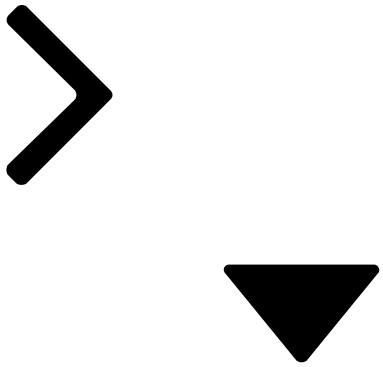
1. Data Security



2. Control Access to Records

Control Access to Records

Learning Objectives

After completing this unit, you'll be able to:

- List the four ways to control access to records.
- Describe situations in which to use each of the four record-level security controls.
- Explain how the different record controls interact with each other.
- Set org-wide sharing defaults to control access to records.

Record-Level Security

To control data access precisely, you can allow particular users to view specific fields in a specific object, but then restrict the individual records they're allowed to see.

Record access determines which individual records users can view and edit in each object they have access to in their profile. First ask yourself these questions:

- Should your users have open access to every record, or just a subset?
- If it's a subset, what rules should determine whether the user can access them?

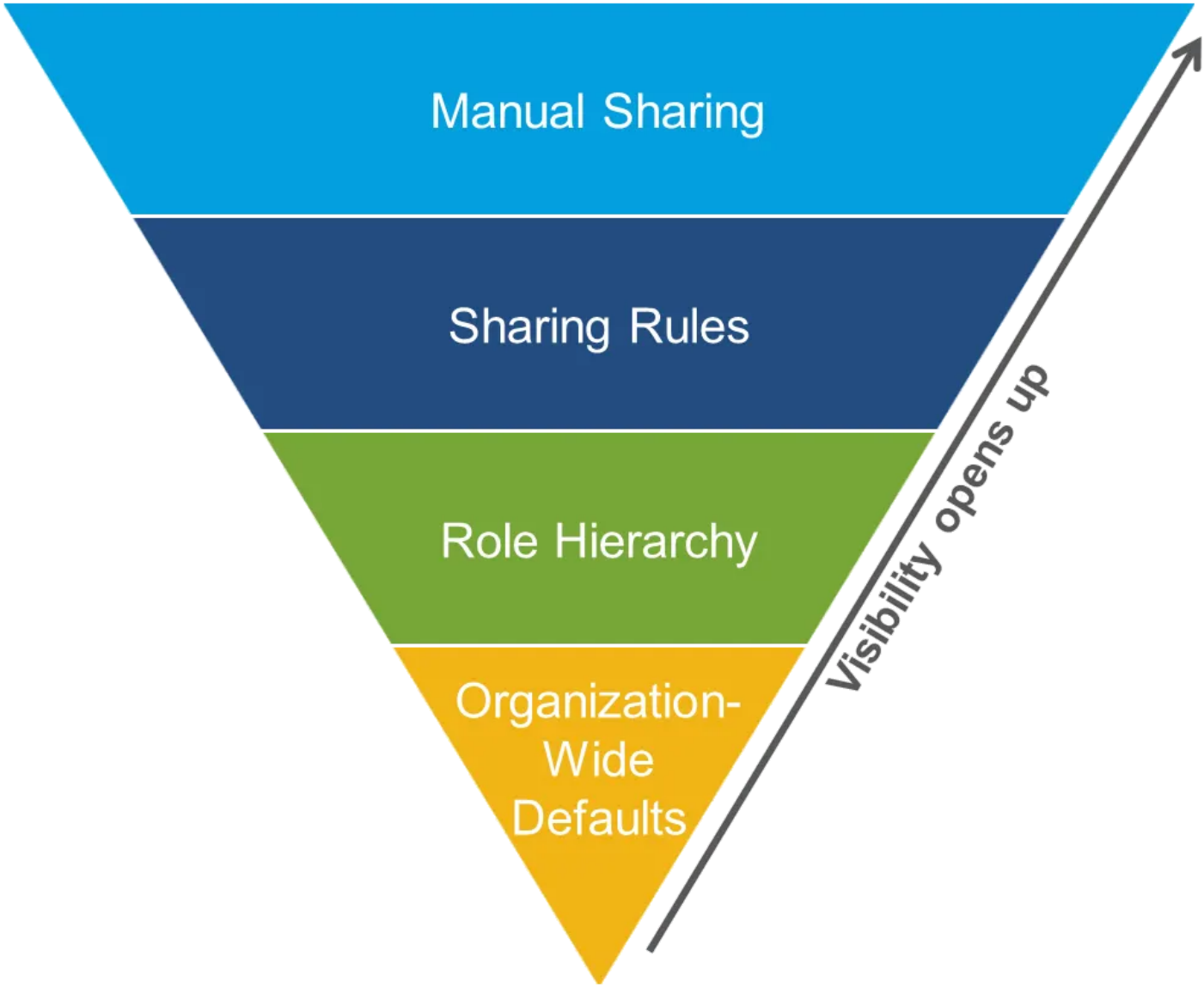
Let's say you create a new profile called Recruiter to give recruiters the object-level permissions they need. You restrict the power to delete recruiting-related objects, so recruiters will never be able to delete these objects. However, granting recruiters permission to create, read, or edit recruiting objects does not necessarily mean recruiters can read or edit every record in the recruiting object. This is a consequence of two important concepts:

- The permissions on a record are always evaluated according to a combination of object-level, field-level, and record-level permissions.
- When object-level permissions conflict with record-level permissions, the most restrictive settings win.

That means even if you grant a profile create, read, and edit permissions on the recruiting objects, if the record-level permissions for an individual recruiting record are more restrictive, those are the rules that define what a recruiter can access.

You control record-level access in four ways. They're listed in order of increasing access. You use org-wide defaults to lock down your data to the most restrictive level, and then use the other record-level security tools to grant access to selected users, as required.

- **Org-wide defaults** specify the default level of access users have to each other's records.
- **Role hierarchies** ensure managers have access to the same records as their subordinates. Each role in the hierarchy represents a level of data access that a user or group of users needs.
- **Sharing rules** are automatic exceptions to org-wide defaults for particular groups of users, to give them access to records they don't own or can't normally see.
- **Manual sharing** lets record owners give read and edit permissions to users who might not have access to the record any other way.



The visibility and access for any type of data is determined by the interaction of the above security controls, based on these key principles.

- A user's baseline permissions on any object are determined by their profile.
- If the user has any permission sets assigned, these also set the baseline permissions in conjunction with the profile.
- Access to records a user does not own are set first by the org-wide defaults.
- If the org-wide defaults are anything less than **Public Read/Write**, you can open access back up for certain roles using the role hierarchy.
- You can use sharing rules to expand access to additional groups of users.
- Each record owner can manually share individual records with other users by using the Share button on the record.

You've already seen how to configure object-level and field-level access using profiles and permission sets. Now we'll look at details of the various record-level security controls.

Org-Wide Sharing

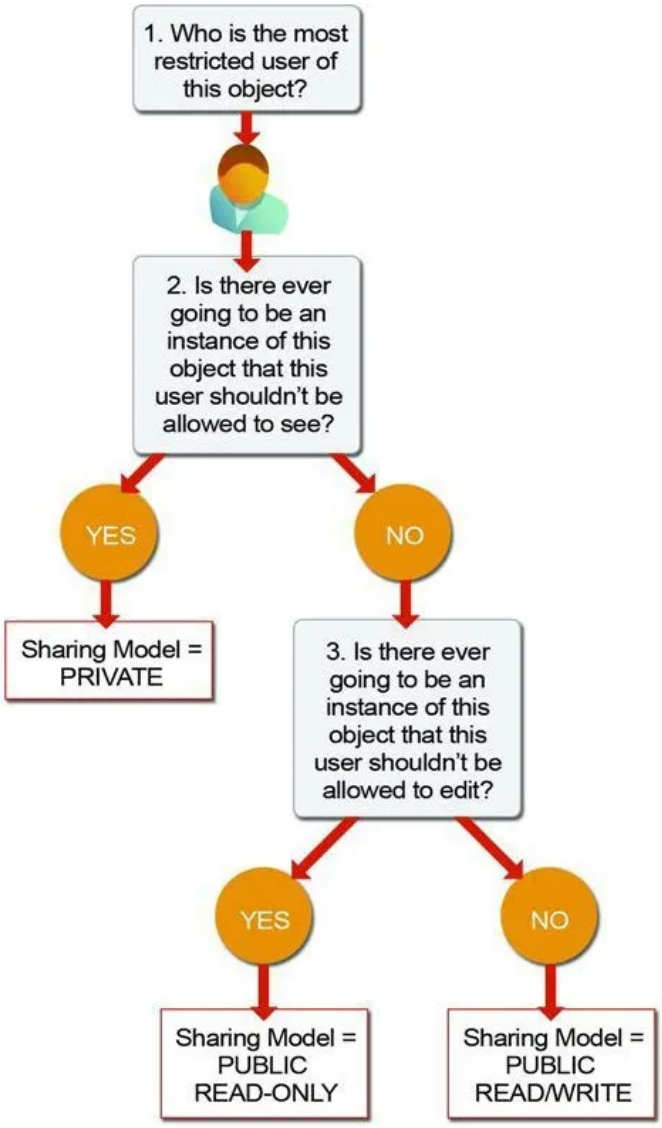
Org-wide defaults specify the baseline level of access that the most restricted user should have. Use org-wide defaults to lock down your data, and then use the other record-level security and sharing tools (role hierarchies, sharing rules, and manual sharing) to open up the data to users who need it.

Object permissions determine the baseline level of access for all the records in an object. Org-wide defaults modify those permissions for records a users doesn't own. Org-wide sharing settings can be set separately for each type of object.

Org-wide defaults can never grant users more access than they have through their object permission.

To determine the org-wide defaults you need for your app, ask yourself these questions about each object:

1. Who is the most restricted user of this object?
2. Is there ever going to be an instance of this object that this user shouldn't be allowed to see?
3. Is there ever going to be an instance of this object that this user shouldn't be allowed to edit?



Based on your answers, you can set the sharing model for that object to one of these settings.

Private
Only the record owner, and users above that role in the hierarchy, can view, edit, and report on those records.

Public Read Only

All users can view and report on records, but only the owner, and users above that role in the hierarchy, can edit them.

Public Read/Write
All users can view, edit, and report on all records.

Controlled by Parent
A user can view, edit, or delete a record if she can perform that same action on the record it belongs to.

When the org-wide sharing setting for an object is **Private** or **Public Read Only**, an admin can grant users additional access to records by setting up a role hierarchy or defining sharing rules. Sharing rules can only be used to grant additional access. They cannot be used to restrict access to records beyond what was originally specified with the org-wide sharing defaults.

As an example, let's go through and answer the above list of questions for the Position object in the Recruiting app.

Who is the most restricted user of this object?
A member of the Standard Employee profile. All that they're allowed to do is view a position.

Is there ever going to be an instance of this object that this user shouldn't be allowed to see?
No. Although the values for the minimum and maximum pay fields are hidden from standard employees, they're still allowed to view all position records.

Is there ever going to be an instance of this object that this user shouldn't be allowed to edit?
Yes. Standard employees aren't allowed to edit any position record.

Since we answered "Yes" to the third question, the sharing model for the Position object should be set to Public Read Only. By repeating the same exercise with the other recruiting objects, you can easily figure out the appropriate org-wide default settings for them. The Standard Employee profile is the most

restricted user for each object, and there are going to be candidate, job application, and review records that particular employees won't be able to view. Consequently, the sharing model for the Candidate, Job Application, and Review objects should all be set to **Private** .

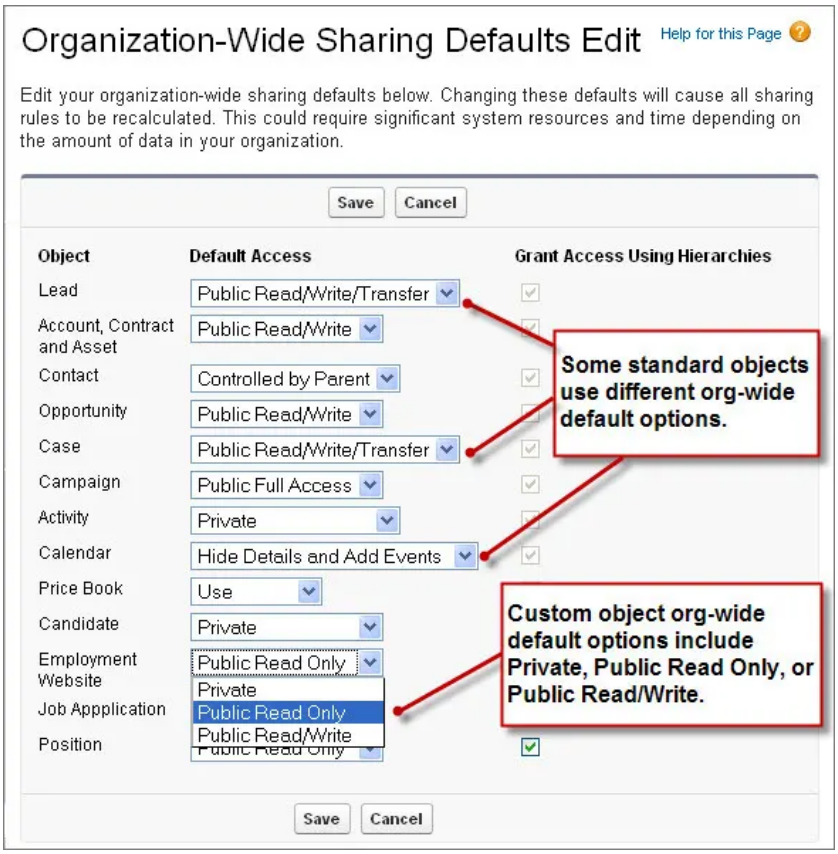
Note

You can't set the org-wide defaults for the Review object, because that object is on the detail side of a master-detail relationship, and a detail record automatically inherits the sharing setting of its parent. So in our app, the Review object is automatically set to **Private** .

Set Your Org-Wide Sharing Defaults

Use org-wide defaults to specify the baseline level of access that the most restricted user should have.

1. In Setup, use the Quick Find box to find **Sharing Settings**.
2. Click **Edit** in the Organization-Wide Defaults area.



3. For each object, select the default access you want to give everyone.
4. To disable automatic access using your hierarchies, deselect **Grant Access Using Hierarchies** for any custom object that does not have a default access of Controlled by Parent.

By default, a role hierarchy automatically grants access to records for users above the record owner in the hierarchy. Setting an object to **Private** makes those records visible *only* to record owners and those above them in the role hierarchy. Use the **Grant Access Using Hierarchies** checkbox to disable access to records to users above the record owner in the hierarchy for custom objects. If you deselect this checkbox for a custom object, only the record owner and users granted access by the org-wide defaults receive access to the records.

Even if **Grant Access Using Hierarchies** is deselected, some users—such as those with the “View All” and “Modify All” object permissions and the “View All Data” and “Modify All Data” system permissions—can still access records they don’t own.

Note

Updating the org-wide defaults automatically runs sharing recalculation to apply any access changes to your records. You receive a notification email when the recalculation completes and you can refresh the Sharing Settings page to see your changes. To view the update status, from Setup, enter `View Setup Audit Trail` in the Quick Find box, then select **View Setup Audit Trail**.

Once you’ve locked down your data with org-wide defaults, the resulting settings might be too restrictive for some users. You can then use the remaining record-level security controls (role hierarchies, sharing rules, and manual sharing) to open up record access selectively to specific employees who need it.

Tell Me More...

Apex managed sharing allows developers to programmatically share records associated with custom objects. When you use Apex managed sharing for any custom object, only users with the “Modify All Data” permission can add or change the sharing on that custom object's records, and the sharing access stays the same even if the record owner changes. For more information, see Apex Sharing.

Resources

- Sharing Considerations
- Default Organization-Wide Sharing Settings
- Security Implementation Guide

Assessment Complete!

+500 points

Data Security
100%
Progress: 100%
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