

<https://www.halvorsen.blog>



Azure DevOps

Hans-Petter Halvorsen

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- **Source Code Control (SCC)** with Azure DevOps
- **Bug Tracking** with Azure DevOps



Introduction to Azure DevOps

Hans-Petter Halvorsen

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Azure DevOps

- Tool for Software Engineering
 - Planning, Collaboration, Source Code Control, Bug Tracking, etc.
- Developed by Microsoft
- <https://dev.azure.com>
- Free for 5 Developers + Stakeholders

Features

- Integrated with Visual Studio
- Agile/Scrum Tools
 - Product Backlog
 - Sprint Backlog and Taskboard
- Source Code Control (SCC)
- Bug Reporting and Tracking
- ++ (Not covered in this tutorial)



Getting Started with Azure DevOps

Hans-Petter Halvorsen

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Create New Project

<https://dev.azure.com>

Create a project to get started

Project name *

MyProject1

Description

Visibility



Public

Anyone on the internet can view the project. Certain features like TFVC are not supported.



Private

Only people you give access to will be able to view this project.

^ Advanced

Version control ⓘ

Team Foundation Version Control ▾

Work item process ⓘ

Scrum ▾

+ Create project

Enter a meaningful **Name** for your Project

Enter a meaningful **Description** for your Project

Note!!!

Select “Advanced” Settings

Version control = **Team Foundation Version Control**

Work item process = **Scrum**



Invite/Add Members

The screenshot shows the Azure DevOps interface for a project named "MyProject1". The left sidebar contains navigation options: Overview, Summary, Dashboards, Wiki, Boards, Repos, Pipelines, Test Plans, and Artifacts. The main content area is titled "MyProject1" and includes a search bar, a "Private" lock icon, and a blue "Invite" button circled in red. Below the header, there are three main sections: "About this project" with a "Help others to get on board!" message and an "Add Project Description" button; "Project stats" showing "0 Changesets by 0 authors" for the "Last 7 days"; and "Members" with a count of "1" and a profile picture.

The dialog box is titled "Invite members to MyProject1" and contains the following elements:

- A close button (X) in the top right corner.
- A subtitle: "Search and add users to your MyProject1".
- A "Users" section with a search input field containing the text: "Use semicolons to separate multiple email addresses."
- An "Add to team(s)" section with a dropdown menu currently showing "MyProject1 Team".
- "Cancel" and "Add" buttons at the bottom right.

Project Settings

usn22 / MyProject1 / Settings / Overview

Project Settings
MyProject1

Project details

Name: MyProject1

Description:

Process: Scrum

Visibility: Private

Project administrators: Hans-Petter Halvorsen

Azure DevOps services:

- Boards: On
- Repos: On
- Pipelines: On
- Test Plans: On
- Artifacts: On

Show/Hide Features

usn22 / MyProject1 / Settings / Project configuration

Project Settings
MyProject1

Boards

Iterations: This project is currently using the Scrum process. To customize your work item types, [go to the process customization page](#).

Create and manage the iterations for this project. These iterations will be used by teams for iteration planning (sprint planning). [Learn more about customizing areas and iterations](#)

To select iterations for the team, go to [the default team's settings](#).

Iterations	Start Date	End Date
MyProject1		
Sprint 1		
Sprint 2	...	Set dates
Sprint 3		
Sprint 4		
Sprint 5		
Sprint 6		

- In Scrum we divide the work into different Iterations
- An Iteration is called a Sprint
- A Sprint is typically 2-4 weeks long



Agile/Scrum Features in Azure DevOps

Hans-Petter Halvorsen

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Product Backlog

Azure DevOps

usn22 / MyProject1 / Boards / Backlogs

- MyProject1
- Overview
- Boards
- Work items
- Boards
- Backlogs**
- Sprints
- Queries
- Delivery Plans
- Repos

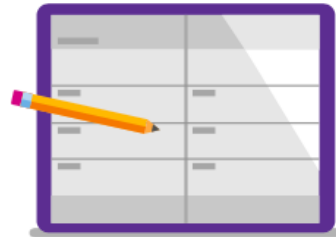
MyProject1 Team

Backlog Analytics

+ New Work Item

Product Backlog Item

Add to top



Get started with your product backlog

Use the "New Work Item" command to create and prioritize work items

+ New Work Item

[Learn more about backlogs](#)

Product Backlog

usn22 / MyProject1 / Boards / Backlogs

Search

MyProject1 Team

Backlog Analytics + New Work Item View as Board ... Backlog items

Order	Work Item Type	Title	State	Effort	Value Area	Iteration Path
1	Product Back...	Send Patient Data to Doctor	New		Business	MyProject1\Sprint 1
2	Product Back...	Search for Patient Data	New		Business	MyProject1\Sprint 1
3	Product Back...	Show Patient Information	New		Business	MyProject1\Sprint 1

- The Scrum Product Backlog is simply a list of all things that needs to be done within the project.
- It replaces the traditional requirements specification.
- So basically, The Product Backlog is a List of all the Requirements for a given Software System

Work Items

usn22 / MyProject1 / Boards / Work items

Search

Work items

Recently updated ▾ + New Work Item ▾ Open in Queries Column Options ...

ID	Title	Assigned To	State	Area Path
34	Sen	Unassigned	New	MyProject1
33	Sea	Unassigned	New	MyProject1
32	Sho	Unassigned	New	MyProject1

Project settings <<

3 important Work Item Types related to Product Backlog

- **Product Backlog Item (PBI)**
- **Feature** – Can be used to group PBIs that belong together
- **Task** – Divide a PBI into doable Tasks. Each PBI needs to be broken down into a set of Tasks. A Task is something that should be done by the developer

Feature → PBI → Task

- Feature X
 - Product Backlog Item A
 - ✓ Task A.1
 - ✓ Task A.2
 - Product Backlog Item B
 - ✓ Task B.1
 - ✓ Task B.2
- Feature Y
 - Product Backlog Item C
 - ✓ Task C.1
 - ✓ Task C.2

etc.

Features makes in easier to structure all the Product Backlog Items

Each Product Backlog Item is broken down in one or more Tasks by the Developer

Example

Azure DevOps

usn22 / MyProject1 / Boards / Backlogs

Search

MyProject1

Overview

Boards

Work items

Boards

Backlogs

Sprints

Queries

Delivery Plans

Repos

Project settings

MyProject1 Team

Backlog Analytics

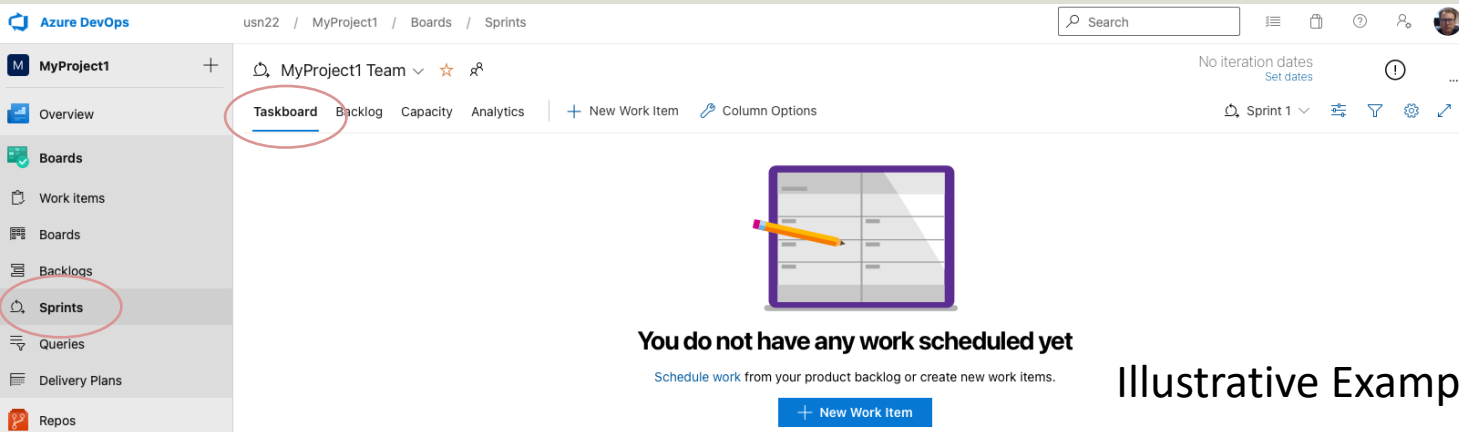
New Work Item

View as Board

Backlog items

Order	Work Item Type	Title	State	Iteration Path
+	Feature	Web	New	MyProject1\Sprint 1
	Product Backlog Item	Send Patient Data to Doctor	New	MyProject1\Sprint 1
	Task	Create Web API	To Do	MyProject1\Sprint 1
	Product Backlog Item	Search for Patient Data	New	MyProject1\Sprint 1
	Task	Create Web Page for Search	To Do	MyProject1\Sprint 1
	Product Backlog Item	Show Patient Information	New	MyProject1\Sprint 1
	Task	Create Web Page for Patient Data	To Do	MyProject1\Sprint 1
	Feature	Storage	New	MyProject1\Sprint 1
	Product Backlog Item	Store Patient Data in local storage	New	MyProject1\Sprint 1
	Task	Create SQL Server	To Do	MyProject1\Sprint 1
	Task	Create Database Tables	To Do	MyProject1\Sprint 1

Sprints/Taskboard

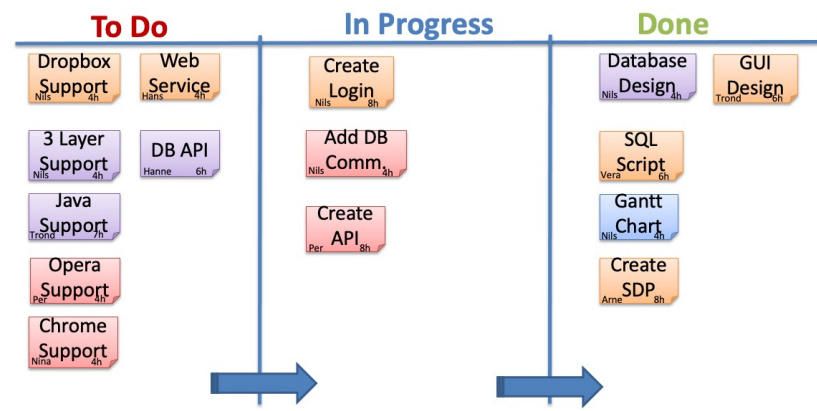


A Taskboard in Scrum has 3 columns

- To Do
- In Progress
- Done

Within a Sprint you move the Tasks from left to right as the status changes

Illustrative Example:



Sprints/Taskboard

Azure DevOps

usn22 / MyProject1 / Boards / Sprints

Search

MyProject1 Team

No iteration dates
Set dates

Taskboard Backlog Capacity Analytics + New Work Item Column Options

Sprint 1 Person: All

	To Do	In Progress	Done
38 Store Patient Data in local storage Unassigned State ● New	39 Create SQL Server Unassigned State ● To Do	40 Create Database Tables Unassigned State ● In Progress	
34 Send Patient Data to Doctor Unassigned State ● New	37 Create Web API Unassigned State ● To Do		
33 Search for Patient Data Unassigned State ● New			41 Create Web Page for Search Unassigned State ● Done
32 Show Patient Information Unassigned State ● New	42 Create Web Page for Patient Data Unassigned State ● To Do		

Project settings



Source Code Control with Azure DevOps

Hans-Petter Halvorsen

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Repos (Repositories)

usn22 / MyProject1 / Repos / Files / \$/MyProject1

Search

MyProject1

Overview

Boards

Repos

Files

Changesets

Shelvesets

Project settings

Files

Contents History

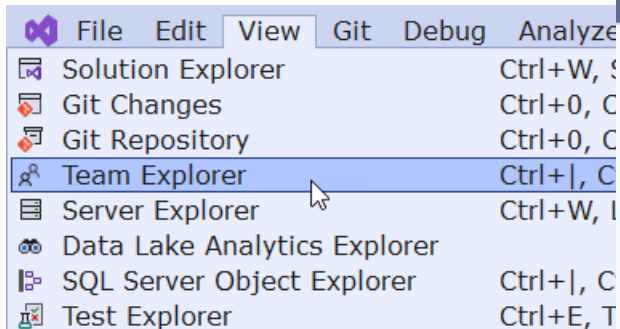
+ New

Name ↑	Last change	Changesets
--------	-------------	------------

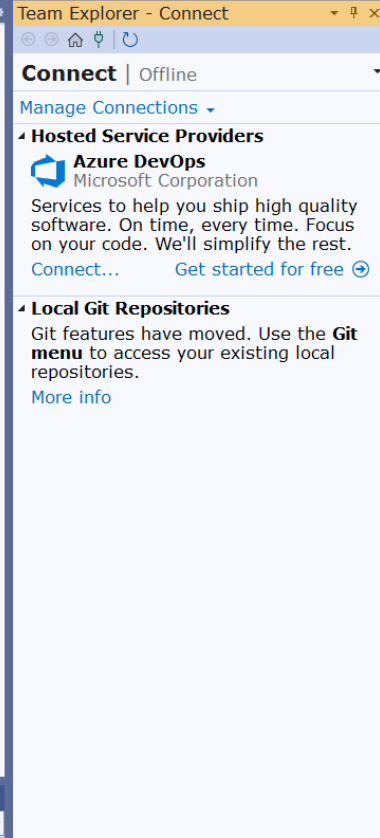
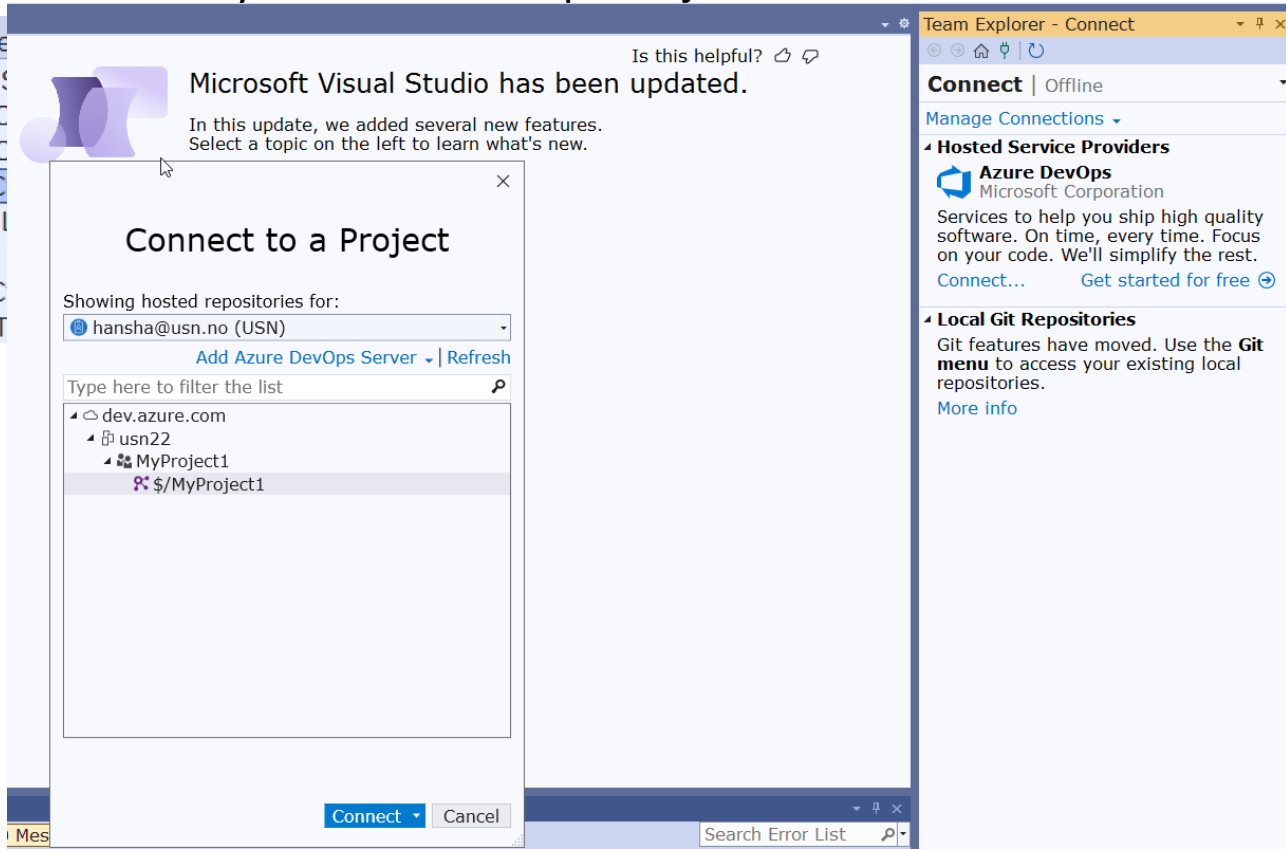
- You have limited features using the Web Browser, so you typically want to use Visual Studio to connect to the Repository
- Then you can more easily create a proper Folder structure
- Then you are ready to use Visual Studio to Check-in/Check-out your Code

Visual Studio

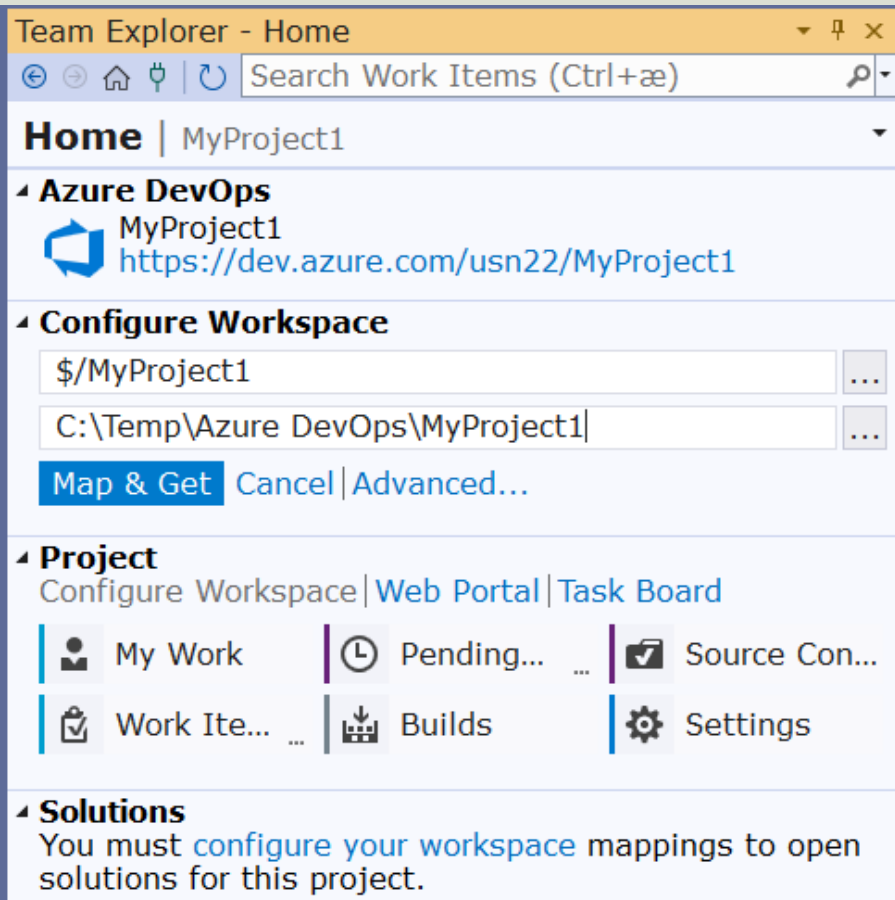
Open Team Explorer:



Connect to your Azure DevOps Project:



Map a Local Folder to your Project



The screenshot shows the Azure DevOps Team Explorer interface. At the top, the title bar reads "Team Explorer - Home". Below it is a navigation bar with icons for back, forward, home, refresh, and search, along with the text "Search Work Items (Ctrl+æ)". The main area is divided into several sections:

- Home** | MyProject1
- Azure DevOps**
 - MyProject1
<https://dev.azure.com/usn22/MyProject1>
- Configure Workspace**
 - \$/MyProject1 ...
 - C:\Temp\Azure DevOps\MyProject1| ...
 - Map & Get | Cancel | Advanced...
- Project**
 - Configure Workspace | [Web Portal](#) | [Task Board](#)
 - My Work | Pending... | Source Con...
 - Work Ite... | Builds | Settings
- Solutions**

You must [configure your workspace](#) mappings to open solutions for this project.

Source Control Explorer

The screenshot displays the Visual Studio Source Control Explorer interface. The main window shows the project structure for 'MyProject1' under the user 'dev.azure.com/usn22'. The 'Documents' folder is selected, and its local path is shown as 'C:\Temp\Azure_DevOps\MyProject1\MyProject1\Documents'. The interface includes a menu bar, a toolbar, and a status bar at the bottom.

Source Control Explorer

Workspace: XPS15HPH

Source location: \$/MyProject1/Documents

Local Path: C:\Temp\Azure_DevOps\MyProject1\MyProject1\Documents

Folders

- dev.azure.com/usn22
 - MyProject1
 - Development
 - Documents

Error List

Entire Solution | 0 Errors | 0 Warnings | 0 Messages | Build + IntelliSe | Search Error List

Description	Project	File	L...
-------------	---------	------	------

Team Explorer - Connect

Connect | MyProject1

Manage Connections

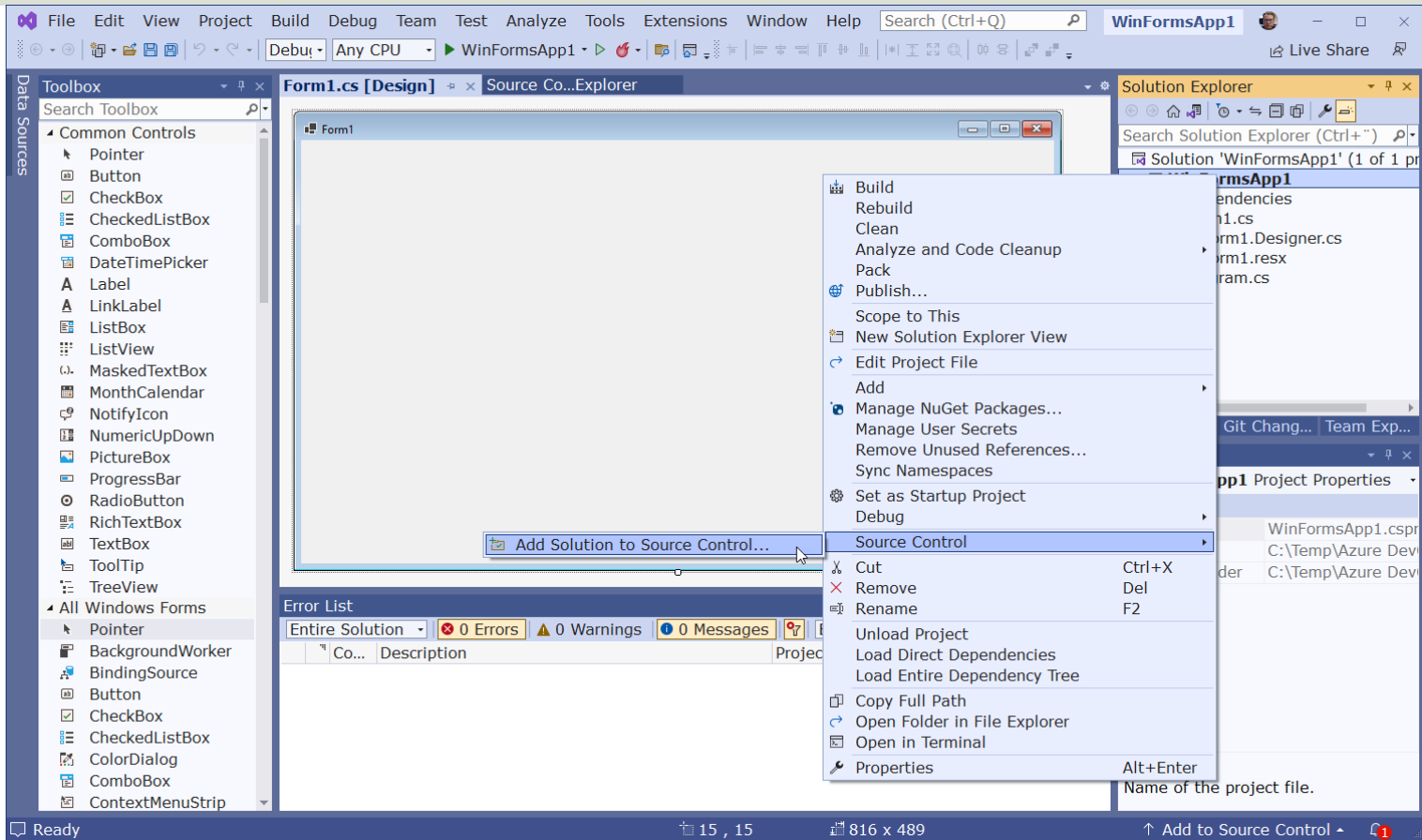
- dev.azure.com (1)
 - MyProject1
- Local Git Repositories
 - Git features have moved. Use the **Git menu** to access your existing local repositories.
[More info](#)

Status Bar

Changeset 10 successfully checked in.

Solution... | Git Chang... | Team Exp...

Solution Explorer – Check-in/Check-out





Bug Tracking with Azure DevOps

Hans-Petter Halvorsen

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Work Items

The image shows the Azure DevOps interface for the 'Work items' section of a project named 'MyProject1'. The breadcrumb navigation at the top reads 'usn22 / MyProject1 / Boards / Work items'. A search bar is located in the top right corner. The left sidebar contains navigation options: 'MyProject1', 'Overview', 'Boards', 'Work items' (highlighted), 'Boards', 'Backlogs', 'Sprints', 'Queries', 'Delivery Plans', and 'Repos'. The main content area shows the 'Work items' view with a 'Recently updated' filter and a '+ New Work Item' button circled in red. Below this, there are filter options: 'Filter by keyword', 'Types', 'Assigned to', 'States', 'Area', and 'Tags'. A dropdown menu is open from the '+ New Work Item' button, listing work item types: 'Bug' (circled in red), 'Epic', 'Feature', 'Impediment', 'Product Backlog Item', 'Task', and 'Test Case'. The bottom of the page shows 'Project settings'.

Azure DevOps

usn22 / MyProject1 / Boards / Work items

Search

MyProject1

Work items

Recently updated ▾ + New Work Item ▾ → Open in Queries ↗ Column Options ↗ Import Work Items ↗ Recycle Bin ↗

Filter by keyword

Types ▾ Assigned to ▾ States ▾ Area ▾ Tags ▾ X

Azure DevOps

usn22 / MyProject1 / Boards / Work items

Work items

Recently updated ▾ + New Work Item ▾ → Open in Queries ↗

Filter by keyword

- Bug
- Epic
- Feature
- Impediment
- Product Backlog Item
- Task
- Test Case

Project settings

Bug Reporting

Azure DevOps usn22 / MyProject1 / Boards / Work items

Search

MyProject1

- Overview
- Boards
- Work items
- Boards
- Backlogs
- Sprints
- Queries
- Delivery Plans
- Repos

Project settings

Work Items | [Back to Work Items](#)

NEW BUG Field 'Title' cannot be empty.

Enter title

Unassigned 0 comments Add tag Save

State	New	Area	MyProject1
Reason	New defect report...	Iteration	MyProject1

Details

Repro Steps

[Click to add Repro Steps](#)


System Info

[Click to add System Info](#)

Acceptance Criteria

[Click to add Acceptance Criteria](#)

Discussion

 Add a comment. Use # to link a work item, ! to link a pull request, or @ to mention a person.

Details

Priority: 2
Severity: 3 - Medium
Effort: Remaining Work
Activity: Found in Build, Integrated in Build

Deployment

To track releases associated with this work item, go to [Releases](#) and turn on deployment status reporting for Boards in your pipeline's Options menu. [Learn more about deployment status reporting](#)

Development

+ Add link

Related Work

+ Add link v
[Add an existing work item as a parent](#)

Queries

Azure DevOps usn22 / MyProject1 / Boards / Queries

Search

MyProject1 +

Overview

Boards

Work items

Boards

Backlogs

Sprints

Queries

Delivery Plans

Repos

Project settings <<

Queries > My Queries > Bugs ▾ ☆ 3 work items
1 selected

Results Editor Charts | ▶ Run query + New ▾ Save query Save as... Rename Revert changes ... ↗

Type of query Flat list of work items Query across projects

Filters for top level work items

And/Or

Field*	Operator	Value
Work Item Type	=	Bug

+ Add new clause

ID	Work Ite...	Title	Assigned To	State	Tags
43	Bug	🐛 Search Not Working	Hans-Petter Halv...	New	
44	Bug	🐛 Search button is disabled	... Hans-Petter Halv...	New	
45	Bug	🐛 Web Application crashes during loading	Hans-Petter Halv...	New	

Queries are used to get a list of specific Work Items

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