Developer & Administrator Workshop

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Capgemini

Lesson 2

Securing and Sharing Data
Custom Workflow and Approval Processes

Objective

Securing and Sharing Data

- Data Access Concepts
- Controlling Access to Objects
- Profiles
- Permission Sets
- Field-Level Security
- Record Types
- Controlling Access to Records
- Organization-Wide Defaults
- Role Hierarchies
- Manual Sharing

Objective

Custom Workflow and Approval Processes

- Workflow Rules & Workflow Actions
- Visual Workflow
- Approvals
- Validation Rules

But First…

Review Day 1

What Can You Remember?

Let us see…

- What is a Standard Object?
- Give an example
- What is a Custom Object?
- What are the difference between Standard and Custom objects?
- What are the components of an App?
- What are the differences between Standard and Custom fields?
- What different Field types are there?
- What happens if you delete a field?
- What are the stages in creating a field?
- What does the Page Layout editor allow you to do?
- What properties can you add to fields on a page layout?

What Can You Remember?

And there are more…

- What are the rules for Dependent Picklists?
- Can a checkbox be a dependent field?
- How do you link Objects together?
- What capabilities does a Lookup relationship provide?
- How many Lookup relationships can an object have?
- What capabilities does a Master-Detail relationship provide?
- How many Master-Detail relationships can an object have?
- How do you design a Many-Many relationship?
- How do you add a filter on a relationship?

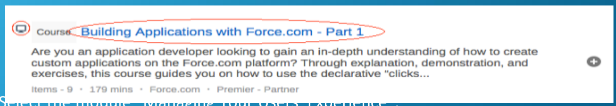
Securing and Sharing Data

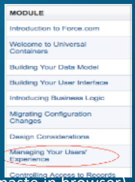
Video: Managing Your User Experience

Learn how to set up users with appropriate permissions. See how licenses and profiles dictate a user's access to an application. (28 min)

How to Get to this training video ?

- You need an **@partnertraining.com account**.
- If you don't have this account and you work for a Salesforce partner, you need to request an invite from the partner admin in your company to the partner community. Once you have the partner community access you can create a partner training login = xxxx@partnertraining.com
- To avoid a mixup with saved credentials open a private window in a new browsr.
- Browse to http://help.salesforce.com and log in with your @partnertraining.com account.
- Search for "Building Application with Force.com part 1"
- Make sure to select this training (pay attention to the video logo):





- Select the module "Managing Your Users' Experience".
- Enjoy the 28 min video.
- Direct Link: (only works after you've logged in with your @partnertraining.com account, paste in browser) https://help.salesforce.com/HTTrainingModulesDetail?courseId=a1S30000000gvGyEAI

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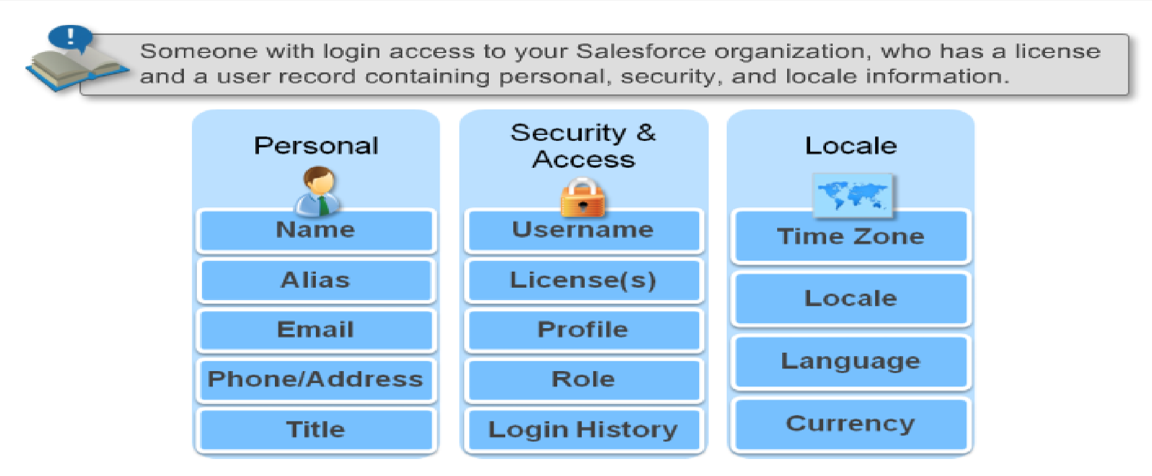
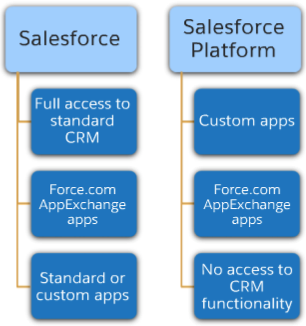
What is a User?



Types of Licences

- Every user must have a user license.
- Different user licenses allow different levels of access.



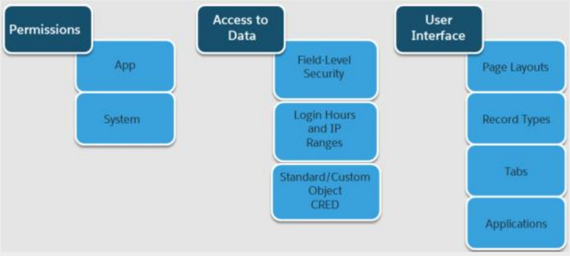
- Feature licenses can be purchased for access to additional features.

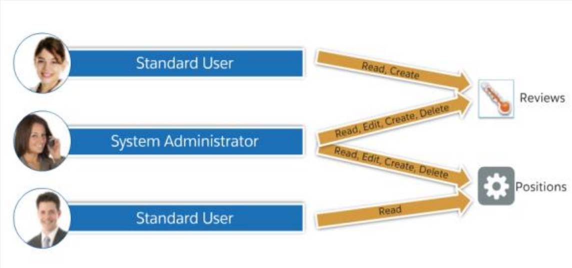
Feature Licenses — Feature Licenses Help

Feature Type	Status	Total Licenses	Used Licenses	Remaining Licenses
Marketing User	Active	25	16	9
Offline User	Active	25	0	25
Apex Mobile User	Active	5	1	4
Force.com Flow User	Active	1	0	1

What is a Profile?

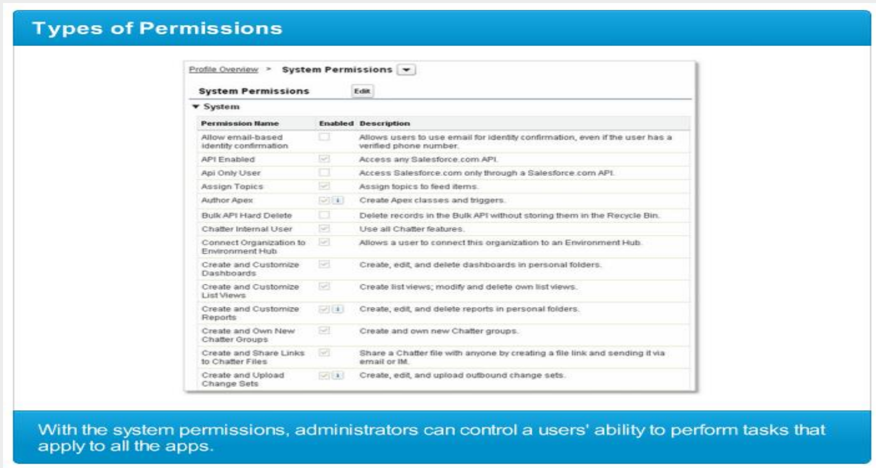
Profiles control permissions, access to data, and the user interface. You can view the details of all the permissions and what they control in the Help & Training section.





What are the Profile Permissions?

System Permissions – e.g. Customize Application



Types of Permissions

Profile Overview > **System Permissions**

System Permissions Edit

▼ System

Permission Name	Enabled	Description
Allow email-based identity confirmation	☐	Allows users to use email for identity confirmation, even if the user has a verified phone number.
API Enabled	☑	Access any Salesforce.com API.
Api Only User	☐	Access Salesforce.com only through a Salesforce.com API.
Assign Topics	☑	Assign topics to feed items.
Author Apex	☑	Create Apex classes and triggers.
Bulk API Hard Delete	☐	Delete records in the Bulk API without storing them in the Recycle Bin.
Chatter Internal User	☑	Use all Chatter features.
Connect Organization to Environment Hub	☑	Allows a user to connect this organization to an Environment Hub.
Create and Customize Dashboards	☑	Create, edit, and delete dashboards in personal folders.
Create and Customize List Views	☑	Create list views; modify and delete own list views.
Create and Customize Reports	☑	Create, edit, and delete reports in personal folders.
Create and Own New Chatter Groups	☑	Create and own new Chatter groups.
Create and Share Links to Chatter Files	☑	Share a Chatter file with anyone by creating a file link and sending it via email or IM.
Create and Upload Change Sets	☑	Create, edit, and upload outbound change sets.

With the system permissions, administrators can control a users' ability to perform tasks that apply to all the apps.

What are the Profile Permissions?

Object Permissions Create, Read, Update (Edit), Delete - CRUD

Types of Permissions

Object Permissions

Permission Name	Enabled
Read	☑
Create	☑
Edit	☑
Delete	☑
View All	☑
Modify All	☑

Object permissions control read, create, edit, and delete actions on standard and custom objects.

What are the Profile Permissions?

Field Level Security by Object - FLS

Types of Permissions

Field Permissions

Field Name	Read	Edit
Account Name	☑	☑
Account Number	☐	☐
Account Owner	☑	☑
Account Site	☐	☐
Account Source	☑	☑
Annual Revenue	☑	☑
Billing Address	☑	☑
Created By	☑	☐
Data.com Key	☑	☑
Description	☑	☑
Employees	☑	☑
Fax	☑	☑

Field permissions control the level of access a user has for each field in an object.

Hands-on Exercise

View the hands on exercise steps in the **Building Applications with Force.com - Part 1** "Managing Your Users' Experience" Exercise Guide

https://lms.cfs-api.com/v1/content/0c212b73-220c-4643-a42d-dad0f6e233f5/presentation_content/external_files/managingyourusers'experienceexerciseguide.pdf

Exercise 7-1: Create Custom Profiles
Exercise 7-2: Create Permission Sets
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Exercise 7-4: Create Record Types
Exercise 7-5: Create Page Layouts
Exercise 7-6: Create Page Layouts and Record Types

Task: Create a custom Position object.

Exercise 8-1: Create Custom Profiles

Create a new profile for recruiters.

At Universal Containers (UC), recruiters need to be able to create, view, and modify any position, candidate, job application, or review that is in the system.
To comply with state and federal public records laws, all recruitment-related information must be saved for several years. Consequently, recruiters should NOT have the ability to delete any records in the Recruiting Application.

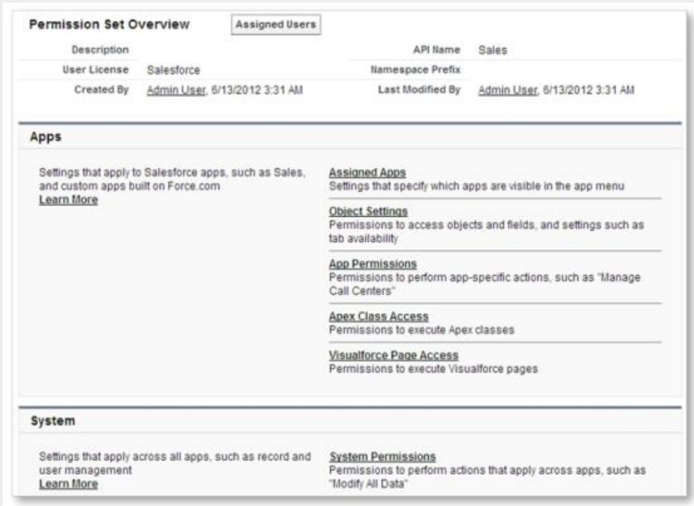
Tasks:

1. Enable the Enhanced Profile User Interface.
2. Create a custom recruiter profile.
3. Define the recruiter profile to accomplish the business requirements.
4. Assign users to this new profile.
5. Modify the existing profiles for the new objects.

What are Permission Sets?

Additional Profile Permissions assigned to specific users

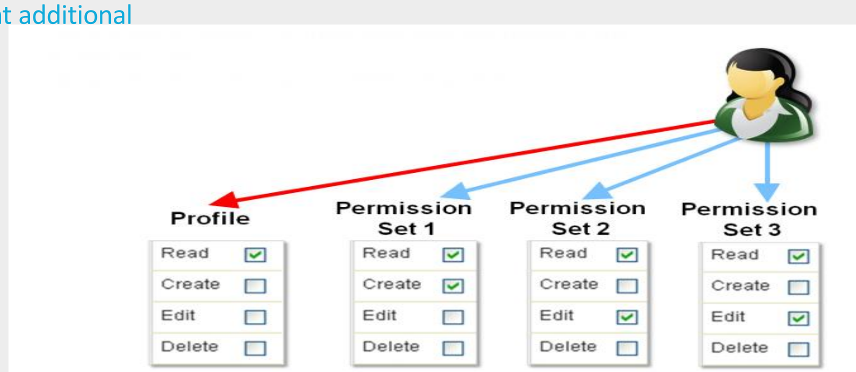
- Collection of settings and permissions
- Represent a concept, like a user's job title
- Handle the system requirements that previously existed on profiles



What are Permission Sets?

Additional Profile Permissions assigned to specific users

- Users have only one profile but can have multiple permission sets
- Use profiles to assign most restrictive permissions and access settings
- Use Permission Sets to grant additional permissions individually



What are Permission Sets?

Use permission sets to grant permissions for:

- Applications
- Objects
- Tabs
- Fields
- Record types
- Apex classes
- Service provider
- Visualforce pages

System Permissions
Permissions to perform actions that apply across apps, such as "Modify All Data"

Assigned Apps
Settings that specify which apps are visible in the app menu

Object Settings
Permissions to access objects and fields, and settings such as tab availability

App Permissions
Permissions to perform app-specific actions, such as "Manage Call Centers"

Apex Class Access
Permissions to execute Apex classes

Visualforce Page Access
Permissions to execute Visualforce pages

ALERT: ⚠ Permissions that are not available in permission sets must be set through profiles.

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Task: Create a custom Position object.

Exercise 7-2: Create Permission Sets

Create permission sets for the hiring manager and interviewers

Hiring managers and interviewers have different needs and different levels of access to the information that will be stored in the Recruiting Application.
In addition, the access of hiring managers and interviewers to other portions of the organization needs to be maintained.

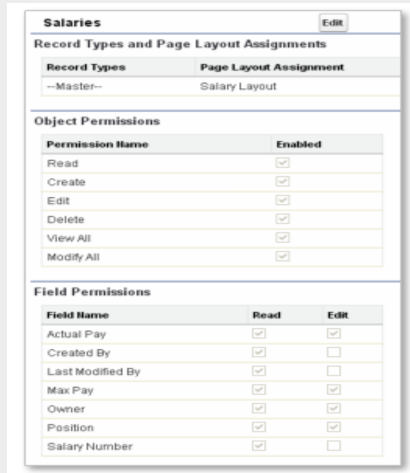
Tasks:

1. Create a new permission set for hiring managers.
2. Create a new permission set for interviewers.
3. Assign users to the new permission sets.

What is Field Level Security?

Determines access to edit or read individual fields by profile

- Restricts Access to fields within a profile
- Overrides less-restrictive page layout settings
- Can make a field read-only or totally hidden



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Task: Create a custom Position object.

Exercise 7-3: Change Access Using FLS

Use field-level security to remove access to Social Security Numbers on candidate records

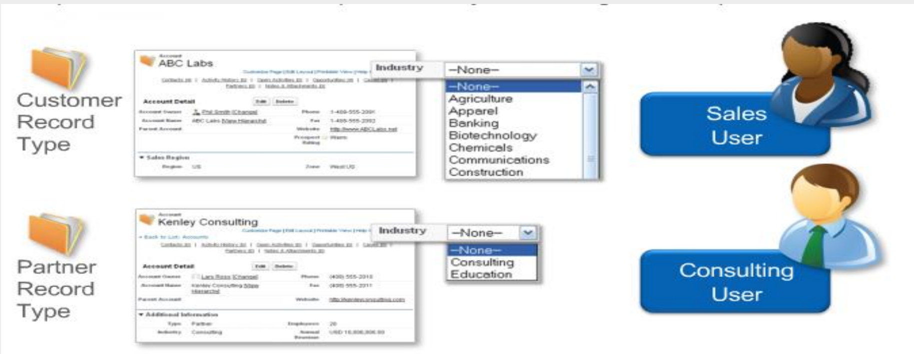
In an effort to secure personal information on candidates, Universal Containers wants to ensure that recruiters cannot see or edit the Social Security Number of a candidate.

Tasks:
Modify the field-level security for candidates to hide the Social Security Number field for recruiters.

What are Record Types?

Determines the required fields by page layout and the valid pick list values by business process to ensure users only complete valid fields and values.

- Define different sets of values for Standard and Custom picklist fields
- Implement custom business process by associating them to specific page layouts



What are Record Types

Things to Know

On which objects can I create multiple record types?

- Multiple record types may be created for every tab, with the exception of the Home, Forecasts, Documents, Reports, Consoles, and Web tabs.

What happens if I need to add a picklist value?

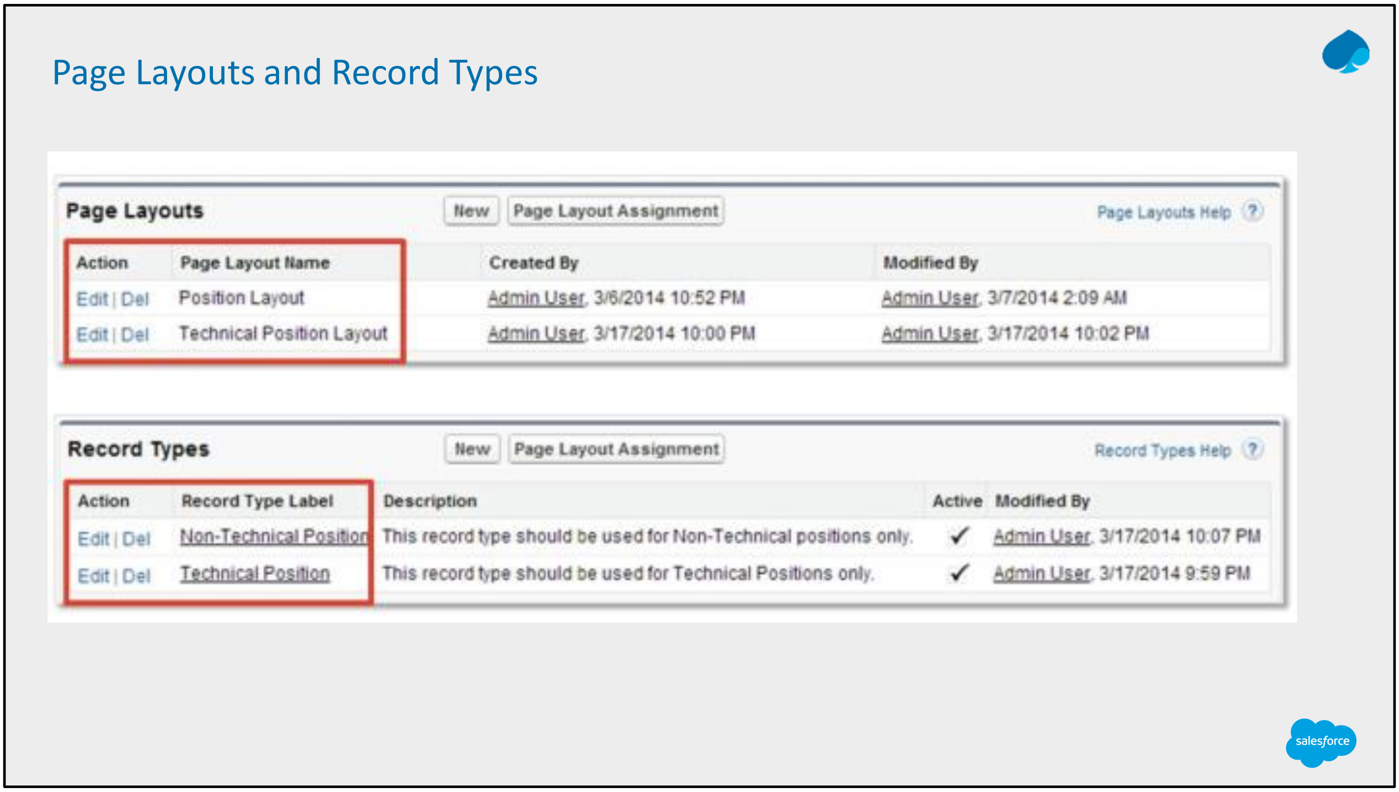
- You will be prompted to select which record types should include the new value.

If I'm looking at a detail page, how do I know what record type it is?

- For tabs that have multiple record types defined, you can look at the Record Type field on the page.
- This field needs to be added to all the page layouts used by all the record types

Do users have to display the jump page every time they create a new record?

- No, users can choose to accept their profile's default record type.



- Page Layouts, record types, and business process allow you to customize what fields, records, and other options end users have available within your organization. All of these features can work together to create a customized application that fits your business needs and diverse user base.

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Task: Create a custom Position object.

Exercise 7-4: Create Record Types

Create a custom record type that limits the picklist choices available to hiring managers.

Technical hiring managers can open new positions, but they should only open positions in the IT and Engineering departments. The Position object has a department field that contains a picklist of values. When creating a technical position, hiring managers should have access only to the IT and Engineering values. When creating a non-technical position, hiring managers should have access to the other department values. Recruiters should be able to see and use all department values.

Tasks:

1. Create a technical position record type.
2. Repeat the process, creating a non-technical position record type.

Hands-on Exercise

View the hands on exercise steps in the **Building Applications with Force.com - Part 1** "Managing Your Users' Experience" Exercise Guide

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Task: Create a custom Position object.

Exercise 7-5: Create Page Layouts

Create a new page layout to reflect differences between technical and non-technical positions.

When creating new positions, technical hiring managers need to specify technical criteria desired for their candidates, such as programming language or operating system. Recruiters need to be able to create all kinds of positions.

Tasks:

1. Create fields for Operating System and Programming Language.
2. Create a new page layout for technical positions. On the new page layout, show the Operating System and Programming Language fields in a separate section.

Hands-on Exercise

View the hands on exercise steps in the **Building Applications with Force.com - Part 1** "Managing Your Users' Experience" Exercise Guide

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Task: Create a custom Position object.

Exercise 7-6: Create Page Layouts and Record Types

Create page layouts and record types for approved positions.

Universal Containers would like to implement an approval process for each position. This process will route positions to the approvers specified on the position. Once the position has been approved, the approvers no longer need to be listed on the position.

Tasks:

1. Create new page layout for approved positions.
2. Create new record types for approved positions.

Video: Controlling Access to Records

Examine different ways in which users receive access to records: through ownership, organization wide defaults, roles and sharing rules. (25 min)

How to Get to this training video ?

- You need an **@partnertraining.com account**.
- To avoid a mixup with saved credentials open a private window in a new browsr.
- Browse to http://help.salesforce.com and log in with your @partnertraining.com account.
- Search for "Building Application with Force.com part 1"
- Make sure to select this training (pay attention to the video logo):

- Select the module "Controlling Access to Records":
- Enjoy the 25 min video.
- Direct Link: (only works after you've logged in with your @partnertraining.com account, paste in browser) https://help.salesforce.com/HTTrainingModulesDetail?courseId=a1S30000000gvGyEAI

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Record Ownership

- By Default an owner of a record can Read, Edit, Delete or change Ownership of the record
- Child Records inherit ownership from the parent
- Users or Queues can be the owner of records
- If the read permission for the object is revoked from the users profile, the user will not be able to see their own record
- Queue ownership allows multiple users to own a record
- The Profile determines the objects level access
- Sharing controls record access

Record Ownership

Individual Record Ownership

- Child Records inherit ownership from the parent
- Users or Queues can be the owner of records
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- The Profile determines the objects level access
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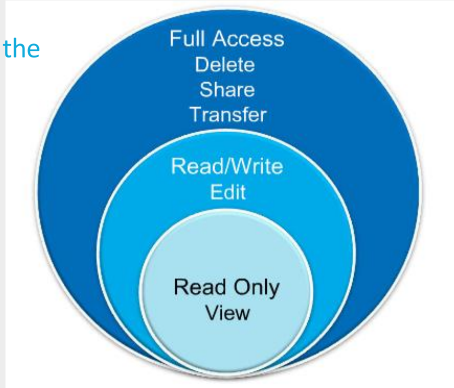
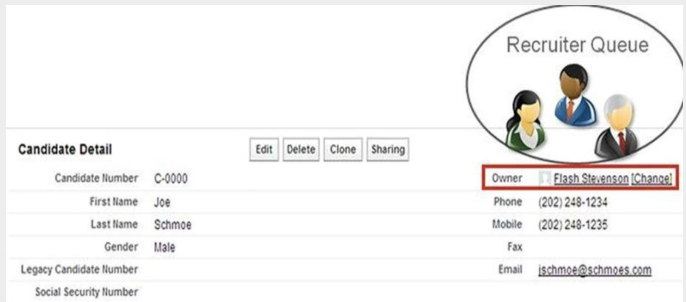


What are Queues?

- Queues are virtual storage bins used to group records based on criteria
- Every queue member has visibility into all leads within that queue.
- Queues can be found in the List Views for the object
- All Custom Objects can have Queues
- Only Leads and Cases (Standard Objects) have queues



38

- **Click Path** to view and manage queues:
- *Your Name* | Setup | Manage Users | Queues

Hands-on Exercise

View the hands on exercise steps in the **Designing Apps for Multiple Users** "Controlling Access To Records" Exercise Guide

https://lms.cfs-api.com/v1/content/487dc738-99fb-4ac0-8bf0-c5bc9edcf618/presentation_content/external_files/controllingaccesstorecordsexerciseguide.pdf

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Exercise 8-4: Create a Public Group
Exercise 8-5: Implement Sharing Rules
Exercise 8-6: Manual Sharing
Exercise 8-7: Create Apex Sharing Reasons

Task: Create a custom Position object.

Exercise 8-1: Create Custom Object Queues

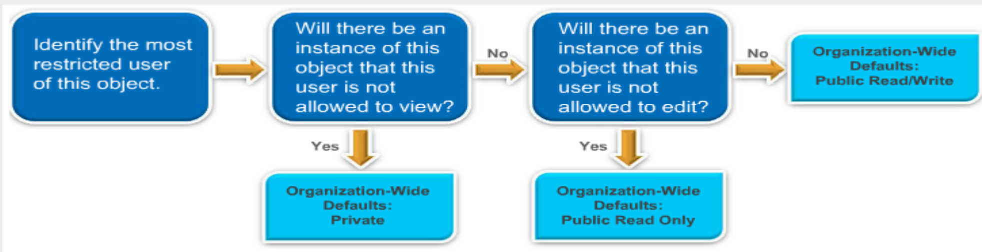
Create a custom queue for the Recruiting department to hold position and candidate records.

Universal Containers wants to use the queue feature to manage the pool of recruiters working with open positions and candidates.

Tasks:
Create a queue for positions and candidates.

What are the Organizational Wide Defaults?

Determine the base-line visibility of each record in an object



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Task: Create a custom Position object.

Exercise 8-2: Set Organization-Wide Defaults

Use organization-wide defaults (OWD) to restrict edit permissions for position data.

At Universal Containers, standard users (who are not recruiters), hiring managers, and interviewers, are only allowed to view position data. There will never be any position that a standard user is not permitted to see.

Tasks:
Change the organization-wide default setting for Positions.

Impact of OWDs on relationships

How can you set the organization-wide defaults for child records in master-detail relationships?

Child records in master-detail relationships inherit their organization-wide defaults from their parents.

Will child records in lookup relationships inherit the organization-wide defaults from their parents?

No. Child records in lookup relationships have independent organization-wide defaults from their parents.

Can you change the organization-wide defaults setting after the initial implementation?

Yes. It is possible to change the defaults setting any time. However, it may cause unintended consequences that may require a change in process. For example, User A may not be able to view an object owned by User B. Therefore, User B may need to assign sharing rules or manual sharing for the object to User A. It is easier to enforce such process requirements in the initial implementation. So, it's best to identify the appropriate organization-wide defaults after careful consideration and avoid changing the setting later.

44

- **Click Path** to view and manage queues:
- *Your Name* | Setup | Manage Users | Queues

What are Roles and Role Hierarchy?

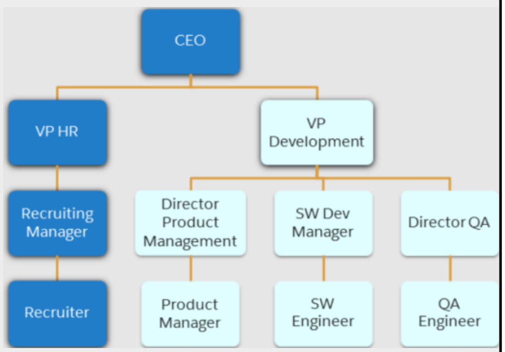
First step in relaxing the security constraints as defined by the OWD

What is a role?

- Controls the level of visibility that users have to an organization’s data
- A user may be associated to one role

What is a role hierarchy?

- Controls data visibility
- Controls record roll up, forecasting and reporting
- Users inherit the record ownership ability of data owned by or shared with users below them in the hierarchy
- Not necessarily the company’s organization chart



Custom Objects and the Role Hierarchy

Need to check “Grant Access Using Hierarchies” box

Object	Default Access	Grant Access Using Hierarchies
Candidate	Private	✓
Candidate Snapshot	Public Read/Write	✓
Job Application	Private	✓
Job Posting Site	Public Read/Write	✓
Offer	Public Read/Write	✓
Position	Private	✓
Position Approval Matrix	Public Read/Write	✓

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Task: Create a custom Position object.

Exercise 8-3: Implement a Role Hierarchy

Complete the role hierarchy by adding a role for product managers.

Universal Containers has added a new role called Product Manager and would like their hierarchy to reflect the addition.

Tasks:

1. Add a new Product Manager role.
2. Assign users to the new role.
3. Log in as a Product Manager and as the Director of Product Management to test the changes to the hierarchy.

What is a Public Group

A way to group users together who may not have any connection

A combination of any the following groups:

- Users
- Other Public Groups (nesting)
- Roles
- Roles and Subordinates

Used in Sharing Rules—for simplification (when more than a few roles need to be shared to)

Also used when defining access to Folders and List Views

Public group membership is automatically updated if the membership of a nested role and/or other public group changes.

- E.g. if a new user is assigned a role that belongs to an existing public group, that user will be automatically added to the public group

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Task: Create a custom Position object.

Exercise 8-4: Create a Public Group

Create a new public group including all interviewers

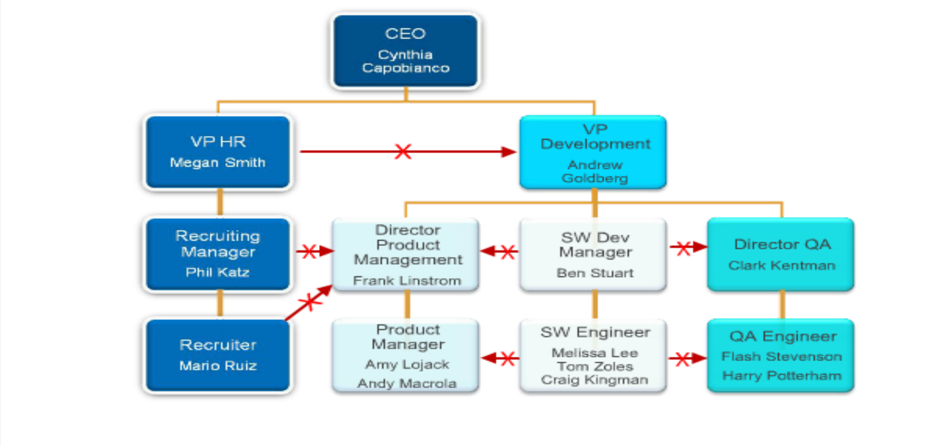
Universal Containers would like to create a public group that includes all interviewers so that they can easily share records and documents with them.

Tasks:

Create a public group called All Interviewers.

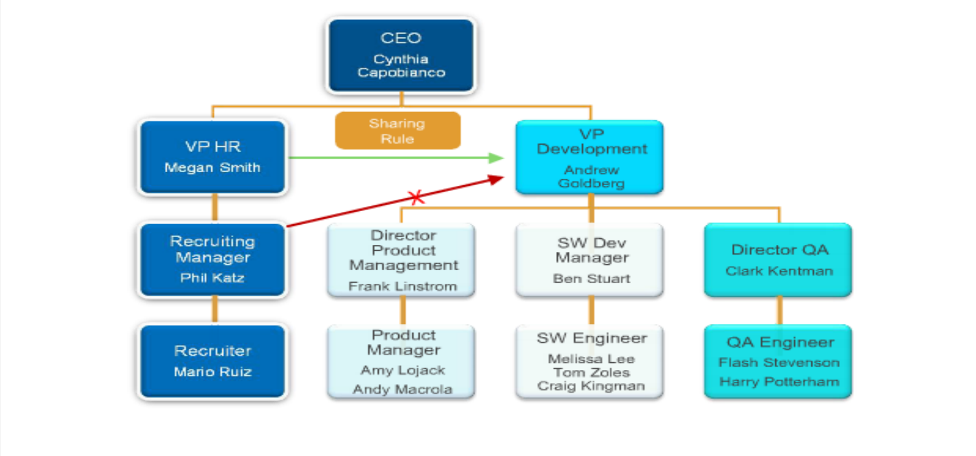
Role Hierarchy still not giving access

Role Hierarchy works fine for downward visibility – what about across the organization?



What are Sharing Rules

Ability to access records across the hierarchy, the 2nd method of relaxing security imposed by the OWD



Sharing Rules

The 4 rules…

1. **Which** Object to be shared
2. **Who** Owns the object
   OR What Selection Criteria
3. **Who** Wants to Share the object
4. **What** Access Mode

Choose from
- Role,
- Role & Subordinate,
- Group

Global Public Group – All Internal Users

Criteria Based Sharing Rules

Used when records are not owned by roles, roles and subordinates or public groups

- Determine which records to share based on field values in records
- Are ideal for companies with complex sharing requirements

Hands-on Exercise

View the hands on exercise steps in the **Designing Apps for Multiple Users** "Controlling Access To Records" Exercise Guide

https://lms.cfs-api.com/v1/content/487dc738-99fb-4ac0-8bf0-c5bc9edcf618/presentation_content/external_files/controllingaccesstorecordsexerciseguide.pdf

Exercise 8-1: Create Custom Object Queues
Exercise 8-2: Set Organization-Wide Defaults
Exercise 8-3: Implement a Role Hierarchy
Exercise 8-4: Create a Public Group
Exercise 8-5: Implement Sharing Rules
Exercise 8-6: Manual Sharing
Exercise 8-7: Create Apex Sharing Reasons

Task: Create a custom Position object.

Exercise 8-5: Implement Sharing Rules

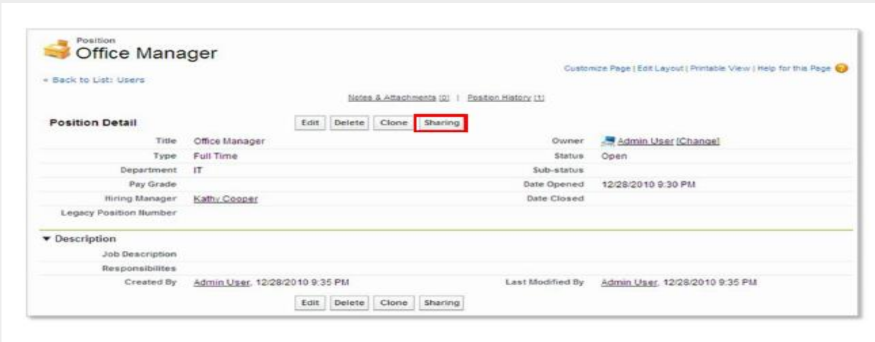
Allow recruiters, recruiting managers, and the VP of Human Resources to view all elements of the recruiting process.

Recruiters and their management should be able to read and update every position, candidate, job application, and review record in the application.

Tasks:
Create sharing rules to give recruiters the access they need to positions, candidates, job applications, and reviews.

What is Manual Sharing

- Is used to grant access on a one-off basis
- Can be granted by:
  - The owner of a record
  - Users in roles above a user with full access in the role hierarchy
  - System Administrators or users with the "Modify All Data" permission
  - Users with the "Modify All" permission for the Object



Hands-on Exercise

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Exercise 8-6: Manual Sharing
Exercise 8-7: Create Apex Sharing Reasons

Task: Create a custom Position object.

Exercise 8-6: Manual Sharing

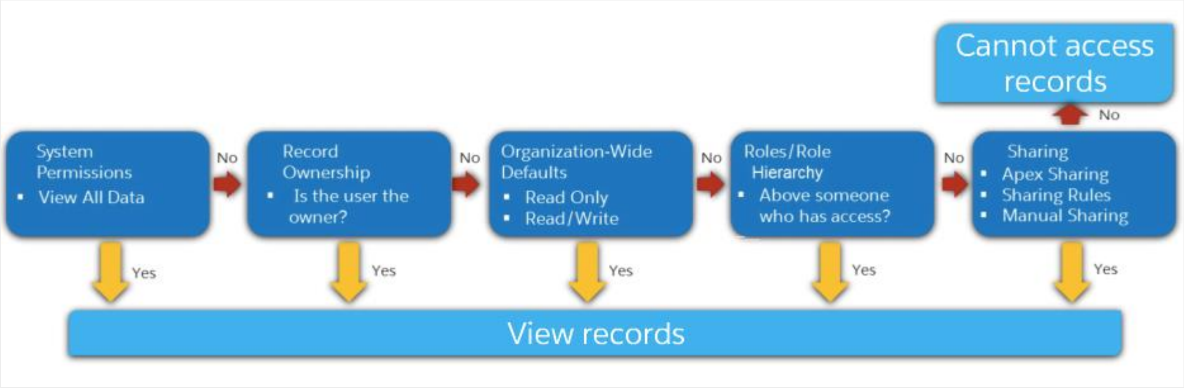
Add manual sharing for various users to grant access on records where they are invested in the information.

Establish manual sharing at Universal Containers to accomplish the remaining access levels:
Grant hiring managers read and update access on positions and candidates where they are the hiring manager.
Grant interviewers read access on job application and candidate records for people they are interviewing.

Tasks:
Establish manual sharing for an existing position.

Sharing Review

This is the order the system will follow to see if a user can view a record

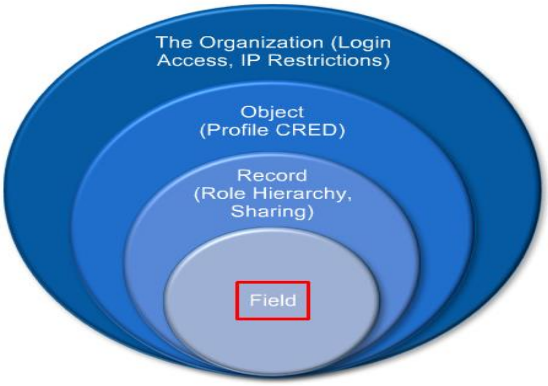


The Big Picture

Profiles and Security Model combined

Record access is controlled by:

- Organization-wide defaults
- Roles
- Role hierarchy
- Public groups
- Sharing rules
- Manual sharing
- Apex sharing



Video: Who Sees What: Overview

This quick overview covers the main features in Salesforce that determine the visibility of, and access to data that every administrator will need to set up for their Salesforce organization. This is the first in a series called "Who Sees What".. (5 min)

https://www.youtube.com/watch?v=jDYfTfagclk

Video: Who Sees What: Organization Access

This second video in the "Who Sees What" series describes how to grant users access to your org by specifying both login ranges, as well as login hours.. (6 min)

https://www.youtube.com/watch?v=IYS9fwsZZ-s

Video: Who Sees What: Object Access Security

This third video in the "Who Sees What" series describes how to grant users access to objects by using profiles. Profiles determine which objects users have access to, and what rights they have on each object. (6 min)

https://www.youtube.com/watch?v=TP5btLerSlA

Video: Who Sees What: Organization-Wide Defaults

This fourth video in the "Who Sees What" series describes how to set the default sharing settings. These settings determine the access users have to records owned by other users. Please view the entire series to get a complete picture of visibility and access. (6 min)

https://www.youtube.com/watch?v=tPgWtulb8s0

Video: Who Sees What: Record Access via Sharing Rules

This video in the "Who Sees What" series describes how to open up access to records, if you have set the default sharing settings to anything more restrictive than Public Read/Write. You can use Sharing Rules to extend access to users in roles, public groups, or territories.. (6 min)

https://www.youtube.com/watch?v=JEKZ2OjwzS8

Video: Who Sees What: Field Level Security

The sixth video in the "Who Sees What" series describes how to use field level security to prevent access to specific fields on a profile by profile basis. (6 min)

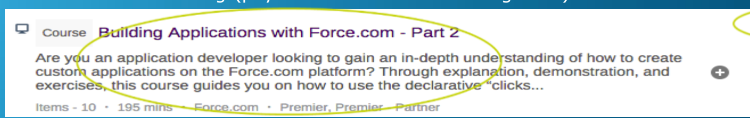
https://www.youtube.com/watch?v=h3zQbeLF15M

Video: Designing Data Access Security

This module provides a summary of security and access features. Through a number of business scenarios, students will have the opportunity to apply the knowledge that they have gained about determining user access.

How to Get to this training video ?

- You need an **@partnertraining.com account**.
- To avoid a mixup with saved credentials open a private window in a new browsr.
- Browse to http://help.salesforce.com and log in with your @partnertraining.com account.
- Search for "Building Application with Force.com part 2"
- Make sure to select this training (pay attention to the video logo):



- Select the module "Designing Data Access Security":
- Enjoy the 13 min video.
- Direct Link: (only works after you've logged in with your @partnertraining.com account, paste in browser) https://help.salesforce.com/HTTrainingModulesDetail?courseId=a1S30000000gvH3EAI

Validation Rules

Video: Preserving Data Quality with Validation Rules

Explore a number of different implementations of validation rules to enforce conditionally required fields, data format and data consistency as well as validation rules to prevent data loss (17 min)

How to Get to this training video ?

- You need an **@partnertraining.com account**.
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- Browse to http://help.salesforce.com and log in with your @partnertraining.com account.
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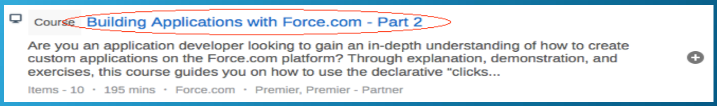

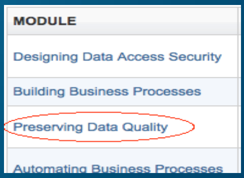

- Select the module "Preserving Data Quality":
- Enjoy the 17 min video.
- Direct Link: (only works after you've logged in with your @partnertraining.com account, paste in browser) https://help.salesforce.com/HTTrainingModulesDetail?courseId=a1S30000000gvH3EAI

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Hands-on Exercise

View the hands on exercise steps in the **Building Applications with Force.com - Part 2** "Preserving Data Quality" Exercise Guide

https://lms.cfs-api.com/v1/content/c6e8c931-8838-4983-986d-e6a3b13cc789/presentation_content/external_files/preservingdataqualityexerciseguide.pdf

Exercise 11-1: Create Validation Rules
Exercise 11-2: Build Validation Rules to Enforce Conditionally Required Fields
Exercise 11-3: Build Validation Rules to Enforce Data Format
Exercise 11-4: Build Validation Rules to Enforce Consistency
Exercise 11-5: Create Validation Rules to Prevent Data Loss

Task: Create a custom Position object.

Using Data Validation to Maintain Data Quality

Data validation allows you to ensure the integrity of data ***before*** it is saved, by preventing users from saving invalid field values. There are two types:

- **Standard data validation** involves setting simple field properties to ensure valid data entry:
  - Field data type
  - Required field
  - Unique field
- **Custom validation rules** allow you to enforce more complex conditions, involving one or more fields, specific to your business processes.

Custom validation rules are only executed if there are no errors from standard validations.

73

Teaching Points

It is possible to get 2 sets of error messages: the first when standard validation is triggered and the 2nd when custom validation rules are triggered.

Extra Material

Suggestions

Standard Data Validation: Required and Unique Fields

Certain custom fields can be marked as required and/or unique to *force* users to always enter a value, or to prevent records with duplicate values.

Required	Unique
Universally required on save	Stops duplicate values on save
Auto-added to *all* page layouts	Existing duplicates cause error
Cannot be hidden	Email, number, text fields only
Editable on *all* profiles (FLS)	Text fields can be treated as case-sensitive
Not for picklists, text area (long)	

74

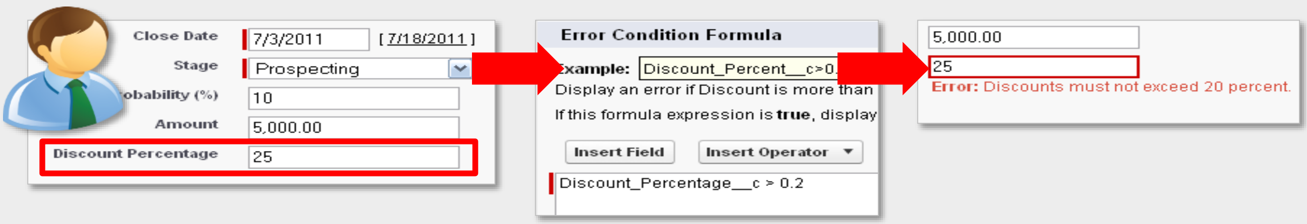
Teaching Points

Extra Material

Suggestions

Custom Data Validation: Validation Rules

A validation rule allows you to specify your own business-specific criteria to prevent users saving invalid data in one or more fields.
Example: Opportunity discounts must not exceed 20 percent.



User enters invalid value(s) and tries to save.

Validation rule uses a Boolean statement to evaluate data.

If statement is true, save is stopped and custom message displayed.

75

Teaching Points

Extra Material

Suggestions

A d m i n D e v e l o p e r W o r k s

Some Common Data Validation Examples

1.	As opportunities advance to later stages of the sales process, it is important to collect additional information. Validation rules could be used to **make fields conditionally required based on the Opportunity stage.**
2.	When sales reps backdate the Close Date of opportunities before the current period, it can cause management reporting to be inaccurate. Validation rules can be used to **prevent** sales reps from entering **close dates prior to the current period.**
3.	The VP of Global Sales needs a way to enforce her policy that **discounts cannot exceed 20 percent.** Validation rules can be used to enforce this policy.
4.	The VP of Services needs a way to enforce her policy that consultants cannot charge more than 60 hours per week on timesheets. A validation rule can be used to ensure that the **total number of hours recorded does not exceed 60.**

Useful Validation Rules (in Tip Sheets & User Guides)

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76

Teaching Points

You could write up some of these error conditions in their boolean form, to give real-world examples, but also to reassure students that validation rules are very often quite simple, and use the same formula language that they have seen before in this module:

1. ISPICKVAL(StageName, "closed lost")&& ISPICKVAL(reason_lost__c, "")
2. Closedate < TODAY()
3. Discount_Percent__c > 20

Extra Material

Suggestions

Validation Rules

To Prevent Data Loss

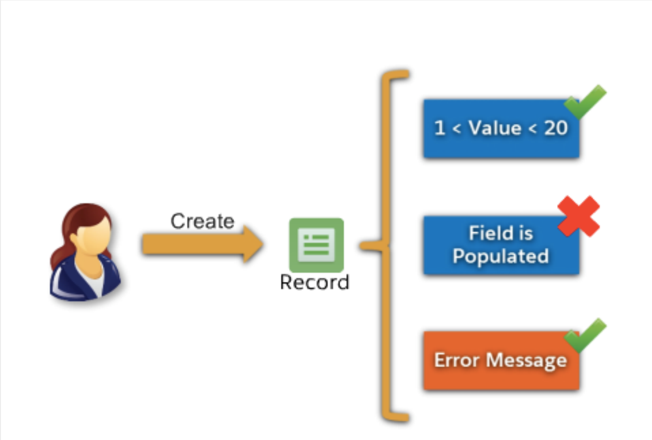
- Validation rules in conjunction with a roll-up summary field can be used to prevent users from adding or deleting records.
- To create a validation rule:
  1. Build a roll-up summary on the parent object that sums the number of child records.
  2. Create a validation rule on the parent object that conditionally prevents changes to the number listed in the roll-up summary field.
- If a user tries to add or delete a record, the validation rule prevents the user from doing that.

Validation Rules

To Enforce Conditionally Required Behavior

Validation rules can be used to:

- Enforce conditionally required fields.
- Enforce required data formats.
- Enforce data consistency.
- Prevent data loss.



Validation Rule Design Methodology

Follow a consistent process to ensure you have well-designed rules.

1. State your business requirements in descriptive terms.	▪ User must enter a Support Plan Expiration Date when Has Support Plan is selected.
2. Break down the description into one or more simple statements describing error conditions.	▪ User must not be able to save opportunity if – Has Support Plan is selected. – Support Plan Expiration Date is blank.
3. Express the error condition as a boolean statement using the formula language.	▪ Has_Support_Plan__c = True && ISBLANK(Support_Plan_Expiration_Date__c)
4. Compose an error message that corresponds to this error condition.	▪ The expiration date must be entered when an account has a support plan.

79

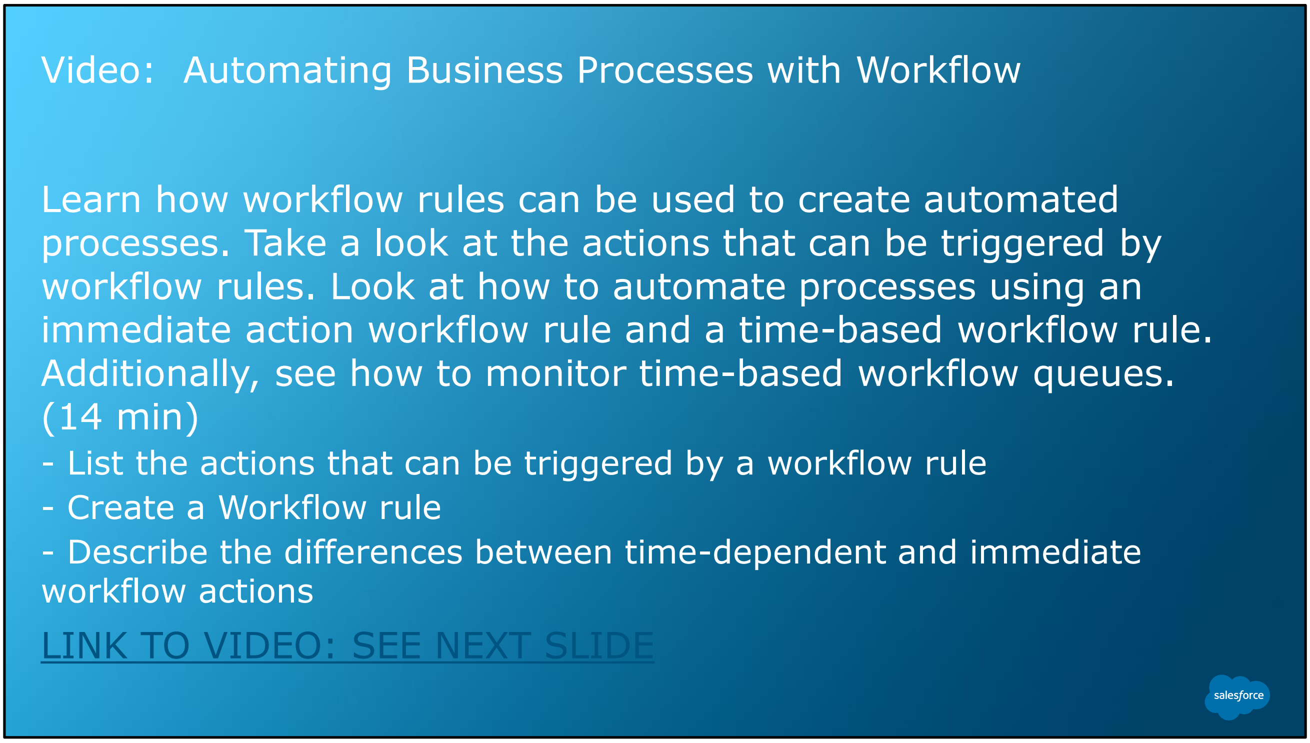
Teaching Points

- Because data validation is based on “IS TRUE” you’re going to try to find the things you DON’T want.
- **Follow the Data Validation Design Methodology when building Rules.**
- A poorly designed Data Validation Rule can stop users from saving valid data.
- When creating a validation rule consider all settings in your organization that can make a data validation rule fail such as assignment rules, field level security or fields being hidden on a page layout.
- Be careful not to create two conflicting validation rules on the same field as users will not be able to save data.

Extra Material

Suggestions

Custom Workflows



Building Applications with Force.com - Part 2

Video: Automating Business Processes with Workflow

How to Get to this training video ?

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- To avoid a mixup with saved credentials open a private window in a new browsr.
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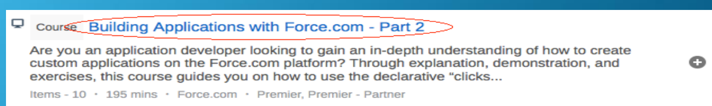

- Select the module "Automating Business Processes with Workflow":
- Enjoy the 14 min video.
- Direct Link: (only works after you've logged in with your @partnertraining.com account, paste in browser) https://help.salesforce.com/HTTrainingModulesDetail?courseId=a1S30000

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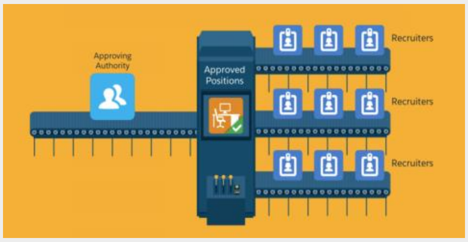
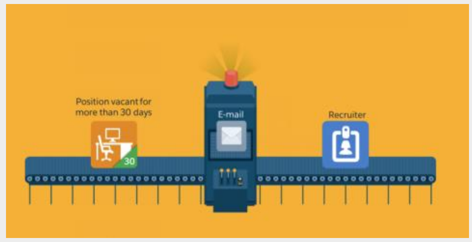
Business Requirements

Automate Processes



Keeping Processes from Getting Stuck



Keeping Systems in Sync

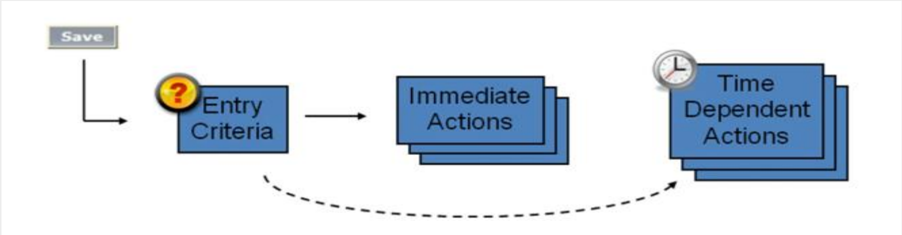
Auditing

What is Workflow?

Workflow is a feature that allows the automation of business processes

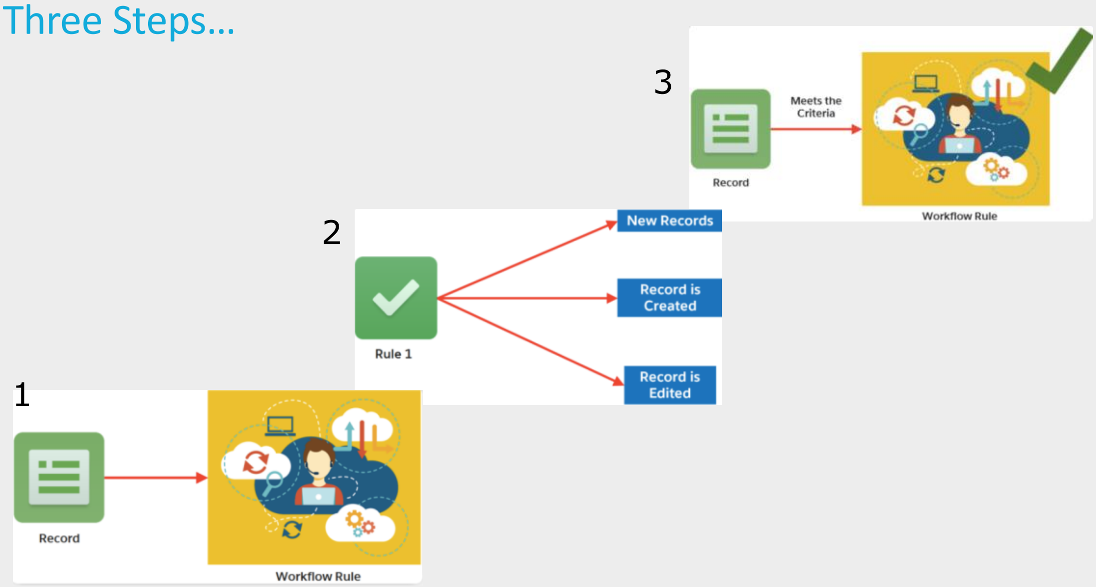
A Workflow Rule:

- Triggers and action when a record meets the criteria for a rule.
- Can trigger actions that either occur immediately or can be time-dependent
- Needs good naming convention
- Is evaluated only for records created or edited after the rule has been created. It does not retro act on existing records



Process to Create a Workflow Rule

Three Steps…



Workflow Actions

Can fire immediately or at some time in the future

Tasks	Assign a task to a: • User, • Role, or • Record owner.
Email Alerts	Automatically send email to one or more recipients from the: • Current user's email address. • Organization-wide email address.
Field Updates	Update a field value on a record.
Outbound Messages	Send specific information to a designated endpoint in the form of an API/SOAP message.

Hands-on Exercise

View the hands on exercise steps in the **Building Applications with Force.com - Part 2** "Automating Business Processes with Workflow" Exercise Guide

https://lms.cfs-api.com/v1/content/e026fa6d-7542-4959-9559-1c6c42651d14/presentation_content/external_files/Automatingbusinessprocesseswithworkflowandlightningprocessbuilderexerciseguide.pdf

12-1: Create Workflow Rules Exercise
12-2: Sett Up Time-Dependent Workflow
12-3: Create a Process

https://help.salesforce.com/HTTrainingModulesDetail?courseId=a1S30000000gvH3EAI&Catalog=Premier

Exercise 12-1: Creating Workflow Rules

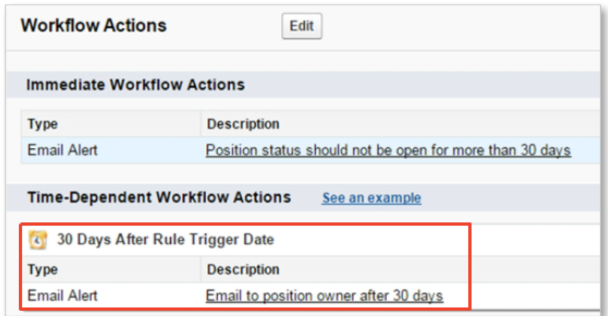
Create custom workflow rules and associated field updates for routing new Positions and Candidates to the recruiters.

At Universal Containers, recruiters are responsible for approving or rejecting proposed positions created by hiring managers.
When a new candidate has been created, the candidate should be assigned to the Recruiter Queue and a New Candidate Notification should automatically be sent out to all queue members.

Tasks:
1. Create a workflow rule with a field update to route new Positions to the Recruiting Queue.
2. Create a workflow rule with a field update to assign new candidates to the Recruiting Queue.

Time Dependent Workflow

- Workflow actions can be:
  - Immediate: Actions fire as soon as a record meets the criteria.
  - Time-Dependent: Actions fire based on elapsed time (evaluated from a specified date that is relevant to the record).
- Time-dependent actions have a time trigger.
- With time-dependent actions, the action is queued to fire as soon as the workflow criteria is met; however, the action will not occur until it meets the time trigger.



Time Dependent Workflow Considerations

Considerations for creating time-dependent workflow:

- You cannot use time-dependent workflow when a rule is set for the `Every time a record is created or updated` evaluation.
- When a new workflow rule is created, it does not affect existing records.
- You can monitor and remove pending actions by viewing the time-dependent workflow queue.
- If a record that has an action pending against it in the time-based workflow queue is modified so that the record no longer meets the criteria, the action will be removed from the queue.
- If the record still meets the criteria but the timing changes, the action will be updated in the queue.

Delete

	Record Name	Object	Workflow Rule Name	Scheduled Date	Created By	Created Date
☐	OFF-0013	Offer	Submitted Offer Requires Attention	3/17/2011 12:12 AM	User, Admin	3/15/2011 12:12 AM
☐	Technical Marketing Manager	Position	Position has no Interviewers	4/2/2011 10:13 PM	User, Admin	3/3/2011 9:13 PM

Hands-on Exercise

View the hands on exercise steps in the **Building Applications with Force.com - Part 2** "Automating Business Processes with Workflow" Exercise Guide

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12-1: Create Workflow Rules Exercise
12-2: Sett Up Time-Dependent Workflow
12-3: Create a Process

Task: Create a custom Position object.

Exercise 12-2: Setting Up Time-Dependent Workflow

Create a workflow rule that will escalate offers that have been open for two days.

When an offer is made to a candidate, it is valid for only two days. Universal Containers would like to set up a time-dependent workflow rule that evaluates offers in a sent status, and sends a task to the offer owner to remind them to follow up with the candidate.

Tasks:

1. Create a workflow rule with time-dependent actions.
2. Create a new offer to test the process and monitor the time-based workflow queue.

Hands-on Exercise

View the hands on exercise steps in the **Building Applications with Force.com - Part 2** "Automating Business Processes with Workflow" Exercise Guide

https://lms.cfs-api.com/v1/content/e026fa6d-7542-4959-9559-1c6c42651d14/presentation_content/external_files/Automatingbusinessprocesseswithworkflowandlightningprocessbuilderexerciseguide.pdf

12-1: Create Workflow Rules Exercise
12-2: Sett Up Time-Dependent Workflow
12-3: Create a Process

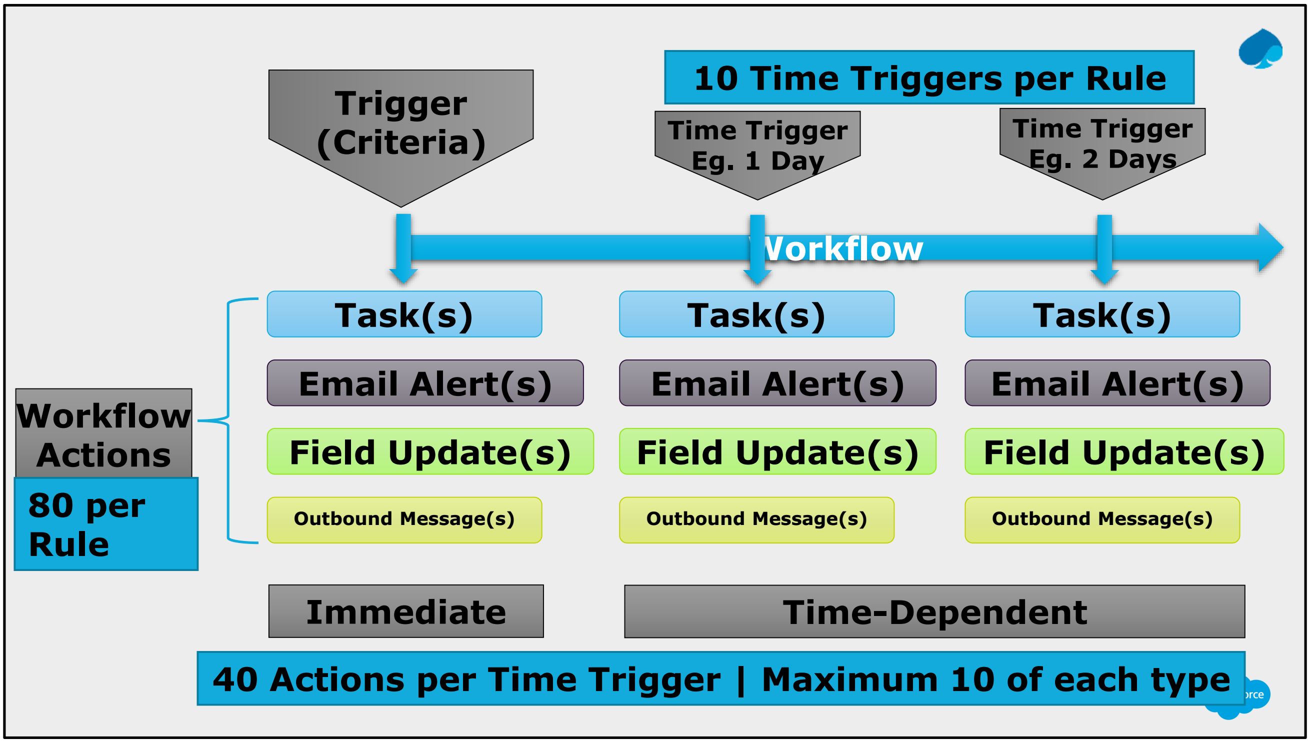
Task: Create a custom Position object.

Exercise 12-3: Create a Process

Build a process to create a new interviewer record for the hiring manager of a position.

At Universal Containers (UC), company policy states that hiring managers must always take part in the interview process. UC wants a new interviewer record to be created automatically for the hiring manager whenever a new position is created.

Tasks:
1. Create a process with an immediate action.
2. Test the process.

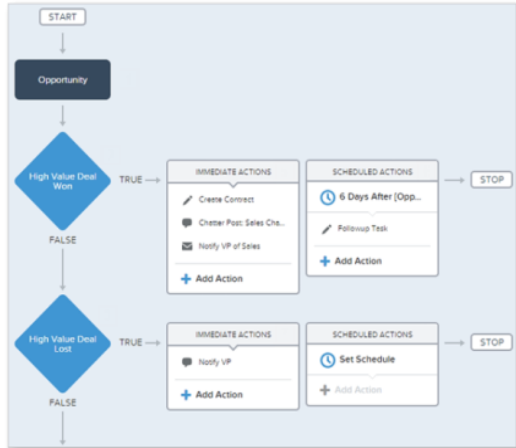

10 Time Triggers per Rule
Trigger (Criteria)
Time Trigger Eg. 1 Day
Time Trigger Eg. 2 Days
Workflow
Task(s)
Email Alert(s)
Field Update(s)
Outbound Message(s)
Task(s)
Email Alert(s)
Field Update(s)
Outbound Message(s)
Task(s)
Email Alert(s)
Field Update(s)
Outbound Message(s)
Workflow Actions
80 per Rule
Immediate
Time-Dependent
40 Actions per Time Trigger | Maximum 10 of each type

Lightning Process Builder

Workflow tool with a visual interface

Lightning Process Builder allows you to:

- Create processes that execute actions when certain conditions are met.
- Add multiple groups of criteria and associate actions with each criterion.
- Create immediate and scheduled actions.
- Use versioning to easily track and maintain processes.



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Usecases for Processes

Send an email reminder to the account team if a high-value opportunity is open 10 days prior the specified close date.

Update all the mailing addresses on all child contacts when a billing address is changed on an account.

Create records and notifications based on stages of an opportunity and schedule follow-up tasks that execute based on changes to records.

Create an order record with data in the opportunity and associated account when the opportunity stage changes to closed and won.

Considerations for Processes

General

- Processes do not support outbound messages, but the Call Apex action can be used to provide similar functionality.
- Actions are executed in the order in which they appear in the process.
- Criteria nodes and actions can be reordered in a process.

Scheduled Actions

- Multiple scheduled action groups are supported for each criteria node.
- Scheduled actions cannot be used in processes that evaluate every time a record is created or edited.
- The Paused and Waiting Interviews list displays all pending scheduled actions.
- If Salesforce executes the scheduled actions of an inactive user who started the process, then those actions fail to execute.

Video: Automating Business Processes with Approval Process

How to Get to this training video ?

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- To avoid a mixup with saved credentials open a private window in a new browsr.
- Browse to http://help.salesforce.com and log in with your @partnertraining.com account.
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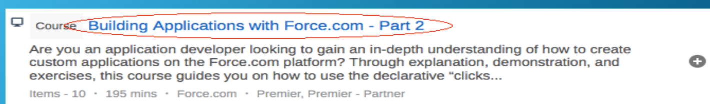

- Select the module "Automating Business Processes with Approval Process":
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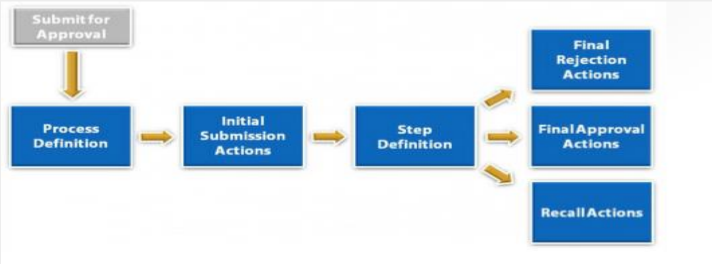
What is an Approval Process?

An Approval Process automatically routes records for approval (or not)

An Approval Process:
Contains one or more steps and is logically split into 6 steps
Can have either a single step process (Jump Start) or use wizard for multi step through various individuals
A record needs to be submitted for approval



Workflow Rules and Approval Processes

Workflow Rules and Processes	Approval Process
Are triggered upon save	Are triggered when a user clicks **Submit for Approval**
Consist of one set of criteria and actions	▪ Consist of multiple steps ▪ Have entry criteria, step criteria, and step actions ▪ Have initial submission actions, approval and rejection actions, and actions for each step
Can be modified or deleted	Some attributes can't be modified, processes must be deactivated before they can be deleted

Hands-on Exercise

View the hands on exercise steps in the **Building Applications with Force.com - Part 2** "Automating Business Processes with Approval Processes" Exercise Guide

https://lms.cfs-api.com/v1/content/d010f896-290e-4525-9acb-6eccfdb4ed1e/presentation_content/external_files/automatingbusinessprocesseswithapprovalprocessesexerciseguide.pdf

13-1: Create Multi-Step Approval Processes
13-2: Create Dynamic Approval Processes

Task: Create a custom Position object.

Exercise 13-1: Create Multi-Step Approval Processes

Universal Containers needs to make sure that all new positions receive the proper approval before they are posted.

- Step 1: New positions should go to the manager of the hiring manager.
- Step 2: All positions approved by the hiring manager's manager should go to the recruiter (Mario Ruiz).
- Step 3: Senior level positions should also be approved by the department VP.

Tasks:

1. Create a multi-step approval process.
2. Create initial submission actions.
3. Create approval steps.
4. Create final approval actions.
5. Create final rejection actions.
6. Activate the rule.
7. Create a new position to test the approval process.

Skipping Steps in Approval Processes

- Skipping steps allows developers to skip steps within an approval process based on specific criteria.
- Skip step is a step that has criteria defined to determine whether or not approval is required.
- Considerations:
  - The “go to next step” option is only available when editing a step that already has an ensuing step.
  - If the “go to next step” option is selected in a step and then subsequently all ensuing steps are deleted, Salesforce changes the step to automatically reject the record, if the step criteria are not met.
  - If the “go to next step” option is selected in the first step and the record does not meet the criteria for any of the steps in the approval process, the record is rejected.

Parallel Approval Processes

Outbound Messages

- Messages sent to another system or service
- Designate an endpoint at the receiving end
- Is a secure configurable API message in XML format
- Some use cases for outbound messages:
  - After an expense report has been approved, send a message to a payment system for initiating reimbursement.
  - When a request for Paid Time Off has been approved, send a message to a payroll system to track the hours taken.
  - After a job application has been approved, send a message to an HR system to keep the HR system in sync with the activities in Salesforce.

What is a Dynamic Approval Process?

Route records based on complex approval matrices

Used to route approval requests to users listed in lookup fields on the record requiring approval

Steps to create a dynamic approval process:

✓ 1. Create lookup fields on the object being approved.

✓ 2. Create a custom object as an approval matrix.

✓ 3. Populate the approval matrix.

✓ 4. Create Apex code to fill in the lookup fields from the approval matrix.

5. Create or update an approval process to utilize the new lookup fields.

Hands-on Exercise

View the hands on exercise steps in the **Building Applications with Force.com - Part 2** "Automating Business Processes with Approval Processes" Exercise Guide

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13-1: Create Multi-Step Approval Processes
13-2: Create Dynamic Approval Processes

Task: Create a custom Position object.

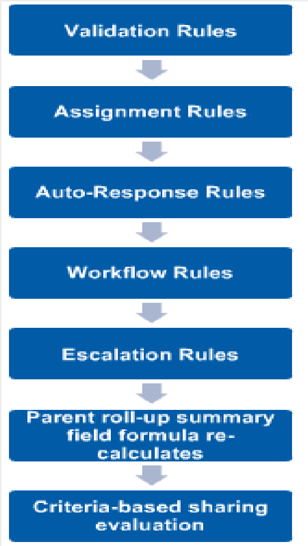
Exercise 13-2: Create Dynamic Approval Processes

At Universal Containers, not all approval processes route records to a particular user or manager. Universal Containers would like to have more flexibility with its approval processes (to refer to an approval matrix and route approvals based on users specified on the matrix).

Tasks:

1. Download the needed apex class and trigger.
2. Add new approver fields on the Position object.
3. Modify the Position Layout and Technical Position Layout to include a section for approver information.
4. Create an approval matrix in Salesforce.
5. Add fields to the Position Approval Matrix object.
6. Create a new position approval matrix.
7. Create an Apex trigger to automatically populate the Approver fields on new positions.
8. Populate approvers on a Position.
9. Modify the existing approval process to use this dynamic routing.
10. Test the new approval process.

Order of Automated Processes



Summary of Approval Processes

An approval process:

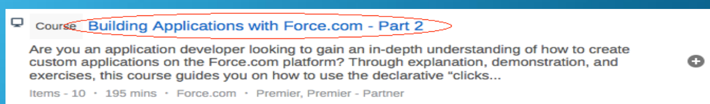
- Is a single or multi-step process, which requires user approval to move to the next step.
- Can be split into six steps:
  - Process definition
  - Initial submission actions
  - Decision criteria and approval assignment
  - Final rejection actions
  - Final approval actions
  - Recall actions
- Is used to skip steps, create parallel approval processes, and create dynamic approval processes.

Video: Automating Business Processes Using Visual Workflow

Learn about Visual Workflow

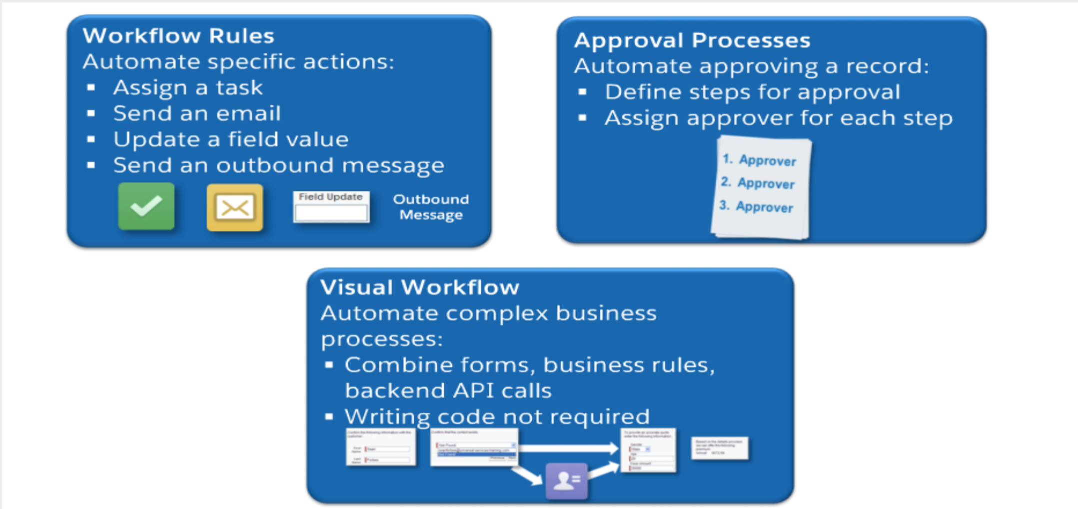
How to Get to this training video ?

- You need an **@partnertraining.com account**.
- To avoid a mixup with saved credentials open a private window in a new browsr.
- Browse to http://help.salesforce.com and log in with your @partnertraining.com account
- Search for “Building Application with Force.com part 2”
- Make sure to select this training (pay attention to the video logo):

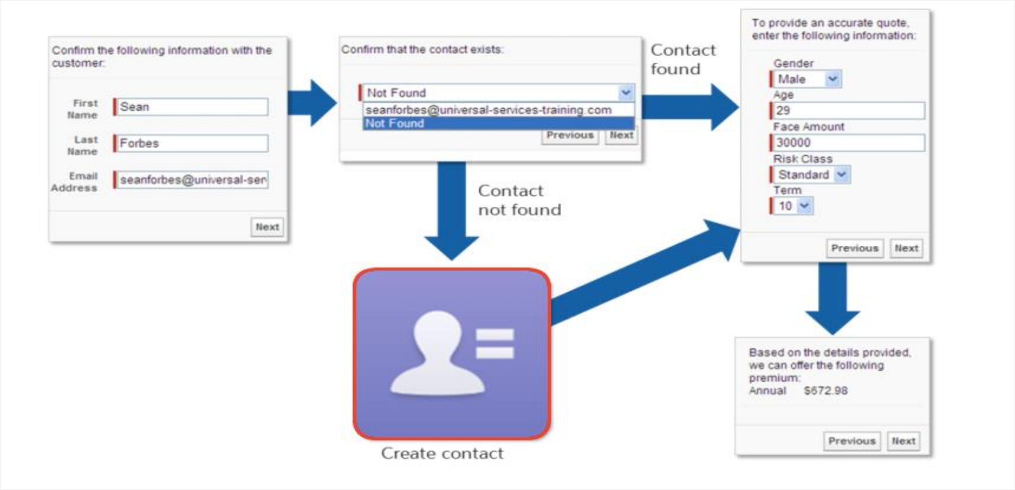


- Select the module “Automating Business Processes using Visual Workflow”:
- Enjoy the 25 min video.
- Direct Link: (only works after you’ve logged in with your @partnertraining.com account, paste in browser) https://help.salesforce.com/HTTrainingModulesDetail?courseId=a1S30000000gvH3EAI

Automating Business Processes



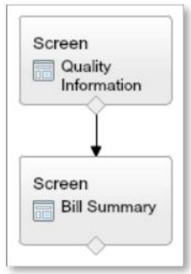
Visual Workflow Overview



Key Components of Visual Workflow

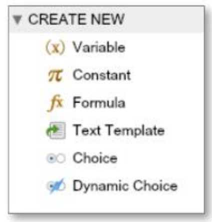
Elements

- Building blocks of flows
- Represent actions
- Connect with other elements to create series of screens

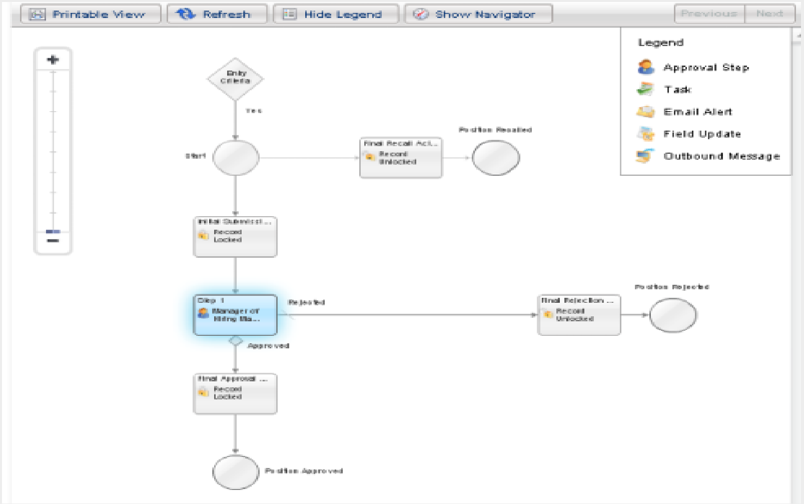


Resources

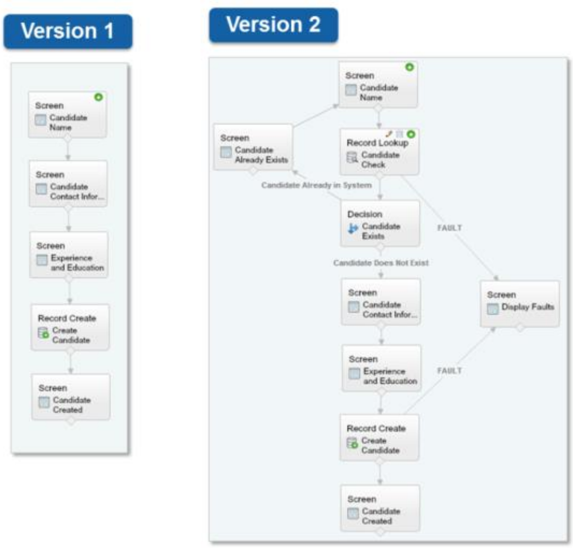
- Store and manipulate data
- Example: Variables, Constants, and Formulas



The Process Visualizer



Flow Versions



- Create multiple versions of a flow.
- Only one version of the flow can be active at a time.

Displaying Faults for Data Elements

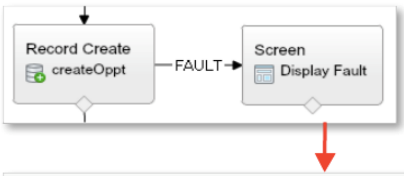
Faults:

- Are exceptions that can happen during the processing of a flow.
- Can occur when a flow tries to look up, create, update, or delete a record.

An unhandled fault has occurred in this flow

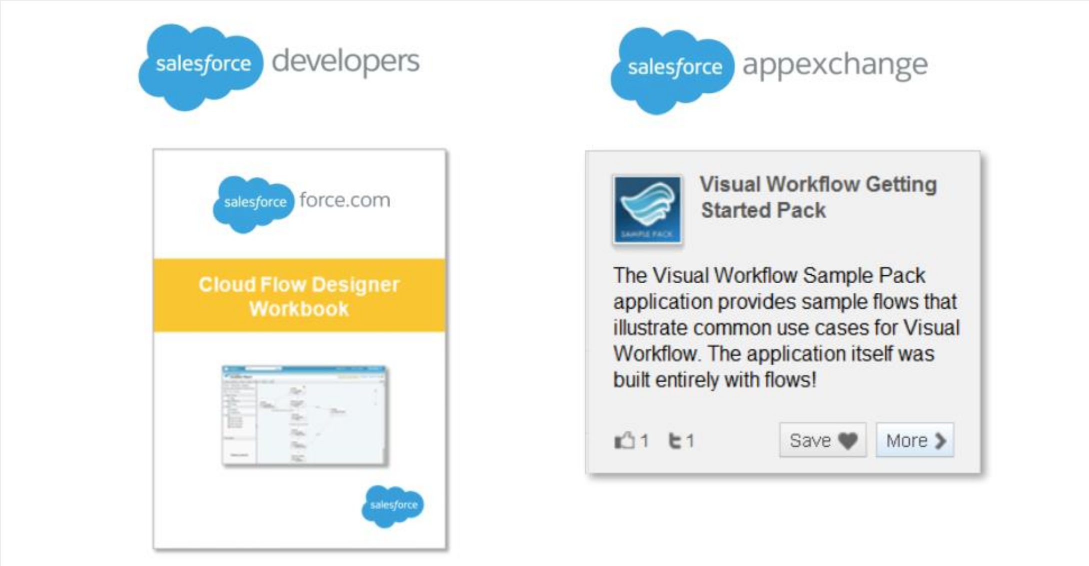
An unhandled fault has occurred while processing the flow. Please contact your system administrator for more information.

- Can be displayed by creating fault connectors.



UPSERT --- UPSERT FAILED --- ERRORS : (REQUIRED_FIELD_MISSING) Required fields are missing: [CloseDate] --- for SFDC record with ID : null,

Visual Workflow Resources



Hands-on Exercise

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14-1: Create a Flow Exercise
14-2: Create a New Version of a Flow
14-3: Deploy a Flow

Task: Create a custom Position object.


salesforce
Thank
you