

# Apex - Example

## Enterprise Application Development Example

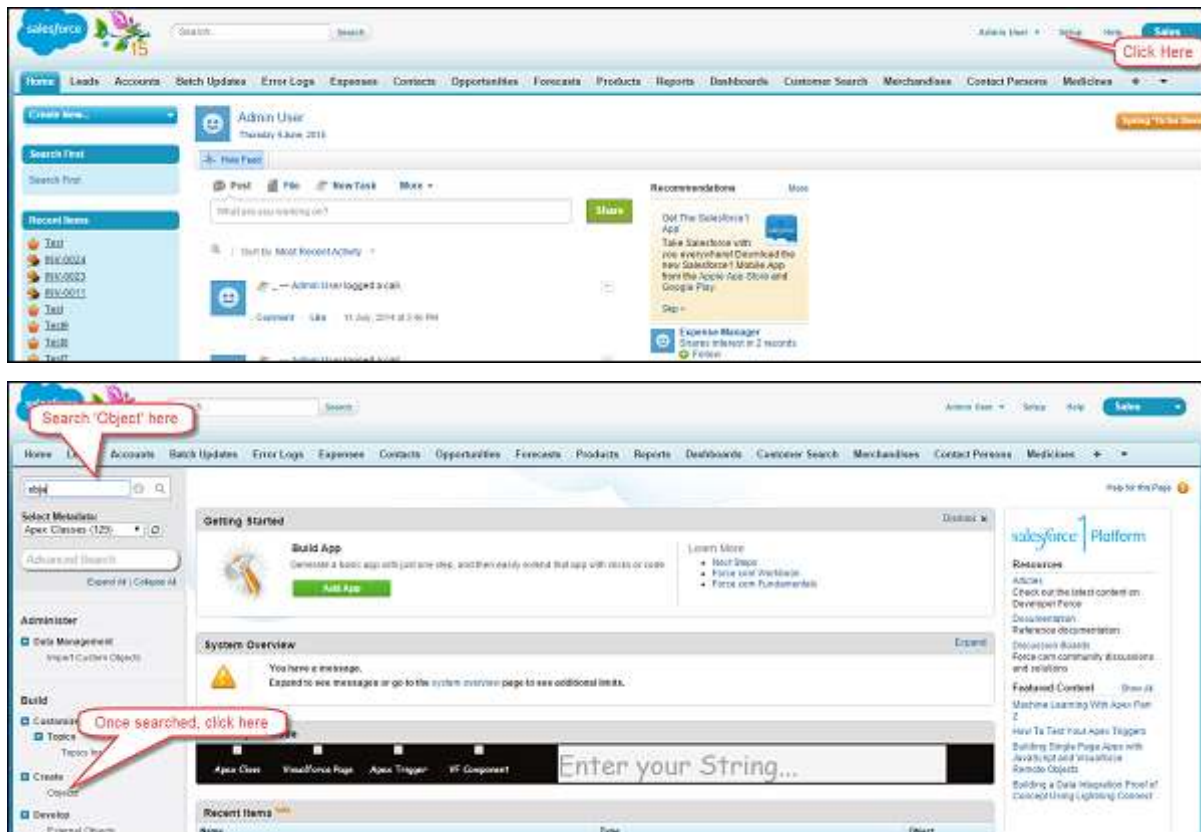
For our tutorial, we will be implementing the CRM application for a Chemical Equipment and Processing Company. This company deals with suppliers and provides services. We will work out small code snippets related to this example throughout our tutorial to understand every concept in detail.

For executing the code in this tutorial, you will need to have two objects created: Customer and Invoice objects. If you already know how to create these objects in Salesforce, you can skip the steps given below. Else, you can follow the step by step guide below.

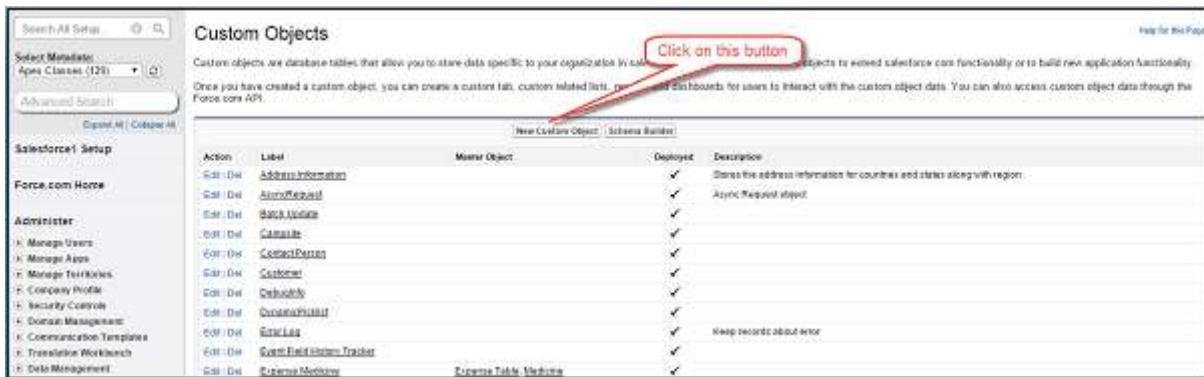
### Creating Customer Object

We will be setting up the Customer object first.

**Step 1** – Go to Setup and then search for 'Object' as shown below. Then click on the Objects link as shown below.



**Step 2** – Once the object page is opened, then click on the 'Create New Object' button as shown below.



**Step 3** – After clicking on button, the new object creation page will appear and then enter all the object details as entered below. Object name should be Customer. You just have to enter the information in the field as shown in the screenshot below and keep other default things as it is.

The screenshot shows the 'New Custom Object' page. A red callout bubble points to the 'New Object page' header.

**Custom Object Definition Edit**

**Custom Object Information**

The singular and plural labels are used in lists, page layouts, and reports:

Label:  Example: Account

Plural Label:  Example: Accounts

Starts with vowel sound: ☐

The Object Name is used when referencing the object via the API:

Object Name:  Example: Account

Description:

Context-Sensitive Help Setting: ☐ Open the standard Salesforce.com Help & Training window ☐ Open a window using a Visualforce page

Context Name:

**Enter Record Name Label and Format**

The Record Name appears in page layouts, key lists, related lists, lookups, and search results. For example, the Record Name for Account is "Account Name" and for Case it is "Case Number". Note that the Record Name field is always called "Name" when referenced via the API.

Record Name:  Example: Account Name

Data Type:

Enter the information and then click on the 'Save' button –

The screenshot shows the 'New Custom Object' page with the object name set to 'Customer'. Red callout bubbles point to the object name and the 'Save' button.

**Custom Object Definition Edit**

**Custom Object Information**

The singular and plural labels are used in lists, page layouts, and reports:

Label:  Example: Account

Plural Label:  Example: Accounts

Starts with vowel sound: ☐

The Object Name is used when referencing the object via the API:

Object Name:  Example: Account

Description:

Context-Sensitive Help Setting: ☐ Open the standard Salesforce.com Help & Training window ☐ Open a window using a Visualforce page

Context Name:

**Enter Record Name Label and Format**

The Record Name appears in page layouts, key lists, related lists, lookups, and search results. For example, the Record Name for Account is "Account Name" and for Case it is "Case Number". Note that the Record Name field is always called "Name" when referenced via the API.

Record Name:  Example: Account Name

Data Type:

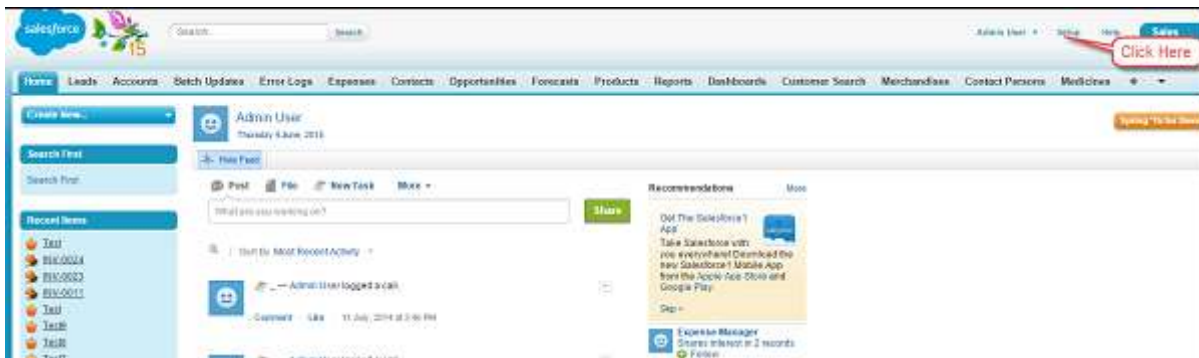
**Optional Features**

By following the above steps, we have successfully created the Customer object.

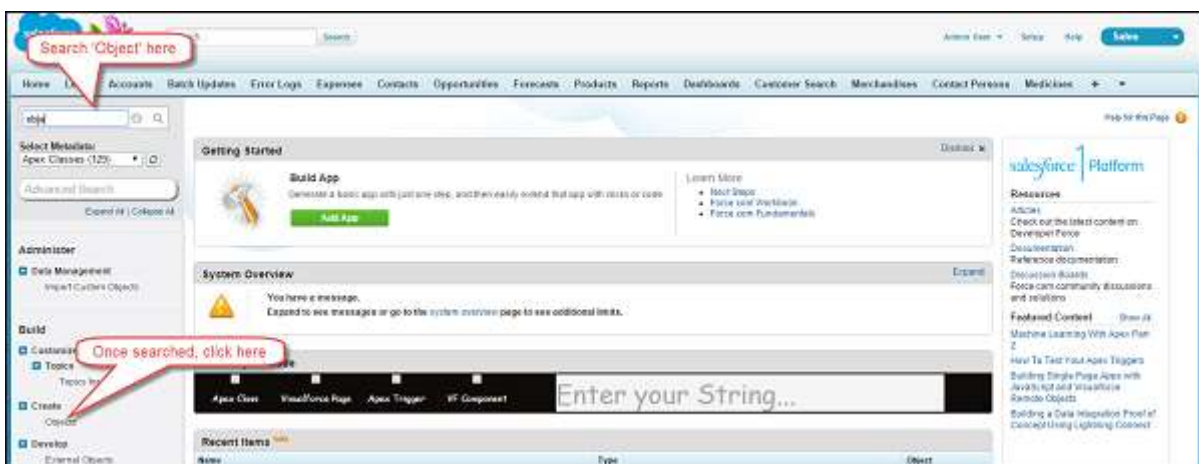
# Creating the Custom Fields for Customer object

Now that we have our Customer object set up, we will create a field 'Active' and then you can create the other fields by following similar steps. The Name and API name of the field will be given in the screenshot.

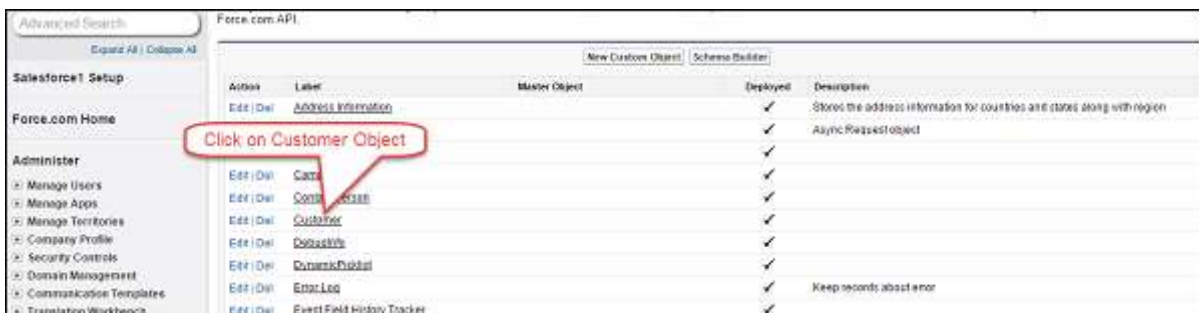
**Step 1** – We will be creating a field named as 'Active' of data type as Checkbox. Go to Setup and click on it.



**Step 2** – Search for 'Object' as shown below and click on it.



**Step 3** – Click on object 'Customer'.



**Step 4** – Once you have clicked on the Customer object link and the object detail page appears, click on the New button.

Standard Fields

Action	Field Label	Field Name	Data Type	Controlling Field	Indexed
Created By	Created By	CreatedBy	Lookup (User)		
Edit	Customer Name	Name	Text (255)		
	Last Modified By	LastModifiedDate	Lookup (User)		
Edit	Owner	OwnerId	Lookup (User)		

Click here to create a new field

Custom Fields & Relationships

Action	Field Label	API Name	Data Type	Indexed	Controlling Field	Modified By
Edit (Del)	Active	APEX_Active__c	Checkbox			Admin User: 7/5/2015 12:28 AM
Edit (Del)	Customer Description	APEX_Customer_Description__c	Text (255)			Admin User: 7/5/2015 12:15 AM
Edit (Del)	Customer Description	Customer_Description__c	Lookup (Customer)	✓		Admin User: 12/5/2015 3:43 PM
Edit (Del)	Customer Description	APEX_Customer_Description__c	Text (255)			Admin User: 7/5/2015 2:24 PM
Edit (Del)	Customer Status	APEX_Customer_Status__c	Picklist			Admin User: 7/5/2015 3:04 PM
Edit (Del)	External ID	APEX_External_ID__c	Text (50) (External ID)	✓		Admin User: 21/5/2015 2:38 PM

Related Lookup Filters

No related lookup filters defined

**Step 5** – Now, select the data type as Checkbox and click Next.

Custom Fields & Relationships

Field Type selection

Checkbox

Allows users to select a True (checked) or False (unchecked) value.

**Step 6** – Enter the field name and label as shown below.

Customer New Custom Field

Step 2: Enter the details

Field Label: Active

Default Value: ☒ Checked ☐ Unchecked

Field Name: APEX\_Active

Description:

Help Text:

Enter the field label as well as Field Name as shown and click next

**Step 7** – Click on Visible and then click Next.

Customer New Custom Field

Step 3: Establish field-level security

Field Label	Active	Data Type	Field Name	Description	Visible	Read-Only
Contract Manager		Checkbox	APEX_Active		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cross Org Data Entry User		Checkbox	APEX_Active		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Custom Marketing Profile		Checkbox	APEX_Active		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Custom Sales Profile		Checkbox	APEX_Active		<input checked="" type="checkbox"/>	<input type="checkbox"/>
Custom Support Profile		Checkbox	APEX_Active		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Select the profiles to which you want to grant edit access to this field via field-level security. The field will be hidden from all profiles if you do not add this field-level security.

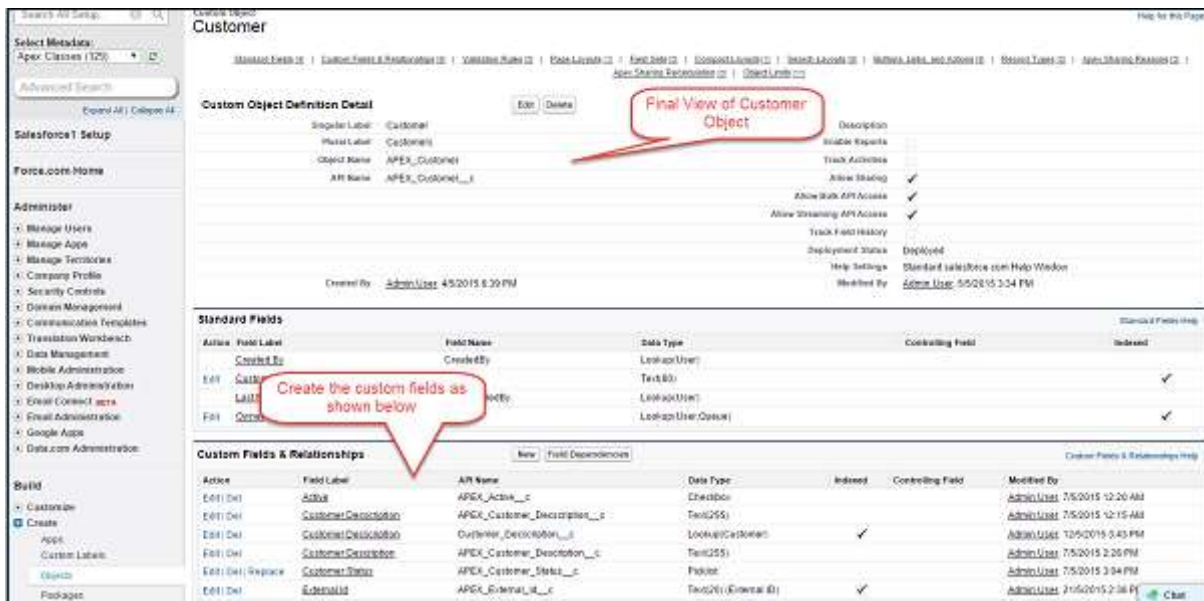
Click on Visible and then next

**Step 8** – Now click on 'Save'.



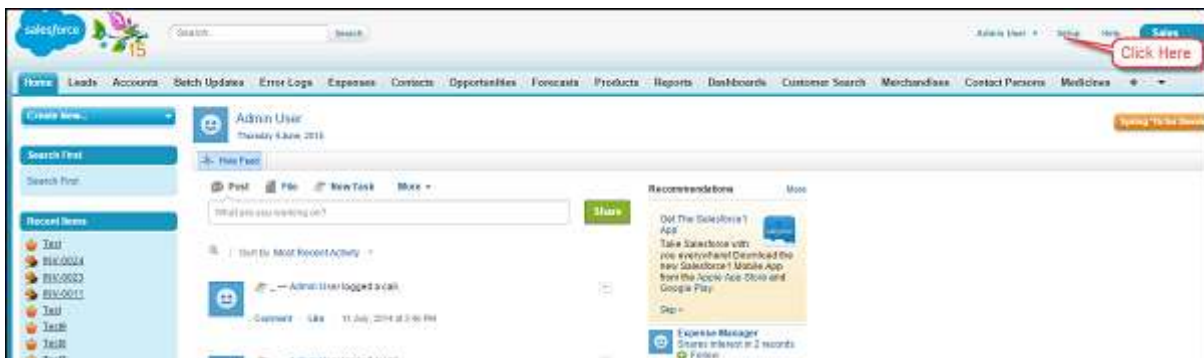


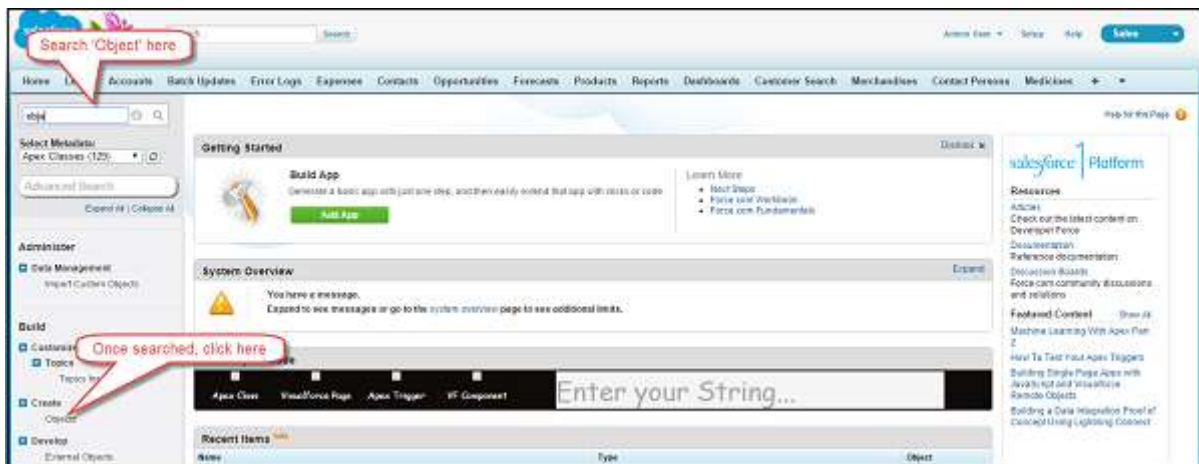
By following the above steps, our custom field 'Active' is created. You have to follow all the above custom field creation steps for the remaining fields. This is the final view of customer object once all the fields are created –



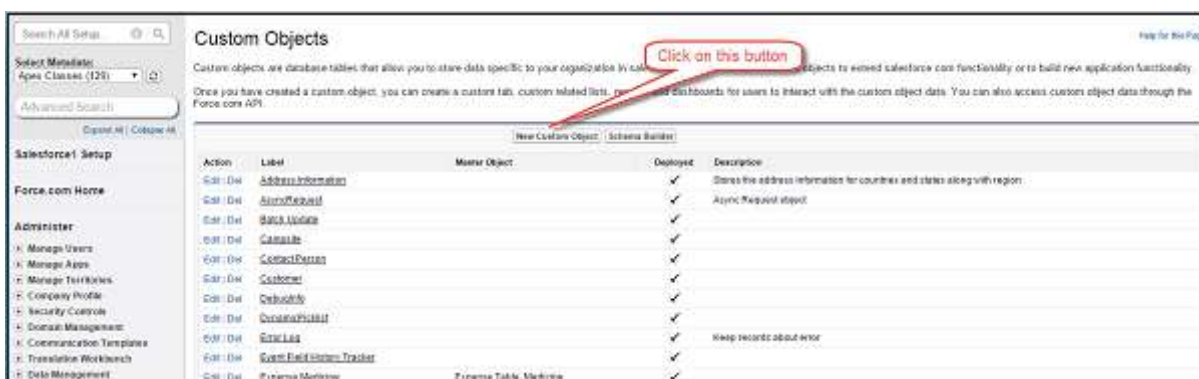
## Creating Invoice Object

**Step 1** – Go to Setup and search for 'Object' and then click on the Objects link as shown below.

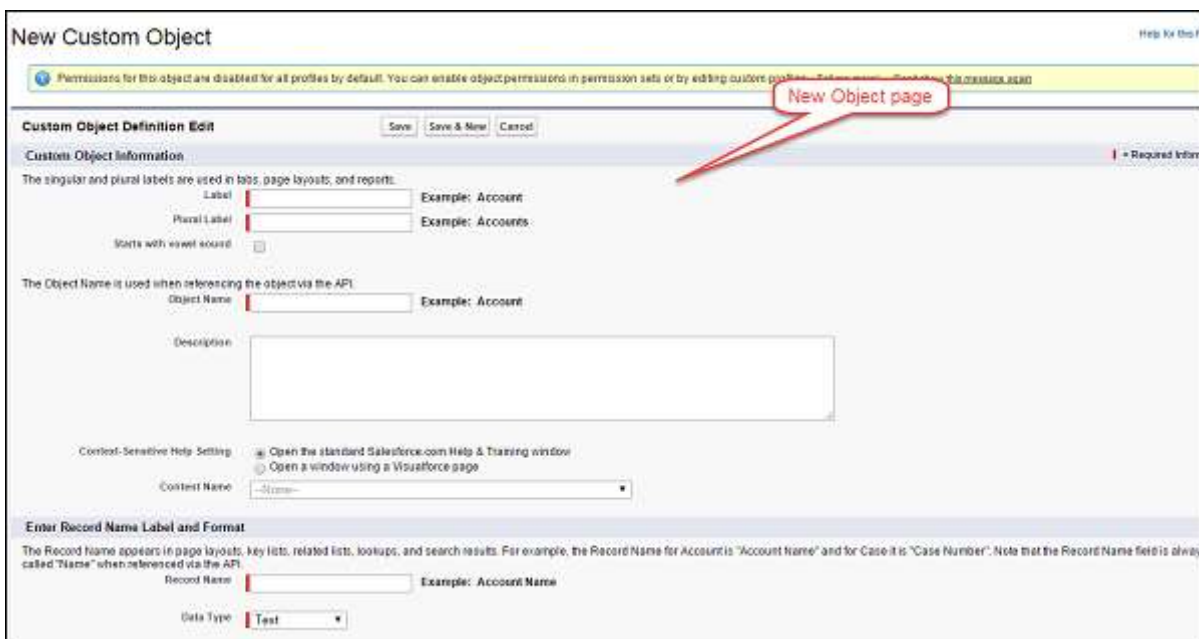




**Step 2** – Once the object page is opened, then click on the 'Create New Object' button as shown below.



**Step 3** – After clicking on the button, the new object creation page will appear as shown in the screenshot below. You need to enter the details here. The object name should be Invoice. This is similar to how we created the Customer object earlier in this tutorial.



**Step 4** – Enter the information as shown below and then click on the 'Save' button.

Search All Setup: [Search]

Select Metadata: Apex Classes (129) [Advanced Search]

Expand All | Collapse All

Salesforce1 Setup

Force.com Home

Administrator

- Manage Users
- Manage Apps
- Manage Territories
- Company Profile
- Security Controls
- Domain Management
- Communication Templates
- Translation Workbench
- Date Management
- Mobile Administration
- Desktop Administration
- Email Connect [go to]
- Email Administration
- Google Apps
- Data.com Administration

Build

- Customize
- Create
- Custom Labels
- Objects

### Custom Object Definition Edit

Custom Object Information

The singular and plural labels are used in tabs, page layouts, and reports. Be careful when changing the name or label as it may affect existing integrations and merge templates.

Label:  Example: Account

Plural Label:  Example: Accounts

Starts with vowel sound: ☐

The ObjectName is used when referencing the object via the API.

Object Name:  Example: Account

Description:

Context Sensitive Help Setting

- ☒ Open the standard Salesforce.com Help & Training window
- ☐ Open a window using a Visualforce page

Context Name:

### Enter Record Name Label and Format

The Record Name appears in page layouts, key lists, related lists, lookups, and search results. For example, the Record Name for Account is "Account Name" and for Case it is "Case Number". Note that the name is called "Name" when referenced via the API.

Record Name:  Example: Account Name

Data Type:

Display Format:  Example: A-0000 [What is This?](#)

### Optional Features

- ☐ Allow Reports
- ☐ Allow Activities

By following these steps, your Invoice object will be created.

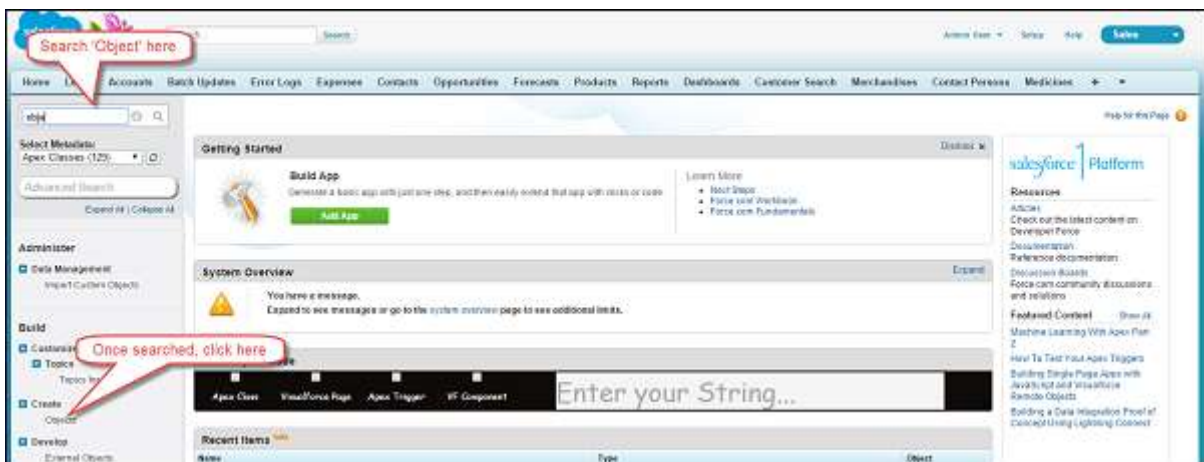
## Creating the Custom Fields for Invoice object

We will be creating the field Description on Invoice object as shown below –

**Step 1** – Go to Setup and click on it.



**Step 2** – Search for 'Object' as shown below and click on it.



**Step 3** – Click on object 'Invoice'.



<b>Administer</b>	Edit   Del	<a href="#">Batch Update</a>	✓
• Manage Users	Edit   Del	<a href="#">Campaign</a>	✓
• Manage Apps	Edit   Del	<a href="#">Contact Person</a>	✓
• Manage Territories	Edit   Del	<a href="#">Customer</a>	✓
• Company Profile	Edit   Del	<a href="#">DebugInfo</a>	✓
• Security Controls	Edit   Del	<a href="#">DynamicPicklist</a>	✓
• Domain Management	Edit   Del	<a href="#">Error Log</a>	✓
• Communication Templates	Edit   Del	<a href="#">Event Field History Tracker</a>	✓
• Translation Workbench	Edit   Del	<a href="#">Expense Medicine</a>	✓
• Data Management	Edit   Del	<a href="#">Expense Table, Medicine</a>	✓
• Mobile Administration	Edit   Del	<a href="#">Expense Table, Account</a>	✓
• Desktop Administration	Edit   Del	<a href="#">Invoice</a>	✓
• Email Connect <b>BETA</b>	Edit   Del	<a href="#">Medicine</a>	✓
• Email Administration	Edit   Del	<a href="#">Merchandise</a>	✓
• Google Apps	Edit   Del	<a href="#">Merchandise Address</a>	✓
• Data.com Administration	Edit   Del	<a href="#">QuestionRecord</a>	✓

And then click on 'New'.

<b>Administer</b>	Allow Streaming API Access	✓
• Manage Users	Track Field History	Deployed
• Manage Apps	Deployment Status	Standard Salesforce.com Help Window
• Manage Territories	Help Settings	Modified By: Admin User: 4/5/2015 5:55 PM
• Company Profile		
• Security Controls		
• Domain Management		
• Communication Templates		
• Translation Workbench		
• Data Management		
• Mobile Administration		
• Desktop Administration		
• Email Connect <b>BETA</b>		
• Email Administration		
• Google Apps		
• Data.com Administration		
<b>Build</b>		
• Customize		
• Create		
• Custom Labels		
• Reports		

**Step 4** – Select the data type as Text Area and then click on Next button.

<ul style="list-style-type: none"> <li>Email Administration</li> <li>Google Apps</li> <li>Data.com Administration</li> <li><b>Build</b></li> <li>Customize</li> <li>Create</li> <li>Custom Labels</li> <li>Objects</li> <li>Package</li> <li>Report Types</li> <li>Tab</li> <li>Action Link Templates</li> <li>Global Actions</li> <li>Workflow &amp; Approvals</li> <li>Develop</li> <li>Schema Builder</li> <li>Canvas App Playground</li> <li>Installed Packages</li> <li>AppExchange Marketplace</li> <li>Critical Updates</li> <li>Deploy</li> <li>Deployment Settings</li> <li>Deployment Status</li> </ul>	<p><b>External Lookup Relationship</b></p> <p>Creates a relationship that links the object to an external object whose data is stored in an external data source.</p> <p>Allows users to select a True (checked) or False (unchecked) value.</p> <p>Allows users to enter a dollar or other currency amount and automatically formats the field as a currency amount. This can be useful if you export data to Excel or another spreadsheet.</p> <p>Allows users to enter a date or pick a date from a popup calendar.</p> <p>Allows users to enter a date and time, or pick a date from a popup calendar. When users click a date in the popup, that date and the current time are entered into the Date/Time field.</p> <p>Allows users to enter an email address, which is validated to ensure proper format. If this field is specified for a contact or lead, users can choose the address when clicking Send an Email. Note that custom email addresses cannot be used for mass emails.</p> <p>Allows users to define locations. Includes latitude and longitude components, and can be used to calculate distance.</p> <p>Allows users to enter any number. Leading zeros are removed.</p> <p>Allows users to enter a percentage number, for example, "10" and automatically adds the percent sign to the number.</p> <p>Allows users to enter any phone number. Automatically formats it as a phone number.</p> <p>Allows users to select a value from a list you define.</p> <p>Allows users to select multiple values from a list you define.</p> <p>Allows users to enter any combination of letters and numbers.</p> <p>Allows users to enter up to 255 characters on separate lines.</p> <p>Allows users to enter up to 131,072 characters on separate lines.</p> <p>Allows users to enter formatted text, add images and links. Up to 131,072 characters on separate lines.</p> <p>Allows users to enter any combination of letters and numbers and store them in encrypted form.</p> <p>Allows users to enter any valid website address. When users click on the field, the URL will open in a separate browser window.</p>
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**Step 5** – Enter the information as given below.

<ul style="list-style-type: none"> <li>Home</li> <li>Leads</li> <li>Accounts</li> <li>Batch Update</li> <li>Error Logs</li> <li>Expenses</li> <li>Contacts</li> <li>Opportunities</li> <li>Forecasts</li> <li>Products</li> <li>Reports</li> <li>Dashboards</li> <li>Customer Search</li> <li>Merchandise</li> <li>Contact Persons</li> <li>Medicine</li> </ul>	<p>Search All Setup</p> <p>Select Metadata: Apex Classes (126)</p> <p>Advanced Search</p> <p>Filtered 00   Collapse 20</p> <p>Salesforce! Setup</p> <p>Force.com Home</p> <p>Administer</p> <ul style="list-style-type: none"> <li>Manage Users</li> <li>Manage Apps</li> <li>Manage Territories</li> </ul>	<p><b>New Custom Field</b></p> <p>Step 3: Enter the details</p> <p>Field Label: <input type="text" value="Description"/></p> <p>Field Name: <input type="text" value="Apex_Description"/></p> <p>Description: <input type="text"/></p> <p>Help Text: <input type="text"/></p>
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**Step 6 – Click on Visible and then Next.**

The screenshot shows the 'New Custom Field' setup page in Salesforce, specifically Step 5: Establish field-level security. The page is titled 'New Custom Field' and has a sub-header 'Step 5: Establish field-level security'. On the left, there is a sidebar with navigation links: Home, Leads, Accounts, Batch Updates, Error Logs, Expenses, Contacts, Opportunities, Forecasts, Products, Reports, Dashboard, Customer Search, Merchandising, Contact Persons, Medicines, and a search bar. The main content area shows a table of field-level security profiles. A red callout bubble points to the 'Visible' checkbox for the 'Contract Manager' profile, with the text 'Click on Visible and then click on next'.

Field Label	Description	Field Type	Text Area	Field Name	Apex Description	Description
Field Level Security for Profile						
Contract Manager						
Custom Org Data Privacy User						
Custom Marketing Profile						
Custom Sales Profile						

**Step 7 – Click on Save.**

The screenshot shows the Salesforce1 Setup interface for creating a new custom field. The page is titled "New Custom Field" and is at "Step 4. Add to page layouts". A red callout bubble points to the "Save & New" button. The left sidebar contains navigation links for Home, Leads, Accounts, Batch Updates, Error Logs, Expenses, Contacts, Opportunities, Forecasts, Products, Reports, Dashboards, Customer Search, Merchandising, Contact Persons, and Modules. The main content area includes a table for defining the field and instructions on how to add it to page layouts.

Field Label	Description
Data Type	Text Area
Field Name	apex_Description1
Description	

Select the page layouts that should include this field. The field will be added as the last field in the first 2-column section of those page layouts. The field will not appear on any pages if you do not select a layout.

To change the location of this field on the page, you will need to customize the page layout.

Field	Page Layouts
Field	Include Layout

When finished, click Save & New to create more custom fields, or click Save if you are done.

Similarly, you can create the other fields on the Invoice object.

**Search All Setup**

Select Metadata:  
Apex Classes (125)

Advanced Search

Export All (Setup All)

Salesforce1 Setup

Force.com Home

**Administrator**

- Manage Users
- Manage Apps
- Manage Territories
- Company Profile
- Security Controls
- Domain Management
- Communication Templates
- Translation Workbench
- Data Management
- Mobile Administration
- Desktop Administration
- Email Connect (beta)
- Email Administration
- Google Apps
- Data.com Administration

**Build**

- Customize
- Create
- Apps
- Custom Labels

**Build Custom Object**

**Invoice**

Help for this Page

**Custom Object Definition Edit**

Custom Object Information

The singular and plural labels are used in tabs, page layouts, and reports. Be careful when changing the name or label as it may affect existing integrations and merge templates.

Label:  Example: Account

Plural Label:  Example: Accounts

Starts with lower case: ☐

The Object Name is used when referencing the object via the API.

Object Name:  Example: Account

Description:

Content Sensitive Help Setting: ☐ Open the standard Salesforce.com Help & Training window  
☐ Open a window using a Visualforce page

Contact Name:

**Enter Record Name Label and Format**

The Record Name appears in page layouts, key lists, related lists, lookups, and search results. For example, the Record Name for Account is "Account Name" and for Case it is "Case Number". Note that the Record Name field is always called "Name" when referenced via the API.

Record Name:  Example: AccountName

Date Type:

Display Format:  Example: A-0000000000 [What Is This?](#)

**Optional Features**

☐ Allow Reports

By this, we have created the objects that are needed for this tutorial. We will be learning various examples in the subsequent chapters based on these objects.