Agile Devops Tools – Azure Repos Git Version Control

[✅ Task 3: Azure Repos (Git) – Version Control 1](#_Toc205552201)

[1. 🎯 Purpose 1](#_Toc205552202)

[2. 📚 Theory 1](#_Toc205552203)

[3. 🧰 Prerequisites 2](#_Toc205552204)

[4. 🛠️ Practical – Step-by-Step 2](#_Toc205552205)

[5. 📁 Project Structure Snapshot 3](#_Toc205552206)

[6. 🧾 Summary 3](#_Toc205552207)

## ✅ Task 3: Azure Repos (Git) – Version Control

### 1. 🎯 **Purpose**

To understand how to use **Azure Repos**, a Git-based version control system provided by Azure DevOps, to manage source code, track changes, and collaborate in software development teams.

### 2. 📚 **Theory**

#### 🔹 What is Azure Repos?

* Azure Repos is a **cloud-hosted Git repository** solution provided by Azure DevOps.
* It supports:
  + Git (distributed version control)
  + TFVC (centralized version control – legacy)
* Enables teams to **collaborate, track changes, manage branches, and perform pull requests**.

#### 🔹 Benefits:

* Integrated with Azure Boards, Pipelines, and CI/CD.
* Web UI for browsing, reviewing, editing code.
* Access control and branch protection policies.
* Works with **Visual Studio, VS Code, and Git CLI**.

#### 🔹 Git Basics Recap:

| **Git Command** | **Purpose** |
| --- | --- |
| git init | Initialize a repository |
| git clone <url> | Clone remote repo |
| git add . | Stage changes |
| git commit -m "" | Commit with message |
| git push | Push to remote |
| git pull | Pull latest from remote |
| git branch | View/create branches |
| git checkout | Switch branches |
| git merge | Merge changes |

### 3. 🧰 **Prerequisites**

* Azure DevOps organization created: [https://dev.azure.com](https://dev.azure.com/)
* A project created in Azure DevOps
* Git installed locally
* VS Code or Visual Studio for code editing (optional)

### 4. 🛠️ **Practical – Step-by-Step**

#### ✅ Step 1: Create a New Repo in Azure DevOps

1. Go to **Azure DevOps** portal.
2. Navigate to your **Project** > **Repos** > “Files”.
3. Click on **Initialize** if repo is empty (or create a new one).
4. You can clone it via HTTPS or SSH.

#### ✅ Step 2: Clone Repo Locally

git clone https://dev.azure.com/<org>/<project>/\_git/<repo>

cd <repo>

#### ✅ Step 3: Make Changes and Push

echo "# Hello Azure Repos" >> README.md

git add .

git commit -m "Initial commit"

git push origin main

#### ✅ Step 4: Branching and Collaboration

git checkout -b feature/login

# make changes

git add .

git commit -m "Login feature added"

git push origin feature/login

#### ✅ Step 5: Create Pull Request

* Go to Azure DevOps > Repos > Branches.
* Click on your branch > "New pull request".
* Select target branch (e.g., main), reviewers, and complete the merge.

### 5. 📁 **Project Structure Snapshot**

Your repo structure might look like:

/myproject-repo

├── README.md

├── .gitignore

├── /src

├── index.html

└── app.js

### 6. 🧾 **Summary**

| **Area** | **Detail** |
| --- | --- |
| Tool | Azure Repos (Git) |
| Key Use | Source code management |
| Benefits | Collaboration, version control |
| Integration | Azure Boards, Pipelines |
| Common Workflow | Clone → Edit → Commit → Push → PR |