
Introduction

Completed

- 3 minutes

This module introduces you to GitHub Projects, GitHub Project Boards, and Azure Boards. It explores ways to link Azure Boards and GitHub, configure GitHub Projects and Project views, and manage work with GitHub Projects.

Learning objectives

After completing this module, students and professionals can:

- Describe GitHub Projects and Azure Boards.
- Link Azure Boards and GitHub.
- Configure and Manage GitHub Projects and boards.
- Customize Project views.

Prerequisites

- Understanding of what DevOps is and its concepts.
- Familiarity with version control principles is helpful but isn't necessary.
- Beneficial to have experience in an organization that delivers software.
- You need to create a GitHub account at [GitHub.com](#) and a project for some exercises. If you don't have it yet, see: [Join GitHub · GitHub](#). If you already have your GitHub account, create a new repository [Creating a new repository - GitHub Docs](#).

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Introduction to GitHub Projects and Project boards

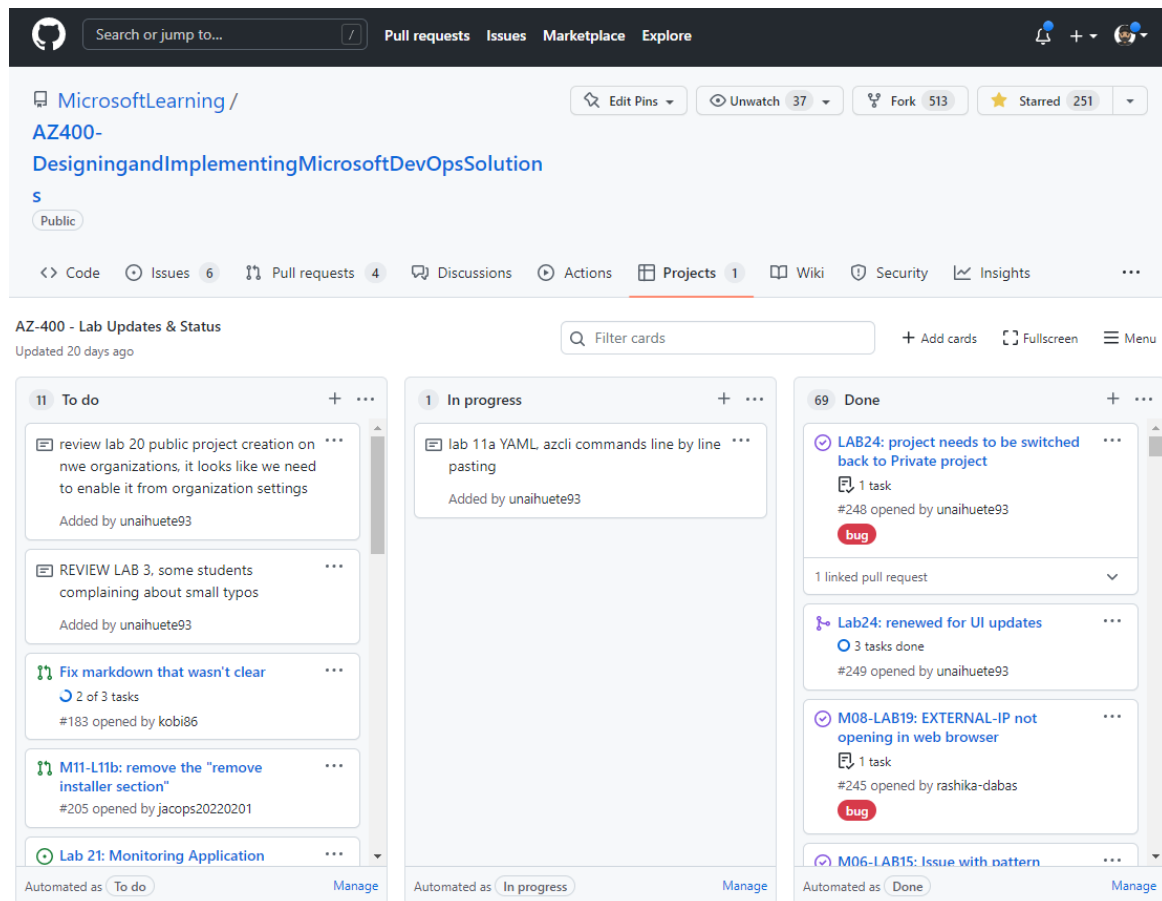
Completed

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Project Boards

During the application or project lifecycle, it's crucial to plan and prioritize work. With Project boards, you can control specific feature work, roadmaps, release plans, etc.

Project boards are made up of issues, pull requests, and notes categorized as cards you can drag and drop into your chosen columns. The cards contain relevant metadata for issues and pull requests, like labels, assignees, the status, and who opened it.



There are different types of project boards:

- **User-owned project boards:** Can contain issues and pull requests from any personal repository.
- **Organization-wide project boards:** Can contain issues and pull requests from any repository that belongs to an organization.
- **Repository project boards:** Are scoped to issues and pull requests within a single repository.

To create a project board for your organization, you must be an organization member.

It's possible to use templates to set up a new project board that will include columns and cards with tips. The templates can be automated and already configured.

Templates	Description
Basic kanban	Track your tasks with: To do, In progress, and Done columns.

Templates	Description
Automated kanban	Cards automatically move between: To do, In progress, and Done columns.
Automated kanban with review	Cards automatically move between: To do, In progress, and Done columns, with extra triggers for pull request review status.
Bug triage	Triage and prioritize bugs with: To do, High priority, Low priority, and Closed columns.

For more information about Project boards, see:

- [Creating a project board](#).
- [Editing a project board](#).
- [Copying a project board](#).
- [Adding issues and pull requests to a project board](#).
- [Project board permissions for an organization](#).

Projects

Projects are a new, customizable and flexible tool version of projects for planning and tracking work on GitHub.

A project is a customizable spreadsheet in which you can configure the layout by filtering, sorting, grouping your issues and PRs, and adding custom fields to track metadata.

You can use different views such as Board or spreadsheet/table.

All work

Ready for review

Board

+ New view

Q	Title	Assignees	Status	Complexity	Target	↑	+
▼ 1	🐛 Add Travis CI migration table	octocat	Ready for review	2	Jun 15, 2021		
2	📦 Using a package without installing package	monalisa	Ready	3	Jun 15, 2021		
3	📦 Add functionality to hide images	octocat	In Progress	2	Jun 22, 2021		
4	🐛 Update contributing guide	octocat	Ready for review	1	Jun 30, 2021		
5	📦 Fix markdown tables in translated content	monalisa	Ready	1	Jul 1, 2021		
6	📦 add copy button to examples	octocat	In Progress	1	Jul 2, 2021		
7	📦 Validate Java Gradle wrapper		Todo	2	Jul 8, 2021		
8	📦 GPC creation on linux		Todo	3	Jul 18, 2021		
9	📦 Add domains for self-hosted runners		Todo	2	Aug 25, 2021		

If you change your pull request or issue, your project reflects that change.

You can use custom fields in your tasks. For example:

- A date field to track target ship dates.
- A number field to track the complexity of a task.
- A single select field to track whether a task is Low, Medium, or High priority.
- A text field to add a quick note.
- An iteration field to plan work week-by-week, including support for breaks.

For more information about Projects, see:

- [Creating a project](#).
- [Managing iterations in projects](#).
- [Customizing your project views](#).
- [Automating projects](#).

[Continue](#)

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Introduction to Azure Boards

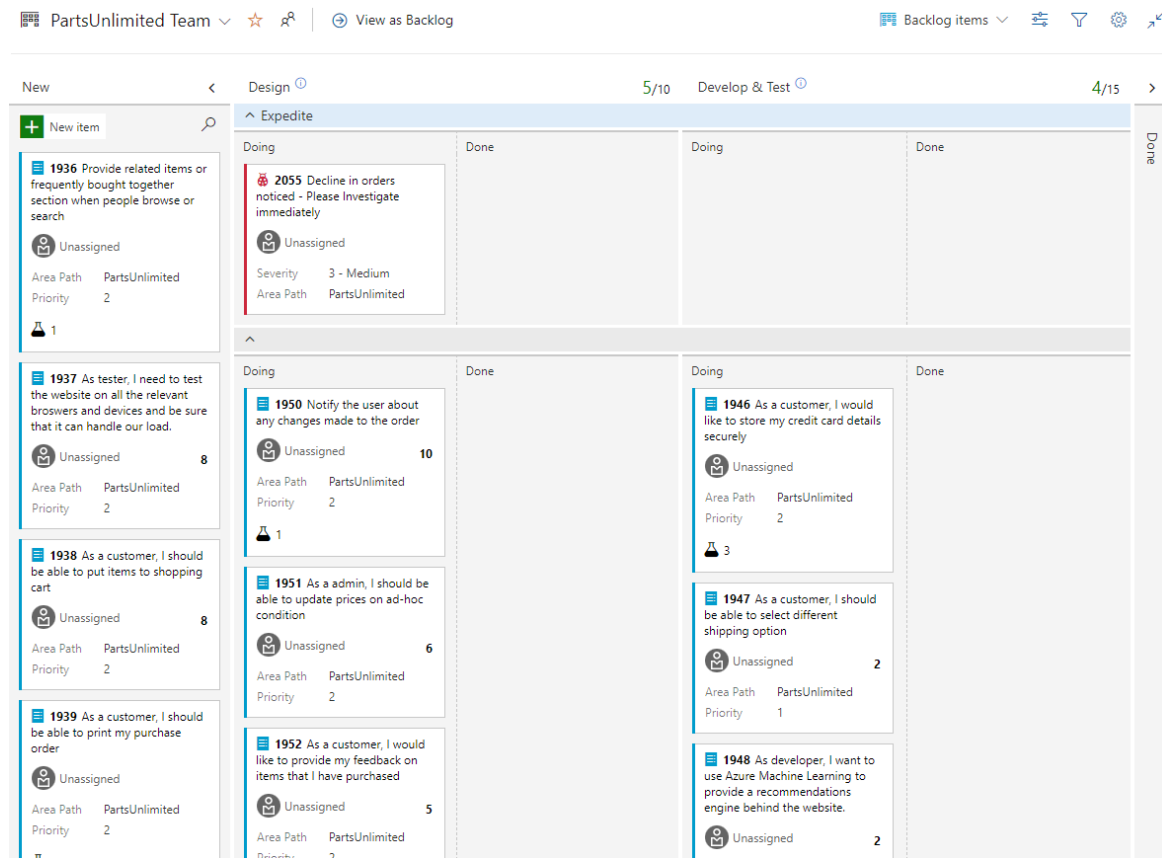
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- 3 minutes

Azure Boards is a customizable tool to manage software projects supporting Agile, Scrum, and Kanban processes by default. Track work, issues, and code defects associated with your project. Also, you can create your custom process templates and use them to create a better and more customized experience for your company.

You have multiple features and configurations to support your teams, such as calendar views, configurable dashboards, and integrated reporting.

The Kanban board is one of several tools that allows you to add, update, and filter user stories, bugs, features, and epics.



You can track your work using the default work item types such as user stories, bugs, features, and epics. It's possible to customize these types or create your own. Each work item provides a standard set of system fields and controls, including Discussion for adding and tracking comments, History, Links, and Attachments.

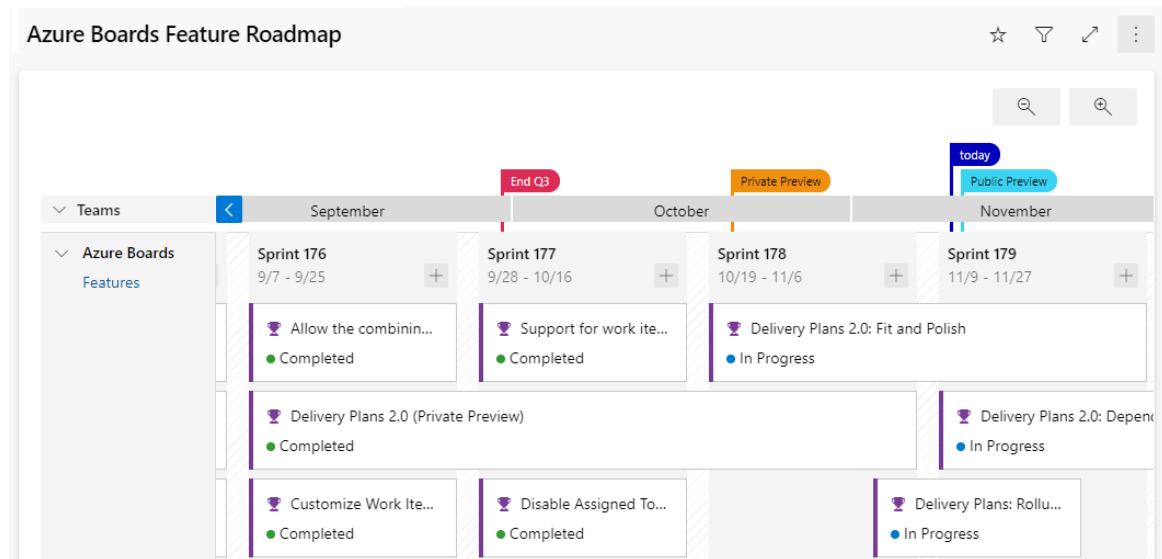
If you need to create reports or a list of work with specific filters, you can use the queries hub to generate custom lists of work items.

Queries support the following tasks:

- Find groups of work items with something in common.
- Triage work to assign to a team member or sprint and set priorities.
- Perform bulk updates.
- View dependencies or relationships between work items.
- Create status and trend charts that you can optionally add to dashboards.

Delivery plans

It's possible to create another view with deliverables and track dependencies across several teams in a calendar view using Delivery Plans.



Delivery plans are fully interactive, supporting the following tasks:

- View up to 15 team backlogs, including a mix of backlogs and teams from different projects.
- View custom portfolio backlogs and epics.
- View work that spans several iterations.
- Add backlog items from a plan.
- View rollup progress of features, epics, and other portfolio items.
- View dependencies that exist between work items.

For more information about Azure Boards, see:

- [Azure Boards documentation | Microsoft Docs](#).
- [Reasons to start using Azure Boards | Microsoft Docs](#).
- [GitHub and Azure Boards](#).

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Link GitHub to Azure Boards

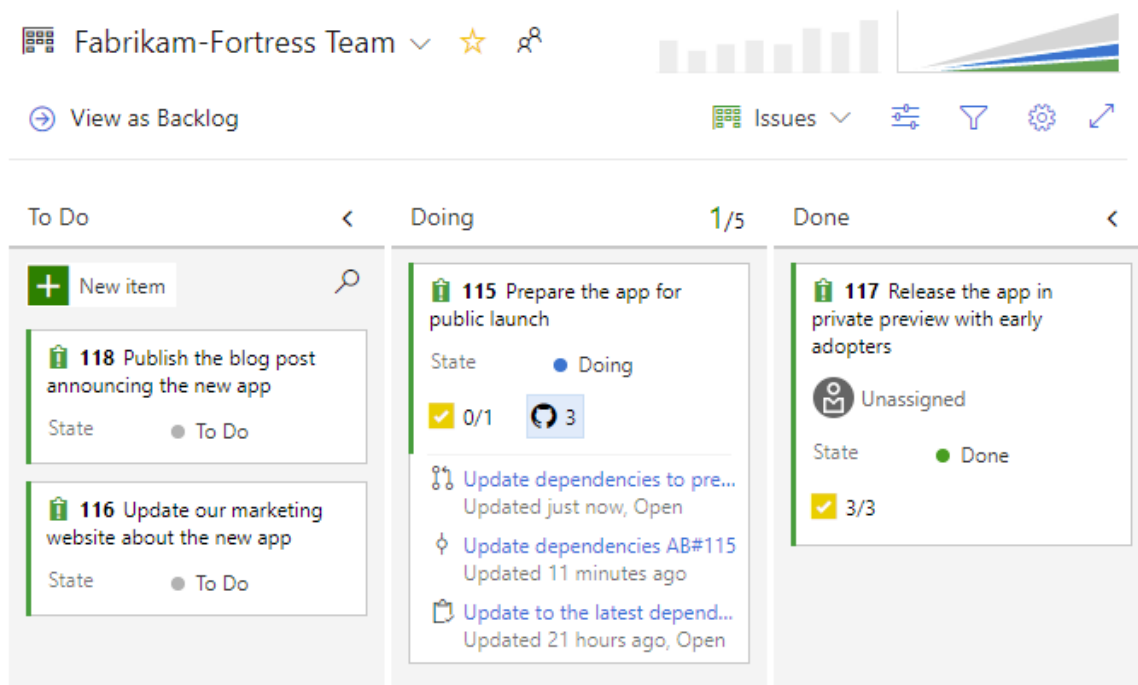
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- 2 minutes

Use GitHub, track work in Azure Boards

Use Azure Boards to plan and track your work and GitHub as source control for software development.

Connect Azure Boards with GitHub repositories, enabling linking GitHub commits, pull requests, and issues to work items in Boards.



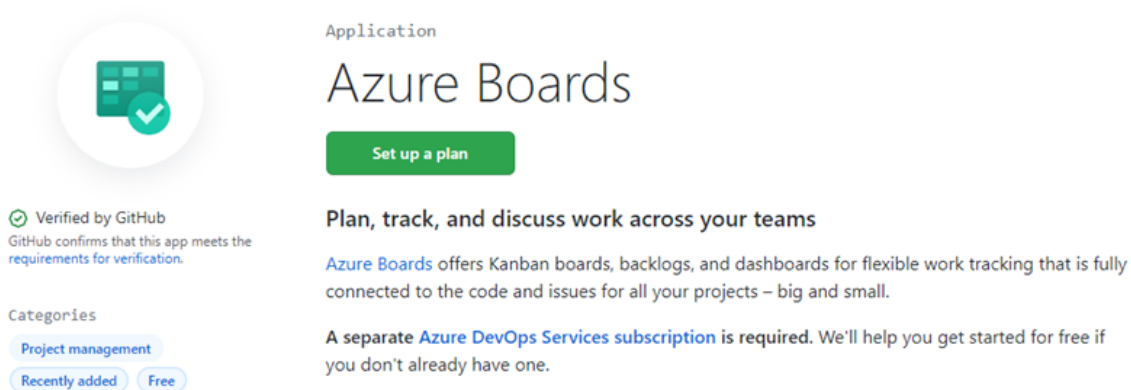
Azure Boards App

The integration is created using the Azure Boards App, acting as a bridge between Azure Boards and GitHub.

To install the app, you must be an administrator or owner of the GitHub repository or the GitHub organization.

The app is installed from the GitHub Marketplace. [Azure Boards App](#)

Marketplace / Apps / Azure Boards



The screenshot shows the GitHub Marketplace page for the Azure Boards application. On the left, there is a circular icon with a green checkmark and a Kanban board. Below it, a green badge says 'Verified by GitHub' with the text 'GitHub confirms that this app meets the requirements for verification.' Underneath, the 'Categories' section lists 'Project management', 'Recently added', and 'Free'. To the right, the word 'Application' is above the title 'Azure Boards'. A green button labeled 'Set up a plan' is below the title. The main description reads: 'Plan, track, and discuss work across your teams'. It then states: 'Azure Boards offers Kanban boards, backlogs, and dashboards for flexible work tracking that is fully connected to the code and issues for all your projects – big and small.' At the bottom, it says: 'A separate Azure DevOps Services subscription is required. We'll help you get started for free if you don't already have one.'

Authenticating to GitHub

Azure Boards can connect to GitHub. For GitHub in the cloud, when adding a GitHub connection, the authentication options are:

- Username/Password
- Personal Access Token (PAT)

For a walkthrough on making the connection, see: [Connect Azure Boards to GitHub](#).

You can configure other Azure Boards/Azure DevOps Projects, GitHub.com repositories, or change the current configuration from the Azure Boards app page.

Once you've integrated Azure Boards with GitHub using the Azure Boards app, you can add or remove repositories from the web portal for Azure Boards.

Supported integration scenarios

Azure Boards-GitHub integration supports the following connections:

- From GitHub:
 - Support integration for all repositories for a GitHub account or organization or select repositories.

- Add or remove GitHub repositories participating in the integration and configure the project they connect to.
- Suspend Azure Boards-GitHub integration or uninstall the app.
- From Azure Boards:
 - Connect one or more GitHub repositories to an Azure Boards project.
 - Add or remove GitHub repositories from a GitHub connection within an Azure Boards project.
 - Completely remove a GitHub connection for a project.
 - Allow a GitHub repository to connect to one or more Azure Boards projects within the same Azure DevOps organization or collection.

Azure Boards-GitHub integration supports the following operational tasks:

- Create links between work items and GitHub commits, pull requests, and issues based on GitHub mentions.
- Support state transition of work items to a Done or Completed state when using GitHub mention by using fix, fixes, or fixed.
- Support full traceability by posting a discussion comment to GitHub when linking from a work item to a GitHub commit, pull request, or issue.
- Show linked to GitHub code artifacts within the work item Development section.
- Show linked to GitHub artifacts as annotations on Kanban board cards.
- Support status badges of Kanban board columns added to GitHub repositories.

The following tasks aren't supported at this time:

- Query for work items with links to GitHub artifacts. However, you can query for work items with an External Link Count greater than 0.

Note

Reference: [Azure Boards-GitHub integration](#).

For more information, see:

- [Change GitHub repository access, or suspend or uninstall the integration](#).
- [Add or remove GitHub repositories](#).

- [Link GitHub commits, pull requests, and issues to work items for details on linking to work items](#).

[Continue](#)

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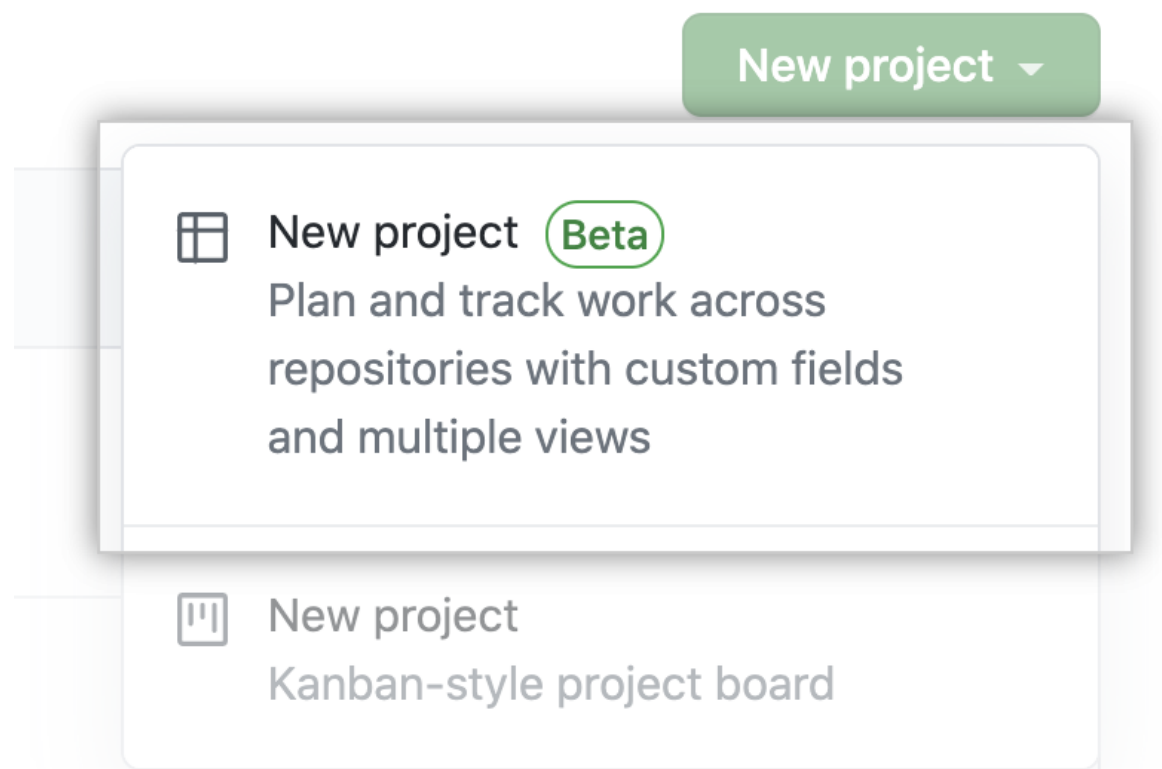
Configure GitHub Projects

Completed

- 3 minutes

Create a project

To start working with GitHub Projects, you first need to create an organization or user project.



To create an **organization project** :

1. On GitHub, navigate to the main page of your organization.
2. Click **Projects** .
3. Select the **New project** drop-down menu and click **New project**.

To create a **user project** :

1. On any GitHub page, click on your avatar, then select **Your projects** .
2. Select the **New project** drop-down menu and click **New project** .

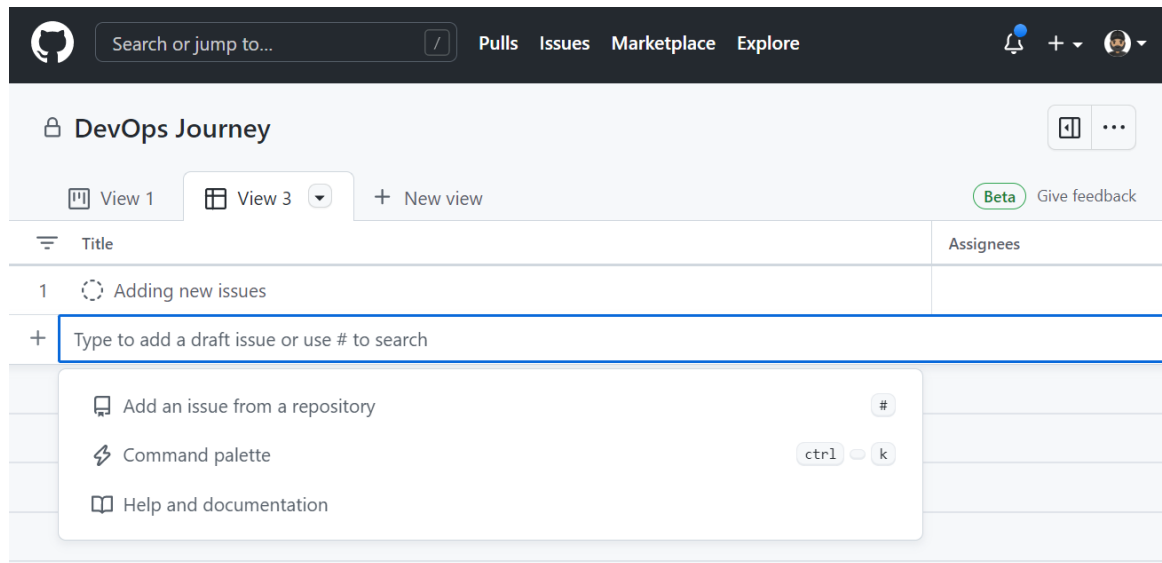
Create a project **description** or a **README** file:

1. Navigate to your project.
2. In the top-right, click to open the menu.
3. In the menu, click **Settings** .
4. Under Add a description, type your description in the text box and click **Save** .
5. To update your project's README, type your content in the text box under README.
6. Click Save.

Adding issues

When your new project initializes, it prompts you to add items.

Click on the plus (+) sign to add more issues.

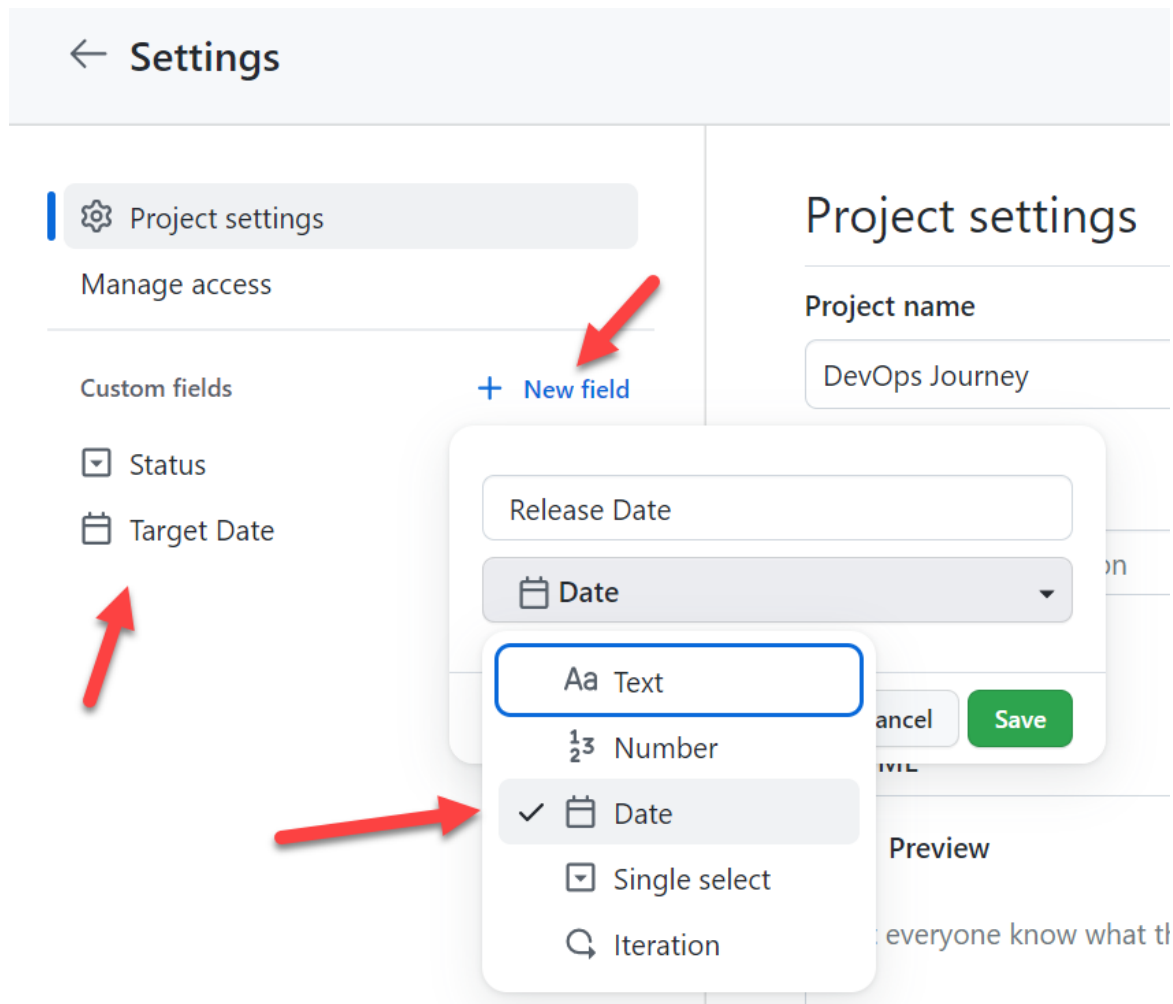


Project settings and permissions

You can view and make quick changes to your project description and README by navigating to your project and clicking on the top right.


The screenshot displays the GitHub Project settings interface. The top navigation bar includes links for Pull requests, Issues, Marketplace, and Explore. The left sidebar contains the 'Settings' section with 'Project settings' selected. A red box highlights the 'Project settings' option, and another red box highlights the 'Custom fields' section with a '+ New field' link. A red arrow points to the 'Custom fields' section. The main content area shows the 'Project settings' for a project named 'DevOps Journey'. It includes a 'Project name' field, an 'Add a description' field, a 'README' editor with a 'Preview' button and various formatting options, and a 'Danger zone' section with 'Visibility' (set to Private) and 'Close project' options.

You can create custom fields to add to your project.



Manage access and permissions by adding collaborators.

Who has access

Private project 

Only those with access to this project can view it.

[Manage](#)

Invite collaborators

Role: **Write** ▼

[Invite](#)

Manage access

☐ 0 members Type ▼ Role ▼

You don't have any collaborators yet.

Add a collaborator to see them here.

For more information about Projects, see:

- [Quickstart for projects - GitHub Docs](#).
- [Creating an issue - GitHub Docs](#).

[Continue](#)

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[Manage work with GitHub Project boards](#)

Completed

- 2 minutes

GitHub Projects allow you to control project deliverables, release dates, and iterations to plan upcoming work.

You can create an iteration to:

- Associate items with specific repeating blocks of time.
- Set to any length of time.
- Include breaks.

It's possible to configure your project to group by iteration to visualize the balance of upcoming work.

When you first create an iteration field, three iterations are automatically created. You can add other iterations if needed.

The screenshot shows the GitHub Projects interface for configuring a new iteration field. The top navigation bar includes the GitHub logo, a search bar, and links to Pulls, Issues, Marketplace, and Explore. The left sidebar shows the 'Settings' section with options for Project settings, Manage access, Custom fields (with a '+ New field' link), Status, Target Date, and the selected 'New Field 2'.

The main content area is titled 'New Field 2 field settings'. It shows the 'Field name' as 'New Field 2' and the 'Field type' as 'Iteration'. Below this, a summary bar indicates '3 Active' and '0 Completed' items, with buttons to 'Add iteration' and 'More options'. The main table lists three automatically created iterations:

Status	Iteration Name	Duration	Action
Planned	New Field 2 1	2 weeks May 30 - Jun 12	Trash icon
Planned	New Field 2 2	2 weeks Jun 13 - Jun 26	Trash icon
Planned	New Field 2 3	2 weeks Jun 27 - Jul 10	Trash icon

At the bottom of the settings panel are 'Save changes' and 'Reset' buttons.

Iteration field

You can use the command palette or the project's interface to create an iteration field.

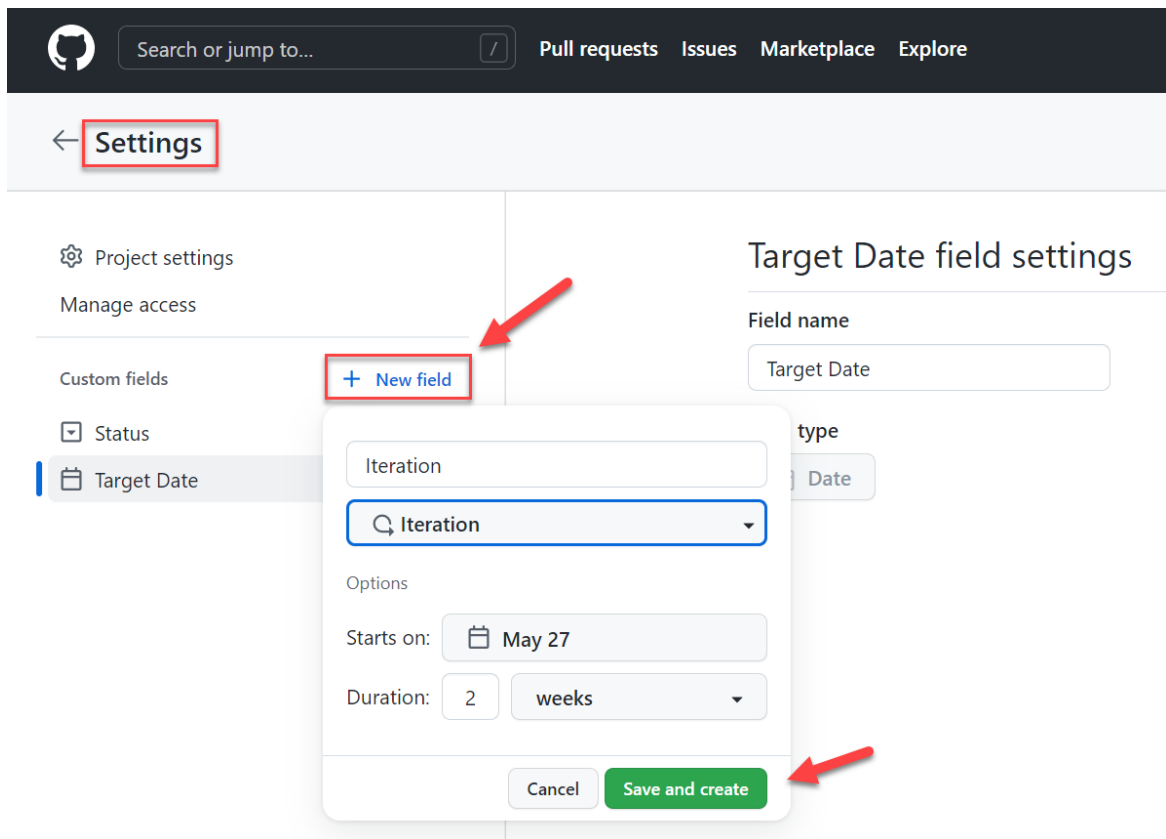
Tip

To open the project command palette, press Ctrl+K (Windows/Linux) or Command+K (Mac).

Start typing any part of "Create new field". When "Create new field" displays in the command palette, select it.

Or follow the steps using the interface:

1. Navigate to your project.
2. Click in the plus (+) sign in the rightmost field header. A drop-down menu with the project fields will appear.
3. Click in the **New field** .
4. Enter a name for the new iteration field.
5. Select the dropdown menu below and click Iteration.
6. (Optional) Change the starting date from the current day, select the calendar dropdown next to Starts on, and click on a new starting date.
7. To change the duration of each iteration, type a new number, then select the dropdown and click either days or weeks.
8. Click Save and create.



Adding new iterations

1. Navigate to your project.
2. In the top-right, click to open the menu.
3. In the menu, click **Settings** to access the project settings.
4. Click the name of the iteration field you want to adjust.
5. To add a new iteration of the same duration, click **Add iteration**.
6. (Optional) Customize the duration of the new iteration and when it starts.
 1. Click next to Add iteration.
 2. Select a starting date and duration.
 3. Click **Add**.
7. Click Save changes.

3 Active 4 Completed + Add iteration

Current	Iteration 5 2 weeks Feb 23 - Mar 08	Insert break	
Planned	Iteration 6 2 weeks Mar 09 - Mar 22		
Break	1 week Mar 23 - Mar 29		
Planned	Iteration 7 2 weeks Mar 30 - Apr 12		

Save changes Reset

Also, you can insert breaks into your iterations to communicate when you're taking time away from scheduled work.

For more information about iterations, see:

- [Managing iterations in projects \(beta\) - GitHub Docs](#).
- [Best practices for managing projects \(beta\) - GitHub Docs](#).

[Continue](#)

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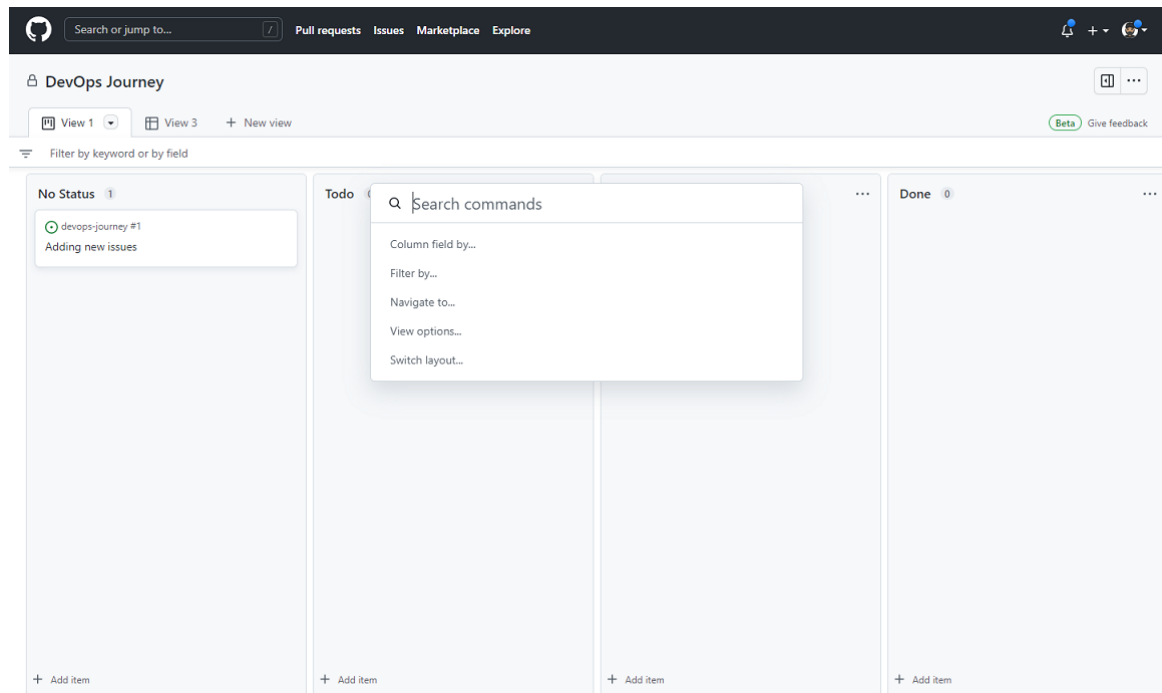
Customize Project views

Completed

- 3 minutes

Using Projects views, you can organize information by changing the layout, grouping, sorting, and filtering your work.

You can create and use different visualizations, for example, Board view:



Project command palette

Use the project command palette to change settings and run commands in your project.

1. Open the project command palette by pressing **Command + K (Mac)** or **Ctrl + K (Windows/Linux)** .
2. Type any command part or navigate through the command palette window to find a command.

You have multiple commands to apply, such as:

- Switch layout: Table.
- Show: Milestone.
- Sort by: Assignees, asc.
- Remove sort-by.
- Group by: Status.
- Remove group-by.
- Column field by: Status.
- Filter by Status.
- Delete view.

Note

For more information about GitHub Command Palette, see [GitHub Command Palette - GitHub Docs](#).

Also, you can perform changes using the interface.

Creating a project view

Project views allow you to view specific aspects of your project. Each view is displayed on a separate tab in your project.

For example, you can have:

- A view that shows all items not yet started (filter on Status).
- A view that shows the workload for each team (group by a custom Team field).
- A view that shows the items with the earliest target ship date (sort by a date field).

To add a new view:

1. To open the project command palette, press **Command + K (Mac)** or **Ctrl + K (Windows/Linux)**.
2. Start typing **New view** (to create a new view) or **Duplicate view** (to duplicate the current view).
3. Choose the required command.
4. The new view is automatically saved.

For more information about projects (beta), see:

- [About projects \(beta\)](#).
- [Creating a project \(beta\)](#).

[Continue](#)

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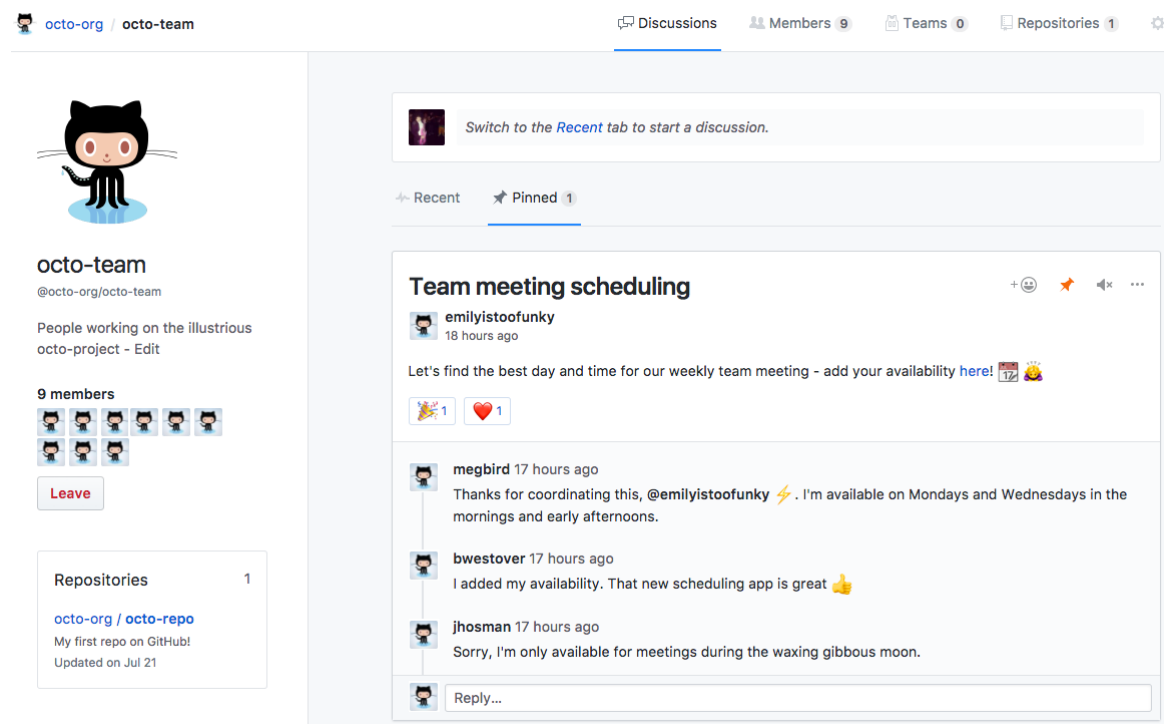
Collaborate using team discussions

Completed

- 3 minutes

GitHub discussions can help make your team plan together, update one another, or talk about any topic you'd like in discussion posts on your team's page in an organization.

You can use team discussions for conversations that span across projects or repositories (issues, pull requests, etc.). Instead of opening an issue in a repository to discuss an idea, you can include the entire team by having a conversation in a team discussion.



With team discussions, you can:

- Post on your team's page or participate in a public discussion.
- Link to any team discussion to reference it elsewhere.
- Pin important posts to your team's page.
- Receive email or web notifications.

Team discussions are available in organizations by default.

You can also use organization discussions to facilitate conversations across your organization.

For more information about team discussion, see:

- [Enabling or disabling GitHub Discussions for an organization](#).
- [Quickstart for communicating on GitHub](#).
- [About teams](#).
- [Creating a team discussion](#).
- [Editing or deleting a team discussion](#).

[Continue](#)

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Agile Plan and Portfolio Management with Azure Boards

Completed

- 57 minutes

Estimated time: 60 minutes.

Lab files: none.

Scenario

In this lab, you'll learn about the agile planning and portfolio management tools and processes provided by Azure Boards and how they can help you quickly plan, manage, and track work across your entire team. You'll explore the product backlog, sprint backlog, and task boards that can track the flow of work during an iteration. We'll also look at the enhanced tools in this release to scale for larger teams and organizations.

Objectives

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

- Manage teams, areas, and iterations.
- Manage work items.
- Manage sprints and capacity.
- Customize Kanban boards.
- Define dashboards.
- Customize team process.

Requirements

- This lab requires **Microsoft Edge** or an [Azure DevOps-supported browser](#).
- **Set up an Azure DevOps organization:** If you don't already have an Azure DevOps organization that you can use for this lab, create one by following the instructions available at [Create an organization or project collection](#).

Exercises

During this lab, you'll complete the following exercises:

- Exercise 0: Configure the lab prerequisites.
- Exercise 1: Manage an Agile project.
- Exercise 2 (optional): Define dashboards.

Launch Exercise

[Continue](#)

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Knowledge check

Completed

- 3 minutes

Choose the best response for each question. Then select **Check your answers** .

Check your knowledge

1.

Which of the following choices best describes the Azure DevOps and GitHub integration?

☐

Azure Boards have direct integration with Azure Repos, but it can also be integrated with GitHub to plan and track work linking commits, PRs, and issues.

☐

Azure Boards has direct integration with Azure Repos. Azure Repos only integrates with GitHub using extensions from Marketplace for the read-only track.

☐

Azure Boards has direct integration with GitHub for tracking activities and moving tasks on both sides Azure Boards to GitHub and GitHub to Azure Repos.

2.

Which of the following Project boards types can contain issues and pull requests from any personal repository?

☐

User-owned project boards.

☐

Organization-wide project boards.

☐

Repository project boards

3.

Which of the following choices isn't a Project Boards supported template by default?

☐

Basic kanban.

☐

Automated kanban with review.

☐

Automated CMMI.

[Check your answers](#)

You must answer all questions before checking your work.

[Continue](#)

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Summary

Completed

- 3 minutes

This module introduced you to GitHub Projects, GitHub Project Boards, and Azure Boards. It explored ways to link Azure Boards and GitHub, configure

GitHub Projects and Project views, and manage work with GitHub Projects.

You learned how to describe the benefits and usage of:

- Describe GitHub Projects and Azure Boards.
- Link Azure Boards and GitHub.
- Configure and Manage GitHub Projects and boards.
- Customize Project views.

Learn more

- [Quickstart for projects \(beta\) - GitHub Docs](#).
- [About project boards - GitHub Docs](#).
- [What is Azure Boards? Tools to manage software development projects. - Azure Boards | Microsoft Docs](#).
- [Azure Boards-GitHub integration - Azure Boards | Microsoft Docs](#).
- [Managing iterations in projects \(beta\) - GitHub Docs](#).
- [Quickstart for projects \(beta\) - GitHub Docs](#).
- [Best practices for managing projects \(beta\) - GitHub Docs](#).
- [Customizing your project \(beta\) views - GitHub Docs](#).
- [About team discussions - GitHub Docs](#).

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