knowledge14®

April 27–May 1, 2014 • Moscone Center • San Francisco, CA

Lab Guide

App Creation Workshop

Lab instance: https://**<<name>>**.lab.service-now.com

Login / Passwords:

admin / Knowledge14

itil / Knowledge14

employee / Knowledge14

Building an Application on ServiceNow

About the Sample Application

Every department in the enterprise is a service provider. While service relationships are well defined and automated within IT, they are often inefficient, unstructured, or non-existent in other enterprise service domains. Savvy IT leaders view this as an opportunity to help their business peers replace inefficient email-based service request and fulfillment processes with a proven IT service model.

The ServiceNow Service Automation Platform is designed to enable rapid development of such applications. The platform allows you to build custom functionality with minimal to no coding required that may incorporate mobile, collaboration, or social elements as well.

In the following tutorials, we will build an event management application for a fictitious company called Goombal. Goombal, a large high-tech firm based in Silicon Valley, produces many marketing events around the world.

The event coordinators struggle with organizing the events and managing equipment like computers and projectors. They also need to manage the attendee lists and notifications to attendees.

Currently, Goombal manages events with a combination of Excel, e-mail, and phone calls. One of the marketing groups in Europe is also using a document stored in a personal Google Docs account. This has IT worried about security, since that document includes a list of prospect names.

This fragmented approach means that event managers don't always have completely accurate lists of the attendees contacted by sales. It's also not uncommon to have a critical piece of equipment missing on the day of a show. And marketing executives don't have visibility into the performance of the events, because the report from each event manager has a different format and the numbers shown are sometimes suspect.

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The marketing VP approached the IT department to build a new application on ServiceNow. This application should provide value to all event managers and marketing executives.

Stakeholder	Value the application provides them
Marketing events manager	• One centralized place to manage all aspects of every event such as equipment, attendees, and attachments • Can provide her manager real time status on attendees • No more spreadsheets and things falling through the cracks
Marketing Director / Management	• Visibility into events • Performance across geographies
IT Admin	• Easy import of data from legacy system • Integration with corporate LDAP • Easy enforcement of security rules • Automatic upgrades of the platform
Attendee	• Self-service and intuitive registration • Timely e-mail reminders

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Lab Goal

This lab explains how to create an application based on the sample application above.

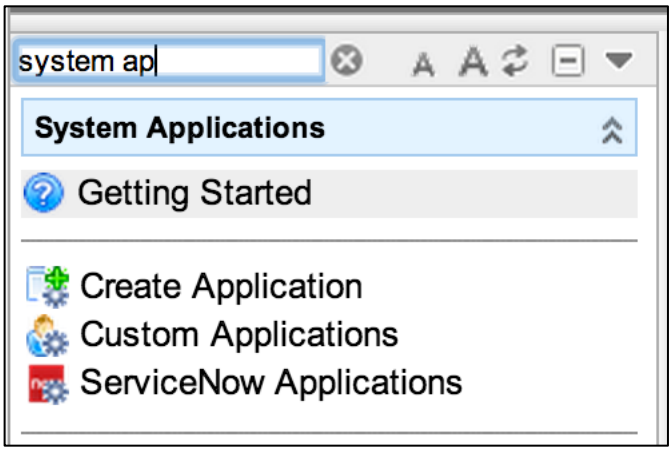
Lab 1.1
Create an Application

Create an Application

1. Your instance URL is on the cover page.

2. Login using the **admin** credentials provided on the cover.

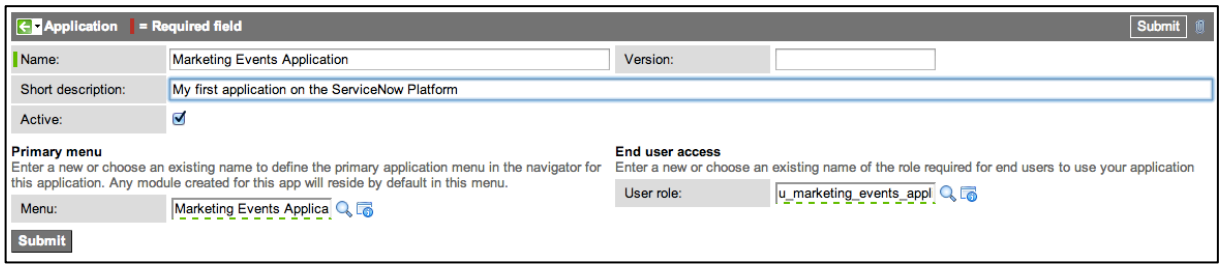
3. Navigate to **System Applications > Create Application**.



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4. Fill in the application form with the following values and click Submit. ServiceNow automatically fills in the Menu and User role fields based on the application name.

Field	Enter this value
Name	Marketing Events Application
Short description	My first application on the ServiceNow Platform



5. ServiceNow creates a new application called Marketing Events Application. Notice that the Application drop down on the top points to the newly created application. You can also find the application by clicking on the Application menu item or searching for it.



6. We now have a new application – but it doesn't do anything yet. We will start making it functional in the next lab.

NOTE: In subsequent labs, these steps will be abbreviated to **Application Name** > **Module Name.**

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Lab Goal

This lab explains how to create database tables to store information.

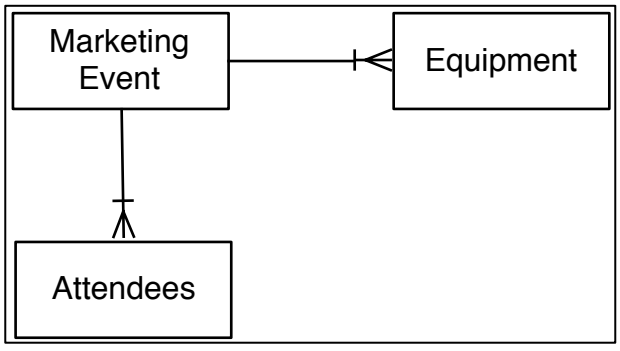
Lab 1.2 Create the Database Tables

Create the Database Tables

At the heart of every application is a database to store information. ServiceNow provides a relational database model for your business objects. You can store the attributes of a business object and the relationships between them.

For our sample application we need three objects:

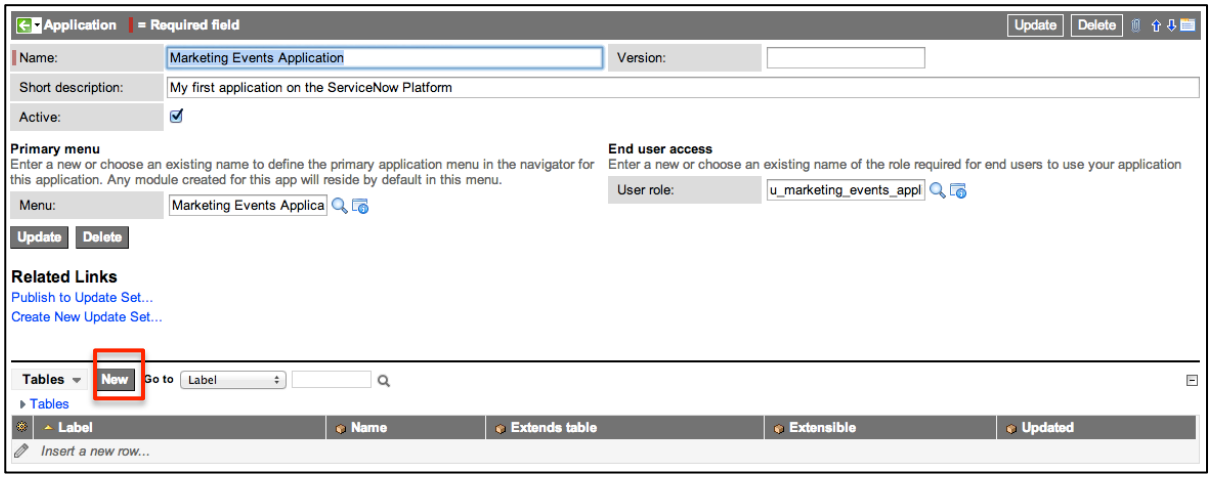
- Marketing Event: Has a one-to-many relationship to Equipment Request and one-to-many relationship to Attendee.
- Equipment Request
- Attendee



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At this moment, we will build the Marketing Event and Equipment Request tables. We will build the Attendee table later.

1. From the Tables section, click **New**.

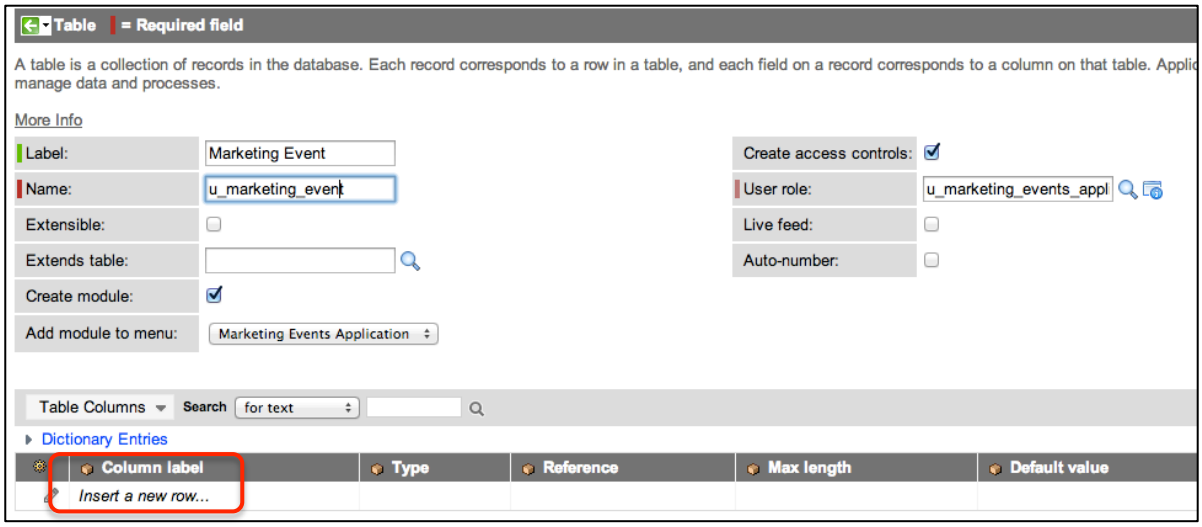


2. Fill in the table form with the following value.

Field	Enter this value
Label	Marketing Event

ServiceNow automatically fills in the **Name** and **User** role fields based on the label and application name.

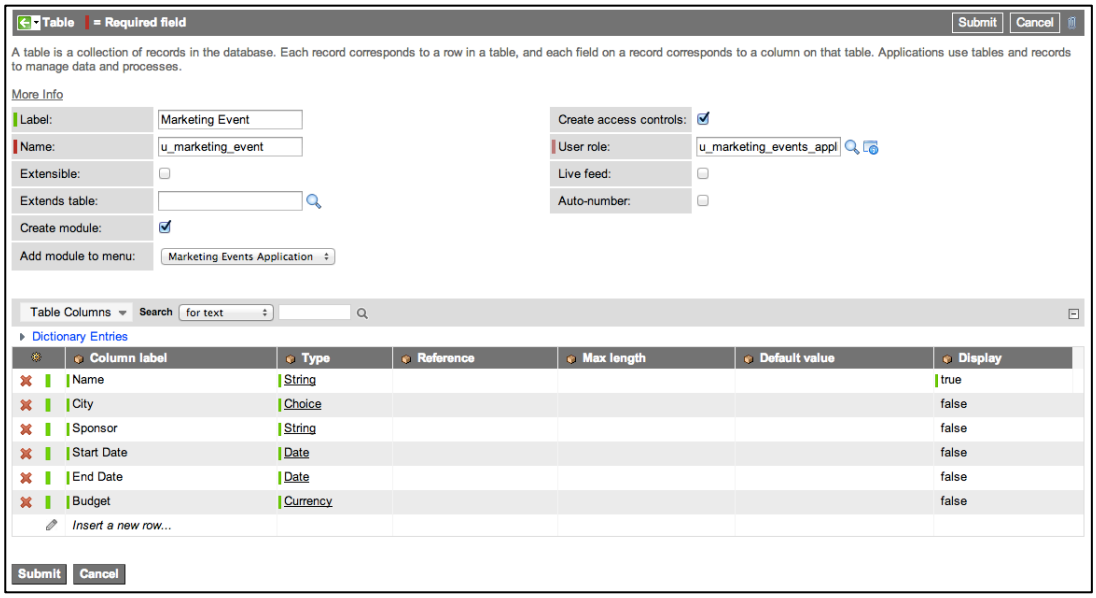
3. Double-click **insert a new row**.



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4. Fill in the Dictionary Entries embedded list with the following values.

Column label	Type	Display
Name	String	true
City	Choice	false
Sponsor	String	false
Start Date	Date	false
End Date	Date	false
Budget	Currency	false



Setting Display to **true** for Name causes ServiceNow to display the user-friendly value for the event name rather than displaying a unique system generated ID whenever another record references a Marketing Event.

5. Click **Submit**. We have created our first table with six columns.

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6. We will create the Equipment Request table in a similar manner.

7. From the **Tables** section, click **New**.

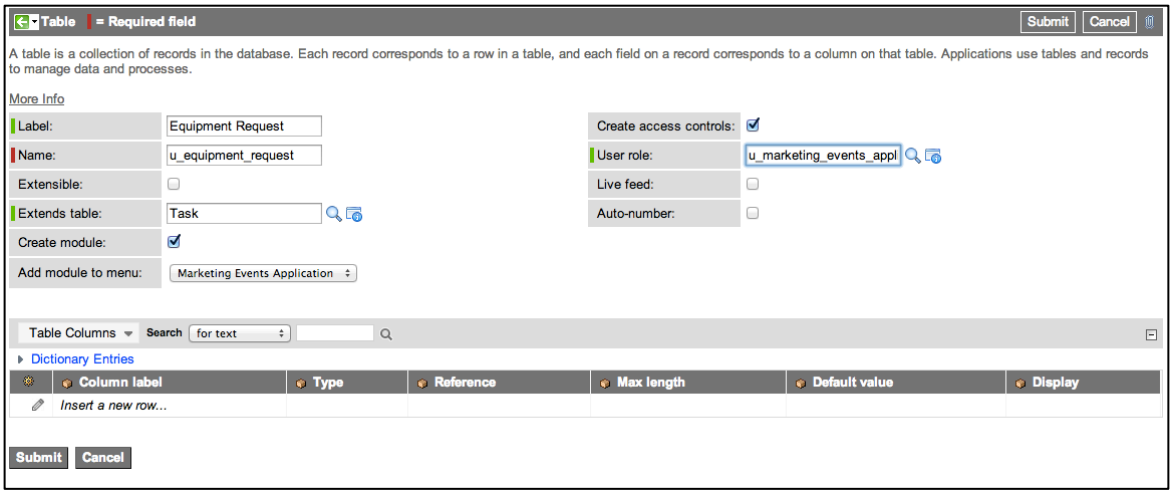
8. Fill in the table form with the following value.

Field	Enter this value
Label	Equipment Request

ServiceNow automatically fills in the **Name** and **User role** fields based on the label and application name.

9. In Extends table, enter **Task** and select Task from the auto-complete drop-down list.

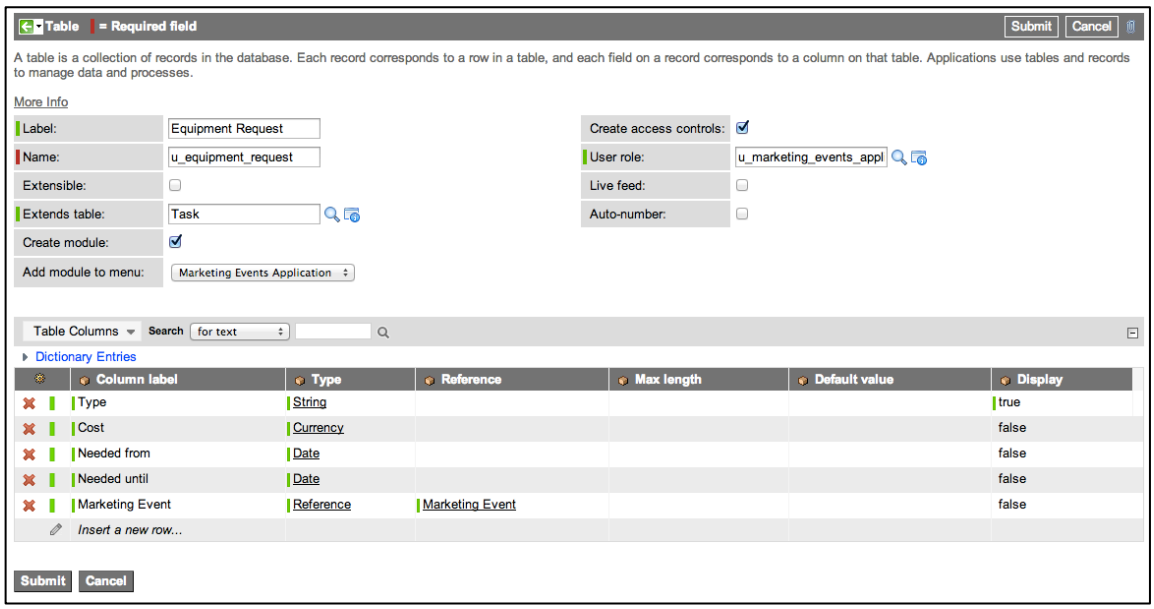
Extending an existing table is a powerful facility that allows you to easily reuse existing functionality. In this case, Task provides the underlying functionality for an object to participate in a workflow. Since our Equipment table extends task it can also participate in a workflow without any additional work on our part. We will build the workflow in a later lab.



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10. Fill in the Dictionary Entries embedded list with the following values:

Column label	Type	Reference	Display
Type	String		true
Cost	Currency		false
Needed from	Date		false
Needed until	Date		false
Marketing Event	Reference	Marketing Event	false

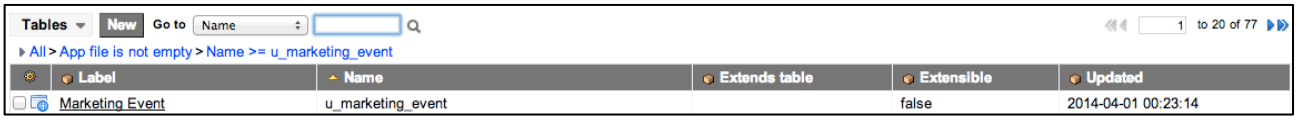


Note: The Marketing Event field is a Reference type field to the Marketing Event table. A reference field creates a relationship between two tables. In this case, a particular piece of equipment is related to a particular marketing event. It allows you to display information from another table and is like a foreign key in a relational database.

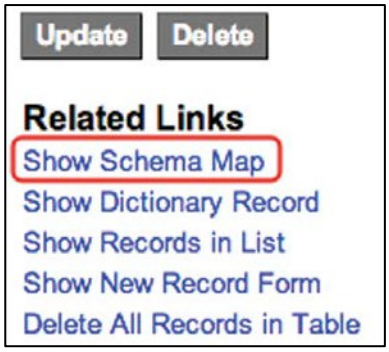
11. Click **Submit**. We now have two tables.

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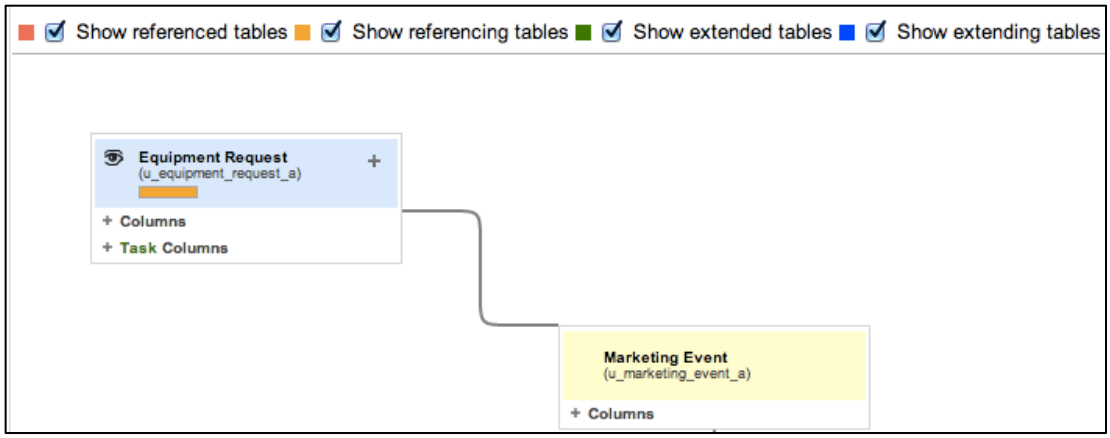
12. From the **Tables** section, click **Marketing Event** table.



13. Click the **Show Schema Map** related link.



This brings up the schema map (Entity Relationship diagram) for our application.



You can use the schema map to drill down and look at the application's tables and fields. Notice that there are a few standard system added fields such as Sys ID and Updated. In the case of the Equipment Requests table you can also see the fields included from extending the Task table.

We now have an application with two tables. In the next lab we will build the user interface so that we can start entering data into these tables.

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Lab Goal

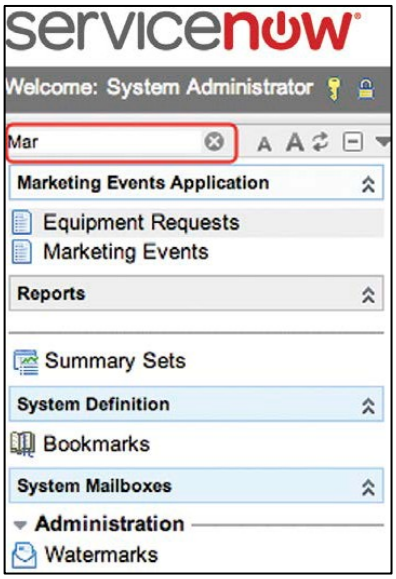
This lab explains how to create a User Interface for users to interact with the application

Lab 1.3 Build the User Interface

Building the User Interface

Users will need to interact with our application to enter details about a marketing event or to request equipment. Fortunately for us, App Creator automatically generates most of the user interface (UI) features we need. By default, ServiceNow automatically provides a list view of all records in a table and a form to create new records. It also makes these available on mobile devices, which we will cover later. Our current task is to customize the automatically generated UI.

1. In the navigation filter, start typing **Marketing Event** in the type filter text box. This brings up our application.

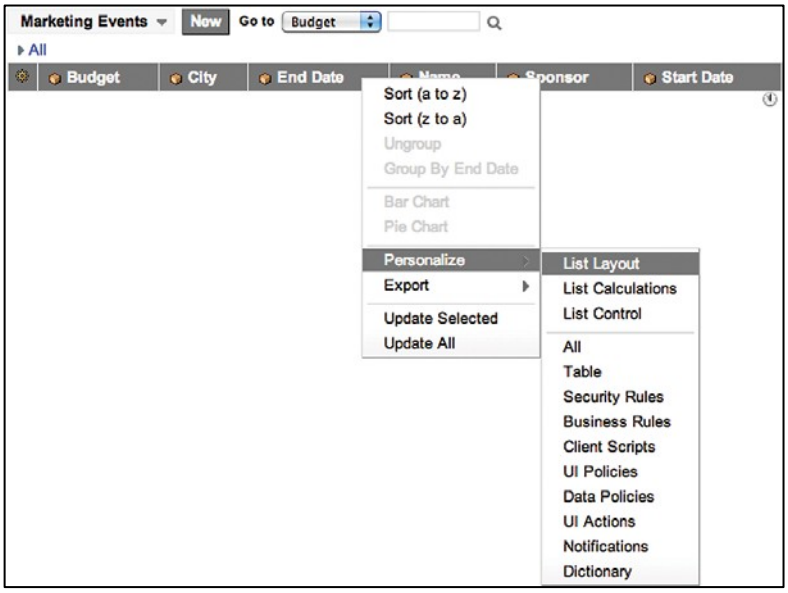


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2. Click **Marketing Events**. This brings up the list view, which is a list of all records in the Marketing Events table. Since we haven't created any records the list is empty.

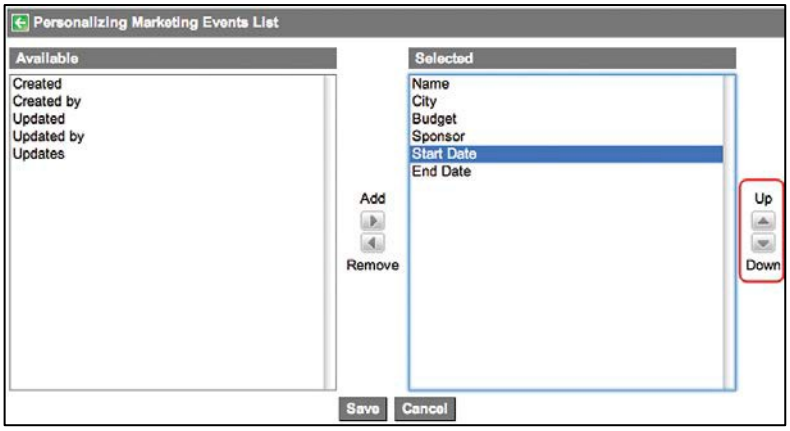


3. We want the columns to appear in a different order. Let us personalize the list view. Right-click the column headers and select **Personalize > List Layout**.

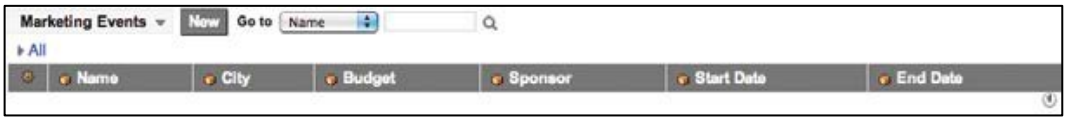


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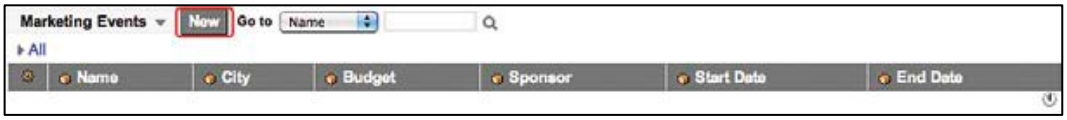
4. Arrange the column headers by selecting a column and clicking the **Up or Down** arrow. Arrange the column headers in the following order: **Name**, **City**, **Budget**, **Sponsor**, **Start Date**, and **End Date**.



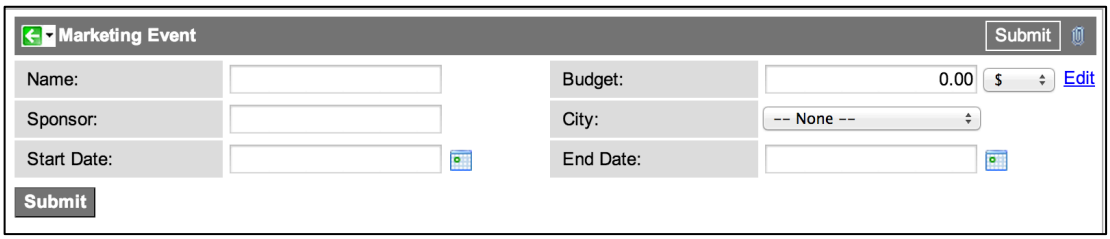
5. Click **Save**. The list uses the new order of column headings.



6. Click **New**.

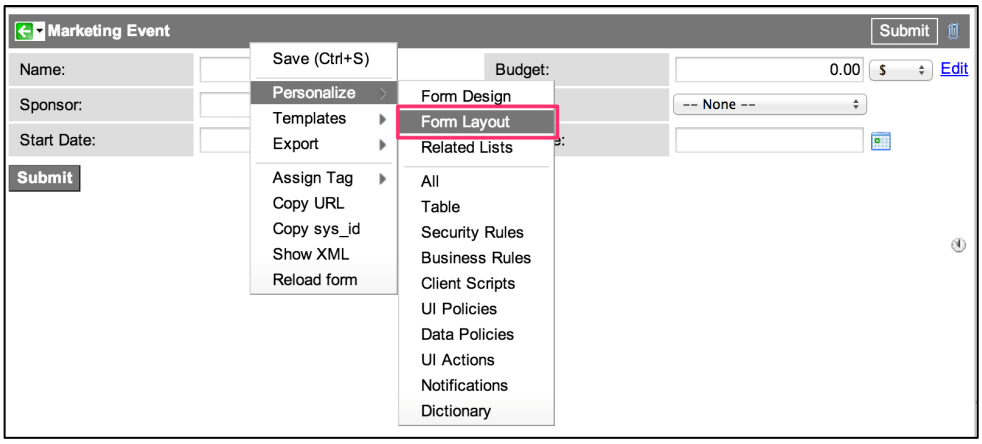


7. This brings us to the form where we can enter field values to create a new record.



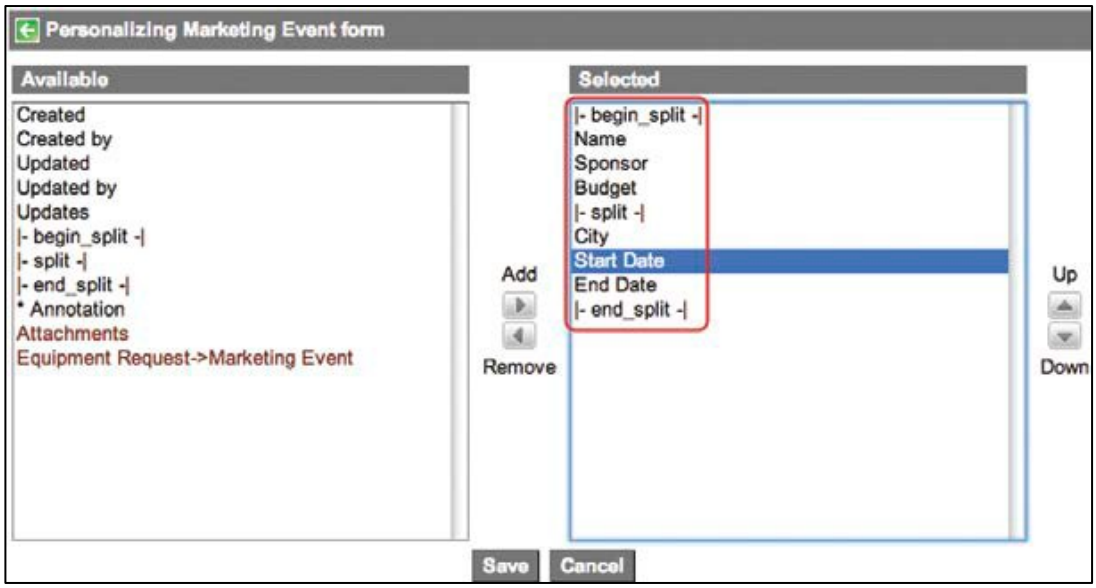
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8. We will customize this form as well to improve the form's workflow. Right-click the gray bar and select **Personalize > Form Layout**.



We will cover the new Form Designer later in this chapter, which provides a graphical drag-and-drop experience to customize forms.

9. Personalize the form as follows: **|- begin_split -|**, **Name**, **Sponsor**, **Budget**, **|- split -|**, **City**, **Start Date**, **End Date**, and **|- end_split -|.**



Note: Play around with the splits to see how they change the layout.

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10. Click **Save** when done.

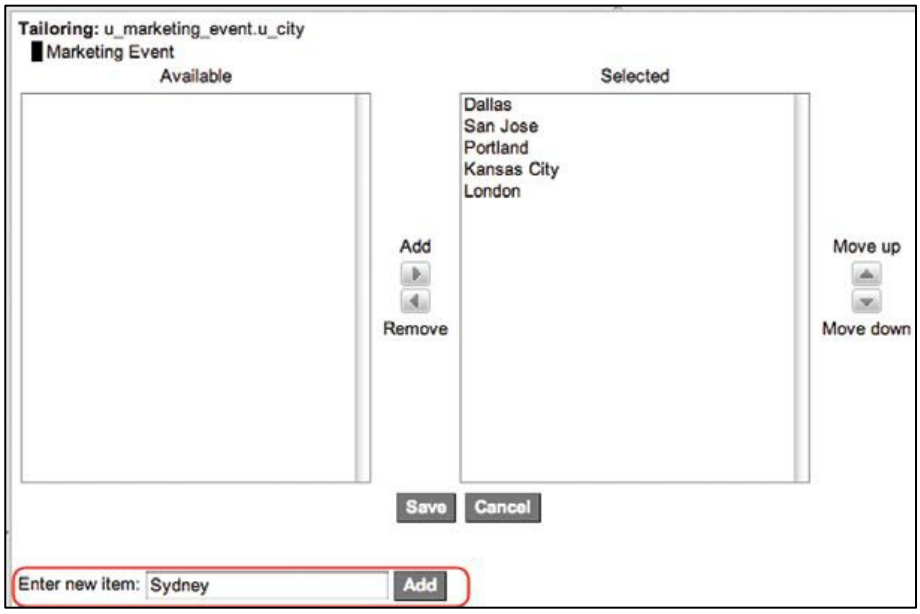


11. From the Marketing Event forms, notice how the **City** field is a drop-down field containing no values. Remember that we had made this into a Choice field. Let us now provide the choice values. Right-click on the City field and select **Personalize Choices**.

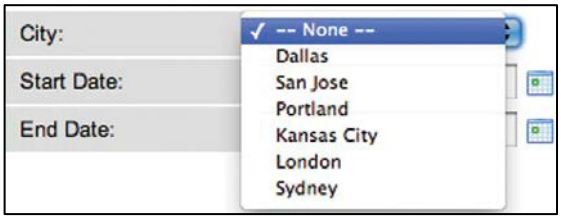


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12. In the Enter new item field, enter a city name and click **Add**. Add the following values for cities: **Dallas**, **San Jose**, **Portland**, **Kansas City**, **London**, and **Sydney**.



13. Click **Save** when done. To see the values you entered, click on the drop-down list next to **City**. Users can only pick one of the provided choice values.

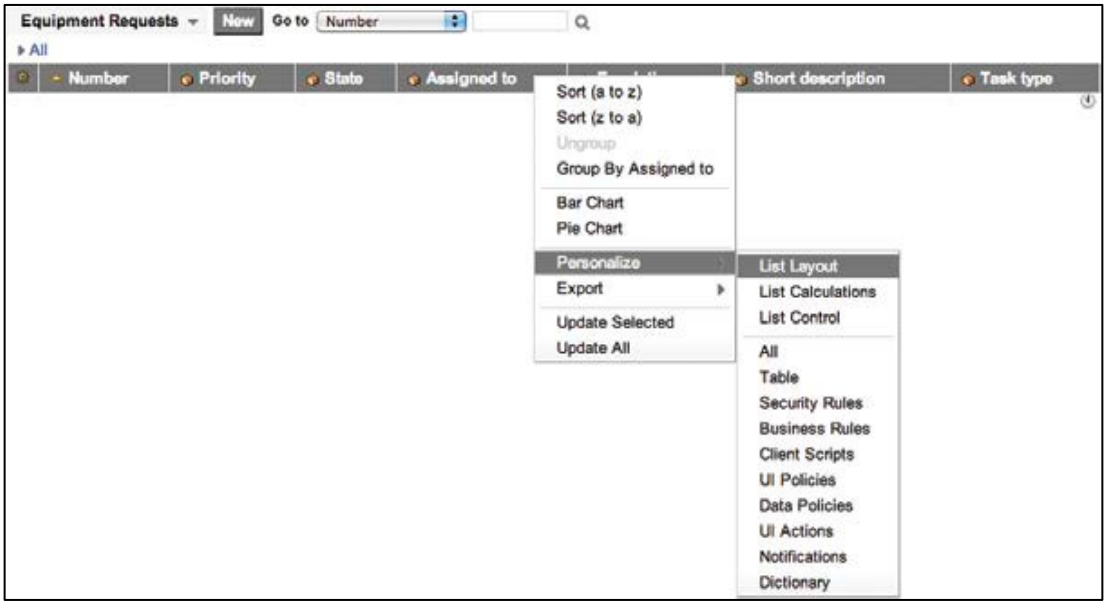


Note: Providing users with a choice list prevents data entry errors and typos that a free-form text field allows. A fixed list also prevents users from creating multiple variations of the same value.

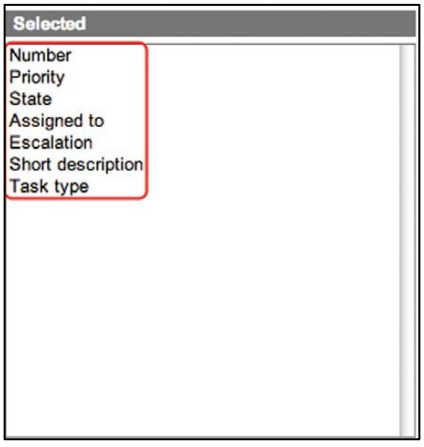
14. Let us now customize the Equipment Request list and form views following a similar process as before. From the Application Navigator, navigate to **Marketing Events Application > Equipment Requests.**

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15. Right-click on the gray bar and select **Personalize > List Layout**.



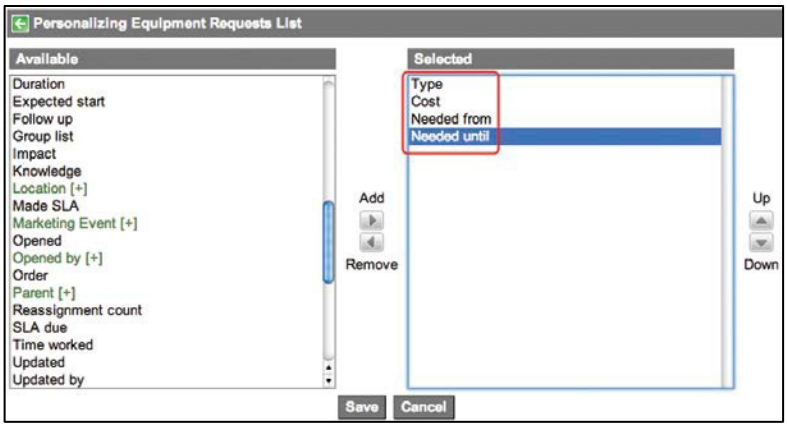
16. Since the Equipment Request table extends from the Task table, you will see a lot of fields in the available fields list and some fields from the Task table in the **Selected** list. Remove all the default fields in the **Selected** list by double-clicking on the field names.



Note: You can safely remove fields from a list or form view. Removing fields with personalization does not change the actual table structure.

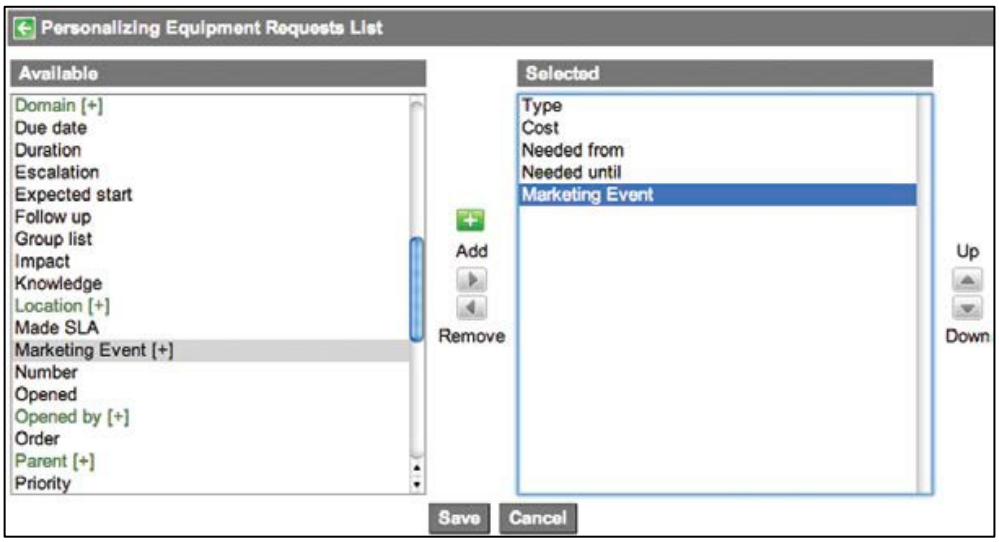
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17. Double-click on fields from the Available list to add them to the Selected list. Add the following fields: **Type**, **Cost**, **Needed from**, **Needed until**.



Note: If needed, arrange the column headers by selecting a column and clicking the Up or Down arrow. Arrange the column headers in the following order: Type, Cost, Needed from, and Needed until.

18. We want to display a field from the related Marketing Event table in the Equipment list. To see fields from this related table, select the **Marketing Event** table from the Available fields list. ServiceNow displays tables in green text with a [**+**] next to the table name. Double-click the table name to add it to the **Selected** list.



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19. Click **Save**.



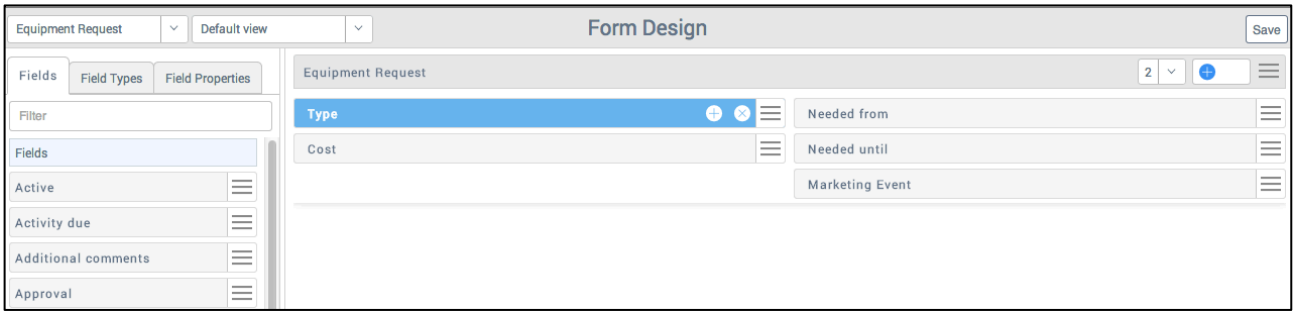
20. Click **New**.

21. Now it's time to personalize the Equipment Request form. Right-click the gray bar and select **Personalize > Form Layout**.

22. Remove all the default fields in the form by selecting each field and then selecting the X.



23. Personalize the form as follows by dragging the field from left field list and dropping on the Equipment Request form, as specified below.



24. Click **Save**.

Now we have an application with two tables, forms to add new records and lists to view all records. In the next lab, let's take our application for a spin!

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Lab Goal

This lab provides Lab Success Verification of the previous labs.

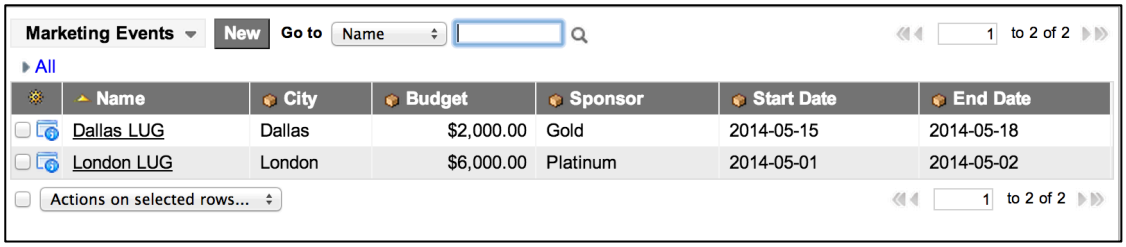
Lab 1.4
Lab Success Verification

Lab Success Verification

It is time to start enjoying the fruits of our labor. Let's add a few marketing event records.

1. From the Application Navigator, navigate to **Marketing Events Application > Marketing Events**.
2. Click **New**.
3. Fill in the **Marketing Event** with the information from the table.
4. Click **Submit**.
5. Repeat steps 2 through 4 for each sample record.

Name	City	Budget	Sponsor	Start Date	End Date
Dallas	Dallas	$2000.00	Gold	2014-05-15	2014-05-18
London	London	$6000.00	Platinum	2014-05-01	2014-05-02



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Now let's add some corresponding equipment request records.

1. From the Application Navigator, navigate to **Marketing Events Application > Equipment Requests**.

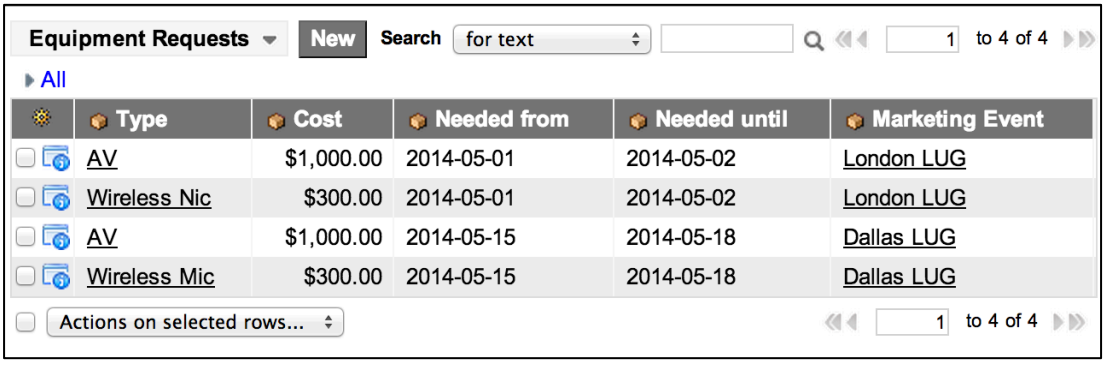
2. Click **New**.

3. Fill in the **Equipment Request** with the information from the table.

4. Click **Submit.**

5. Repeat steps **2** through **4** for each sample record.

Type	Cost	Needed from	Needed until	Marketing event
AV	$1000.00	2014-05-01	2014-05-02	London LUG
Wireless Mic	$300.00	2014-05-01	2014-05-02	London LUG
AV	$1000.00	2014-05-15	2014-05-18	Dallas LUG
Wireless Mic	$300.00	2014-05-15	2014-05-18	Dallas LUG



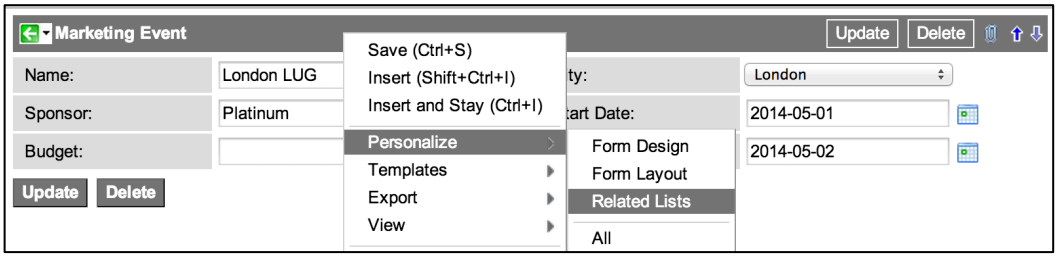
Note: You can sort by the column headings in the list view.

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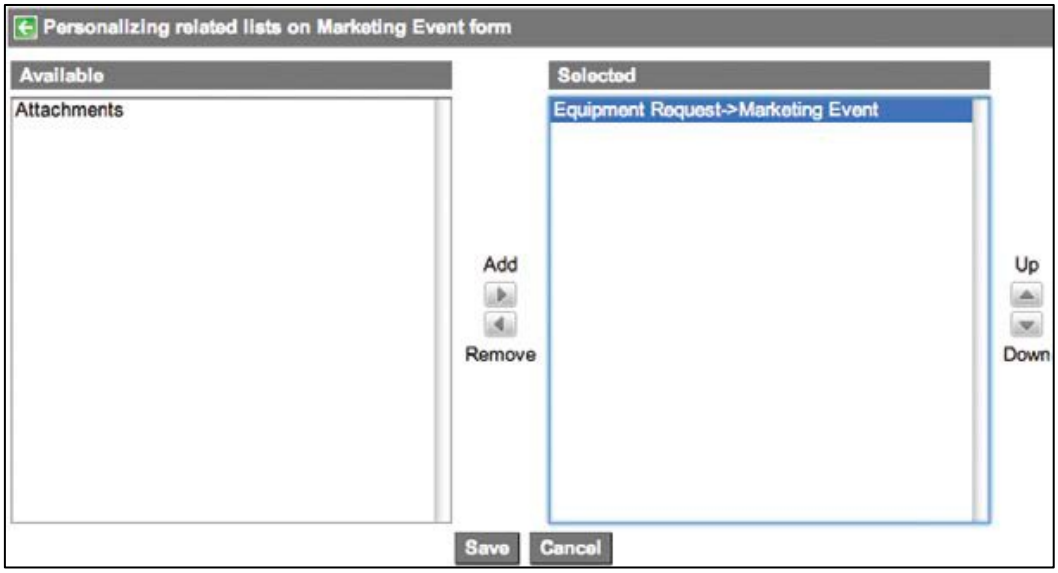
Let's make one small enhancement to the application. When we look at a particular marketing event we want to be able to see the equipment requested on the same page. Since the Equipment Request table is related to Marketing Event table we can do this very easily.

1. From the Application Navigator, navigate to **Marketing Events Application > Marketing Events**.

2. Select the London LUG. Right-click on the gray bar and select **Personalize > Related Lists**.



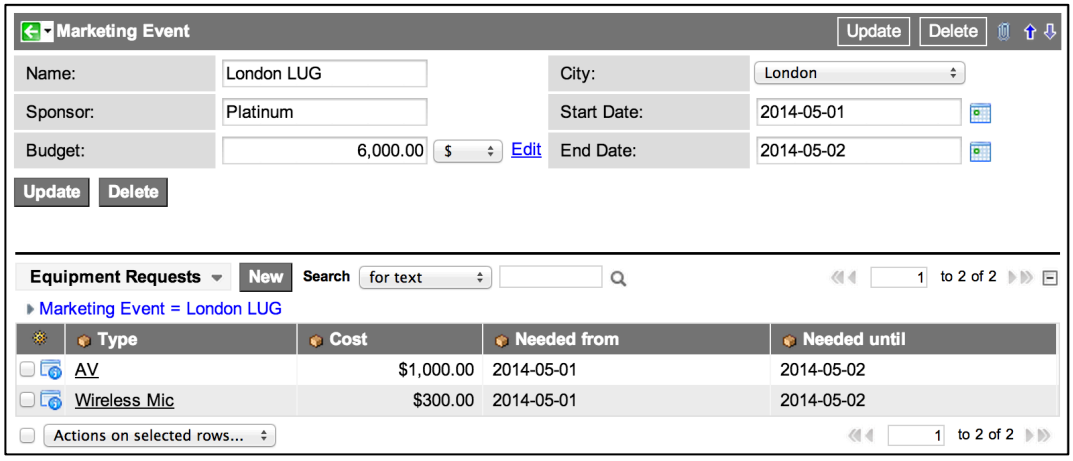
3. From the Available list, double-click the **Equipment Request->MarketingEvent** list.



Note: You can also add the Attachments-related list if you want. This is a built-in functionality with the platform that gives us the ability to add a file, document, or image to a record.

4. Click **Save**.

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We now have a functioning application hosted securely in the cloud. This is already a huge improvement over ad-hoc spreadsheet sharing. But we are not done yet. We will look at more enhancements in the coming labs.

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Lab Goal

This lab explains how to build reports and dashboards from the custom application.

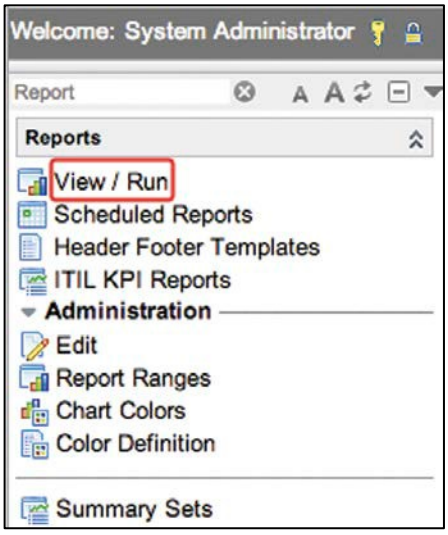
Lab 1.5
Reporting

Reporting

Reports and dashboards give additional insight into your application's data. Reporting and creating dashboards is a built-in capability of the ServiceNow Service Automation Platform. You can build a variety of reports, charts, and dashboards tailored to the needs of different stakeholders such as executives and event managers.

In this lab we will build a calendar report to display the upcoming marketing events in a calendar view.

1. Navigate **to Reports > View / Run**.

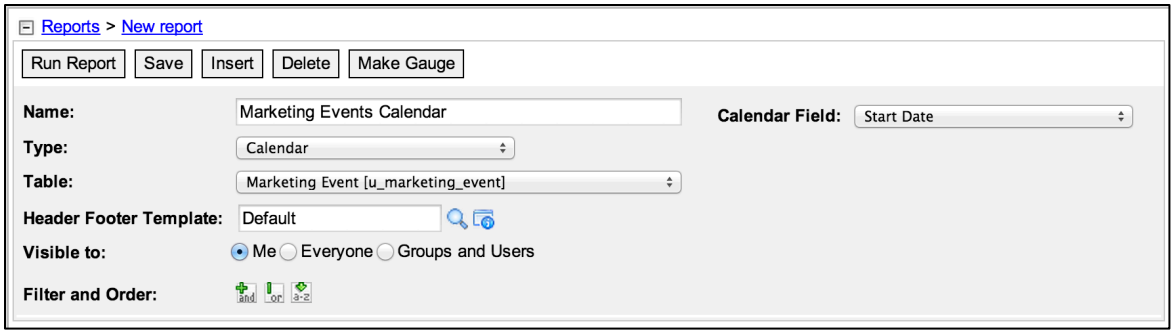


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2. Click **New**.

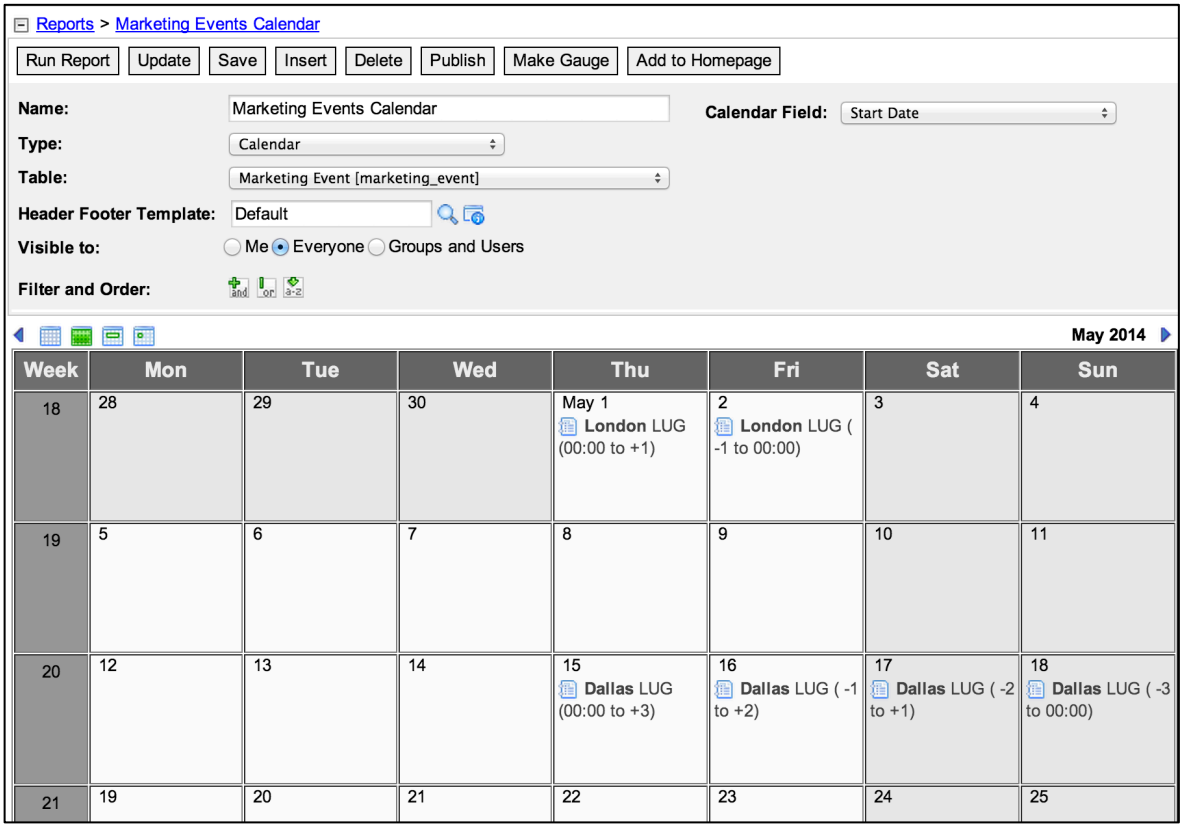
3. Fill the **New** report form with the following information.

For this Field	Use this Value
Name	Marketing Events Calendar
Type	Calendar
Table	Marketing Event [u_marketing_event]
Header Footer Template	Default
Visible to	Everyone
Calendar Field	Start Date



4. Click **Run Report**.

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5. To save the report, click Save. Saving a report allows users to simply rerun it without having to recreate it.

   Feel free to experiment with other report types. There are also some pre-built reports that you can look at to get a sense of the breadth of functionality provided.

   In the next lab we will look at another powerful feature provided by the ServiceNow platform – Data Import and Export.

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Lab Goal

This lab explains how to import and export data to and from ServiceNow.

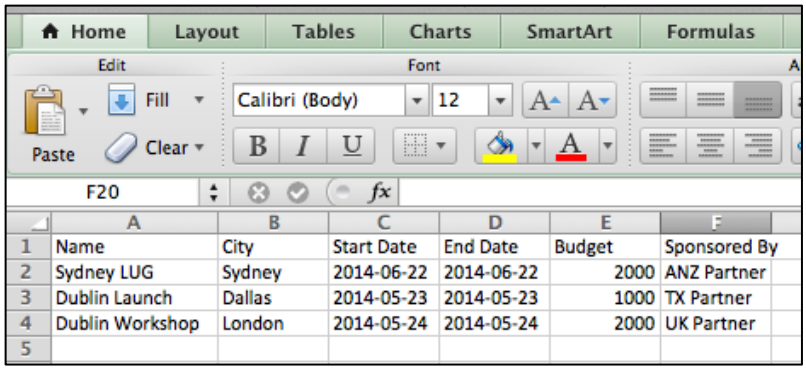
Lab 1.6 Data Import and Export

Data Import and Export

In this lab, we will look at the data import and transformation capabilities of the ServiceNow Service Automation Platform. We will import marketing events from a file in CSV format and create records in the database.

1. Create a CSV file in Excel. Use the following data to create the CSV file.

Name	City	Start Date	End Date	Budget	Sponsored By
Sydney LUG	Sydney	2014-06-22	2014-06-22	2000	ANZ Partner
Calgary Launch	Dallas	2014-05-23	2014-05-23	1000	TX Partner
Calgary Workshop	London	2014-05-24	2014-05-24	20000	UK Partner



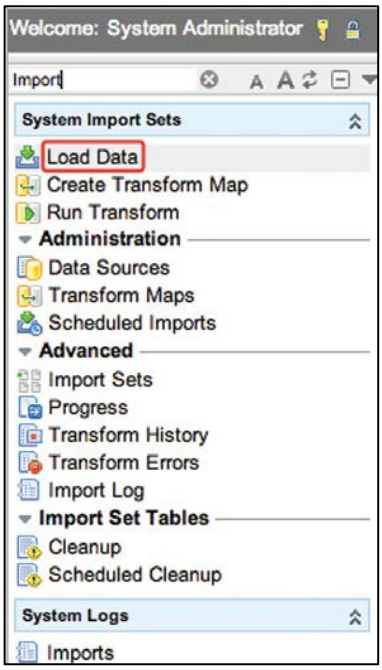
Note: There is a close match to the columns in the CSV file and the column names in the Marketing Event table. We will import this data into our Marketing Event table.

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2. The process of importing the data involves three steps:

   a. Load the data from the spreadsheet into a temporary staging table called an **Import Set**.
   b. Build the transformation logic to map data from the staging table to a target table. This step involves mapping the fields of the import set to fields in our target table.
   c. Run the transform. A transform takes data from the staging table, maps it according to the transform logic, and loads it into the target table.

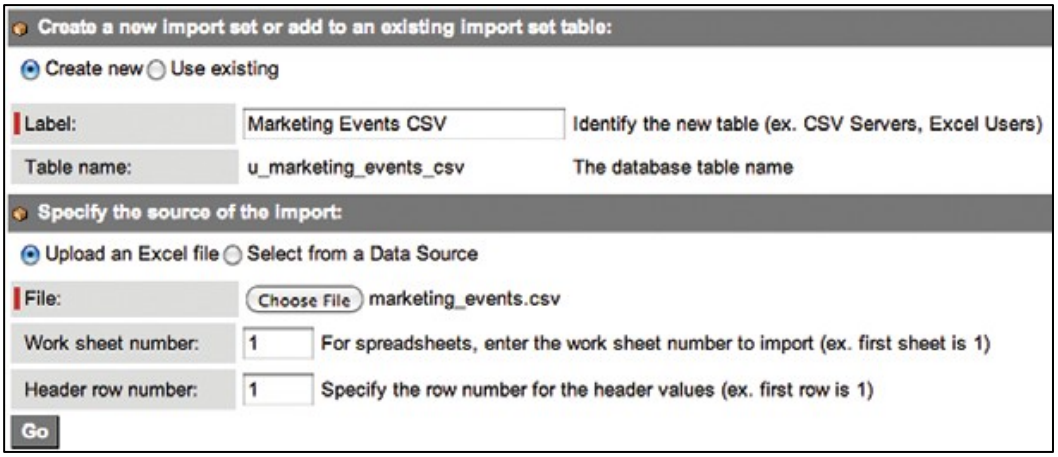
3. Navigate to **System Import Sets > Load Data**.



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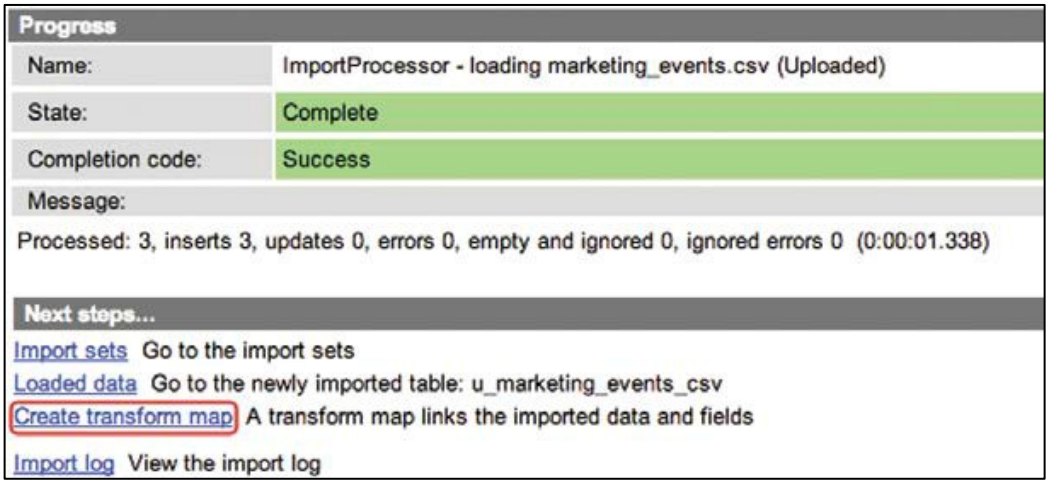
4. Fill in the **Create a new import set** form with the following information.

Field	Enter this value
Create new	Selected
Label	Marketing Events CSV
Table name	u_marketing_event_csv
Upload an Excel file	Selected
File	Path to your CSV file
Worksheet number	1
Header row number	1



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5. Click **Go**. ServiceNow displays a success message after importing the file.



We are done importing the data. Now we need to create the transformation logic.

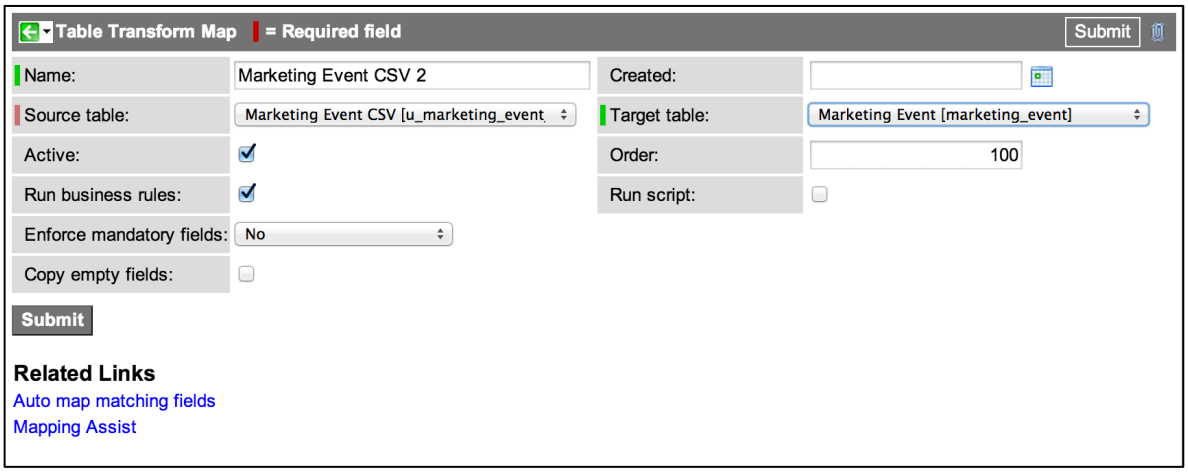
6. Click on **Create transform map** under the "Next steps…" heading.

7. Fill in the **Table Transform Map** form with the following information.

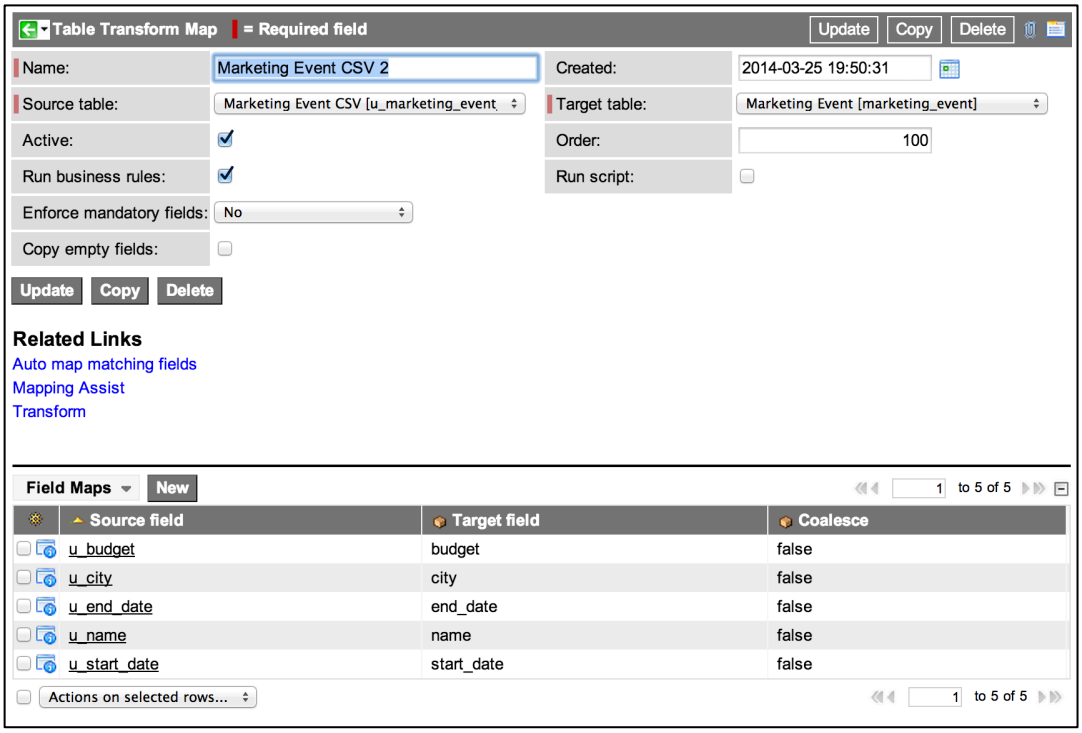
Field	Enter this value
Name	Marketing Events CSV 2
Source table	Marketing Events CSV [u_marketing_events_csv]
Target table	Marketing Event [u_marketing_event]

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8. Click the **Auto map matching fields** related link. ServiceNow adds the Field Maps related list.

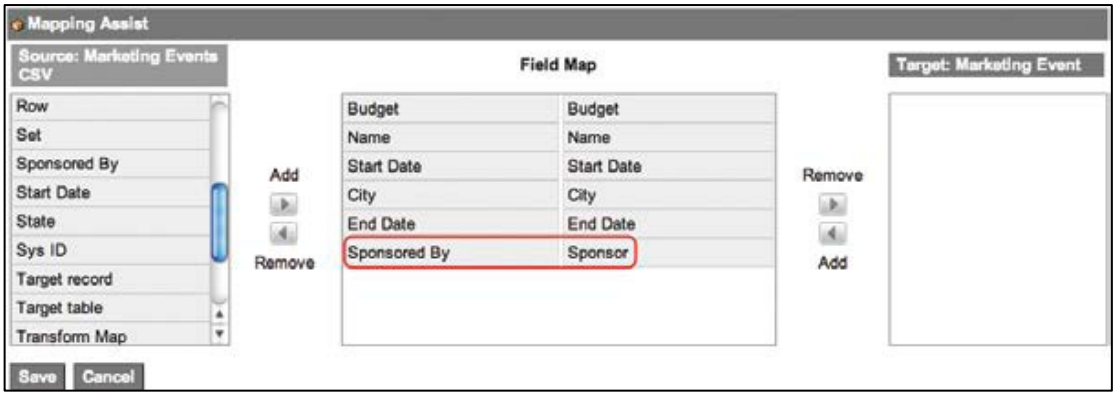


9. Click on **Mapping Assist** under the **Related Links** heading.



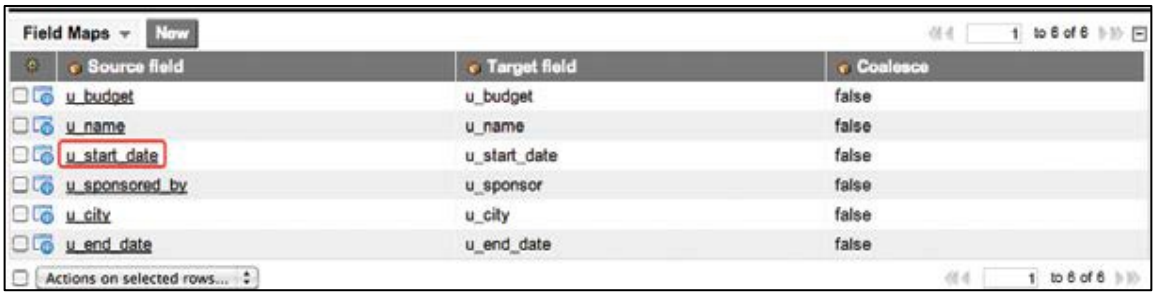
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10. The only field we need to map is the Sponsor field. It is called **Sponsored By** in Excel and **Sponsor** in our table. Drag and drop these fields to the center so that **Sponsored By** is in the left column and **Sponsor** is in the right column.



11. Click **Save**.

12. We need to verify that any incoming dates are in a format ServiceNow recognizes. From the **Fields Maps** related list, click the **u_start_date** source field.

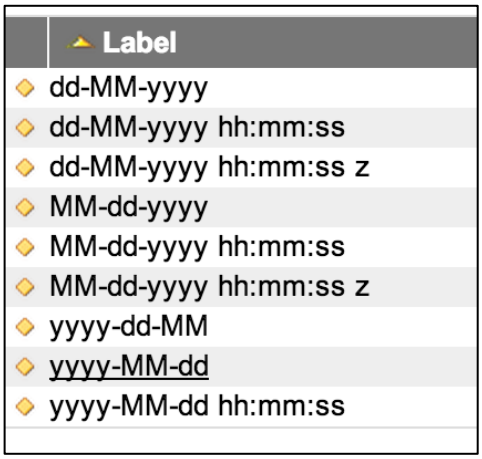


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13. The default date format does not match the date format from the CSV source file.



14. Click the light bulb icon to select a new date format. Select the **yyyy-MM-dd** format since it matches the date format in the CSV file.





15. Click **Update**.

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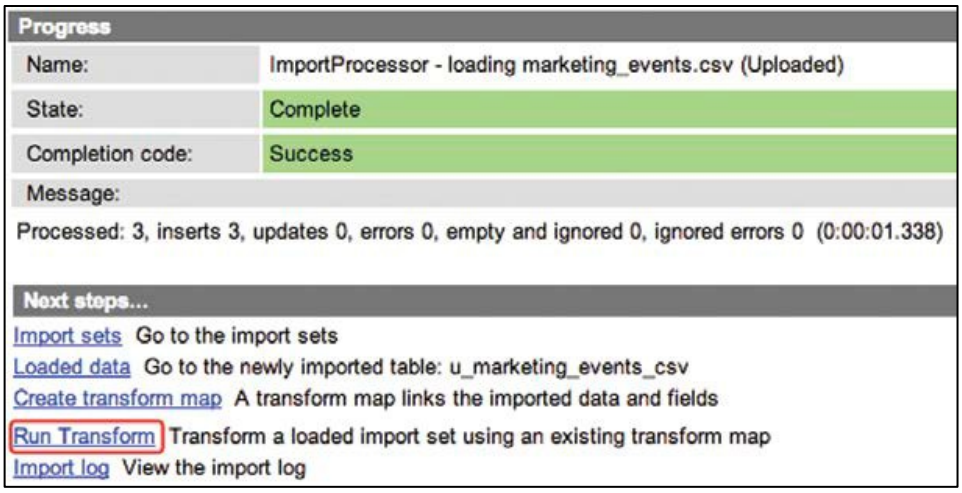
16. From the **Fields Maps** related list, click the **u_end_date** source field.

17. Click the light bulb icon to select a new date format. Select the **MM-dd-yyyy** format since it matches the date format in the CSV file.

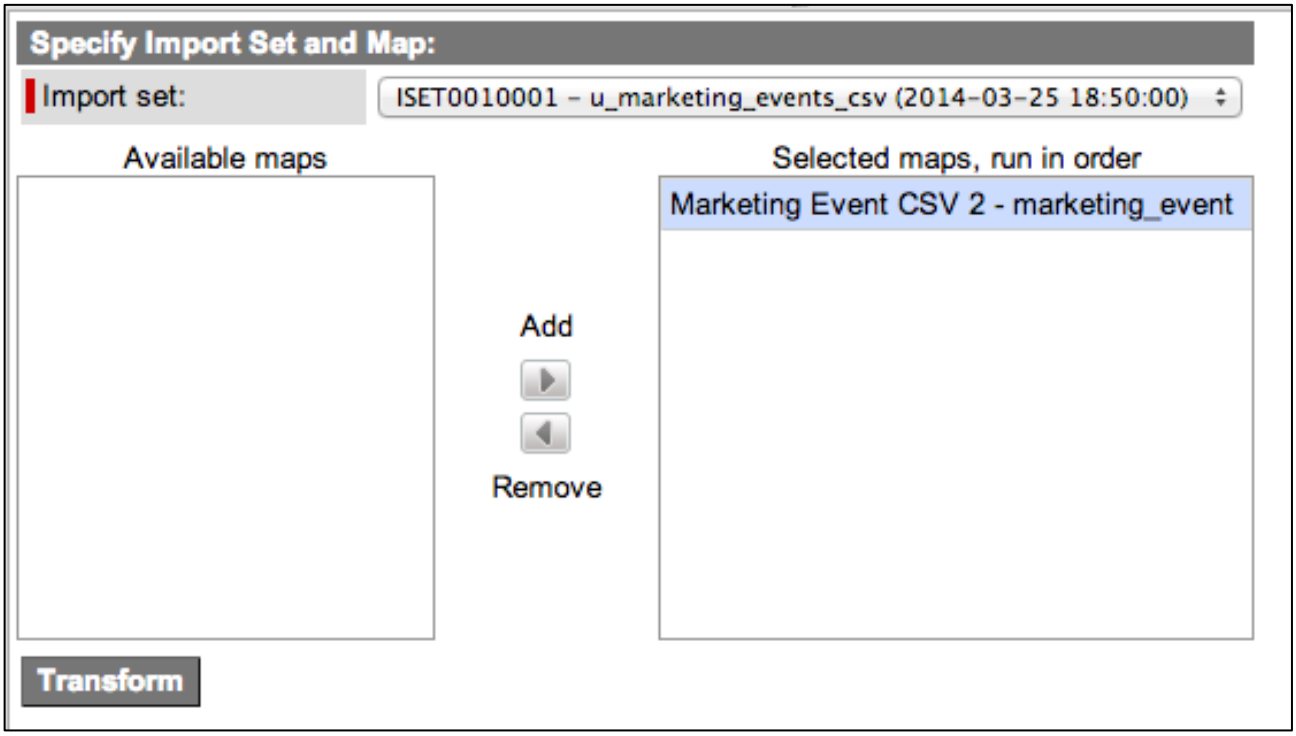
18. Click **Update**.

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19. The next step is to run the transform. Click **Update** first in step 18, then select the **Run Transform** link in step 20.

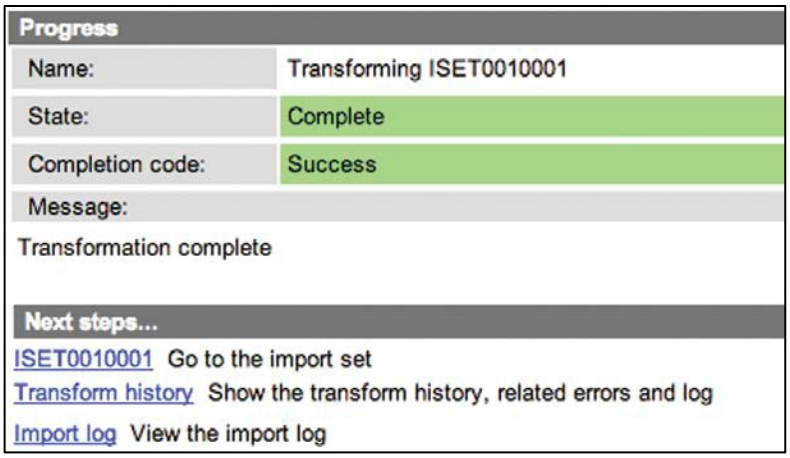


20. Click **Run Transform**. ServiceNow displays the import set and transform map to be used in the transform.

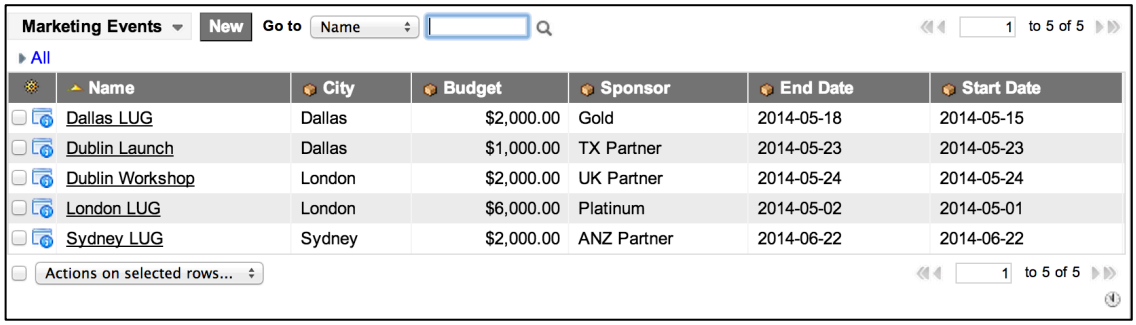


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21. Click **Transform**. ServiceNow takes data from the temporary staging table and uses the transformation logic to insert new records in to the marketing event table.



That's it for loading data from Excel. You can do more complex transformations by the use of a transformation script if needed.



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Lab Goal

This lab explains how to link tables together to extend the data model.

Lab 1.7
Extend the Data Model

Extend the Data Model

Our new event management application has become popular with users, and now they want to do even more – to track event attendees. They are excited about the potential to keep in touch with the attendees and run reports across events. We will do two tasks in this lab:

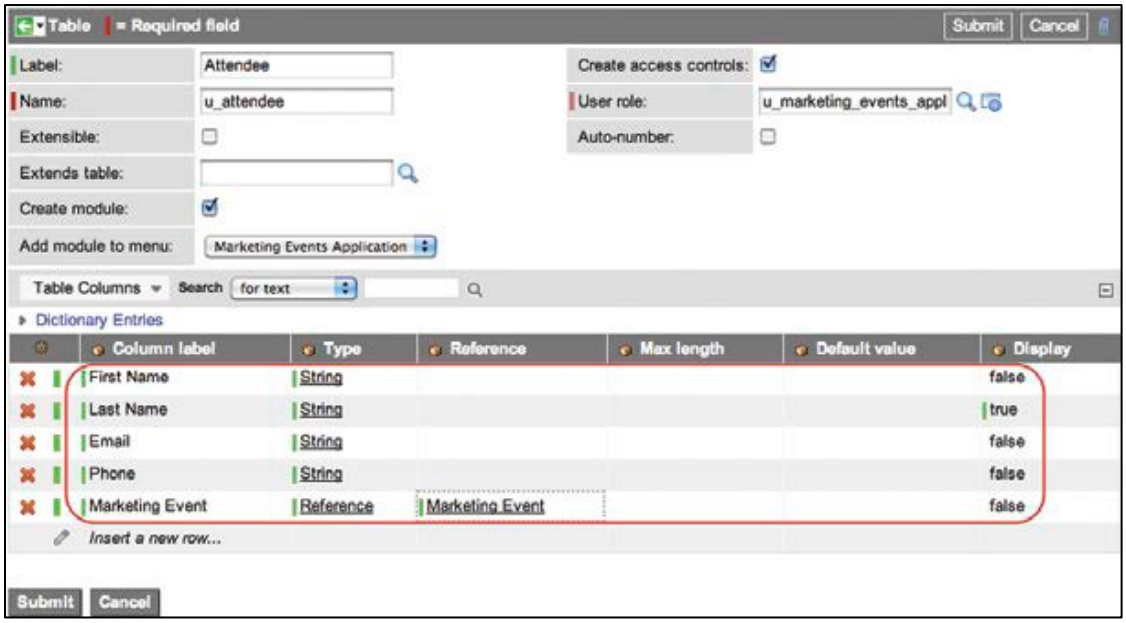
- Create a new attendee table and link it to the marketing events table
- Create two new fields in the marketing event table:
  - Expected number of attendees
  - Actual registration

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The process of creating a new table is the same as that outlined in Lab 2.

1. Create a new table called **Attendee** with the following fields with the following fields.

Column label	Type	Reference	Display
First Name	String		False
Last Name	String		True
Email	String		False
Phone	String		False
Marketing Event	Reference	Marketing Events	False

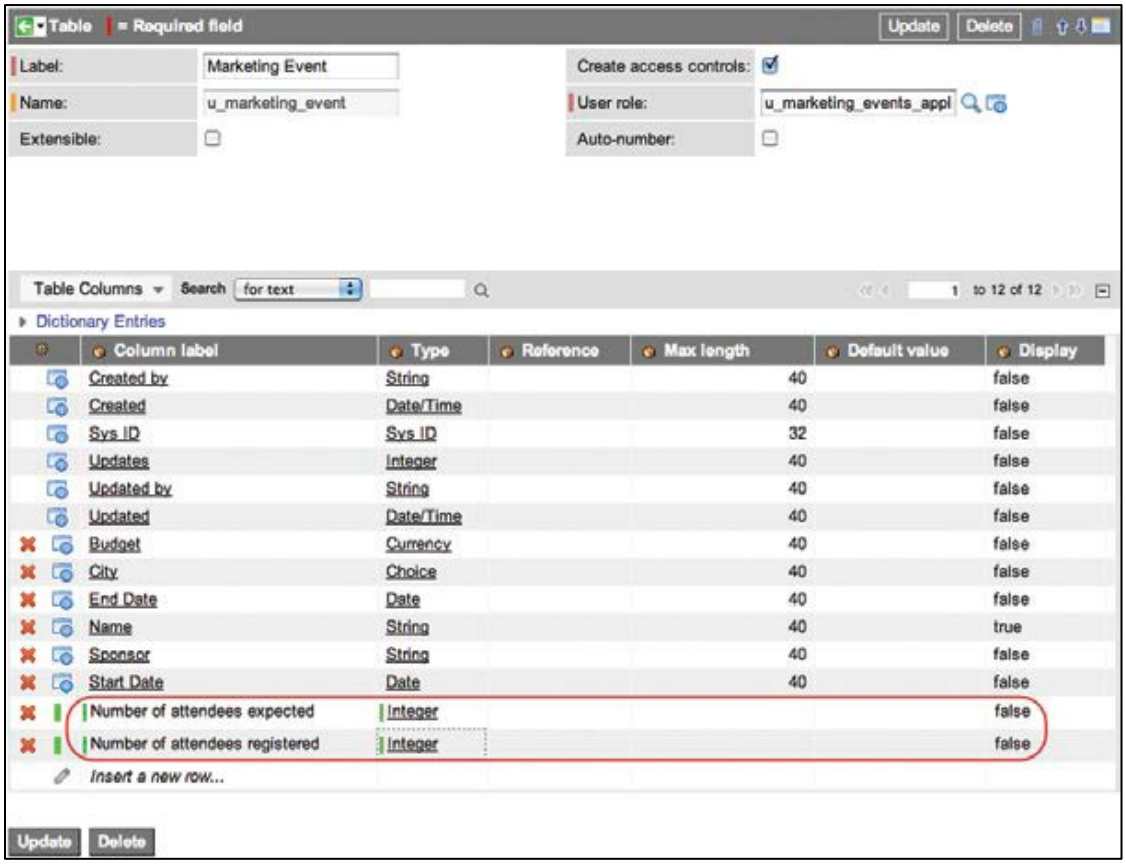


2. Click **Submit**.

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3. Next, add these fields to the **Marketing Event** table.

Column label	Type	Reference	Display
Number of attendees expected	Integer		False
Number of attendees registered	Integer		True



4. Click **Update**.

5. Navigate to **Marketing Events Application > Attendees**.

6. Click **New** and add a few attendees.



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Lab Goal

This lab explains how to configure email notification in the application.

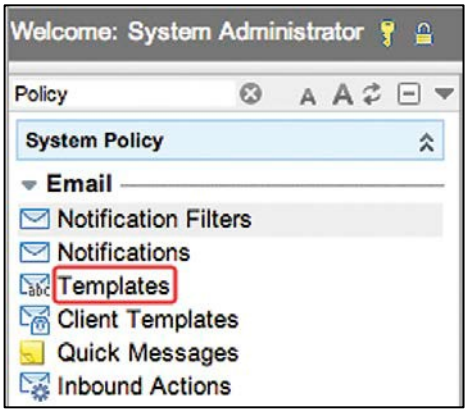
Lab 1.8
Email

Email

We can use the built-in email capabilities of the ServiceNow Service Automation Platform to keep in touch with our attendees via email. In this lab we will send out a confirmation email every time a new attendee is registered.

First we will create an e-mail template to let us personalize the email for each attendee without having to hardcode values.

1. Navigate to **System Policy > Email > Templates**.

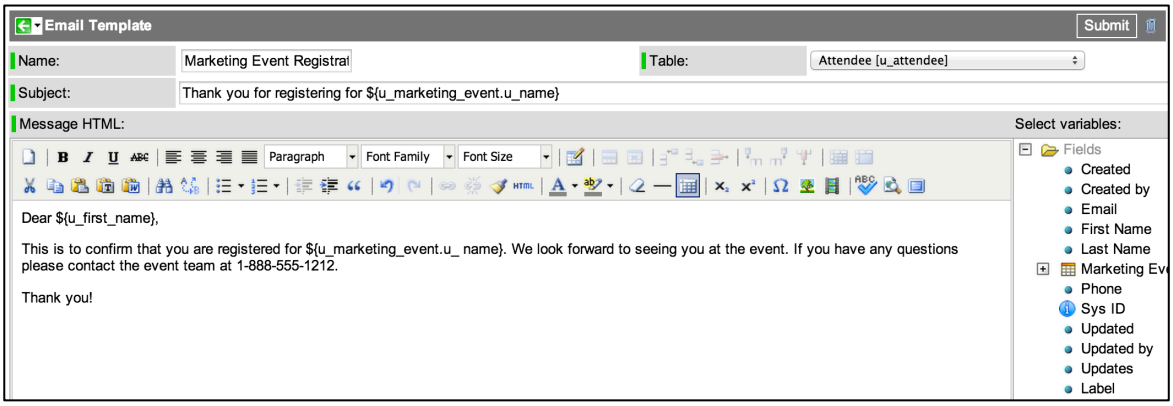


2. Click **New**.

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3. Fill out the email template form with the following values.

Field	Enter this value
Name	Marketing Event Registration
Table	Attendee [u_attendee]
Subject	Thank you for registering for ${u_marketing_event.u_name}
Message	Dear ${u_first_name}, This is to confirm that you are registered for ${u_marketing_event.u_ name}. We look forward to seeing you at the event. If you have any questions please contact the event team at 1-888-555-1212. Thank you!



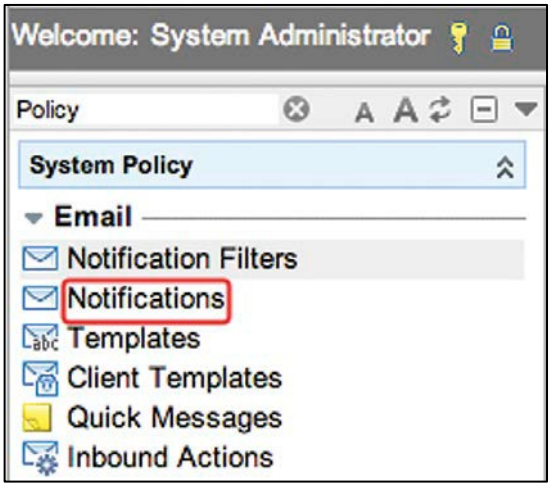
The highlighted text illustrates how to include dynamic field values from your application using variables. Variables use the format **${table_name.field_name}**.

Note: You only have to specify the table name when referencing fields on a related table.

4. Click **Submit**. Next we'll use our template to create a notification.

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5. Navigate to **System Policy > Email > Notifications**.



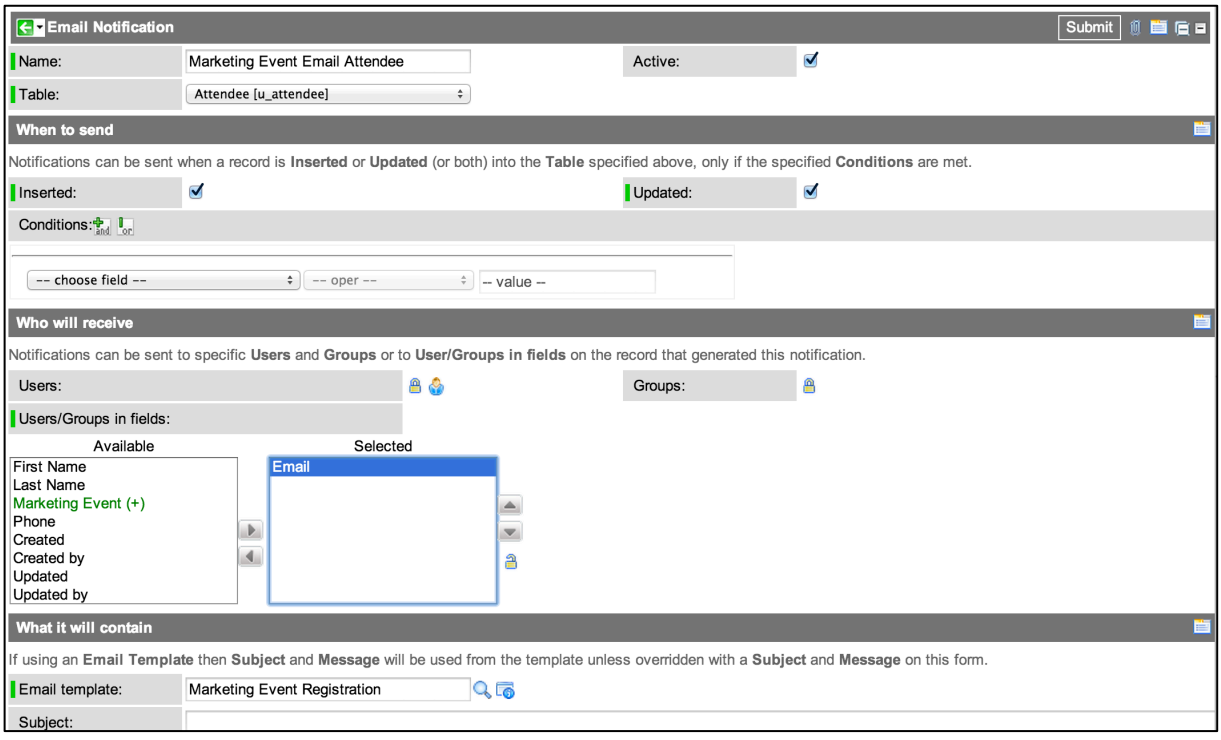
6. Click **New**.

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7. Fill in the email notification form with the following values and leave the rest with their default values.

Field	Enter this value
Name	Marketing Event Email Attendee
Table	Attendee [u_attendee]
Active	True
Inserted	True
Updated	True
Users/groups in fields	Email
Email Template	Marketing Event Registration

Note: We are using our custom email template.



8. Click **Submit**.

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9. Test out the capability by adding a few test attendee records.

   Note: You can see the email records ServiceNow generates by navigating to System **Mailboxes > Outbound > Sent**.

   Email is one of the several notification mechanisms built into the ServiceNow platform. These capabilities allow easy integration with systems and people.

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Lab Goal

This lab explains how to create a Service Catalog.

Lab 1.9 Service Catalog

Service Catalog

The application we have built so far is a big hit with the marketing department. Spurred by that initial success, they want to expand the application to solve other common issues they face. Currently, requests to hold marketing events arrive via emails to sales managers. These requests are often missing key information and are rarely handled consistently.

Marketing would now like requestors to fill out an online form instead of using current inconsistent methods. The marketing department could then receive, review, and track the requests online, and process them more consistently and efficiently.

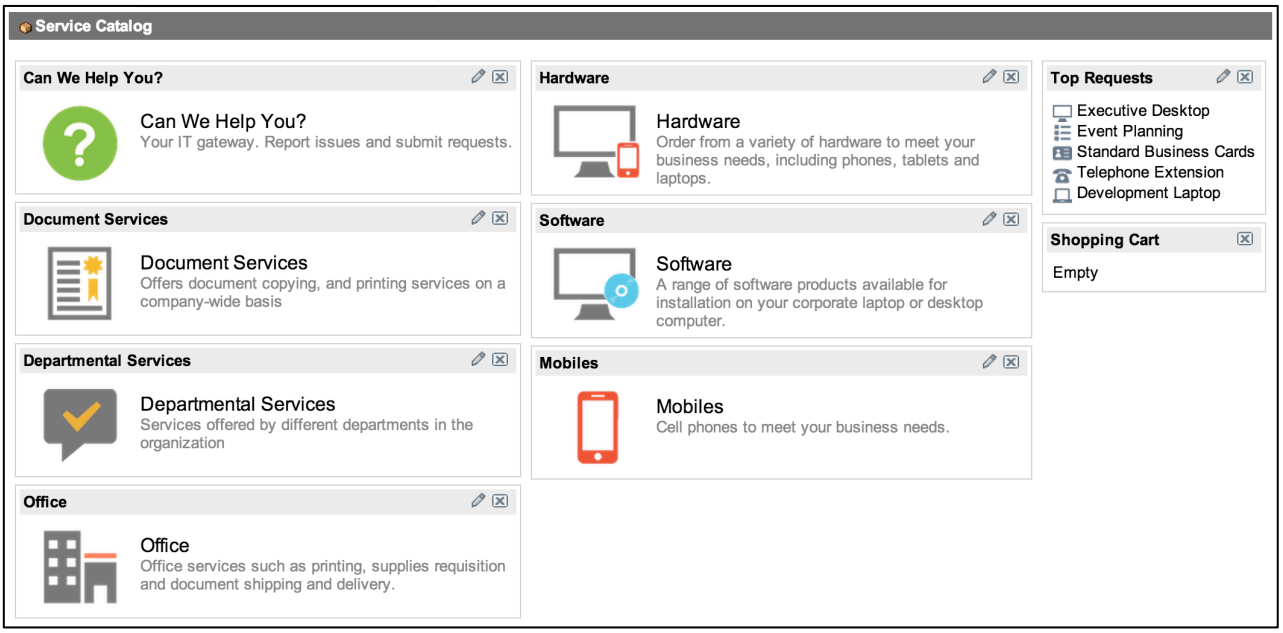
There are two ways that we can implement these changes:

- Give access to the existing application to the sales managers
- Create a Service Catalog request process

Service Catalog is a term that has its origins in IT Service Management. A Service Catalog is a representation of the Services offered to an organization by a service provider (IT) to their customers (the Business). Using the ServiceNow Service Automation Platform's built-in Service Catalog will ensure that users have a single interface for all of their request-based needs without having to navigate multiple applications and interfaces.

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The figure below shows a sample Service Catalog:



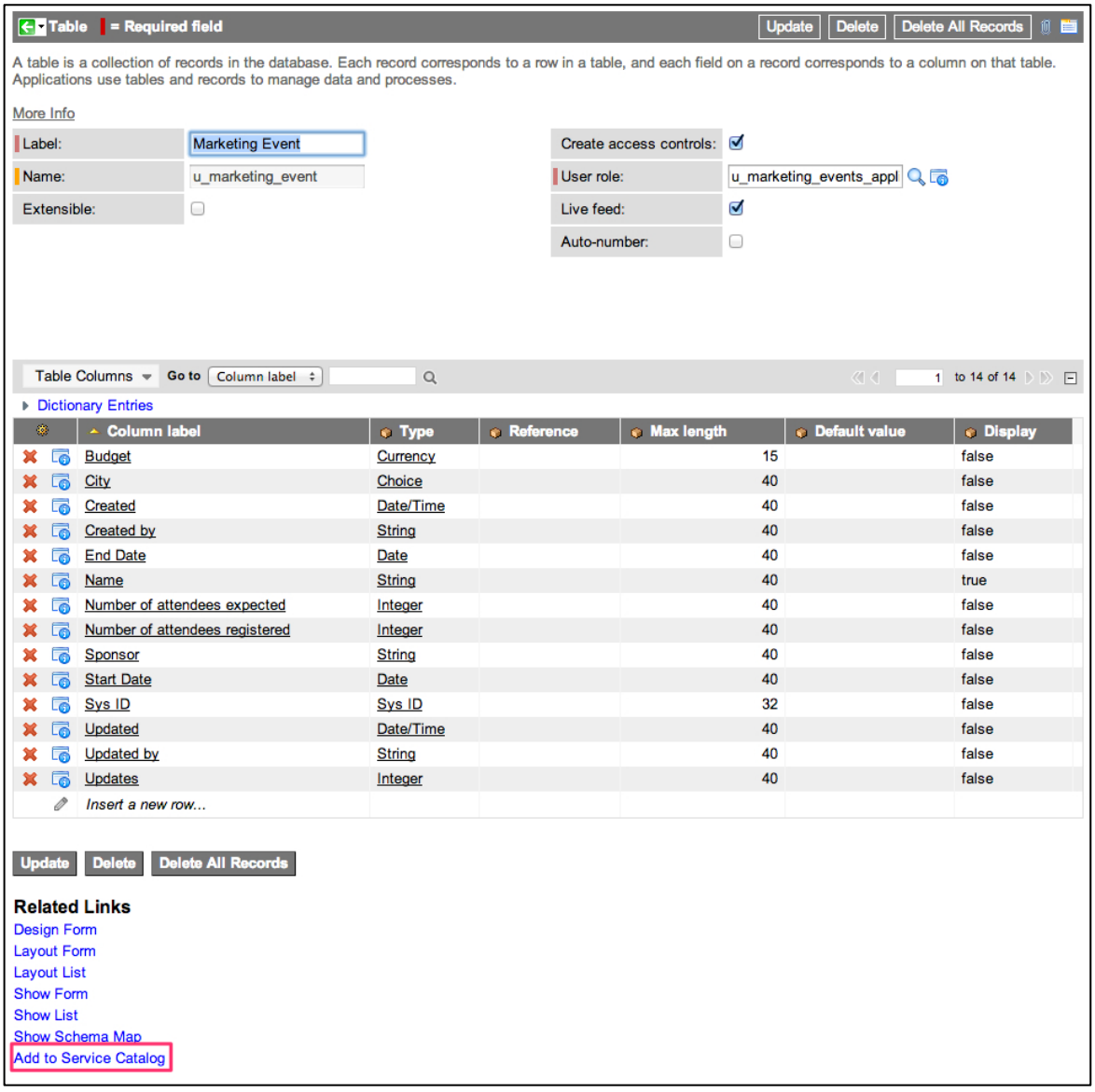
Since the sales managers do not need to understand the nuances of the marketing process, it makes sense for them to make marketing event requests using a service catalog. In this lab we will create a Service Catalog for marketing event requests.

To implement our request, we will create a Record Producer. A Record Producer creates an input form within the service catalog to capture requests and then uses the request data to create a new record in a destination table. For our purposes, we want a Record Producer that creates new records in the Event Marketing table when someone uses the Service Catalog to request a new event.

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Here's what we'll need to do in order to publish our new application to the Service Catalog:

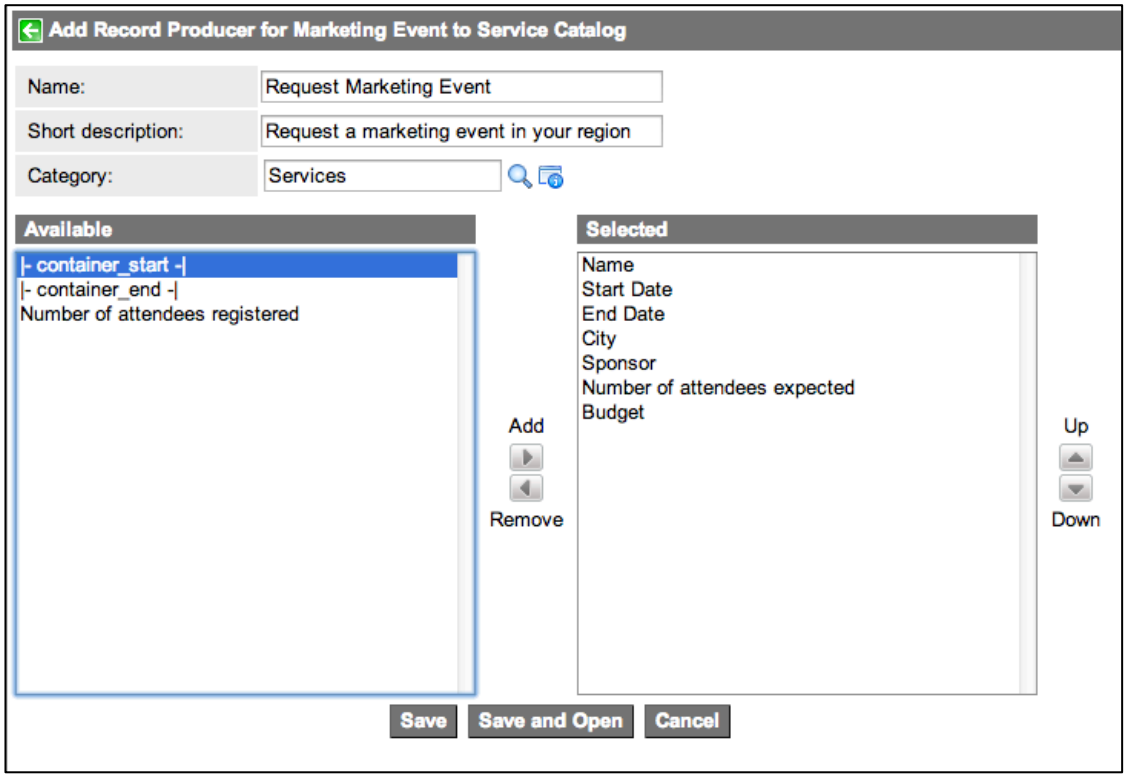
1. Navigate to the **Marketing Events Table** and select **Add to Service Catalog.**



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2. Fill in the **Record Producer** form with the following values:

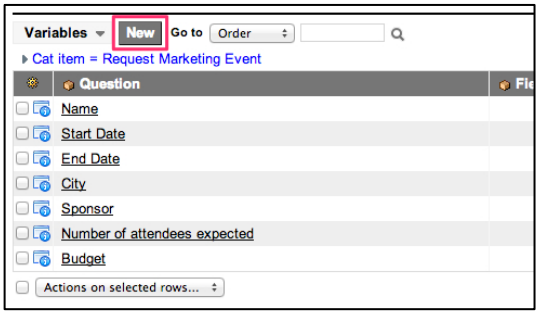
Field	Enter this value
Name	Request Marketing Event
Short description	Request a marketing event in your region
Category	Services Service Catalog



3. Click **Save** and **Open**.
   We now need to create a new variable within the Record Producer in order to capture the requesting user.

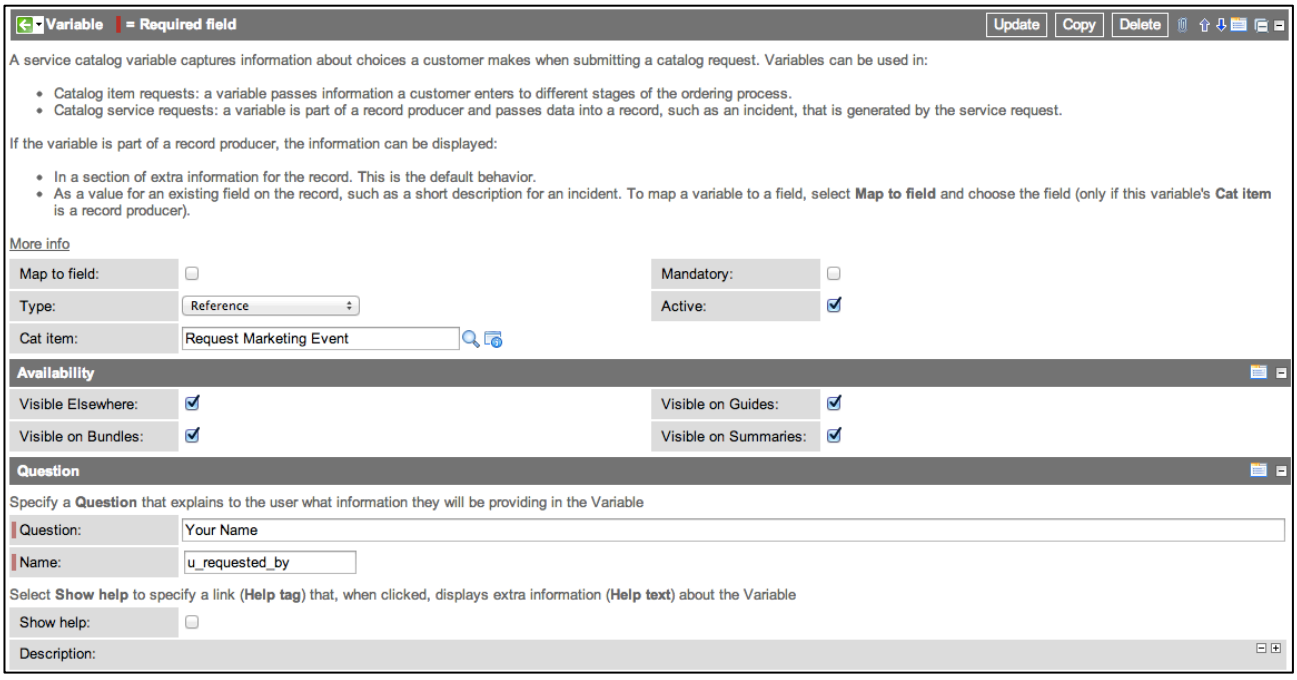
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4. From the Variables related list in the Record Producer form, click **New**.



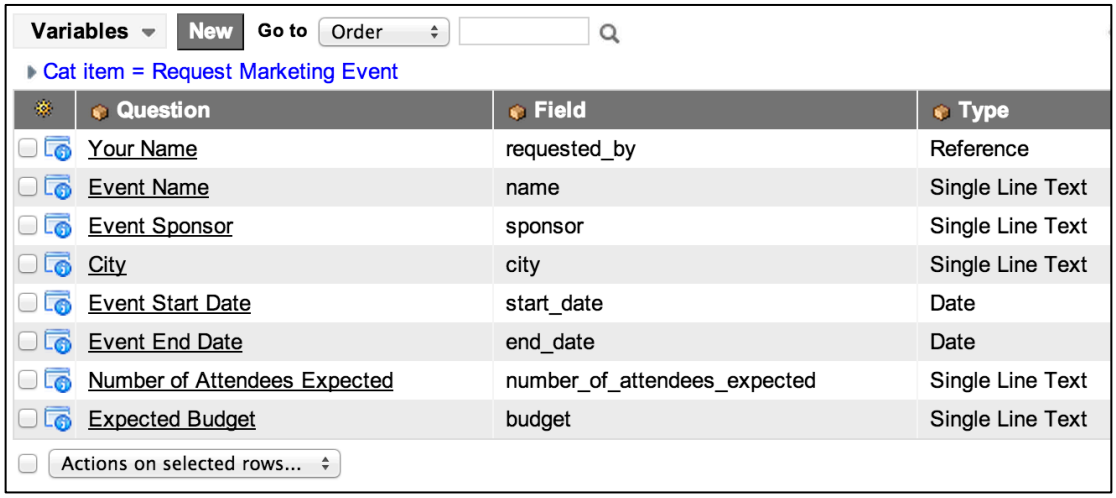
5. Create the **Your Name** variable as follows and click **Submit**.

Name	Map to field	Type	Reference	Order	Question
u_requested_by		Reference	User	100	Your Name



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Below is the resulting variable list.



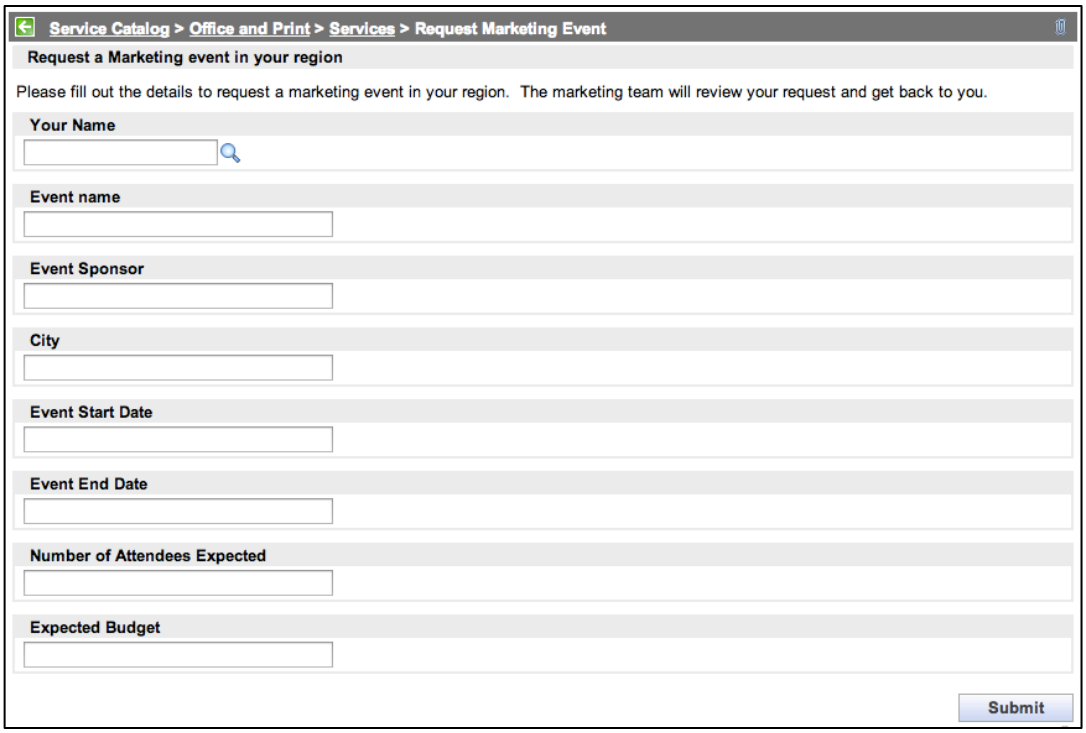
Note: Each variable name matches the field name from the Event Marketing table. Also notice that we are using a reference field for the Requested By field. This reference field provides lookup functionality when using the Record Producer.

Now that we have created the variables, the Record Producer displays fields to prompt users to fill out.

6. Click **Try It**. This provides a preview of record producer.

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7. Let's test it out. Enter some data and click **Submit**. ServiceNow will display a Marketing Event record with the data you entered.



Congratulations! You have now created a new Service Catalog item for users to submit Event Marketing requests.

In this lab we used Service Catalog to create an easy to use and uniform interface for sales managers to request marketing events. This is a functionality we can use wherever a request fulfillment pattern can be applied and the requestor of the service needs a simple consistent interface.

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Lab Goal

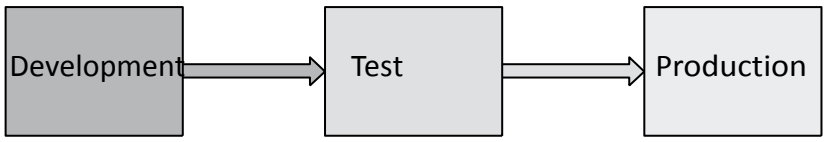
This lab explains how to publish the application between separate environments (sub-prod instances).

This lab since it requires multiple instances is "Demonstration Only" and will be demonstrated by the instructor.

Lab 2.1 Publishing the Application

Publishing the Application

Typically enterprises using ServiceNow have separate environments (or "instances") to support development, test, and production. This ensures production users are insulated from changes before they are thoroughly tested.



To move applications from one environment to the other you need to publish the application, which packages all the artifacts related to an application. This can then be exported as an XML file and imported into the other environment.

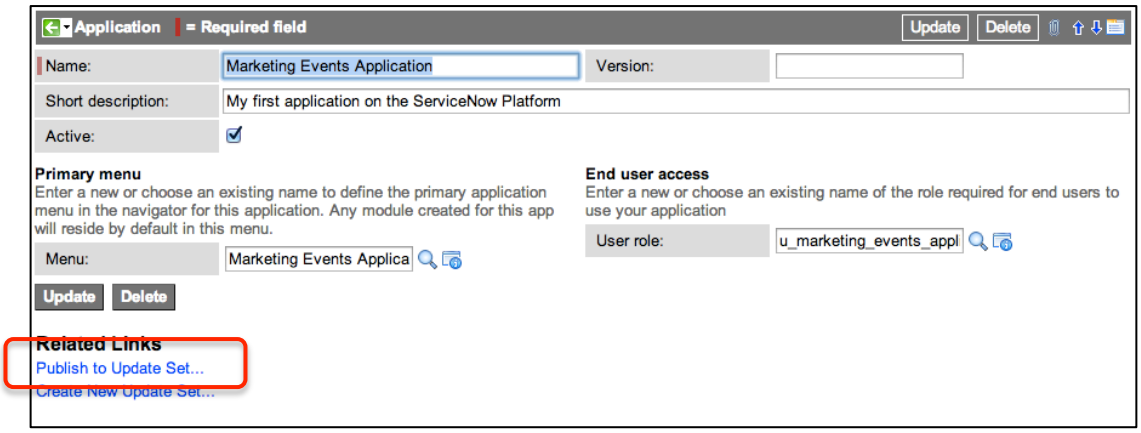
The mechanism used to publish an application on the ServiceNow platform is called Update Set. In this lab we will publish the application we have built, export it as XML, and import it into a different instance.

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1. Navigate to System **Applications > Custom Applications**.

2. Select **Marketing Events Application**.

3. Select the **Publish to Update Set** related link.

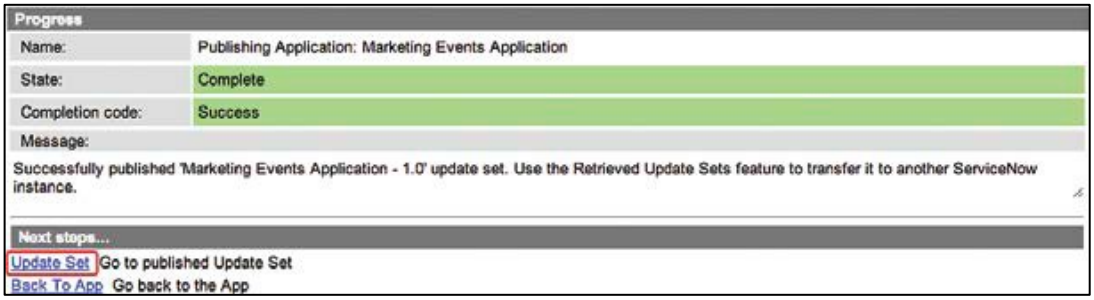


4. Fill in the **Publish Application** form with the following information.

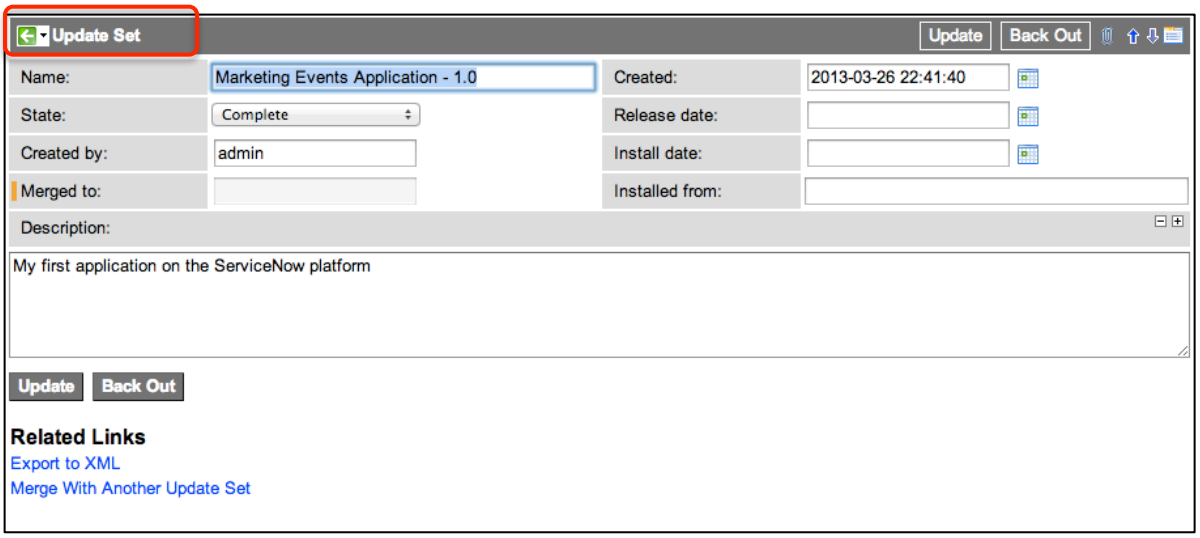
Field	Enter this value
Application Name	Marketing Events Application
Version	1.0
Description	My first application on the ServiceNow Platform
Include Data	True

5. Click **Publish**. ServiceNow creates a package with all the artifacts related to our application.

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6. Click the **Update Set** related link.



7. Click the **Export to XML** related link. Save the file on your computer. That's it. We can now transfer this file to a different instance of ServiceNow.

Consuming the Application

Let us take the update set created above and create the application in a different instance.

1. Log into another instance.

2. Navigate to **System Update Sets > Retrieved Update Sets**.

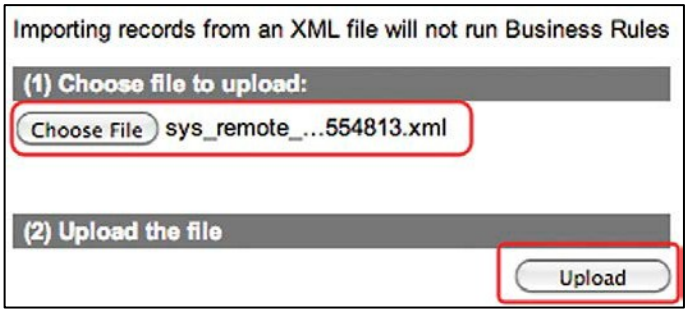
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3. Click the **Import Update Set from XML** related link.



4. Select the **XML** file for the Marketing Events Application.

5. Click **Upload**.



ServiceNow processes the update set.

6. Click **Preview Update Set**.

   Think of preview as validating the contents of the update set in the new instance. If there is a conflict or other type of error you can back it out without affecting anything.

7. If there are no errors or conflicts, click **Commit Update Set**.

8. From the application navigator, click the **refresh** icon.

9. Navigate to **Marketing Events Application** and verify the application behaves as expected.

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Lab Goal

This lab explains how to create a workflow to automate the approval process for an application.

Lab 2.2 Workflows and Approvals

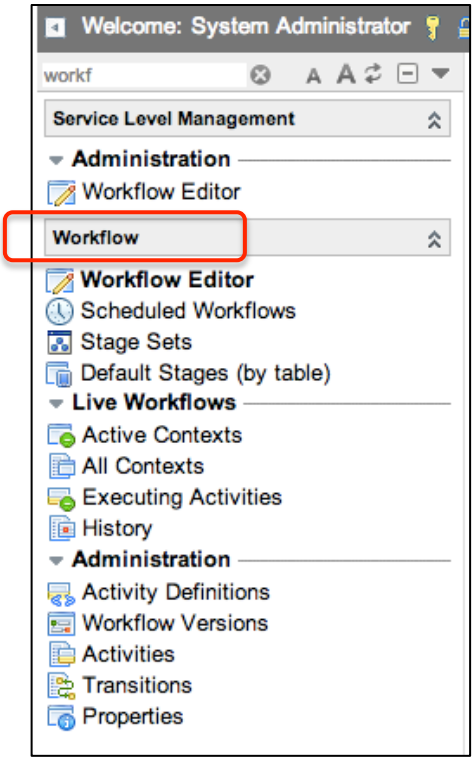
Workflows and Approvals

Too often business processes are implemented by a combination of e-mail, ad-hoc conversations and other inefficient, manual methods. Workflows can automate this, resulting in increased efficiency and reduced errors. Additionally, workflows provide an audit trail – this can be critical for an application that has to comply with internal or external regulations.

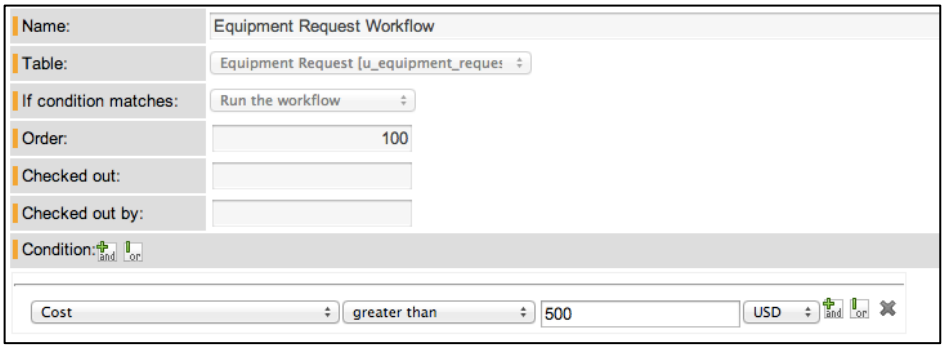
In our sample scenario, the marketing VP has to approve the request for any equipment that costs over $500. We will build a workflow to automate this process. As soon as a user enters request for an equipment costing over $500, the workflow will get triggered. This is a very simple (but common) scenario. The platform workflow capabilities allow complex criteria for triggering, approvals, branching as well as integration with external systems.

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1. Click on the **Workflow Editor** menu item on the left nav bar. Like the other menu items we have used so far, it can be found by typing in the search phrase on the top.

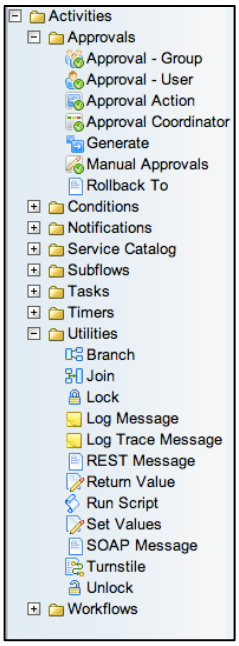


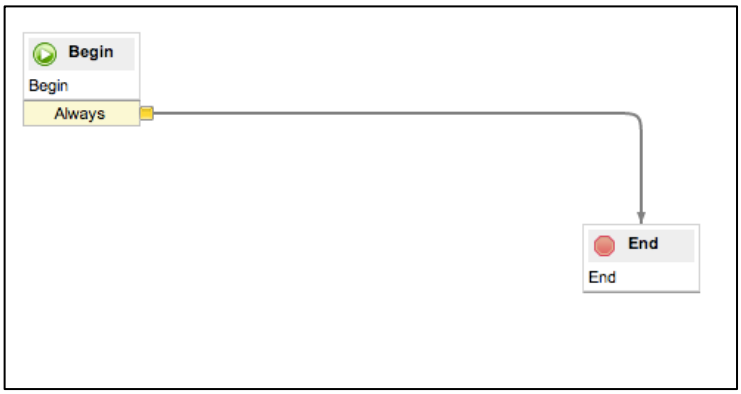
2. Click **New** and fill in the form as shown – the fields that need to be set are highlighted. Leave the rest of the fields to their default values. We want the workflow to run when the Cost field is greater that 500 USD.



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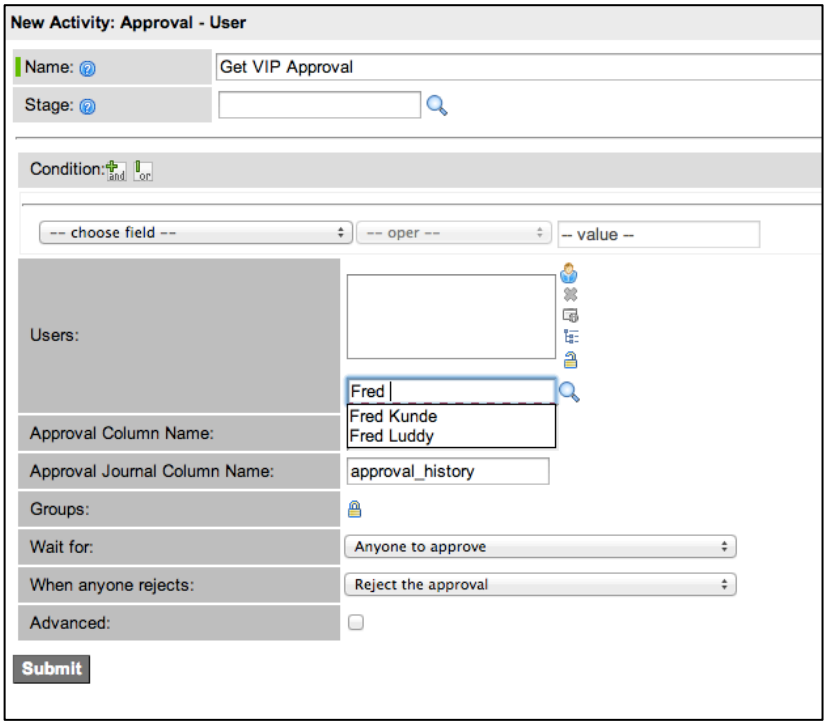
3. Click **Submit**. It brings up an empty workflow as shown below. On the right is the palette of tasks and other activities we can add to our workflow.



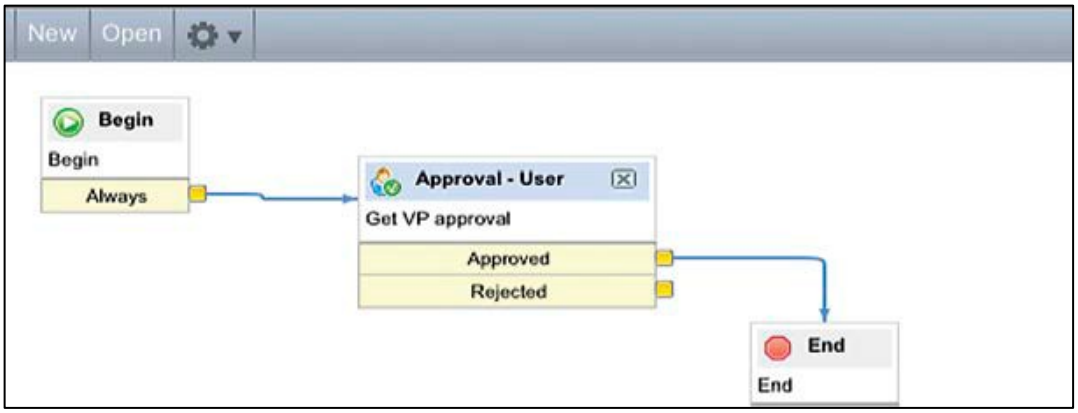


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4. Expand the Approvals folder. Drag and drop the Approval-User activity between the start and end of the workflow. The connecting line will turn blue. Drop it there. Fill in the values as shown below. Leave the rest with default values. We can send the request to a particular person (Fred Luddy) or a role (System Administrator) as in this exercise. Click on the lock icon next to **Users.** You can have it go a group and set other criteria on approval depending on your use case.

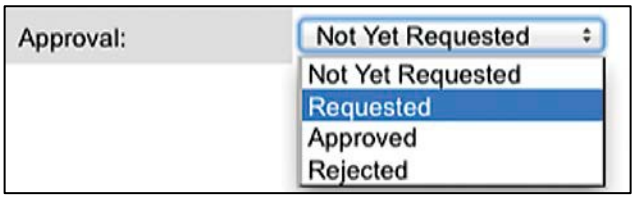


5. Click **Submit**. Your workflow should now look like below.

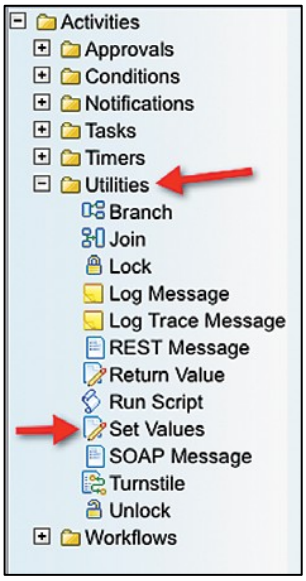


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6. We want to track the status of the workflow in a field on the record itself so that the user who submitted the request can quickly know whether their request was approved or not. For this we will use a field from the task table called Approval - remember that Equipment extends Task so we have access to all the fields in the task table. This field can have four possible values as shown below – this works nicely for what we want to do. We will have the workflow set these values as it progresses.

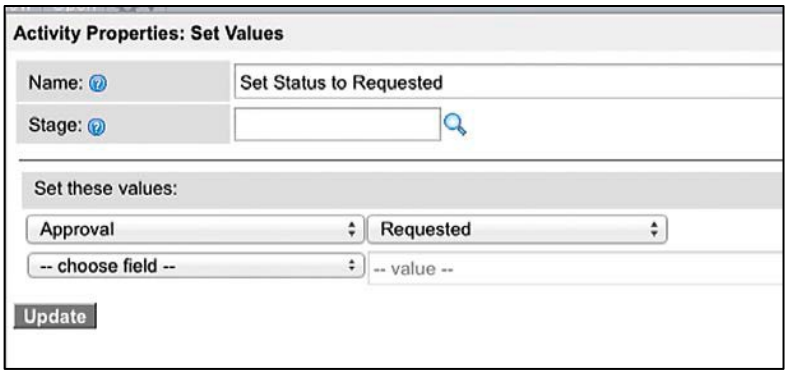


7. To have the workflow set the value of this field we will use an activity called Set Value. This lets us easily set field values. This activity is in the Utilities folder.

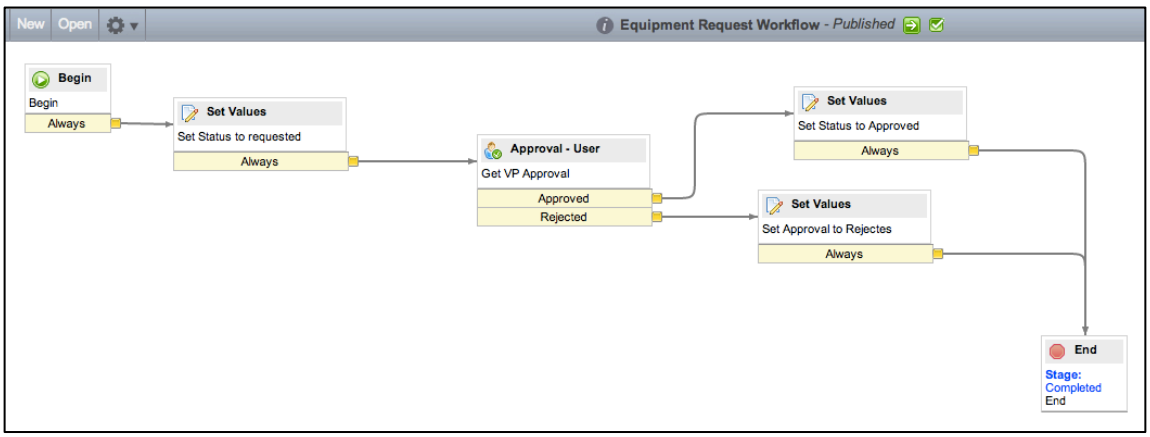


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8. Drag and drop the **Set Values** utility between Begin and the approval step and set values as shown.



9. Do the same between the approved action and end and the rejected action and end. Set the value of Approval field to Approved and Rejected. Your final workflow should look like below.



10. Publish the workflow. Click on the gear wheel icon on top and click Publish.
The status at top should now show Published:



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11. Before we test the workflow let us make a simple addition to the Equipment list view. Personalize the Equipment list view and add the Approval field.

    Add this field to the form view as well. Look at Lab 1.3, if you have forgotten how to personalize list and form views.



12. Now we are ready to test our approval process. Enter an equipment request for more than **$500** and select **Requested** for the approval value. See sample below and click **Submit**.

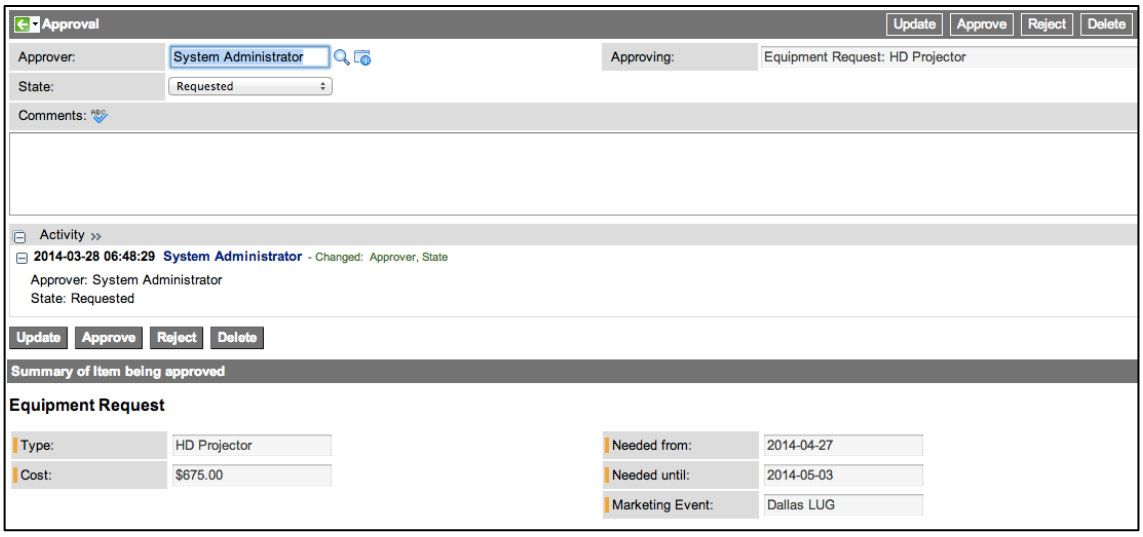


13. We will use the System Administrator role to perform approval / rejection for simplicity. Select the **My Approval** menu item on the left nav bar.

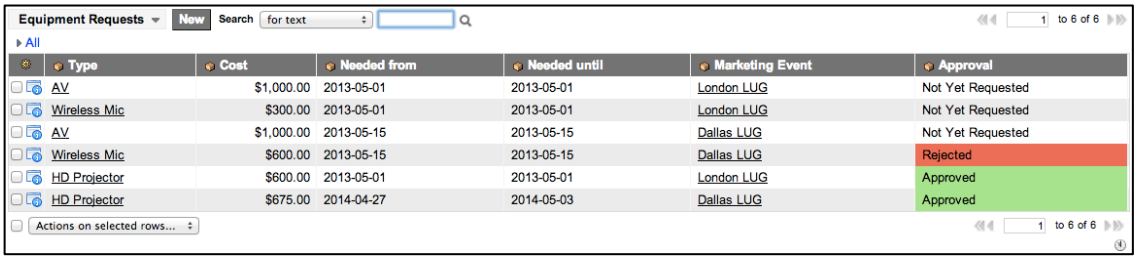


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14. This brings up a list view of all the approval requests. Click on the **Requested** link for the recently submitted request. This brings up the screen shown below.



15. Notice that all details of the request are nicely captured. **Approve** the request. The state will change on the next screen. This will also be reflected in the equipment list view as shown below.



Notice that in this example you can change the approval field status directly. Though this may be fine in this example, in a real world scenario you may want to make this field read only for the user who submits the request.

Workflows and approvals are extremely powerful features. With the ServiceNow Service Automation Platform this functionality is easily accessible by your applications.

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Lab Goal

This lab explains the ServiceNow security model.

Lab 2.3 Securing the Application

Securing the Application

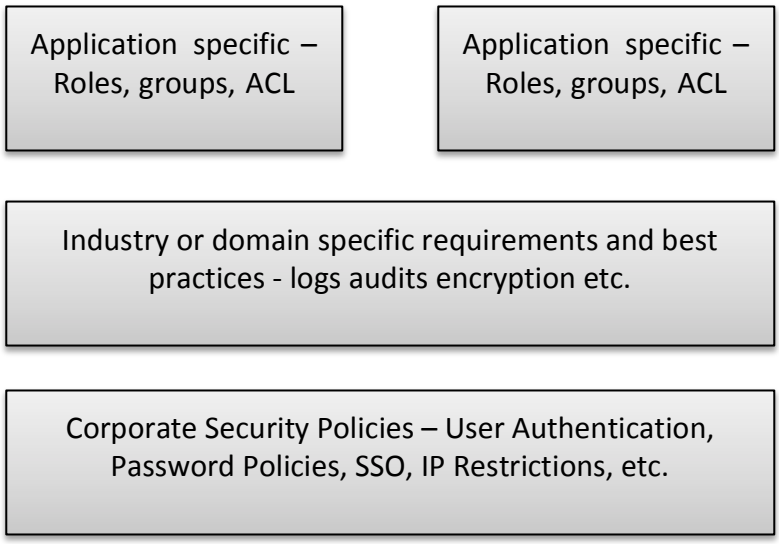
Security is an important and multifaceted topic. The ServiceNow Service Automation Platform provides a variety of administrative controls and a fine- grained application security model to secure your applications.

The diagram on the following page depicts one way to think about the security of the applications and some of the platform capabilities provided to address it. At the bottom are the controls that are mandated by your company's security policies. On top of that may be industry-specific requirements and best practices. These two layers may be common across multiple applications. Finally, there is application-specific security that controls access to individual application.

The platform security capabilities should not be looked at in isolation but should be used together to secure the application in an optimal fashion. Though in this tutorial we have deferred security to a later Lab 1.3, as a best practice you should understand the security requirements for your applications and incorporate them into earlier stages of the implementation cycle.

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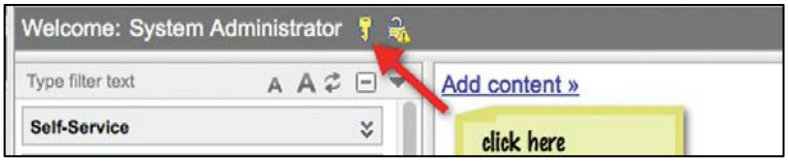
In this lab we will look at two of the capabilities provided by the ServiceNow platform to secure your applications – roles and access control lists.

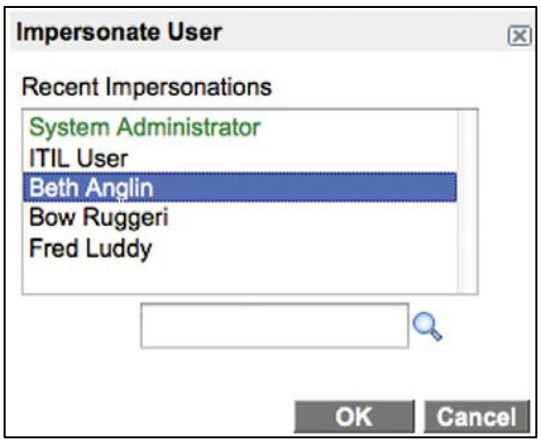


A role is a category that can be assigned to a user, and can be granted access to particular parts of the system – in our case the marketing event application. When we used the application creator (in Lab 1.1), it conveniently created a new role (**u_marketing_events_application_user**) that we can assign to users that need access to this application.

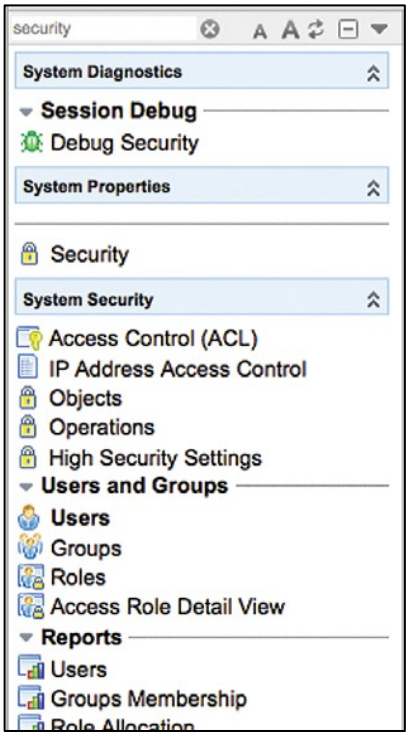
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1. To test the current application security, impersonate a user (Beth) who doesn't have this role. The application shouldn't be visible.



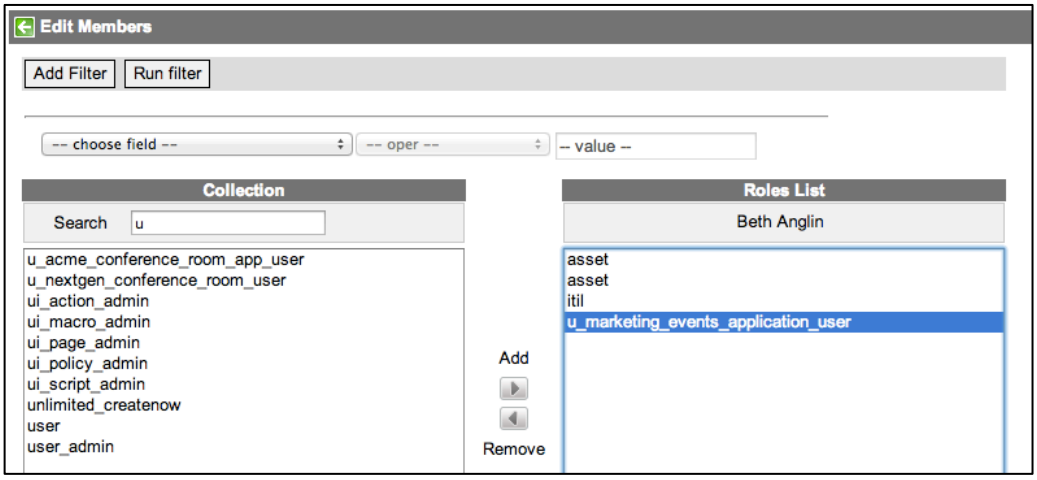


2. Go back to being the System Administrator user and give Beth visibility of the application.
3. Navigate to **System Security > Users and Groups > Users** and select **Beth Anglin**.



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4. **Edit** in the Role section. In the form add **u_marketing_events_ application_user** from the bucket on the left to the right.



5. Now impersonate Beth again – the application should be visible.

Access Control List (ACL)

By defining a role, we were able to give visibility to the application only to users in that role. However, you may want to further restrict what a particular role or user is allowed to do. Access Control Lists is one of the mechanisms provided to restrict access at a fine level of granularity.

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Lab Goal

This lab explains how to create a mobile view of the application.

Lab 2.4
Making an Application Mobile

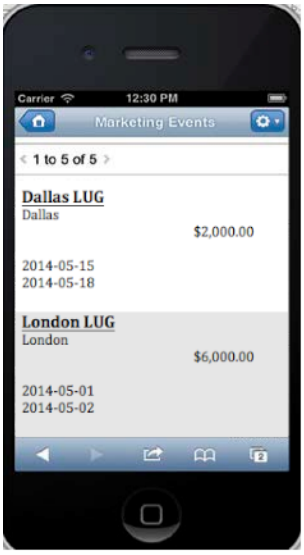
Making the Application Mobile

Given the ubiquity of smartphones and tablets, it is important that your applications are not only accessible from multiple mobile devices, but also provide an optimal experience for each device's user. Fortunately, the ServiceNow Service Automation Platform does the "heavy lifting" here for you. When access is through a mobile device, the screens are automatically reformatted to make your application more "mobile-friendly," across multiple device types and operating systems. For Apple iPad users, the ServiceNow platform delivers an iPad-specific view. The UI on the iPad looks and feels more like a native application than just browser-based access.

As an application developer or administrator you can further help optimize the mobile experience by creating a mobile-specific view of your application, eliminating or rearranging selected fields. In this lab, we will first create a mobile-specific view to browse the list of events. Then, we'll explore how our application looks on the iPad.

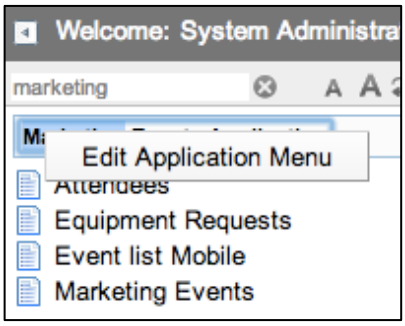
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1. Below is the non-mobile-specific view of the list of Marketing Events.



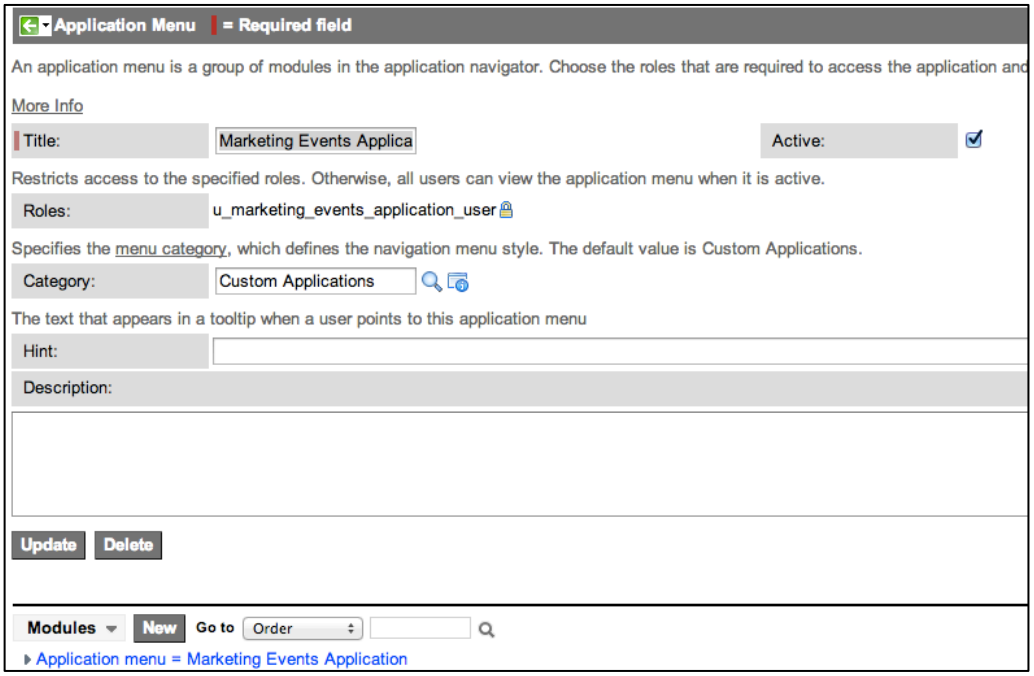
2. Create a new application of type Mobile.

3. We will eliminate a few fields from this list – the marketing team just wants the list of events. Right-click the **Application** menu item on the left nav bar.

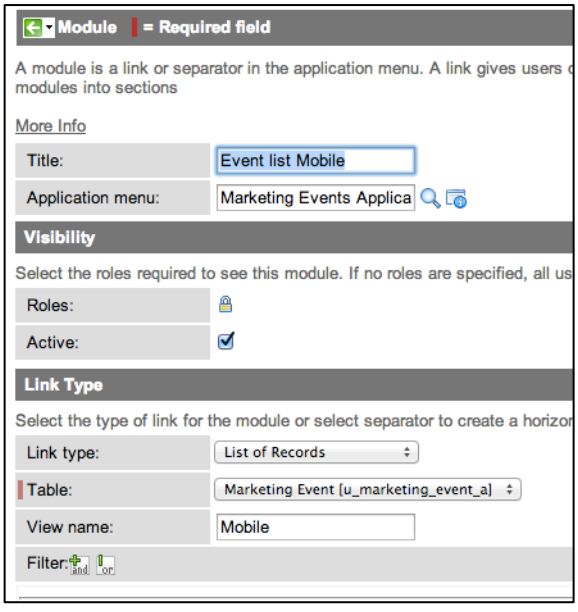


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4. Select **Edit Application Menu**. In the next screen click New to create a new module.



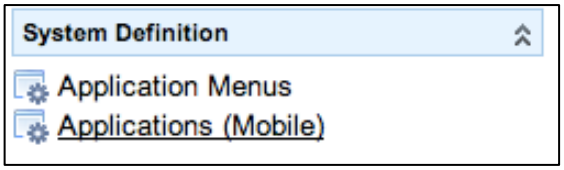
5. Fill out the fields highlighted as shown and click **Submit**.



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6. A new menu item now appears in you application list. Select it and personalize the **List Layout** it so that it only includes Event Name and City.

7. Go to the **Applications (Mobile)** and click **New**.

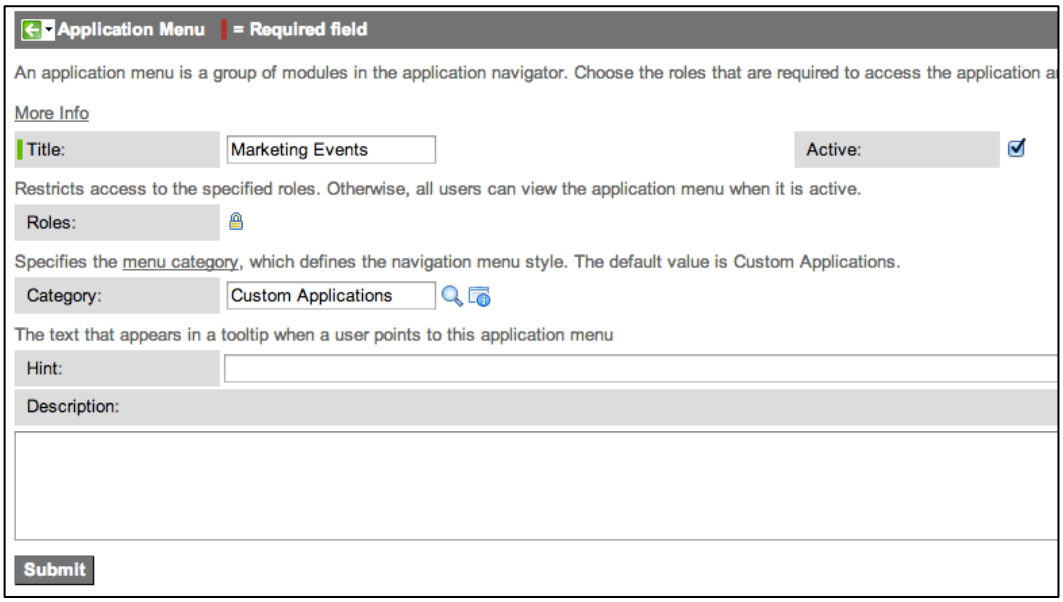




8. Enter the fields as follows:

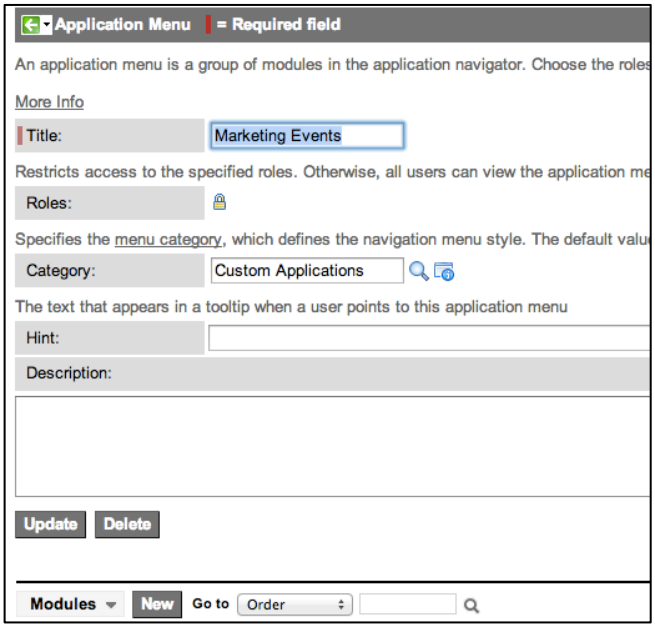
   Title**: Marketing**
   Events Order: 50

   Select **Submit.**

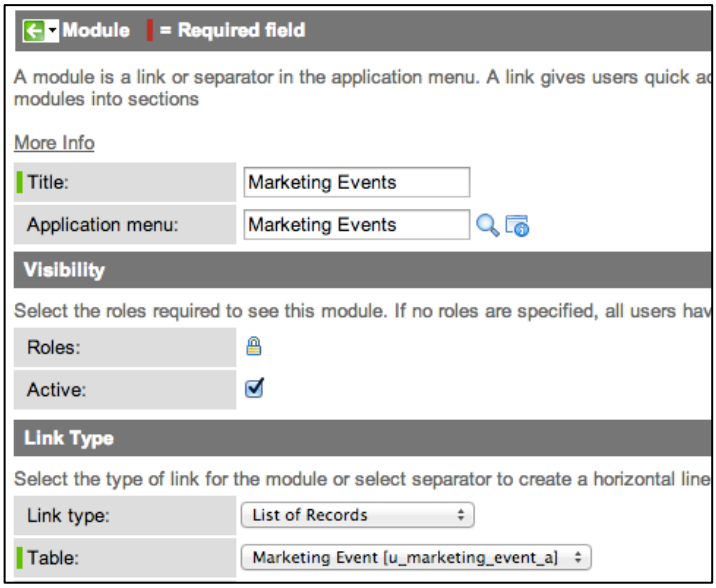


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9. Click on **New** modules.

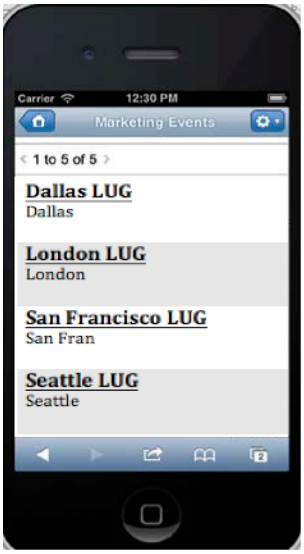


Enter the following information and click on **Submit.**



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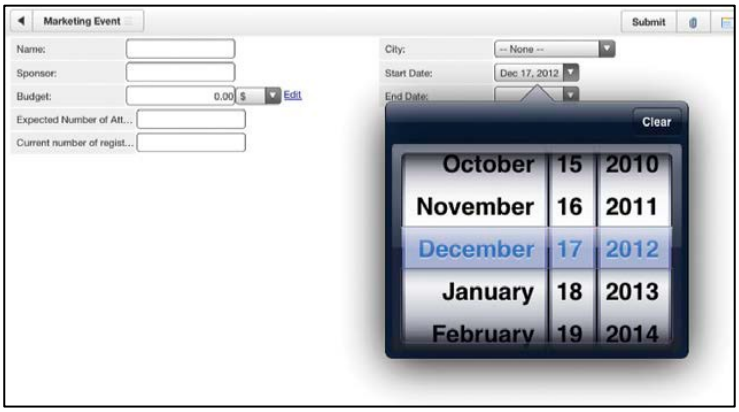
10. Access this view from a mobile browser. You should only see the two fields.



The ServiceNow iPad Interface

As mentioned earlier, if you access an application from an iPad, the ServiceNow platform recognizes that, and will automatically send an iPad-specific view.

The figure below shows the iPad view of our marketing event form.



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Lab Goal

This lab explains how to incorporate social aspect into the application.

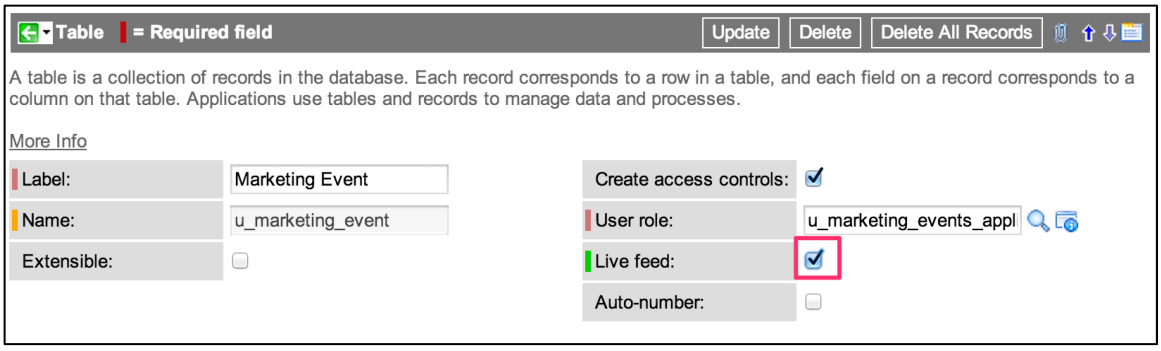
Lab 2.5
Make the Application Social

Make the Application Social

Most real-world business scenarios involve some form of ad-hoc conversation and problem solving with various stakeholders. In the case of event management application, it may be finding a person to cover an event, sharing some insight with the team, or other related tasks. This is done by going outside of the application, typically via e-mail. The problem with this approach is that the context is lost. It would be better to have this conversation inside the application, for greater immediacy and contextual relevance. If, for example, the conversation is around a specific event in a specific location, the conversation can focus on the specific relevant record. Integrated support for such interactions makes your application social.

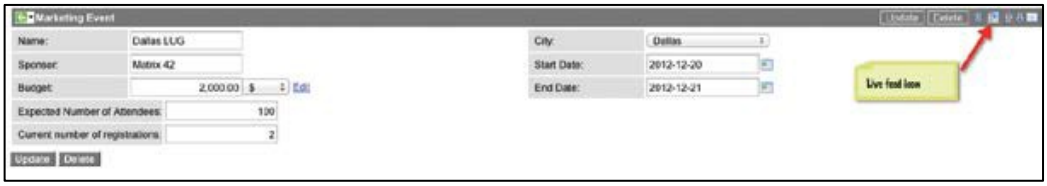
The ServiceNow Service Automation Platform provides a feature called Live Feed that makes it extremely easy to incorporate social features into your application. In this lab we will look at setting up a live feed around events.

1. Go to the Marketing Event table and select the **Life Feed** check box.

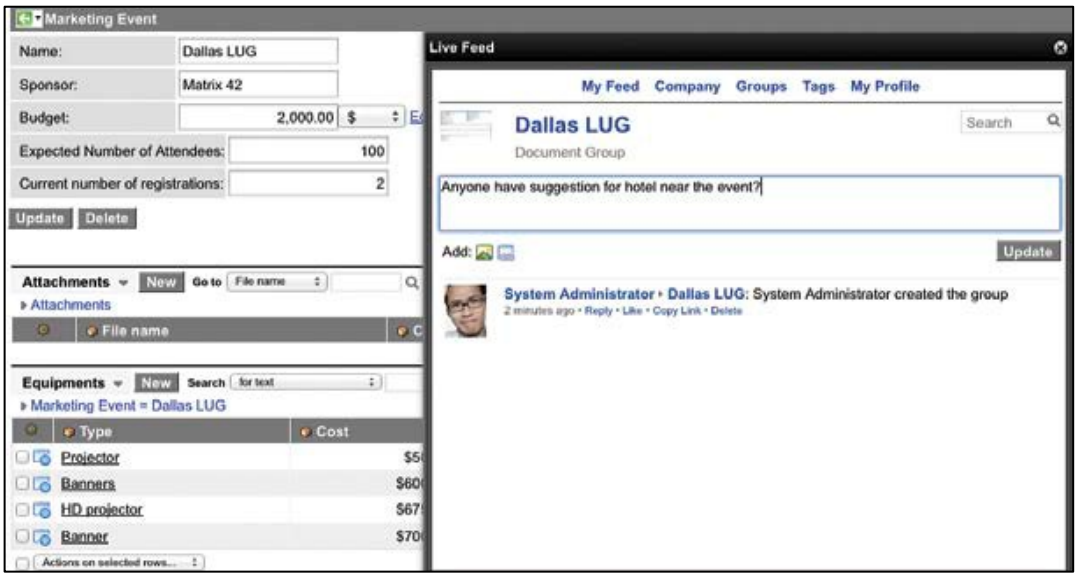


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2. On a marketing event record you can see the Live Feed icon.



3. Click on it to expand – you can now have a conversation around this event.



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Lab Goal

This lab explains how to create a business rule.

Lab 2.6 Business Rules

Business Rules

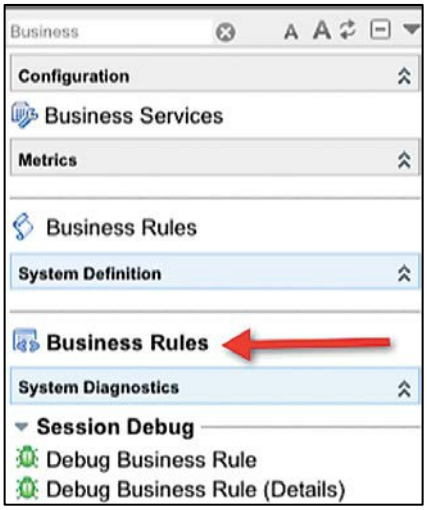
We have built a fairly sophisticated system so far without having to write a single line of code. This is by design. The ServiceNow Service Automation Platform is designed to help you build your application declaratively, or with mouse clicks. However, there may be instances where the declarative features are not sufficient. In such cases, you can choose to write code. Almost all ServiceNow platform capabilities (including workflow, security, UI, and database) can be customized with JavaScript code.

In this lab we will look at one of the more common scenarios that can benefit from custom code, in conjunction with a database operation like insert, update or delete. This capability is called Business Rules. Business Rules can be made to execute before or after a database operation. Readers who are familiar with relational database triggers will notice the similarity - Business Rules are indeed similar to triggers in relational databases.

We will write a Business Rule to calculate the number of attendees and update the registered attendee field on the marketing event table. This is a very simple rule for illustrative purposes. Code written for the real world can be as complex as you wish.

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1. Click the **Business Rule** menu item under System Definition.



2. Click **New**. Fill out as shown below. Note that we are updating a field a related table.

Name	Update attendee count
Table (dropdown)	Attendee
Active	Checked
When (dropdown)	after
Insert	Checked

In the script section type the following code

```
current.u_marketing_event.u_number_of_attendees_register
=current.u_marketing_event.u_number_of_attendees_register + 1;
current.updateWithReferences();
```

3. Click **Update**.

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4. Test by adding a few attendees. The current registration count should reflect the insert.



The ServiceNow Service Automation Platform enables you to build most of the functionality that you need with clicks. However as an application builder you never have to worry about hitting a wall or limitation of the ServiceNow platform – you can always customize with code when needed. In this lab, we looked at Business Rules that are executed when a database operation occurs. Code-based customization is also an available option for other platform capabilities as well – UI, security and workflows, for example.

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Lab Goal

This lab explains how to create a custom user interface for the application

Lab 2.7 Building a Custom User Interface

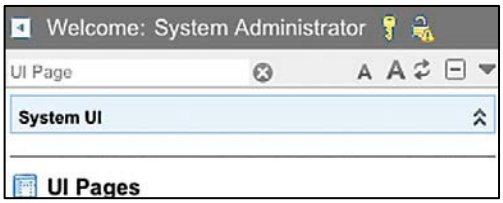
Building a Custom User Interface

We have so far used and customized the UI automatically generated by the ServiceNow Service Automation Platform by customizing it. All such UIs have common elements and functionality making it easy for your users to navigate and use the application – increasing user adoption and satisfaction. This is the recommended way to build UI. However, there may be situations where you may want to have a different look and feel for your application perhaps to match the corporate standards. You can accomplish this on the platform by writing a UI Page based on Jelly, an open standard from the Apache Software Foundation.

In this lab we want to give you a flavor of this by creating a custom Attendee page – that matches the corporate look and feel. This could be incorporated into the corporate web site to allow self-registration.

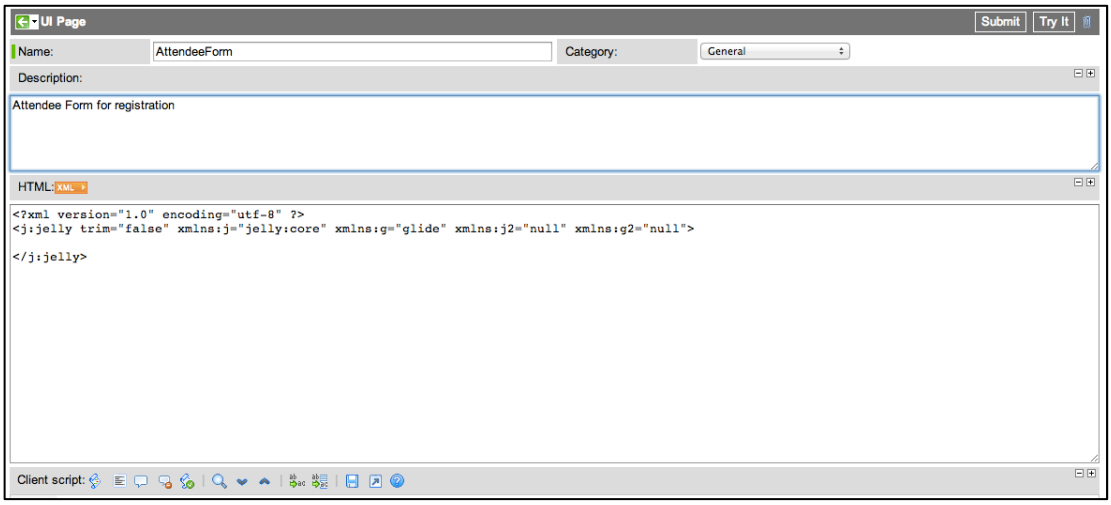
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1. Go to **UI Pages** menu item on left nav bar.



2. Click **New**.

3. Name the UI page – AttendeeForm (no space).



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4. Copy the following code into the HTML section of the page.

```
<style type="text/css">
body{
font-family:"Lucida Grande", "Lucida Sans Unicode", Verdana, Arial, Helvetica, sans-serif;
font-size:12px;
}
p, h1, form, button{border:0; margin:0; padding:0;}
.spacer{clear:both; height:1px;}
/* ----------- My Form ----------- */
.myform{ margin:0 auto; width:400px; padding:14px;
}

/* ----------- stylized ----------- */
#stylized{
border:solid 2px #b7ddf2;
background:#ebf4fb;
}
#stylized h1 { font-size:14px; font-weight:bold;
margin-bottom:8px;
}
#stylized p{ font-size:11px;
color:#666666; margin-bottom:20px;
border-bottom:solid 1px #b7ddf2;
padding-bottom:10px;
}
#stylized label{
display:block;
 font-weight:bold;
text-align:right;
width:140px;
float:left;
}
#stylized .small{
color:#666666;
display:block; font-size:11px;
font-weight:normal;
text-align:right;
width:140px;
}
#stylized input{
float:left;
font-size:12px; padding:4px 2px; border:solid 1px #aacfe4; width:200px;
margin:2px 0 20px 10px;
}
#stylized button{
clear:both;
margin-left:150px;
width:125px;
height:31px;
background:#666666 url(img/button.png) no-repeat;
text-align:center;
line-height:31px;
color:#FFFFFF; font-size:11px; font-weight:bold;
}
</style>

<div id="stylized" class="myform">
<g:ui_form id="form" name="form">
<h1>Sign-up form</h1>
<p>Please sign up here for an fun and informative session</p>

<label>First Name
<span class="small">First Name</span>
</label>
<input type="text" name="fname" id="name" />

<label>Last Name
<span class="small">Last Name</span>
</label>
<input type="text" name="lname" id="name" />

<label>Email
<span class="small">Add a valid address</span>
</label>
<input type="text" name="email" id="email" />

<label>Phone
<span class="small">Your Phone Number</span></label>
<input type="text" name="phone" id="phone" />

<button type="submit">Sign-up</ button>
<div class="spacer"></div>

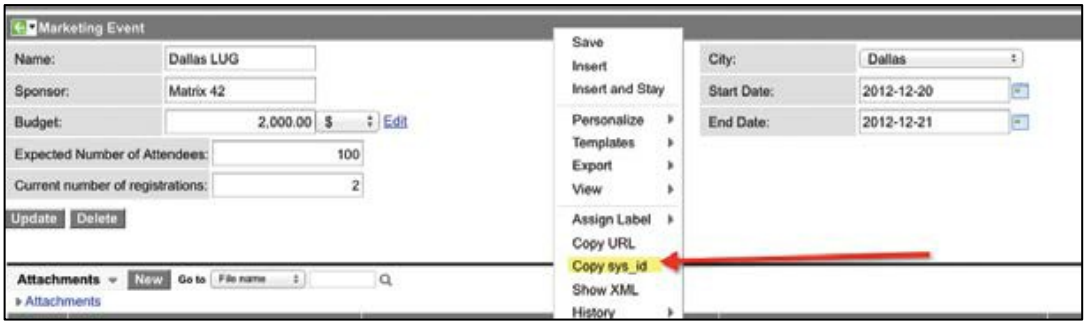
</g:ui_form>
</div>
```


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5. Copy the following Javascript in the processing script session:

```
var attendee = new GlideRecord("u_attendee");
u_attendee.u_first_name = fname ;
u_attendee.u_last_name = lname ;
u_attendee.u_email = email;
u_attendee.u_phone = phone;attendee.u_marketing_event = "<sys_id_of_
event_record>" ; // HARDCODED
u_attendee.insert();
```

6. Note that for this exercise we are hardcoding the **sys_id** of a marketing event record. Substitute the place holder with an actual **sys_id**. You can obtain this by opening a record, right click on the gray bar and selecting **Copy sys_id**.



7. Go to the bottom of the page and click **Update**.

8. You can now access this page by going to (replace **<instance_name>** with your instance name).

   http://<instance_name>.service-now.com/AttendeeForm.do

9. Test out by adding a new attendee.

   The platform automatically creates UI for your tables that you can customize. However, if you need to customize the look and feel or other aspects you can do so with UI pages. UI Pages also allow you to incorporate your own Stylesheets (CSS) as well as Javascript libraries. For a customer example look at https://it.byu.edu/byu/default.do

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Lab Goal

This lab explains the concept of Integration via Web Services.

Lab 2.8
Web
Services

Web Services

No application is an island. Most applications need to interact with other applications to either exchange data or participate in a business process. The ServiceNow Service Automation Platform offers a rich set of integration features to solve the common integration challenges – data import and export (as discussed in Lab 1.6), real-time integration using Web Services and prebuilt integrations to other systems.

In this lab, we will look at how to access automatically generated

Web Services provided for ServiceNow tables.

Web Services provide standards based mechanism to connect systems together. The platform provides support for both SOAP and REST services. A SOAP based web service is automatically generated for all the tables.

To access the definition, just type this URL into your browser:

http://<instance_name>.service-now.com/u_marketing_event.do?WSDL
(Replace <instance name> with the name of your instance).

Try the same for the equipment request table.

Integrating with other systems is a requirement for most enterprise business applications. The ServiceNow platform provides a variety of mechanisms to accomplish this. In this lab we looked at accessing a web services definition for our tables.

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