



# Setup Guide

## DevOps Center

Pilot, Summer '21



@salesforcedocs  
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# Welcome To The DevOps Center Pilot

Congratulations! Your team has been nominated to participate in the DevOps Center pilot. We thank you for taking the time to use DevOps Center and provide feedback. Your input will be instrumental in improving the product and user experience.

Ask questions and post feedback in the [DevOps Center Chatter group](#).

## Updates to DevOps Center

DevOps Center is delivered as a managed package. We've already installed the package for you in the trial org you've received for pilot. We'll occasionally push updates to the managed package to deliver ongoing improvements to the product. Whenever possible, these updates won't disrupt you. If you need to take any action after an update, we'll reach out to let you know.

## Setup Workflow

We've added one primary System Administrator to the org and assigned the appropriate permissions. As the administrator, you can add team members, set up projects, add environments, configure your pipeline, and create work items.

In addition to the System Administrator user we've created in your trial org, we include a second Salesforce Admin user. If issues arise that require debugging or configuration changes, we can use this account to log in and troubleshoot, or to make updates to the DevOps Center application.



**Warning:** Don't change the subdomain name of the DevOps Center org assigned to you.

Here's a sneak-peak at the overall process:



1. [Create a GitHub project repository](#).
2. [Identify your environments](#).
3. [Open DevOps Center](#).
4. [Create a new project](#).
5. [Connect to the release environment](#).

6. [Add development environments.](#)
7. [Add your project team members as collaborators in the project's GitHub repository.](#)
8. [Create your project team members as users in the DevOps Center org that Salesforce created for you.](#)
9. [Create and assign project work items.](#)
10. [Assign the team members the permission sets that allow them to address project work items.](#)
11. [Bring your team members into the DevOps Center org.](#)

## Create a GitHub Project Repository

A GitHub repository (sometimes called a *repo* for short) stores project work files – code, text, images, and so on. Each DevOps Center project needs its own repository for storing project changes. While you're working on the project, the repository is the team's centralized source of truth to manage changes.



**Note:** DevOps Center uses the OAuth 2.0 open protocol to establish access to both your GitHub repository (hosted by Github) and your work environments (hosted by Salesforce). OAuth allows you to delegate a client application (DevOps Center) to access data from a protected resource (your project repository, for example) through the exchange of tokens, instead of exchanging security credentials. For details, see [Authorize Apps with OAuth](#) in Salesforce Help.

We've designed DevOps Center to eventually integrate with multiple third-party source control systems, such as Bitbucket, GitLab, and GitHub. In pilot, all participants use GitHub as the source control system for DevOps Center projects. All participants need their own *GitHub-hosted cloud-based GitHub.com* account to work in this version of DevOps Center. Enterprise or locally hosted versions of GitHub aren't currently supported at this time.

If you already have a GitHub account, great! If you don't have a GitHub account yet, it's easy (and free) to [sign up for one](#).

## New to GitHub or to Source Control?

We've designed DevOps Center to make it easy to take advantage of a source control system like GitHub even if you aren't yet familiar with it. If you want to learn more about Git and GitHub concepts and terminology as you dive in to using DevOps Center, look at the [Git and GitHub Basics](#) Trailhead module (estimated time: less than two hours), which covers why source control is so key to successful team collaboration and what to expect in a typical GitHub workflow.

## Use the Salesforce DX Project Structure for Your Repo

A DevOps Center project repository must contain a [Salesforce DX project](#). You can let DevOps Center create a Github repository that uses the Salesforce DX project structure for you, or you can use an existing Github repository. If you choose to let DevOps Center create the repository for you, you can skip this section.



**Note:** If you plan to use an existing GitHub repository, it must contain an `sfdx-project.json` file in the root directory, a file that identifies the repo as a Salesforce DX project.

## Use the DevOps Center Template to Create New Repositories

Creating a repository from our template ensures that the repository has the right structure and configuration to work with DevOps Center, that is, the structure and configuration of a [Salesforce DX project](#).

Log in to GitHub and use the repository template at <https://github.com/forcedotcom/dx-empty> to create your project repository. Your project repository can be either public or private. You don't need to include all branches. For details about how to create a repository from a template, see the GitHub help.

## Identify Your Environments

You'll want to have the login credentials handy for the environments you plan to use for your DevOps Center project. Before you proceed, make sure all the environments you need for this project are created.

First, be sure that Source Tracking for Sandboxes is enabled in any orgs from which you plan to create your developer sandboxes.



**Tip:** If you have any existing Developer sandboxes that were created before source tracking was enabled, enable Source Tracking for Sandboxes in the production org, then refresh those sandboxes before proceeding.

Did you...

- Create all the necessary source-tracked Developer or Developer Pro sandboxes you need for the project.
- Create sandboxes (as needed) for pipelines stages, for example, integration, user acceptance testing, and staging.
- Gather the usernames and passwords for all environments, including the final release environment, such as production.
- Add team members as users to every environment that they'll need access to.



**Important:** During pilot, consider carefully whether to use your real production environment. As a safeguard, you can create a sandbox to use for this purpose.

## What's Special About Development Environments?

Development environments require source tracking so they can automatically track changes as they are made. Use Developer or Developer Pro sandboxes created from your own production org.

Ideally, everyone contributing customizations to a DevOps Center project is assigned their own Developer sandbox. See your Salesforce Admin about allocating sandboxes for your team's participation in this pilot. For more information about enabling source tracking in sandboxes, see the [Salesforce DX Developer Guide](#).

## Open DevOps Center

**Before you start:** Locate the *Finish Resetting Your Salesforce Password* or *Welcome to Salesforce* email generated when Salesforce added you as a user to the DevOps Center org you're using for Developer Preview.

1. Use the link in the *Finish Resetting Your Salesforce Password* or *Welcome to Salesforce* email you received to reset the password and log in to the DevOps Center org.
2. From the App Launcher, find and select **DevOps Center**.

DevOps Center opens to the Projects page. You've just logged in, so there aren't any projects yet.

## Create a Project

Your team's central arena for work in DevOps Center is the *project*. The purpose of a project is to help you and your team manage changes being developed for a particular application. A project encapsulates definitions and configurations of the many different things that managing a set of changes requires, including:

- Work items that define the changes to be made
- A pointer to the source control repository that stores changes made for the project
- Which work environments are used to make changes
- Environments used for pipeline stages, for example, integration, UAT, and staging
- A pipeline that defines how changes are deployed as they move from development to production

Projects in DevOps Center must use the [Salesforce DX project structure](#), and be associated with a Github repository. The repository is used to store project changes.

1. From the DevOps Center Projects page, click **New Project**.

The first time you try to create a new project, you're prompted to log in to GitHub, so you can authorize DevOps Center to work with your GitHub account. After you go through the authentication process, we can make changes on your behalf in your project's GitHub repository.

### Connect DevOps Center and GitHub

GitHub is a version control system that can track changes made to your DevOps Center projects.

Connect to GitHub and authorize DevOps Center to work with your GitHub account. If you don't have a GitHub account, you can create one.

If you're logged in to GitHub in this browser session, click **Take Me to GitHub**, so that DevOps Center can get your session information.

CancelTake Me to GitHub

- a. Click **Take Me to GitHub**.
  - b. Authorize access so we can make changes in GitHub on your behalf. After authentication, you're returned to the DevOps Center Projects page.
2. On the Projects page, click **New Project** (again).

### New Project

\* Project Name

Enter a unique name.

\* Every project in DevOps Center must use the [Salesforce DX project structure](#), and be connected to a unique version control system repository.

☒ Create a repository for my project that uses the Salesforce DX project structure.

Repository Owner ⓘ

Repository Owner is required

Repository Name

Provide a repository name that doesn't contain spaces...

Repository Name is required

☐ Use an existing repository for my project. This repository must use the Salesforce DX project structure.

Paste your project repository URL...

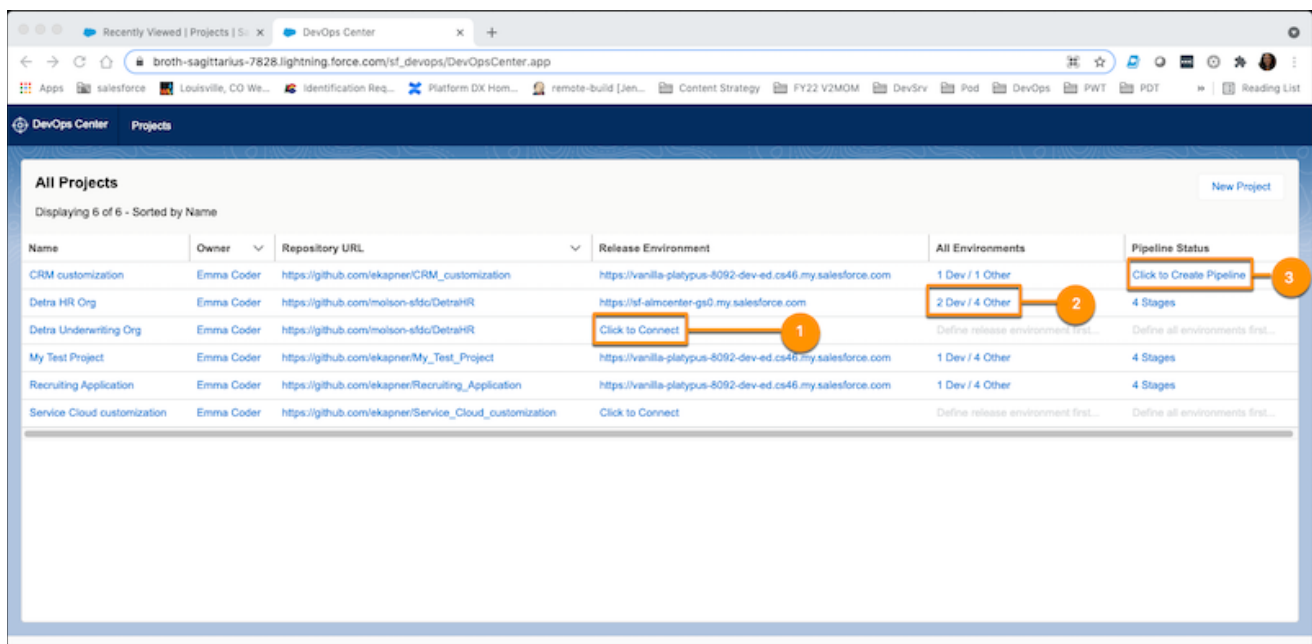
Project Description

CancelSave



3. Enter a unique name for your project.
4. Create a new repository or use an existing one.
  - If you create a new repo, we base the repository name on the project name. However, you can change the name as long as it doesn't contain any spaces.
  - If you use an existing repository, enter the URL of the GitHub repository you want to use for the project. For example, <https://github.com/mygithubusername/Myrepo>.
5. (Optional) Enter a description to identify the purpose of the project.
6. Click **Save**.

Your project is created and added to the Projects page. The Projects list view helps guide you through the project configuration process. Different projects can be in different phases of project setup.



The project setup workflow is:

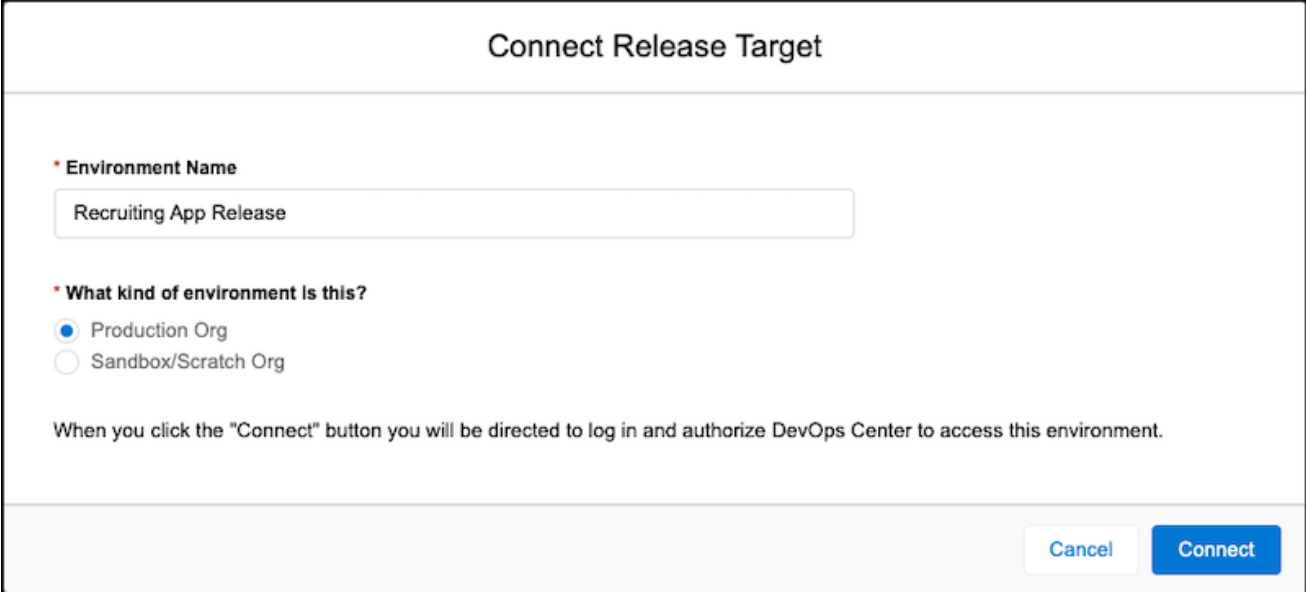
- Define and connect to the final release environment (1).
- Add development and other environments (2) that you'll use for this project.
- Configure your pipeline (3).

## Connect to the Release Environment

At a minimum, projects require a release environment (and one or more developer environments).

1. On the All Projects page, under Release Environment, click **Click to Connect**.

2. Provide a unique name for the production environment and indicate the environment type.



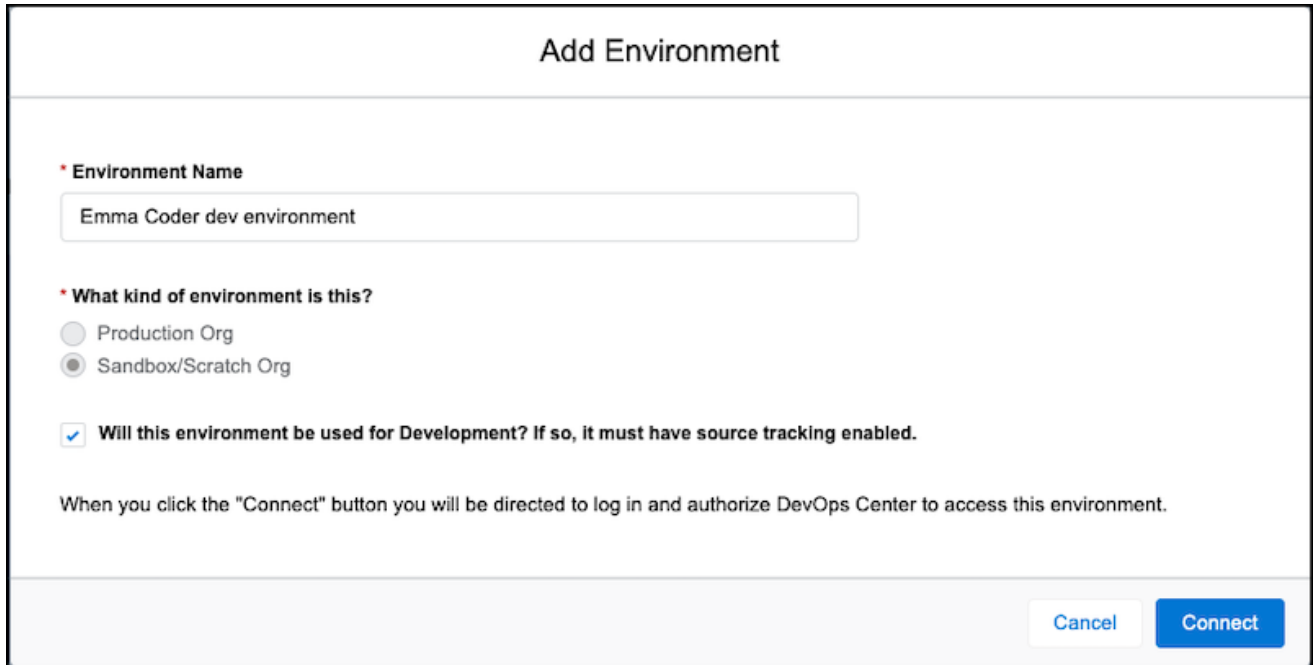
The image shows a dialog box titled "Connect Release Target". It contains two main sections. The first section is labeled "\* Environment Name" and has a text input field containing "Recruiting App Release". The second section is labeled "\* What kind of environment is this?" and has two radio button options: "Production Org" (which is selected) and "Sandbox/Scratch Org". Below these options is a note: "When you click the 'Connect' button you will be directed to log in and authorize DevOps Center to access this environment." At the bottom right of the dialog are two buttons: "Cancel" and "Connect".

3. Click **Connect**.
4. Log in to the environment. The release environment URL is now listed on the Projects page. Continue defining the other environments for this project.

## Add Development Environments

Add the source-tracked development environment that you created for each developer working on the project.

1. In the Project page, click the hot link text under All Environments.
2. In the Settings page, click **Add**.
3. Be sure to select the checkbox, **Will this environment be used for Development?**



**Add Environment**

\* **Environment Name**

Emma Coder dev environment

\* **What kind of environment is this?**

☐ Production Org

☒ Sandbox/Scratch Org

☒ **Will this environment be used for Development? If so, it must have source tracking enabled.**

When you click the "Connect" button you will be directed to log in and authorize DevOps Center to access this environment.

[Cancel](#) [Connect](#)

4. Click **Connect**.

DevOps Center takes you to `test.salesforce.com` to log in. After you authenticate successfully, DevOps Center uses an OAuth process to remember your credentials.

5. Log in to the development environment.
6. Repeat steps 2-5 to add more development environments.

Now, when team members select or are assigned a work item, they can easily connect to their development environments from within the work item.

## Configure Your Pipeline

A *pipeline* defines the sequence of stages that work items progress as they go through the release lifecycle from development through to production (or some other final release stage). The pipeline consists of pipeline stages. Each pipeline stage corresponds to an environment (currently a Salesforce org), and a branch in the source control repository.

Changes move through the pipeline when team members promote work items or work item bundles (a versioned group of changes that get promoted together). Upon promotion, changes are merged from the current stage branch (or feature branch) to the next stage branch, and then are deployed to the next stage org.

You can configure your pipeline in one of two ways:

- Allow team members to move work items individually through the entire pipeline.

- Allow team members to move work items individually in early stages of the pipeline, and as a versioned group of changes (work item bundle) in later stages. Keep reading to learn all about [work item bundles](#).

## How Many Pipeline Stages Do I Need?

The pipeline can contain any number of pipeline stages. We recommend that you have at least one test stage in addition to your development and production stages. A robust pipeline typically includes 2-3 test stages:

- The first test stage (after the development stage) is an integration stage where all changes from the various development environments come together for the first time and can be tested in an integrated environment.
- The final test stage (before production) is used for final validation or “staging” before release to production.
- You can also have one or more stages in between “integration” and “staging” where you can perform additional testing, including by business stakeholders.

The configuration of your pipeline is entirely up to you, and is based on the development and business processes that you have in place.

## To Bundle or Not to Bundle, That’s a Great Question

The process and mechanism for promoting changes from one stage to the next can vary as you move from “left to right” in the pipeline. In the earlier (left) stages of the pipeline, you’ll often want more flexibility to promote individual or select groups of work items from one stage to the next. As you move to the later (right) stages of the pipeline, it’s often desirable to have more predictability and ability to version the sets of changes that are promoted and ultimately released.

DevOps Center allows you to define what this overall model of promotion looks like. The point in the pipeline where you transition from the more flexible/individually-selectable work item promotion to the more predictable/versioned promotion is referred to as the *bundling stage*. This is the stage in the pipeline where changes come together to be bundled into a *work item bundle* that can be versioned and promoted as a unit through the subsequent stages. When changes are promoted from the bundling stage to the next stage, all work items that have not yet been promoted are included in the versioned work item bundle and promoted as a unit. This versioned bundle continues to be promoted as a consistent unit through subsequent stages when you perform a promotion.

The bundling stage is defined when you configure the pipeline. All stages to the left of this stage allow for individual work item promotion, and all stages to the right of this stage allow for versioned work item bundle promotion.

## Work Item Bundles Reduce Merge Conflicts

In the stages to the left of the bundling stage, you have increased flexibility regarding which work items can be promoted and when. However, this flexibility comes with the tradeoff of increased risk of conflicts

and unexpected behavior because the combination of changes in each stage may not be consistent. The versioned work item bundle that is created in the bundling stage and promoted through subsequent stages provides enhanced consistency because the changes contained in it have been merged into a unit that you can promote consistently and predictably from stage to stage.

## Configure Your Pipeline

&&& some intro text. Can't create work items until pipeline is activated. Can't edit an active pipeline. Can deactivate it and make changes, then reactivate it. (what are the caveats?) Can deactivate if you want people to stop doing promotions in devOps center.

Will there be some controls to flip stages or shift them in a different order (and can you do this for an active pipeline) ???

1. On the Projects page, under Pipeline Status, click **Click to Create Pipeline**.
2. Click something to add a stage.
3. Select the environment associated with that stage
4. Specify a branch or we create one for you.
5. Is this a bundling stage? Radio button? If we're creating the branches, want to work from right to left (cuz branch is created from stage to the right)
6. Activate pipeline

## Set Up Team Members in the DevOps Center Org

When your project is connected to its GitHub repository and you've added work environments to the project, it's time to start adding the people on your project team to DevOps Center. Add team members as collaborators in your GitHub repository, create user accounts for them in the DevOps Center org, and assign them the permission sets they need to work in DevOps Center.

### Add Team Members as Repository Collaborators

In GitHub, a *collaborator* is someone who has been granted write access to the project repository. Add everyone who creates customizations or code for your project to the project repository as a collaborator, or they won't be able to access the repository through DevOps Center.

To add a team member as a collaborator in the project repository:

1. Ask each of your team members to create a GitHub account (if they don't have one already) and to send you their GitHub username.
2. Log in to GitHub and update the project repository settings for access to invite the team member as a collaborator.

GitHub sends an email to each team member you invited, asking them to accept the invitation.



**Tip:** Follow up with your team members to make sure they accept the invitation from GitHub to avoid access problems when the team members begin using DevOps Center.

## Add Team Members as Users in the DevOps Center Org

When you add team members, be sure to specify the appropriate license based on their role.

- When you add a project team member as a user in the DevOps Center org, use one of the twenty Developer licenses provided to pilot participants. If you need more Developer licenses, please reach out to [sf-devopscenter-preview@salesforce.com](mailto:sf-devopscenter-preview@salesforce.com).
- If you plan to create a second user on your team who has the permissions needed to be a team/project manager, like yourself, create their user account in the DevOps Center Org with a Salesforce User license. The Developer license doesn't provide the appropriate user permissions.



**Tip:** This procedure generates an email inviting the new users into the org. But until you're finished setting up DevOps Center, there's not much for them to do in the org. We recommend that you let your team know that you're setting up DevOps Center and that they should wait until they hear from you that you're done with setup before logging in.

1. Log in to the DevOps Center org.
2. From Setup, enter Users in the Quick Find box, then select **Users**.
3. Click **New User**.
4. Enter each user's name and email address, nickname and a unique username in the form of an email address. By default, the username is the same as the email address.

A Salesforce username must be unique across all Salesforce orgs. The username must be in the format of an email address, for example, jane@salesforce.com. The email used for your username doesn't have to function. You can have the same email address associated with your account across multiple orgs.

5. Select the **Developer** user license for team members, or the **Salesforce User** license for team/project managers.
6. Select the **Developer** profile for team members, or the **Standard User** profile for team/project managers.
7. Select the **Generate passwords and notify user via email** checkbox.
8. Click **Save**.

Repeat as needed to create user accounts for all the team members.

## Assign the DevOps Center Permission Sets

Assign permission sets to everyone working on your project in DevOps Center. Consider who might need to change project-level settings (such as adding another work environment) and who will be concerned only with work items.

### DevOps Center Permission Sets

Permission Set	Description
<b>DevOps Center</b>	<p>The base permission set for DevOps Center. Provides the data access and permissions needed to manage customizations for DevOps Center work items. Ability to view all connected environments and pipelines.</p> <p><b>Assign to:</b> all DevOps Center users, including those also assigned the DevOps Center Manager permission set. The two permission sets don't overlap.</p>
<b>DevOps Center Manager</b>	<p>Provides the data access and permissions needed to set up DevOps Center projects, environments, and users.</p> <p><b>Assign to:</b> team/project managers</p>
<b>DevOps Center Release Manager</b>	<p>Provides permissions to perform promotions through the pipeline.</p> <p><b>Assign to:</b> release manager</p>
<b>DevOps Center DevOps</b>	<p>Allows the DevOps engineer to add environments, create pipeline stages, and build the pipeline.</p> <p><b>Assign to:</b> DevOps engineer</p>
<b>sf_devops_InitializeEnvironments</b>	<p>Allows managers of DevOps Center projects to manage the connections to work environments. Includes the Modify Metadata Through Metadata API Functions and Customize Application user permissions, so the manager can create new NamedCredential records.</p> <p><b>Assign to:</b> team/project managers</p>
<b>sf_devops_NamedCredentials</b>	<p>Grants access to the named credentials needed to authenticate to work environments. Created and maintained automatically by DevOps Center.</p> <p><b>Assign to:</b> all DevOps Center users</p>

## See also

Salesforce Help: [Permission Sets](#)

Salesforce Help: [Named Credentials](#)

## Assign These Permission Sets to All DevOps Center Users

1. From Setup, enter **Permission Sets** in the Quick Find box, then select **Permission Sets**.
2. Select the **DevOps Center** permission set.
3. Click **Manage Assignments** and then **Add Assignments**.
4. Select the checkboxes next to the names of the users you want assigned to the permission set, and click **Assign**.
5. Click **Done**.
6. Repeat the procedure to assign the **sf\_devops\_NamedCredentials** permission set to your team members.

## Assign Additional Permission Sets to DevOps Center Managers

Add the **DevOps Center Manager**, **DevOps Center Release Manager**, and **DevOps Center DevOps** permission sets to team members who need permissions to configure projects, build pipelines, and promote changes through the pipeline.

## Create and Assign Project Work Items

Create work items so that when your team members open DevOps Center for the first time, project work is already identified and assigned to them.

In DevOps Center, a team uses work items to track the progress of changes created to achieve a specific objective, such as enabling a user story or addressing a bug. Work items help a team manage a release by making it easier to identify the status and manage the progress of related changes.

1. From the Projects page, click the name of the project for which you're creating work items.



**Tip:** Did you already [configure your pipeline](#)? If not, DevOps Center walks you through specifying a release target first before you can continue.

2. From the Work Items tab, click **New Work Item**.
3. Specify the objective or the problem to be addressed in the Subject field.
4. If more details would be helpful to the assignee, use the Description field to provide additional information. We'll use the first 255 characters of the description to help identify changes for this work item in GitHub.



5. (Optional) Assign the work item to a team member.

The screenshot shows the 'New Work Item' form. At the top, the title 'New Work Item' is centered. Below it, the form is divided into sections. The 'Subject' section has a red asterisk and a text input field. The 'Description' section has a text area with a rich text editor toolbar. The toolbar includes a font family dropdown set to 'Salesforce Sans', a font size dropdown set to '12', a color picker, and buttons for bold (B), italic (I), underline (U), strikethrough (ABC), bulleted list, numbered list, indent, and outdent. Below the toolbar, there is a box titled 'Create fields to track data regarding positions.' containing a bulleted list of instructions: 'Create a global pick-list for Department', 'Add a Date Closed, Date Opened, Duration, Job Description, Education, Pay Grade fields for Position', 'Department and Pay Grade should be dependent pick-lists', and 'For Candidate, create an encrypted field for SSN'. The 'Assigned To' section shows a user selection dropdown with 'Emma Coder' selected. At the bottom, there are 'Cancel' and 'Save' buttons.

**New Work Item**

\*Subject

Create custom fields for Position and Candidate objects

Description

Salesforce Sans 12 B I U ABC Bulleted List Numbered List Indent Outdent

Create fields to track data regarding positions.

- Create a global pick-list for Department
- Add a Date Closed, Date Opened, Duration, Job Description, Education, Pay Grade fields for Position
- Department and Pay Grade should be dependent pick-lists
- For Candidate, create an encrypted field for SSN

Assigned To Emma Coder

Cancel Save

6. Click **Save**.

The work item is displayed in the Work Items tab.

7. Repeat this procedure as needed to track and assign project work. Both you and your team members can create additional work items as the project progresses.

## Next: Bring Team Members into DevOps Center

Now that you've set up a DevOps Center project and set up your team members to work in DevOps Center, it's time to bring your team members into the DevOps Center org. Refer them to the *DevOps Center Quick Start Guide*, where they can learn how to use the main features of DevOps Center, including how to manage project work items, review changes they've made in a work environment, and commit those changes to the project repository.