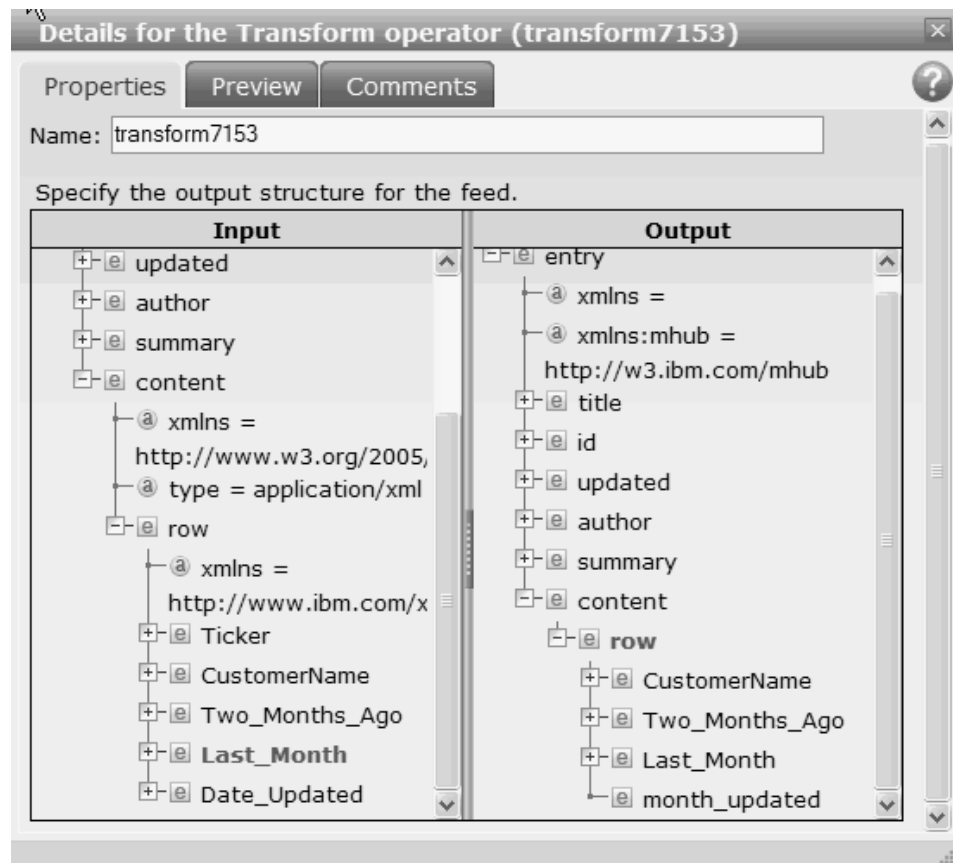
To manipulate the feed data into a new output structure, do the following steps:

1. Find **Transform** in the list of operators on the left side of the browser, and drag it onto the canvas area somewhere between the **Source** and **Publish** operators.
2. Drag the plug of the **Source** operator to the socket of the **Transform** operator until they connect.
3. Double-click the **Transform** operator in the canvas to open the details window.
4. Do this step for each of the following elements in the **Input** field. Click the element to highlight it in green, and then drag it to an empty area in the **Output** field.
 - **title**
 - **id**
 - **updated**
 - **author**
 - **summary**

Now the elements should be child elements of the **entry** element. The purpose of this step is to retain the valid elements of an Atom feed in the output.

5. In this step, you will create a new parent and child element to contain the month data. This ensures the data is in a consumable format. First, right-click inside an empty area of the **Output** field and select **New Element**. Type content for the name of the new element, and then press the **Enter** key to save it. Next, right-click the new **content** element and select **New Element**. Type row for the name of the new element, and then press the **Enter** key to save it. The **row** element should be a child element of the **content** element.
6. In the **Input** field, expand **entry** → **content** → **row**. Highlight each of the following elements in green, drag them into the **Output** field, and drop them directly onto the **row** element that you just created so that **row** is the parent element:
 - **CustomerName**

- **Two_Months_Ago**
 - **Last_Month**
7. In the **Output** field, right-click the **row** element and select **New Element**. Type `month_updated` for the name of the new element, and then press the **Enter** key to save it. Be sure that it is a child element of the **row** element. The **month_updated** element should be at the same level in the hierarchy as the three elements that you dragged over in the previous step.
 8. Compare your details window with the following image to make sure they are identical:



9. Since you only need to know the month value of when the sales data was last updated, in this step you will create a regular expression to extract the month value from the data in the **Date_Updated** element. For example, if the date is 6/12/2008, you only want need the 6 in your output, since that is the month value. To do this, right-click the **month_updated** element in the **Output** field and select **Specify a function value**.
10. In the **Functions** window, do the following steps:
 - a. In the list, select **Regexp** under **String**.
 - b. In the **Pattern** field, type `(\d*)\(/(\d*)\)/`. This formula eliminates all the characters after the first forward slash in the date. Now, if the input data shows the month, day, and year in this format 6/12/2008, after you run the expression, the output is simply 6.
 - c. In the **Input** field, select **Specify a value from the Input tree**. Expand **entry** → **content** → **row**. Click **Date_Updated** so that it is highlighted in green, and click **OK**.
 - d. In the **Index** field, leave the default value 1.

- e. Click **OK** to close the **Functions** window.
11. To confirm that you followed the steps accurately, click the **Preview** tab. Expand a **month_updated** element under any of the **content** elements, and confirm that the number **6** displays. Now you know the output data will contain only the month value.
12. Close the **Transform** operator details window.

Lesson checkpoint

In this lesson, you learned how to use the **Transform** operator to manipulate the structure of the incoming feed data so that it outputs only current sales data, specifically the data that has been updated in the current month June.

Lesson 4: Filtering the feed data

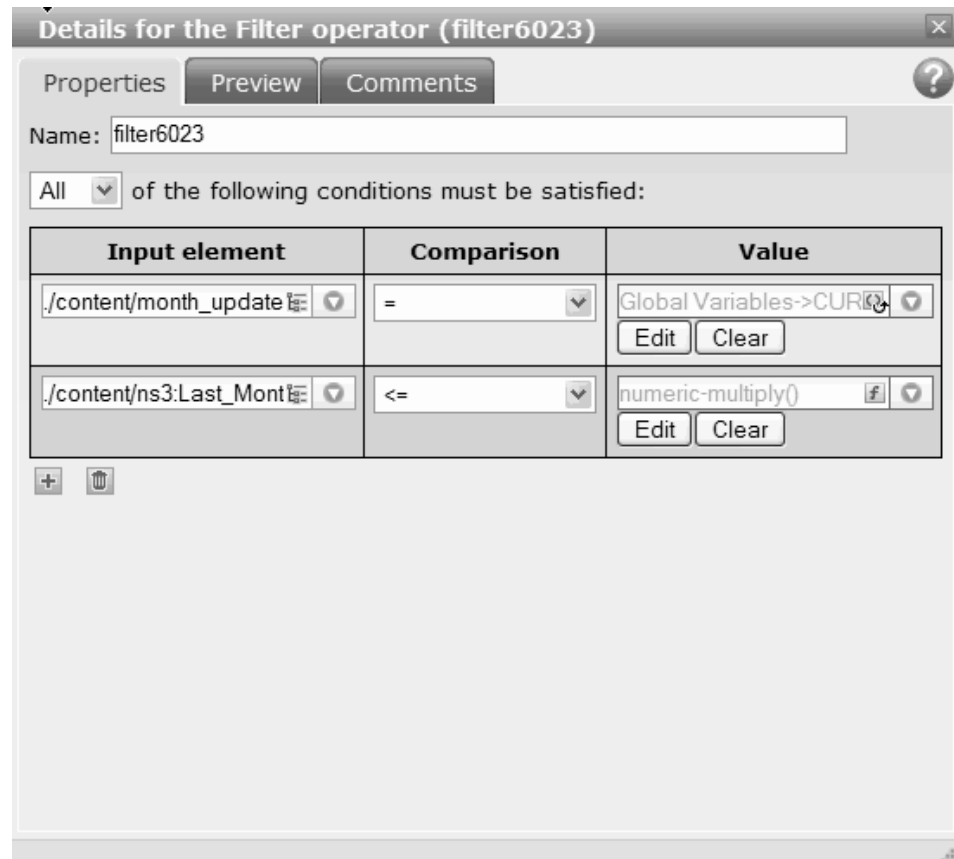
In this lesson, you will filter the feed data by setting conditions on the output.

As you decide which customers to visit this month, you need to know only two pieces of information about customer sales – which sales data is current for the month of June and which customers have experienced an 80% or higher drop in sales from April to May. In the last lesson, you manipulated the output of the incoming feed data so that it captures the month the sales person last updated the spreadsheet. In this lesson, you will use the **Filter** operator to filter the data based on two conditions. The first condition filters the data so that only the data that was updated in the month of June (the 6th month) gets published. The second condition filters the data so that only the data that shows that a customer has experienced an 80% or higher decrease in sales gets published. Any conditions that meet this criteria will display in your feed mashup, and the rest will be filtered out.

To filter the feed data, do the following steps:

1. Find **Filter** in the list of operators on the left side of the browser, and drag it onto the canvas area somewhere between the **Transform** and **Publish** operators.
2. Drag the plug of the **Transform** operator to the socket of the **Filter** operator to connect them.
3. Double-click the **Filter** operator in the canvas to open the details window.
4. In the list, be sure that **All** is selected so that both conditions you are about to set will be satisfied.
5. For **Input element**, select **content** → **row** → **month_updated** → **6**, and add it to the field.
6. In the **Comparison** field, select **=**.
7. In the **Value** field, select **Use a variable to return the value**.
8. In the **Variables** window, do the following steps:
 - a. In the **Name** field, type **CURRENT_MONTH**.
 - b. In the **Default Value** field, type **6**.
 - c. Click **OK** to close the **Variables** window. Now, when you view the feed mashup, **CURRENT_MONTH** will be a parameter, and **6** will be the default value of the parameter.
9. In the details window, click the plus icon to create a new row.
10. For **Input element**, select **content** → **row** → **Last_Month** → **456800**, and add it to the field.

11. In the **Comparison** field, select **<=**.
12. In the **Value** field, select **Specify a function value**.
13. In the **Choose Function** window, do the following steps:
 - a. In the list, in the **Numeric** section, select **Numeric Multiply**.
 - b. In the **First Value** field, select **Specify a value from the Input tree**.
 - c. Select **content** → **row** → **Two_Months_Ago** → **500000**, and then click **OK** to add it to the **Value** field.
 - d. In the **Second Value** field, type **.8**.
 - e. Click **OK**.
14. Compare your details window with the following image to make sure they match.



15. To confirm that you followed the steps accurately, click the **Preview** tab and expand some of the elements to make sure that the data is valid.
16. Close the **Filter** operator details window.

Lesson checkpoint

In this lesson, you learned how to filter the incoming feed data by setting conditions on the output.

Lesson 5: Publishing and saving the feed mashup

In this lesson, you will publish the data as an Atom feed and save it to the catalog.

Now that you have restructured and filtered the data, you are ready to publish the data as an Atom feed. When you publish the feed, you are adding all the Atom headers, metadata, and other formatting that is required by IBM Lotus Mashups to ingest and display the data from the feed mashup.

To publish the data as an Atom feed, do the following steps:

1. Drag the plug of the **Filter** operator to the socket of the **Publish** operator to connect them.
2. Double-click the **Publish** operator in the canvas to open the details window.
3. In the **Feed Type** field, select **ATOM**.
4. In the **Title** field, type Customer Sales Mashup.
5. In the **Author** field, type your name. Do not use any special characters.
6. Close the **Filter** operator details window.
7. Click **Save** below the **Home** tab.
8. In the **Title** field, retype the name of the feed mashup Customer Sales Mashup.
9. In the **Description** field, retype Customer Sales Mashup.
10. Leave the default values in the other fields.
11. Click **Finish** to save your new mashup feed to the catalog. The next screen informs you that the information for the new **Customer Sales Mashup** feed has been saved. Next, we want to view some details about the new feed.
12. In the **What's Next** section, click **View the feed details**. In the screen that displays next, notice how you can click a link to view the feed in your browser. You can also edit tags and view comments. In the next step, we are going to provide a high rating so that the feed shows up as highly rated in user searches.
13. In the **Details** section, click the last star in the **My Rating** field to give the feed a high rating of five. The information is saved automatically.
14. To confirm that the feed was created successfully, click the **Home** tab.
15. In the **Catalog** section, click **List feeds**, and then find **Customer Sales Feed** in the list.

Lesson checkpoint

In this lesson, you learned how to publish the data as an Atom feed and save it to the catalog. Now you are ready to add it to the customer quick view mashup.




Lesson 6: Adding the mashup feed to Lotus Mashups

In this lesson, you will learn how to add your new mashup feed to IBM Lotus Mashups and display the data in a **Data Viewer** widget.

The open search feature in Lotus Mashups makes it very easy to find feeds in the catalog and add them to your toolbox. In this lesson, you will add the **Customer Sales Mashup** feed that you created in the previous lesson to Lotus Mashups.

To add the **Customer List 2** feed to Lotus Mashups and then display it in a **Data Viewer** widget, do the following steps:

Note: You can also add the feed to Lotus Mashups from the catalog. See the IBM InfoSphere MashupHub help for more information.

1. In Lotus Mashups, click the search icon  at the top, right corner of the toolbox.
2. In the window, type *Customer List 2*, and then click the search icon . In the results list, you should see **Customer List 2**.
3. Click **Add to Toolbox**.
4. In the window, do the following steps:
 - a. In the **Drawer** field, select the drawer that you want to contain the new widget.
 - b. In the next field, select **Data Viewer** as the widget to display the feed.
 - c. In the **Feed Information** section, leave **Customer Sales Mashup** in the title and description fields.
 - d. Select the table icon  for the feed.
 - e. Click **Add**.
5. Click **Done**.
6. In the toolbox, open the drawer you selected above and confirm that the new **Customer Sales Mashup** widget is there.
7. Drag the **Customer Sales Mashup** widget to a page. Notice how it displays only row of data. Based on the transform and filter operations that you performed earlier in MashupHub, Capital One is the only customer that met the conditions. All other data was filtered because you don't need it to make a decision whether or not to visit the customer site.

Note: Whenever you want to refresh the **Customer Sales Mashup** widget with updated data, you will need to delete the widget from the Lotus Mashups toolbox, edit the feed in MashupHub to point to the updated spreadsheet, and then add it back to Lotus Mashups.

Lesson checkpoint

In this lesson, you learned how to add a feed to Lotus Mashups and display the data in a **Data Viewer** widget.

Module D: Summary

In this module, you learned how to create a new feed mashup, publish it to the catalog, and add it to Lotus Mashups.

Lessons learned

By completing this module, you achieved the following objectives:

- Learn how to create a new feed from a spreadsheet
- Learn how to import data from a feed into the feed mashup builder
- Learn how to restructure the feed data to create a new output
- Learn how to filter data in the feed mashup
- Learn how to publish data as an Atom feed
- Learn how to add the new feed to Lotus Mashups

Additional resources

Use the following resources to learn more about Mashup Center:

- The IBM Mashup Center wiki at <http://www-10.lotus.com/ldd/mashupswiki.nsf> provides product information, including tutorials, frequently asked questions, widget help, glossary of terms, and more.
- The **Getting Started** section of the IBM InfoSphere MashupHub user interface provides links to tutorials and examples.

Chapter 7. Module E: Publishing and sharing your mashup

In this module, you will learn how to publish your mashup to the catalog for others to discover and reuse. You will also learn how to share your mashup page so others can add it to their own Lotus Mashups toolbox.

You can post mashups to the catalog by publishing the page that contains the mashup. You can either publish the URL of the page on the Lotus Mashups server or you can upload the entire page definition and all its artifacts, including all the properties you have set for that page as well as all the widgets on the page, including their configurations and wiring properties.

You can also share mashups with both individual users as well as groups of users in your company. When you share a mashup, you share the page that contains the mashup. When users you have shared the page with open Lotus Mashups, they can choose whether or not to add that page to their navigation. You can give those users either viewing or editing access. If they have viewing access, they can only view the mashup. If they have editing access, they can add, delete, configure, and wire widgets. However, they cannot share the mashup page with others since they are not the owner.

Learning objectives

By completing the lessons in this module you will meet the following objectives:

- Learn how to publish your mashup to the catalog
- Learn how to set permissions and share mashup pages with others

Time required

This module should take approximately 20 minutes to complete.

Lesson 1: Publishing your mashup to the catalog

In this lesson, you will publish your mashup to the catalog. This will allow other users to be able to discover and reuse your mashup.

You can either publish the URL of the page on the Lotus Mashups server or you can upload the entire page definition and all its artifacts, including all the properties you have set for that page as well as all the widgets on the page, including their configurations and wiring properties. In this lesson, you will upload the entire page definition and all its artifacts.

To publish your mashup to the catalog, do the following steps:

1. At the top of the Lotus Mashups browser, click the down arrow next to **Customer Tutorial**, which is the page that contains your mashup.
2. Select **Publish this page**.
3. In the window, do the following steps:
 - a. In the **Title** field, type Customer Quick View.
 - b. In the **Description** field, retype Customer Quick View.
 - c. In the **Version** field, type 1.

- d. In the **Tags** field, type customer, tutorial, and sales. Tagging helps ensure that others will be able to find your mashup when using these keywords in searches.
 - e. In the **Permissions** field, select **Public**. This allows all users to be able to view the mashup.
 - f. In the **Sharing Method** field, select **Publish page as URL**.
 - g. Click **Save**.
4. Tab over to IBM InfoSphere MashupHub.
 5. In the **Catalog** section, click **List Pages**.
 6. Confirm that your mashup displays in the list. Optionally click **View details** to add comments, rating information, and additional tags.

Lesson checkpoint

In this lesson, you learned how to publish your mashup to the catalog as a mashup page. Now it is available for others to discover and use.

Lesson 2: Sharing your mashup with others

In this lesson, you will learn how to set permissions and share your mashup page with others.

You can share mashups with both individual users as well as groups of users in your company. When you share a mashup, you share the page that contains the mashup. When users you have shared the page with open Lotus Mashups, they can choose whether or not to add that page to their navigation. You can give those users either viewing or editing access. If they have viewing access, they can only view the mashup. If they have editing access, they can add, delete, configure, and wire widgets. However, they cannot share the mashup page with others since they are not the owner.

To share your mashup page with others, do the following steps:

1. At the top of the Lotus Mashups browser, open the page menu.
2. Select **Share this page**.
3. In the **Permissions for the page** window, use the search field to add individual users and groups to the **Search Results** list (this list displays after you click the search button beside the search field).
4. In the **Search Results** list, select the check boxes beside the individuals and groups with whom you want to share your mashup.
5. Click **Add to View** to give the selected users view access, and click **Add to Edit** to give the selected users edit access.

After you add users and groups to the list, you can select and clear the check boxes as desired to grant and remove access.

Lesson checkpoint

In this lesson, you learned how to set permissions and share your mashup page with others.

Module E: Summary

In this module, you learned how to publish your mashup to the catalog for others to discover and reuse. You also learned how to share your mashup page so others can add it to their own Lotus Mashups toolbox.

Lessons learned

By completing this module, you achieved the following objectives:

- Learn how to publish your mashup to the catalog
- Learn how to set permissions and share mashup pages with others

Additional resources

Use the following resources to learn more about Mashup Center:

- The IBM Mashup Center wiki at <http://www-10.lotus.com/ldd/mashupswiki.nsf> provides product information, including tutorials, frequently asked questions, widget help, glossary of terms, and more.
- The **Getting Started** section of the IBM InfoSphere MashupHub user interface provides links to tutorials and examples.

Chapter 8. Summary

In this tutorial, you learned the end-to-end process of using IBM Mashup Center to create a real-world mashup and publish it to the catalog for others to use. You learned how to turn data from a spreadsheet into a format that you can use in your mashups and then display the data in a widget. You also learned how to create a new feed by manipulating the output of an existing feed and then adding it your mashup.

Lessons learned

By completing this tutorial, you achieved the following objectives:

- Understand basic terminology and the user interface
- Assemble and wire a mashup
- Convert data in a spreadsheet into a feed and add it to your mashup
- Restructure feed data into a feed mashup and add it to your mashup
- Publish your mashup to the catalog for others to discover and reuse

Additional resources

Use the following resources to learn more about Mashup Center:

- The IBM Mashup Center wiki at <http://www-10.lotus.com/ldd/mashupswiki.nsf> provides product information, including tutorials, frequently asked questions, widget help, glossary of terms, and more.
- The **Getting Started** section of the IBM InfoSphere MashupHub user interface provides links to tutorials and examples.