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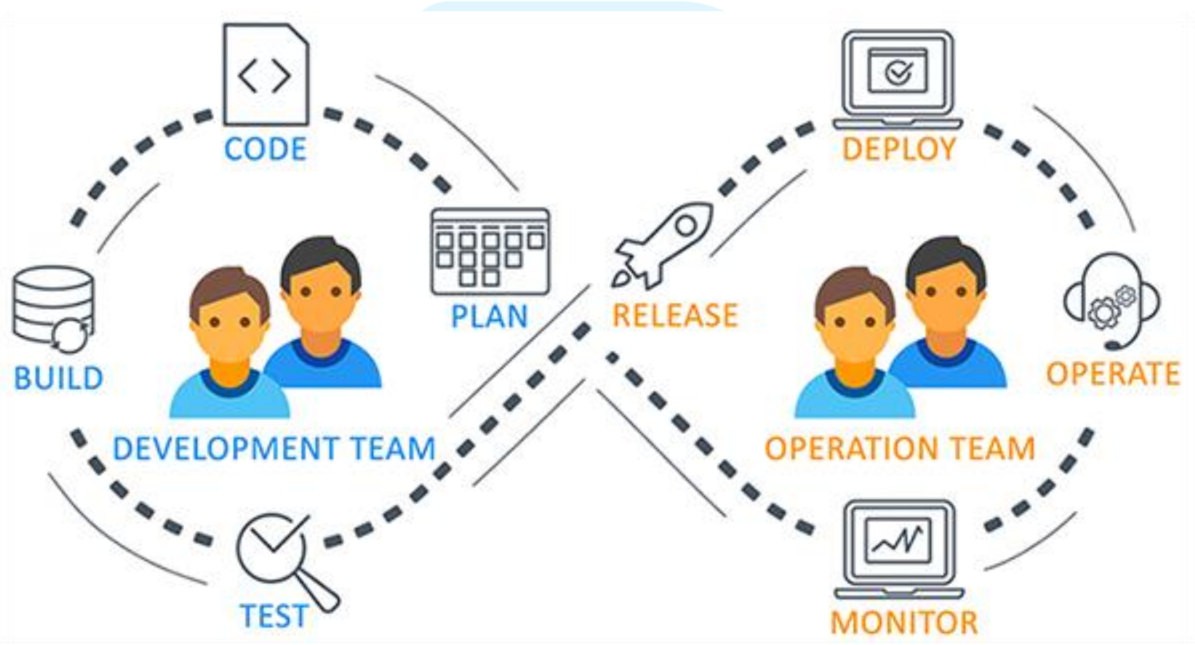
1

Introducing DevOps

Q1. What is DevOps?

Ans. DevOps is Development and Operation's Collaboration, it's a Union of 3Ps - Process, People and Product (working Product) that enable continuous integration and continuous delivery of value to our end users. DevOps accelerate the process to deliver applications and software services at high speed and high velocity. So that organization can learn and adopt the market at its earliest. Also, it minimizing the risk factor by continuously delivering and getting end users and stakeholders feedback at the early stages.

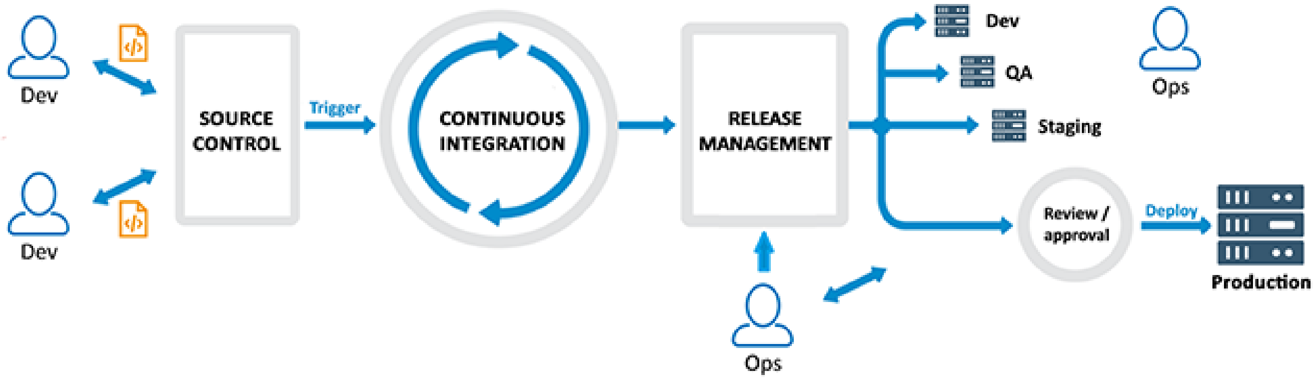


Q2. What is the need for DevOps?

Ans. In Traditional software development, after completing the development part, the code deployment time was huge. And many times, we heard the common fights between the Development Team and Operations Team or deployment team that it works fine on our system, it's the sever causing problem and operation team defences it's not your server it's your code, Right? Well, DevOps solves the Traditional Dev and Ops fights by breaking the wall of confusion.

Q3. How DevOps Works?

Ans. DevOps is the practice of operations and development engineers that work together in the entire project lifecycle, from design and development process to production releases and support.



Starting from design and development to testing automation and from continuous integration to continuous delivery, the team works together to achieve the desired goal. People having both development and operations skill sets working together and use various tools for CI-CD and Monitoring to respond quickly to customers need and fix issues and bugs.

Q4. What are the benefits of DevOps?

Ans. The main benefits of implementing DevOps are:

- DevOps Deploy code faster in the market through Continuous Integration and Continuous Delivery.
- Customer Satisfaction.
- More engaged and Collaborative Development and Operation teams.
- Faster Operational Support.
- Strong Infrastructure Performance and IT performance.
- Less failures and continuous improvement.
- Transparency between the team.
- Constant Monitoring and better adaption.
- Increase efficiency

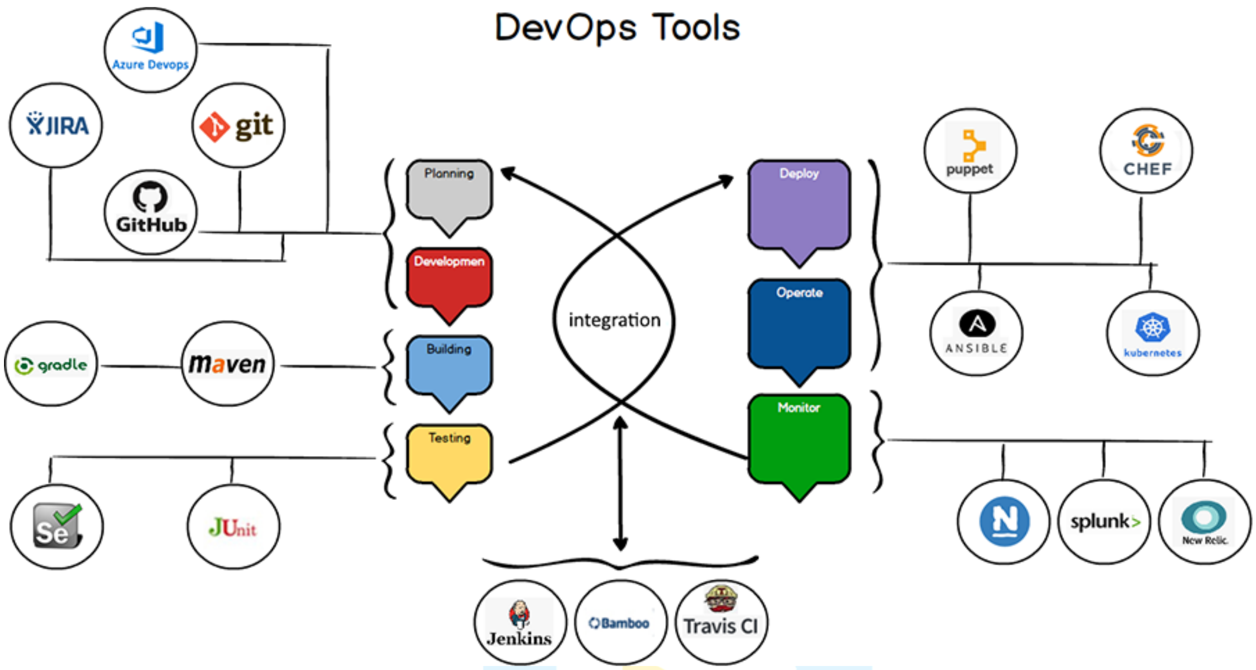
Q5. Where DevOps tools are used?

Ans. To Implement DevOps, Automation plays a major role and we need some tools for implementation. Following are the major areas where tools are used.

- Planning
- Code management
- Build and Testing
- Release management
- Deploy and Monitor

Q6. What DevOps tools you know?

Ans. Here's a list of tools which will help you to implement DevOps:



Tools for Planning

- Azure DevOps Boards
- Jira

Tools for Code Management

- Git
- TFVC

Tools for Testing Automation

- Selenium
- JMeter

Tools for Build, Continuous Integration, Continuous Deployment and Monitor

- Ant
- Maven
- Jenkins
- TeamCity
- Docker
- Kubernetes
- Puppet
- Chef

- Ansible
- Nagios
- Shippable

Q7. Can you list out DevOps best practices?

Ans. Following are the best DevOps Practices:

- Infrastructure as Code (laC): where teams (Developers and Operations) automatically manage programmable or software-defined infrastructure.
- Continuous Integration: Where developers continuously integrate their code into a shared repository like git.
- Automated Testing: Where testing team writes a script to automate the testing.
- Continuous Deployment: when developers make any code commit and if it passes the automated testing phase, that will automatically deploy the latest changes on the staging or production server.

Plus, there are few more practices you can consider for Load Testing and Monitoring as follows.

- Release Management
- App Performance Monitoring
- Load Testing & Auto-Scale
- Availability Monitoring
- Change/Configuration Management

Q8. Can you explain the uses of the planning tools in DevOps?

Ans. For successful project management, Project planning is a very important part. There are many Open-source as well as paid tools available in the market like Redmine, Agilean, LeanGear, Trello, Basecamp, Wrike, Jira and Azure Boards.

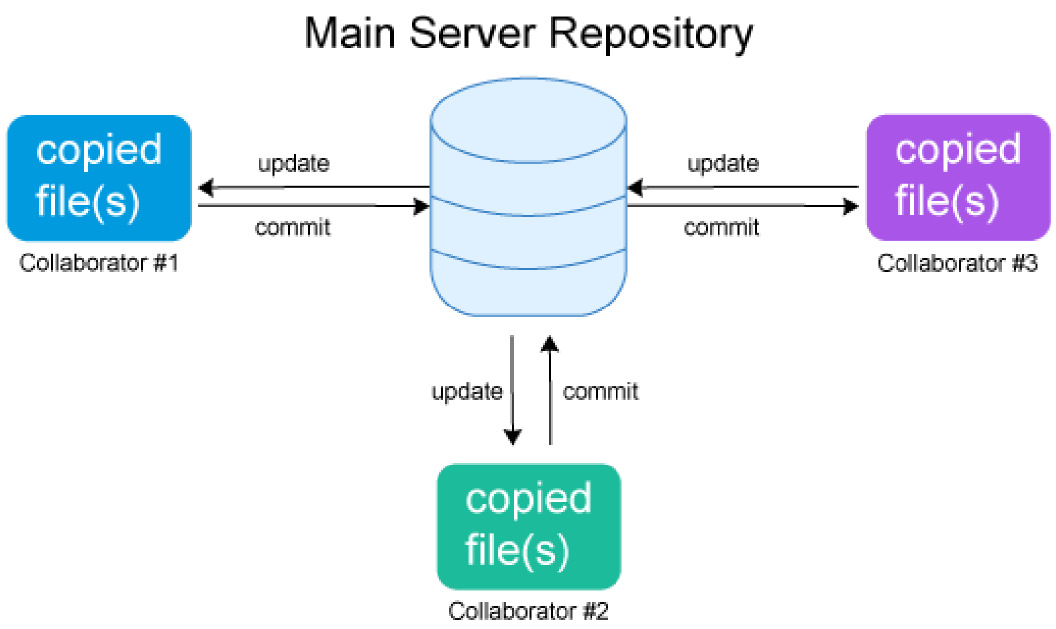
My favourite tool is Azure boards which is part of Azure DevOps, as it has everything thing from planning to code management and testing to deployment.

Q9. Can you explain the uses of the Version control tools in DevOps?

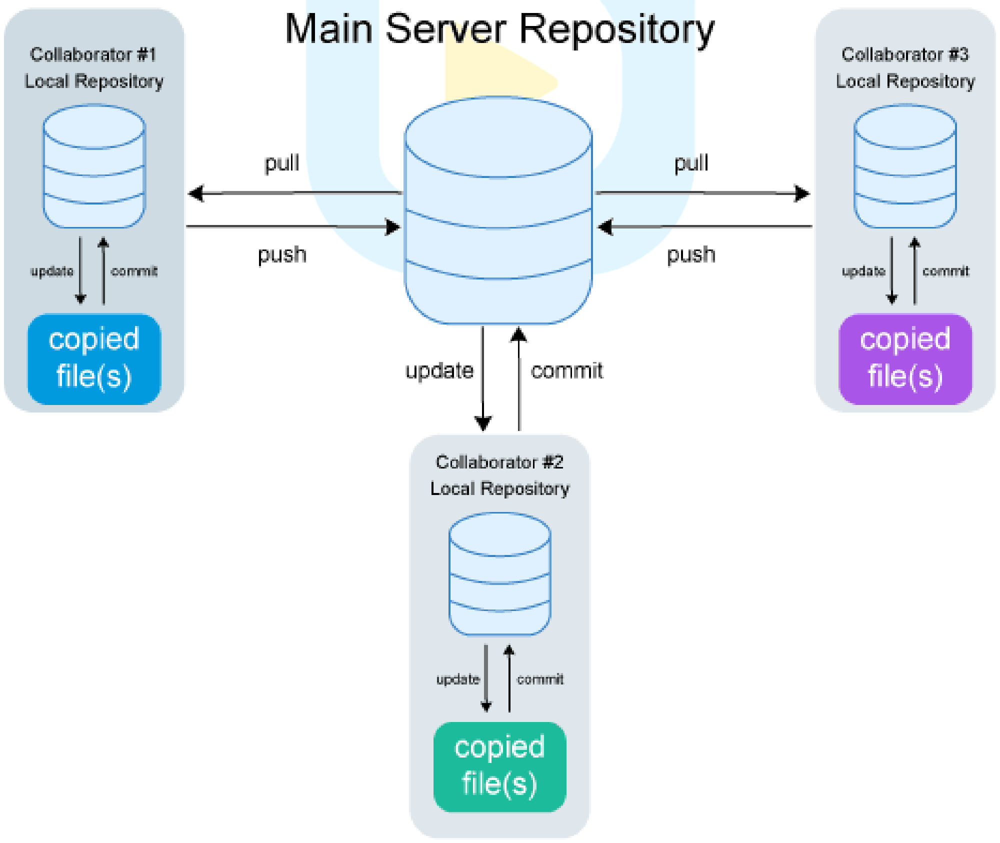
Ans. When we are working with a team Collaboratory on the same project, Version control plays a major role in managing and keeping the copies of code or files from every stage of the project lifecycle.

There are two types of version control:

1. Centralized Version control
2. Distributed version control.



Centralized Version Control



Distributed Version Control

Git is Distributed, open source and very lightweight version control tool, whereas Team Foundation Version Control is a Centralized version control system available in Azure Repos.

Q10. Which tools are useful for Continuous Integration?

Ans. Azure Pipelines has support for all the platform like Linux, macOS and Windows also we can consider following tools for the Continuous Integration.

- Jenkins
- TeamCity
- Travis CI
- Bamboo
- GitLab CI
- CircleCI
- Codeship

Q11. Which tools are useful for Continuous Deployment?

Ans. Following are few useful Continuous Deployment tools

- Azure Pipelines for Deployment.
- Jenkins.
- TeamCity.
- Bamboo.
- ElectricFlow.
- Octopus Deploy.
- AWS CodeDeploy.
- DeployBot.
- Shippable.

Q12. What is Infrastructure Configuration?

Ans. In today’s fast and competitive market, many companies demand a faster deployment process and Infrastructure Configuration, so treating Infrastructure as software and manage the processes such as version control, continuous integration, deployment and automated testing will make infrastructure changes more rapidly and reliably.

Q13. What tools are useful for Infrastructure Configuration?

Ans. Following are the most popular tools for Infrastructure Configuration.

- Chef
- Puppet
- Ansible

Q14. What is Continuous Testing? What is the use of Test Automation in DevOps?

Ans. DevOps is not about jobs or tools, it's about people, culture and automation. and to implement DevOps, continuous testing plays a very important role where writing scripts for software testing and make it auto executable so that we can automate the testing and do the frequent releases using the delivery pipelines.

We have to write unit tests to achieve Continuous Testing.

Q15. Which tools are useful for Continuous Testing?

Ans. For test Automation there are many open source tools are available, following are few names

- Selenium
- JMeter
- JUnit
- AntUnit
- Cucumber
- SoapUI
- Tricentis Tosca

Q16. What is Continuous Monitoring?

Ans. DevOps and Agile are all about inspection and adaption to make continuous improvement in our process, and for that, we must have to monitor continuously the process, application performance and infrastructures.

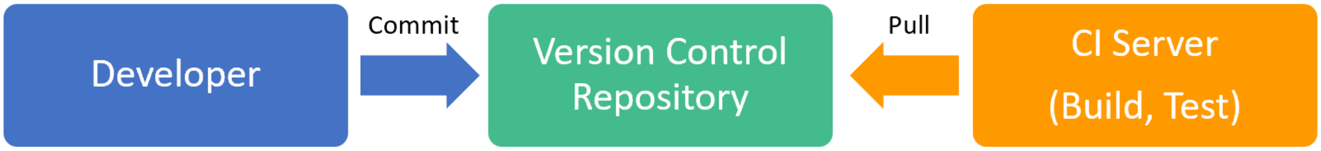
By doing continuous infatuates monitoring, we can visualize the process and get the early alerts in real time. By analyzing that data, we can take decision wisely and adapt the things and process that best suits for the business.

Q17. What tools are useful for Continuous Monitoring?

Ans. For continuous monitoring **Nagios, SysDig** and **Zabbix** are the famous open source tools available in the market. **Infrastructure as code** (laC) vendors like Amazon and Google have tools like **AWS CloudWatch** and **StackDriver**. Also, New Relic is a good option for continuous monitoring.

Q18. What is Continuous Integration?

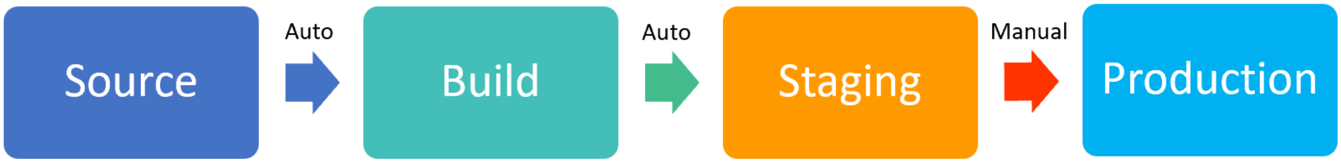
Ans. **Continuous Integration** means Integration of completed code in the common repository which is shared across the team. Each time the developer starts the code check-in, it will automatically get verified by automated tests and automated build. Version control plays a major role here as we can manage all code with branching policy to avoid code conflicts between the team.



Continuous Integration

Q19. What is Continuous Delivery?

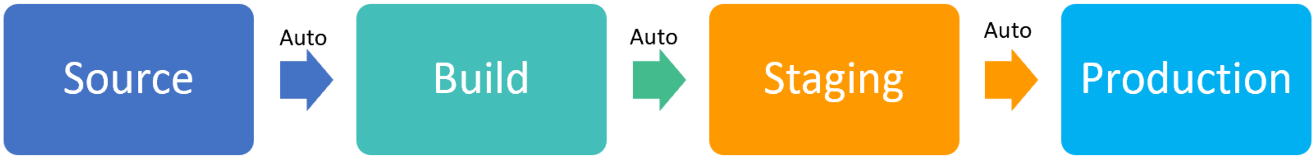
Ans. **Continuous Delivery** is one step further of Continuous Integration, as once we have a successful build ready and if it passes the automated acceptance tests as per the business need, we can deploy manually on production.



Continuous Delivery

Q20. What is Continuous Deployment

Ans. **Continuous Deployment** is a further extension of **Continuous Delivery,** where the deployment to production is automated without any human interaction. Once the developer makes the code check-in deployment pipelines will automatically start the integration and deployment automatically on the production until and unless there is any failure in the acceptance test script.



Continuous Deployment

It is a very fast and reliable way to release your product fast in the market.

Q21. What is the container? Why we need containers?

Ans. The container will provide a way to package your software code, its configurations, Packages and its dependencies into a single unit or object.

We can have multiple containers that can run on the same machine and share the operating system with other containers so that we can run anywhere fast and reliable and consistent deployments.

Q22. What containers Azure DevOps support?

Ans. Azure DevOps has the following container support.

- Docker
- Asp.Net with containers.
- Azure Kubernetes services.
- Azure Service Fabric application with Docker support.

2
Azure DevOps

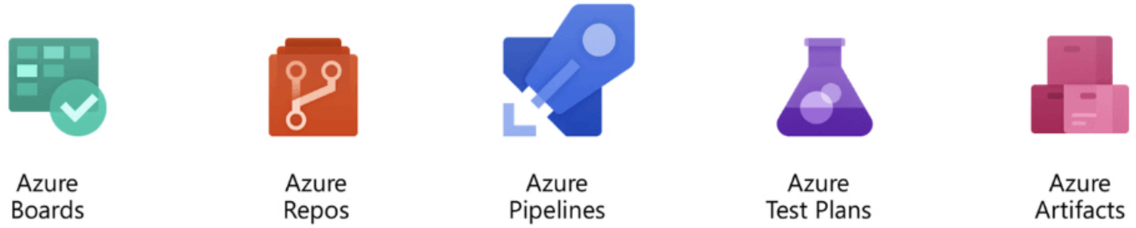
Q1. What is Azure DevOps? What is the difference between Azure DevOps and VSTS Online?

Ans. Microsoft Visual Studio Team Services, now known as **Azure DevOps** having excellent application lifecycle management tool.

We can plan a project with Agile tools and templates, manage and run test plans, Version control source code and manage the branches, deploy the solution across all platform using Azure Pipelines, by implementing Continuous Instigation and Continuous Deployment.

Q2. What services Azure DevOps Provides?
Or
What is new in Azure DevOps?

Ans. Azure DevOps provides full application lifecycle management from planning to coding, and from testing to build and deploy.



Azure Boards: Azure board provides service to manage your works, using the Agile Scrum and Kanban templates, Dashboard that we can customize and reporting.

Azure Repos: Azure Repos is a code version control system that can manage your code and its version.

Using that we can track the changes, whenever team edits code it has all the version history so later, we can coordinate with the team and merge the changes.

The azure repo has both a centralized version control system as well as a distributed version control system.

Git: Distributed Version Control System

Team Foundation Version Control (TFVC): Centralized Version Control System.

Azure Pipelines: Azure Pipelines has all the features that are required for supporting Continuous Integration (CI) and Continuous Deployment (CD).

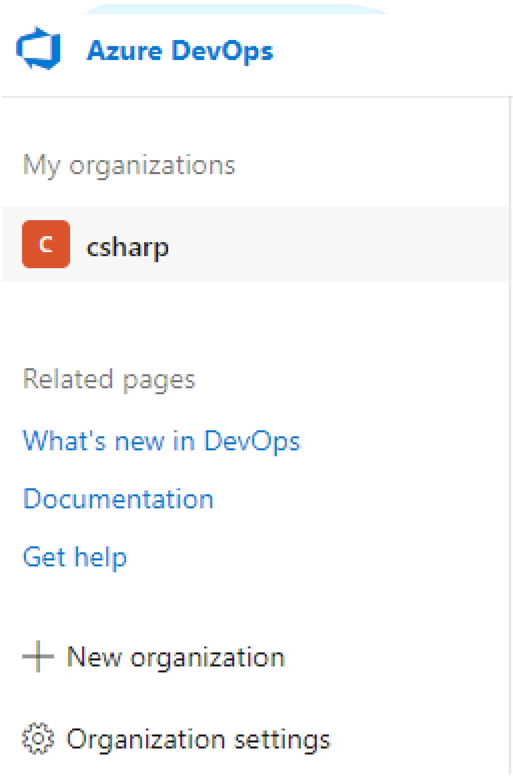
Using that we can constantly test and build the code and release it to any target.

Azure Test Plans: Azure test plan provides browser-based test management using that we can manage all the testing like Exploratory & manual testing, Continuous testing, Unit & functional testing also we can ask or Request stakeholder to provide feedback.

Azure Artifacts: Azure Artifacts is the service using that we create, host and share packages with teams. We can share code across teams, and manage all package types like NuGet, Marven, npm, Gradle etc.

Q3. What is Organization in Azure DevOps? How you will plan your organization structure?

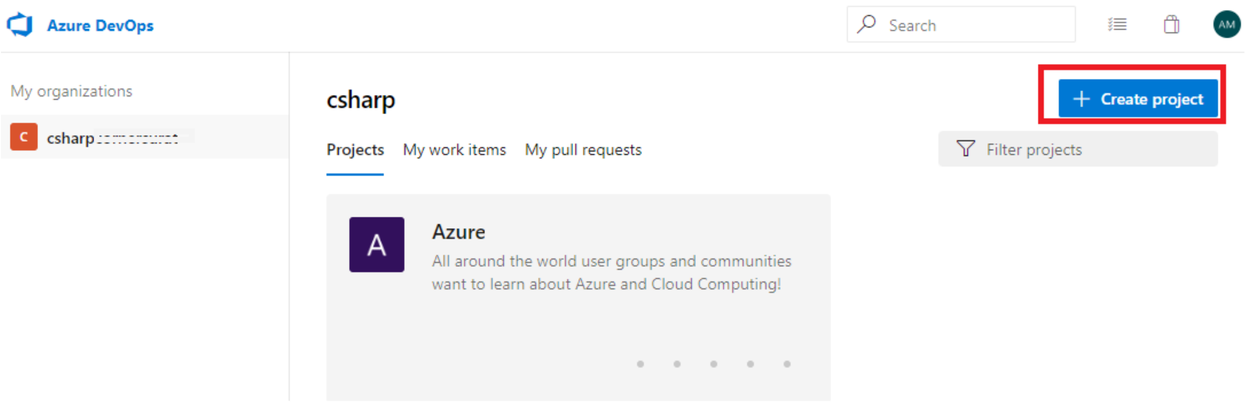
Ans. An organization is like a workspace of a particular company where they can manage all the projects, users and manage roles and permission for all operations.



You can create a new organization, manage and plan your projects under the organizations.

Q4. How to create a project in Azure DevOps?

Ans. Once login in Azure DevOps and connect to your organization, from the Dashboard top right corner click on Create Project button to create a new project under the selected Organization.

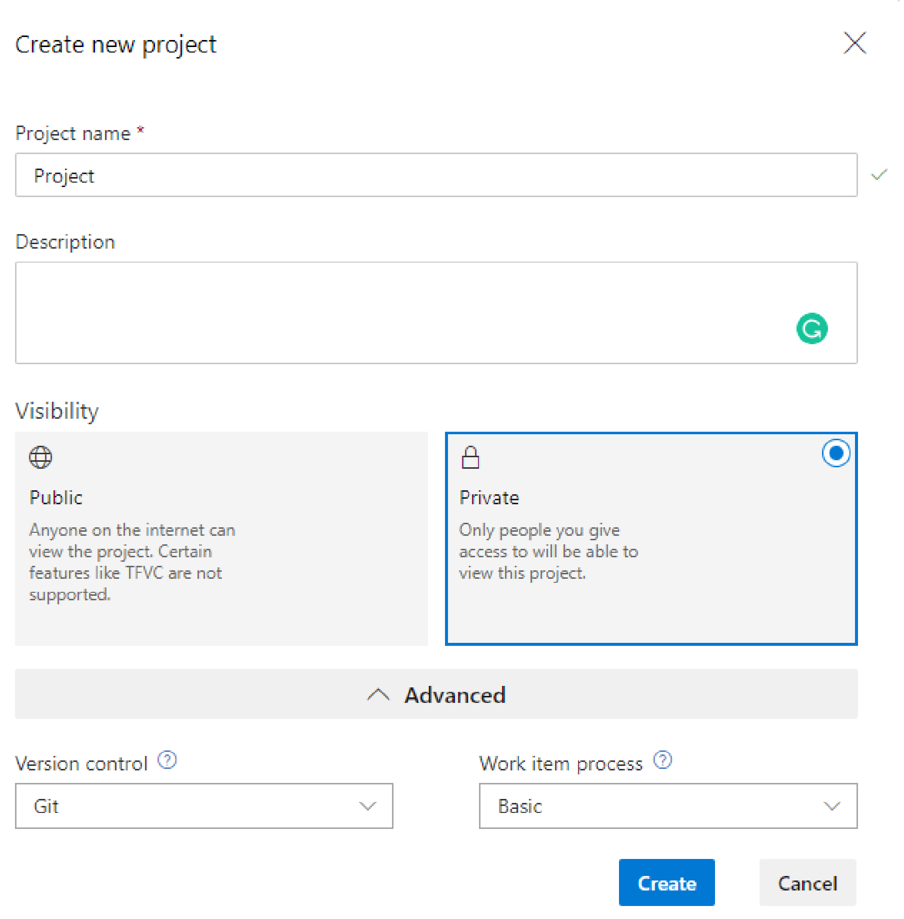


Azure

All around the world user groups and communities want to learn about Azure and Cloud Computing!

You can provide the project name and set the visibility, i.e. Public or Private.

Also, we can choose Version Control from Git or Team Foundation Version Control and choose the work item template Agile, Scrum, CMMI or Basic to plan and manage the project.



Project name * : Project

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.

Version control: Git

Work item process: Basic

Q5. What is the difference between Azure DevOps Services and Azure DevOps Server?

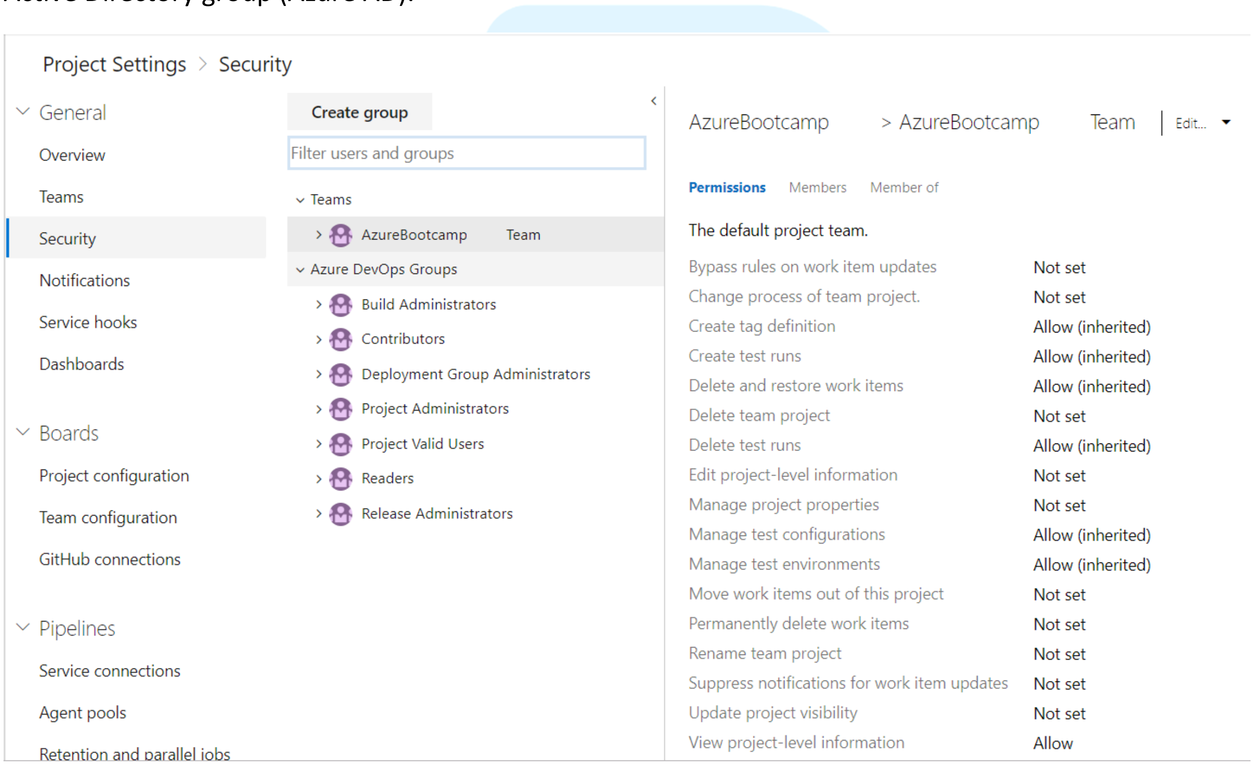
Ans. Team Foundation Server is now Azure DevOps Server and Visual Studio Team Services is now Azure DevOps Services. Both provide the same essential services, but Azure DevOps Services offers cloud platform whereas Azure DevOps Server is the on-premises server.

Many organizations want their data on their server so they can choose the Azure DevOps Server. Although both works similar, Azure DevOps services provide benefits like Simplified server management, Access to the latest release immediately. Remote site connectivity etc.

Q6. Can you explain permission and group in Azure DevOps?

Ans. In Azure DevOps, whenever you are creating a user for organization or project level, in order to access the code, builds, plans and work tracking, the user must have access and permission for that. Using Permission and access we can manage that such an easy way.

There are by default groups and you can grant or deny permissions to users, built-in security groups, or Azure Active Directory group (Azure AD).



The default project team.

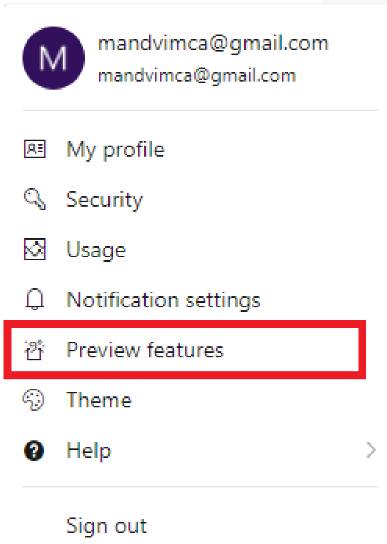
Bypass rules on work item updates	Not set
Change process of team project.	Not set
Create tag definition	Allow (inherited)
Create test runs	Allow (inherited)
Delete and restore work items	Allow (inherited)
Delete team project	Not set
Delete test runs	Allow (inherited)
Edit project-level information	Not set
Manage project properties	Not set
Manage test configurations	Allow (inherited)
Manage test environments	Allow (inherited)
Move work items out of this project	Not set
Permanently delete work items	Not set
Rename team project	Not set
Suppress notifications for work item updates	Not set
Update project visibility	Not set
View project-level information	Allow

Once setup with rules for a particular group, whenever we add member and assign a group to them, that rules automatically grant them the correct access levels when they access the Azure DevOps organization.

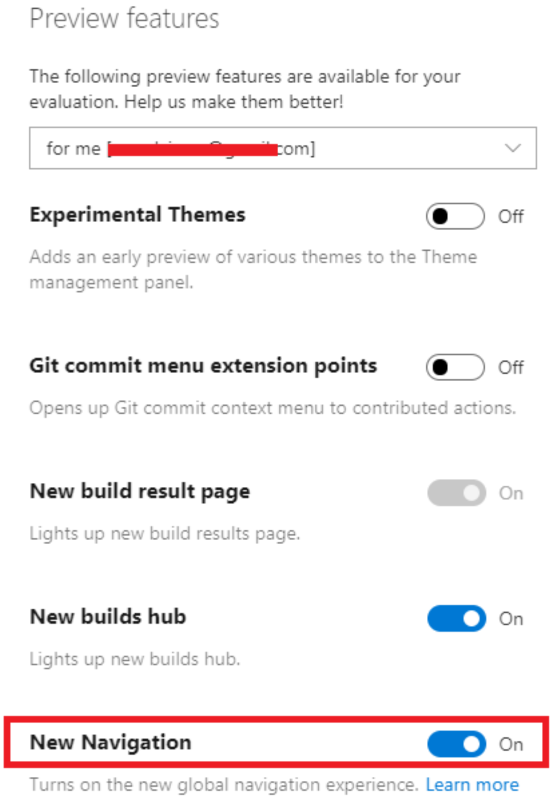
Q7. Can I still use the old interface of VSTS Online?

Ans. Yes, you can use the old User Interface of the VSTS in Azure DevOps.

From the profile, tab navigates to **Preview Features**.



Turn off the New Navigation, to switch to the old User Interface.



Preview features

The following preview features are available for your evaluation. Help us make them better!

for me [[redacted]com]

Experimental Themes Off

Adds an early preview of various themes to the Theme management panel.

Git commit menu extension points Off

Opens up Git commit context menu to contributed actions.

New build result page On

Lights up new build results page.

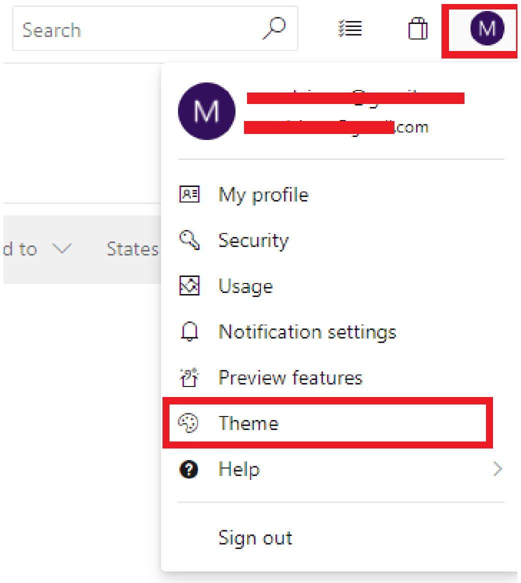
New builds hub On

Lights up new builds hub.

New Navigation On

Turns on the new global navigation experience. Learn more

Also, there is a Theme selection option now so the user can have two theme option Dark and Light.



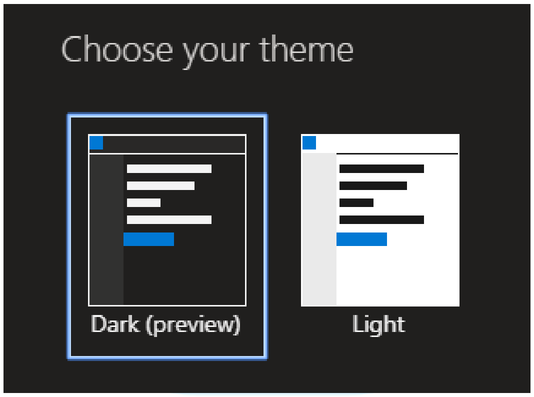
Search

M

[redacted]

- My profile
- Security
- Usage
- Notification settings
- Preview features
- Theme
- Help
- Sign out

d to States



Choose your theme

Dark (preview)

Light

Q8. What is Collection and Collection Settings in Azure DevOps?

Ans. The collection is a hub or container for a number of projects in Azure DevOps. Once your setup your account in Azure DevOps a default collection has been created with default settings.

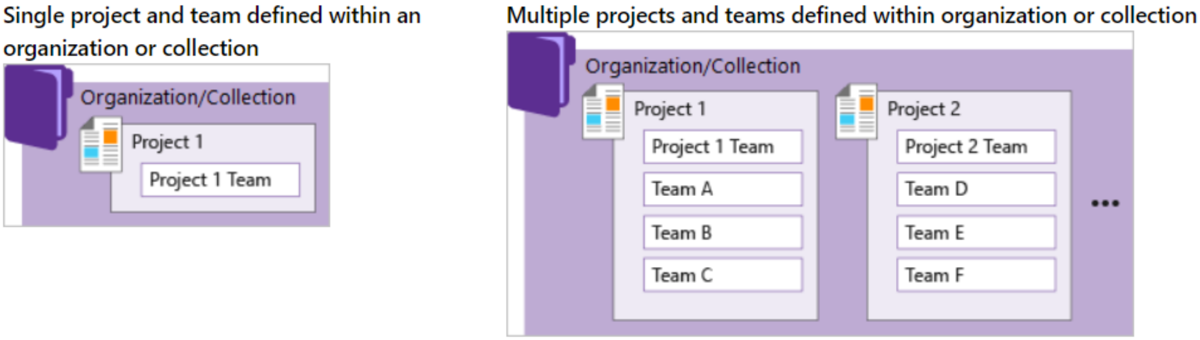


Image resource: https://docs.microsoft.com

Q9. Can stakeholders who don't use Visual Studio participate on our team?

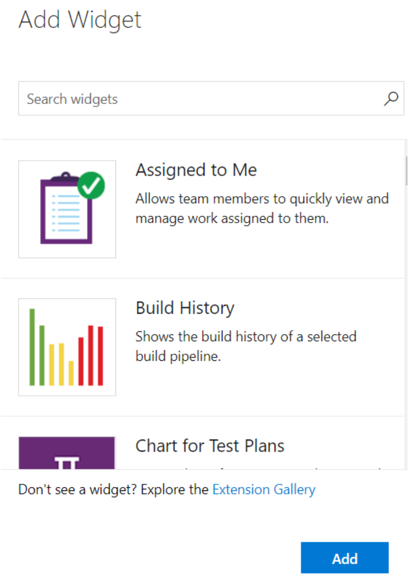
Ans. Yes, Stakeholder can access Azure DevOps and Participates in collaborative works, there is no need to use Visual Studio Integrated Development Environment (IDE) to work with Azure DevOps.

As a stakeholder access one can add and check progress, modify work items, manage to build and release pipelines, and view dashboards.

You can access test and feedback tools, provide feedback and direction and feature ideas.

Q10. What is Dashboard in Azure DevOps?

Ans. Using the Dashboard, we can easily access important information related to Works Assigned, Build History, and Test Plans. Customizable and configurable dashboard and widgets provide deep inside of your project and progress workflow.



Add Widget

Search widgets

Assigned to Me

Allows team members to quickly view and manage work assigned to them.

Build History

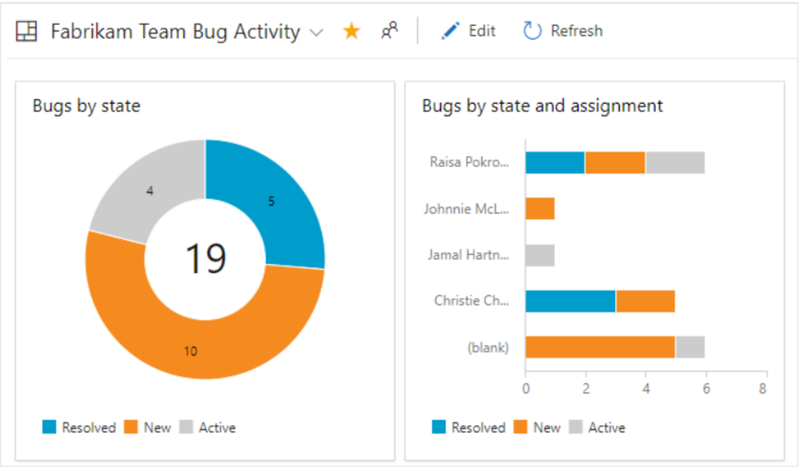
Shows the build history of a selected build pipeline.

Chart for Test Plans

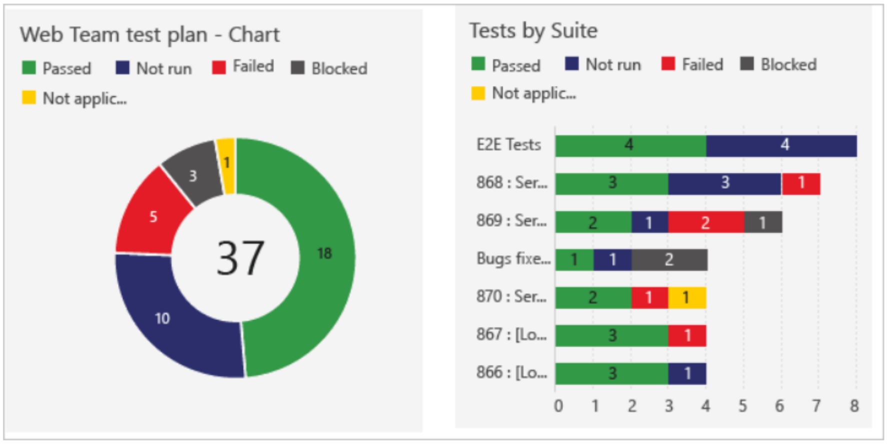
Don't see a widget? Explore the Extension Gallery

Add

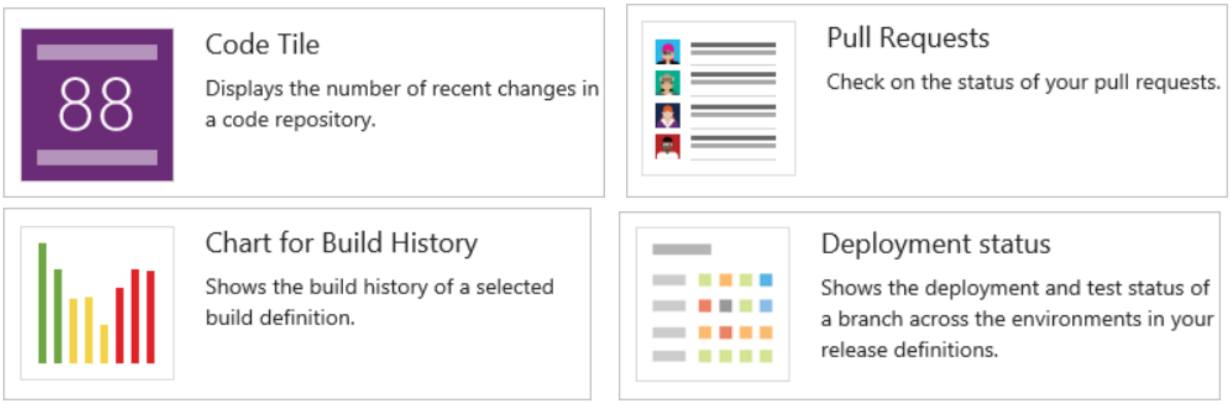
Sample Agile tool light-weight charts



Sample light-weight test charts



Code, build, and release chart widgets



Code Tile

Displays the number of recent changes in a code repository.

Pull Requests

Check on the status of your pull requests.

Chart for Build History

Shows the build history of a selected build definition.

Deployment status

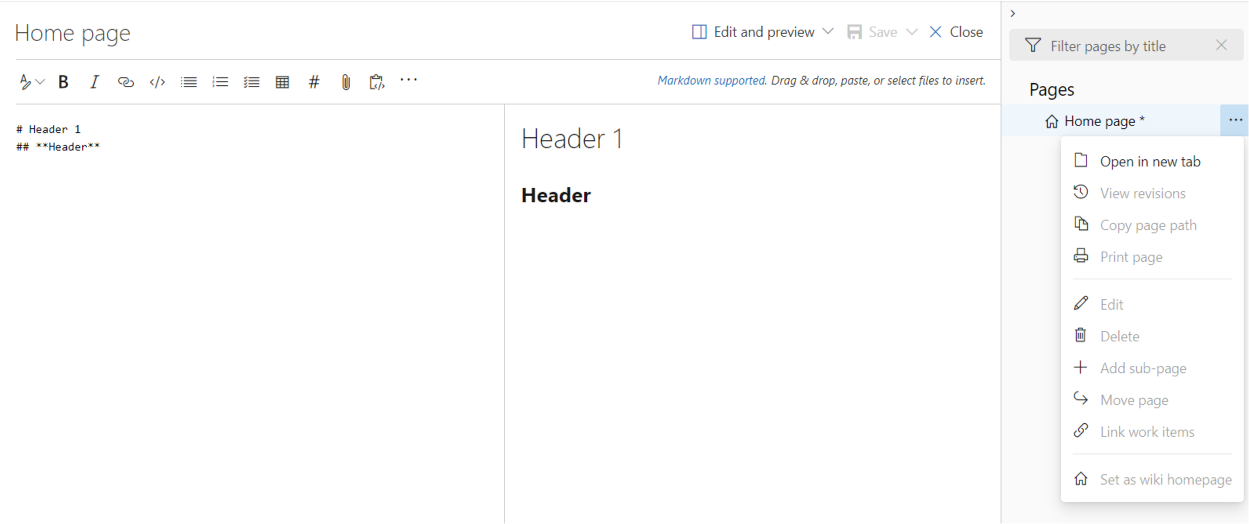
Shows the deployment and test status of a branch across the environments in your release definitions.

It provides Charts, Widgets, reports, and Integration with Power BI.

Q11. What is Wiki in Azure DevOps?

Ans. Wiki makes your documentation work easy. We can create rich documents using markdown editor to add rich formatting, images links and tables. You can also view your editing in the side-by-side preview pane.

Team members collaborate and work together to create project documentation, user manuals, functional documents, technical documents etc.



```
# Header 1
## **Header**
```

Header 1

Header

Use Wiki to explain project Vision, epics, specifications, release notes, coding standards and best practices or other content with team members and stakeholders to learn.

Easily discover pages by powerful search put your page in a hierarchical order to find pages from the right category.

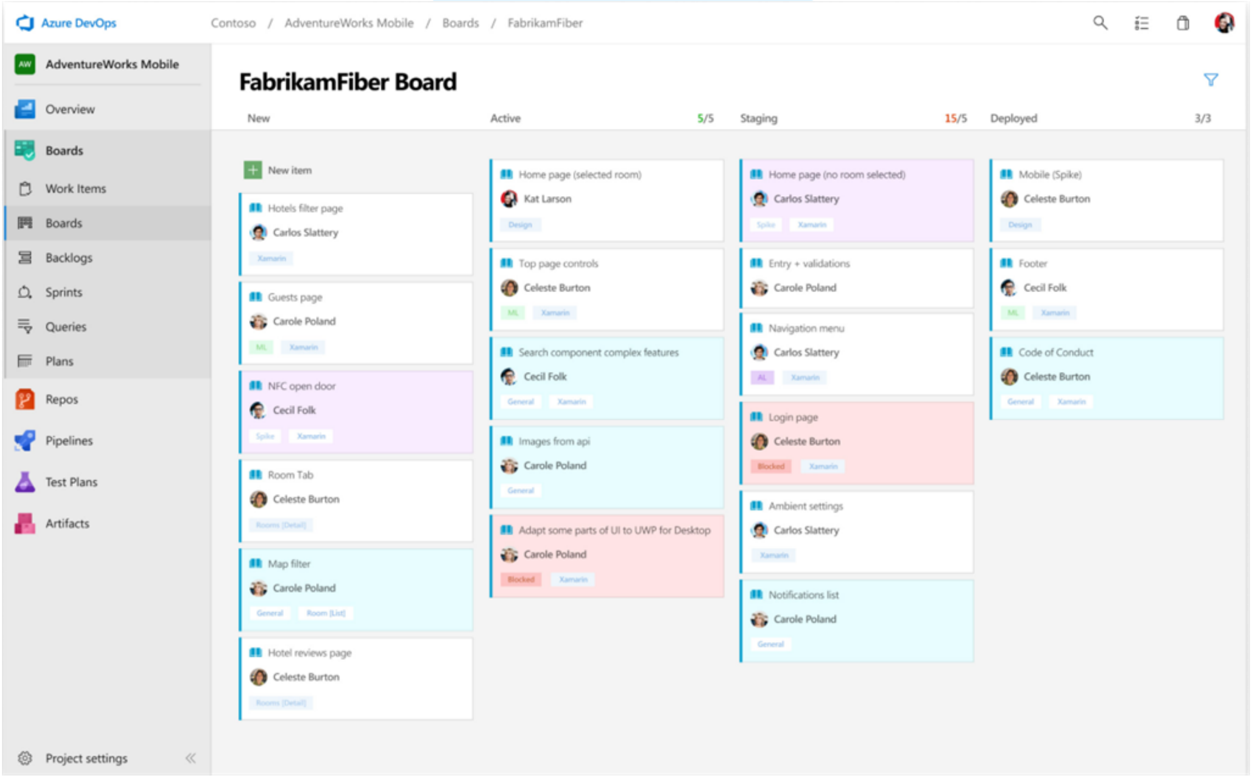
3

Azure Boards

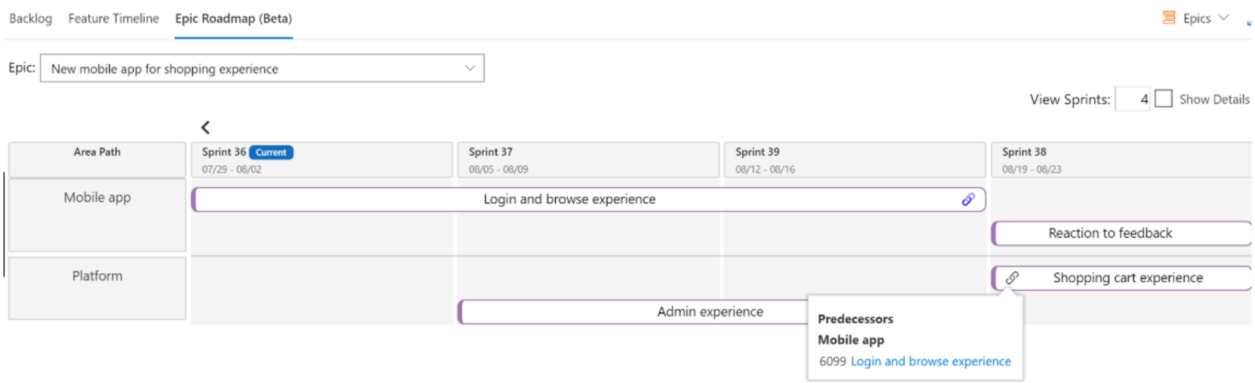
Q1. What are Azure Boards?

Ans. Using Azure Boards, teams can plan their works. There are 3 templates like Agile, Scrum and CMMI using that team can plan, track, and check progress across teams, manage backlogs items do their Sprint Planning and track progress using Kanban board which has a rich feature like drag and drop to move and manage work items.

The team can use and manage customizable dashboards and use dynamic query creation tools for MIS and reports.



You can also plan your upcoming project using the timeline feature.



Epic: New mobile app for shopping experience

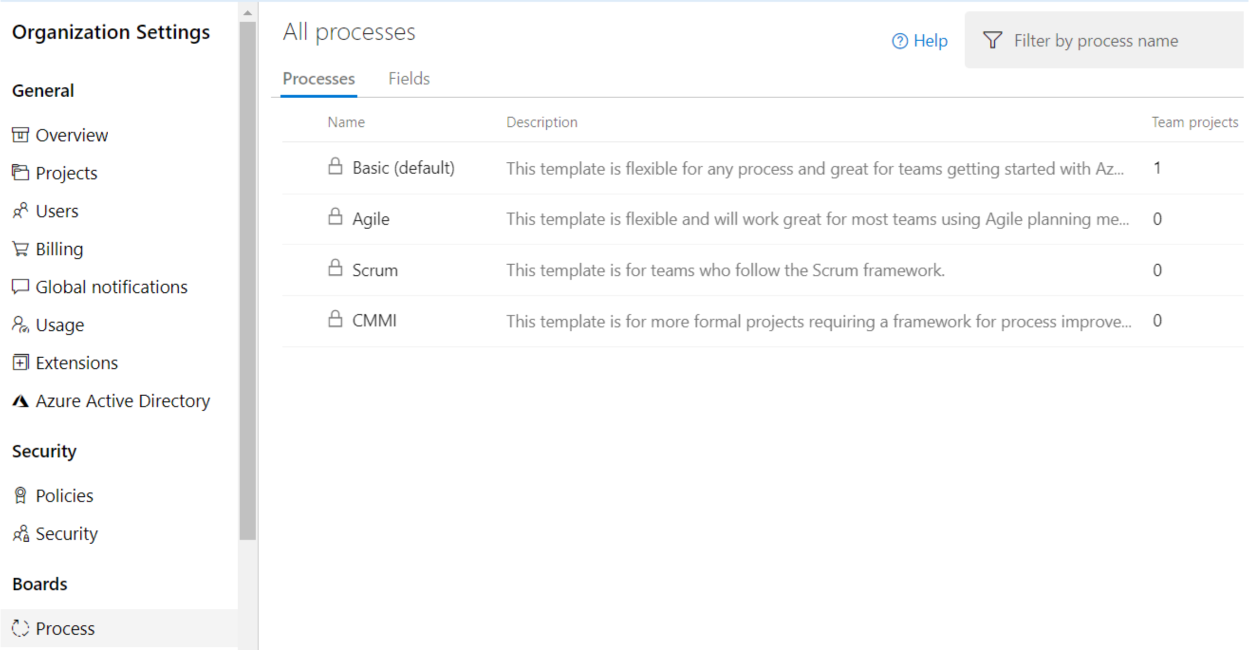
View Sprints: 4 □ Show Details

Area Path	Sprint 36 Current 07/29 - 08/02	Sprint 37 08/05 - 08/09	Sprint 39 08/12 - 08/16	Sprint 38 08/19 - 08/23
Mobile app	Login and browse experience			Reaction to feedback
Platform		Admin experience		Shopping cart experience

Predecessors
Mobile app
6099 Login and browse experience

Q2. What is the Process? What different types of templates available in Azure Boards?

Ans. A process means building objects of the work item tracking system. There are 4 process templates available in Azure DevOps – Basic (Default), Agile, CMMI, and Scrum.



All processes

Name	Description	Team projects
Basic (default)	This template is flexible for any process and great for teams getting started with Az...	1
Agile	This template is flexible and will work great for most teams using Agile planning me...	0
Scrum	This template is for teams who follow the Scrum framework.	0
CMMI	This template is for more formal projects requiring a framework for process improve...	0

You can use the Basic default template for any process with a basic start.

If you are following Agile and want to start a new project go with agile process template if working on maintenance project or support stuff where you have to work on SLA and Priorities then choose scrum process template.

And if working on a formal project which required process improvement or auditable records then go with CMMI template.

Q3. What are the work items in Azure Boards?

Ans. Using work items, we can manage our project tracking process using Agile, Scrum, CMMI template, each template has its own work item type hierarchy. Using the right work items, we can manage Portfolio backlog and Product Backlog.

For example, in Agile Process template, we have Epic, Feature, User Story, Task, Bug etc.

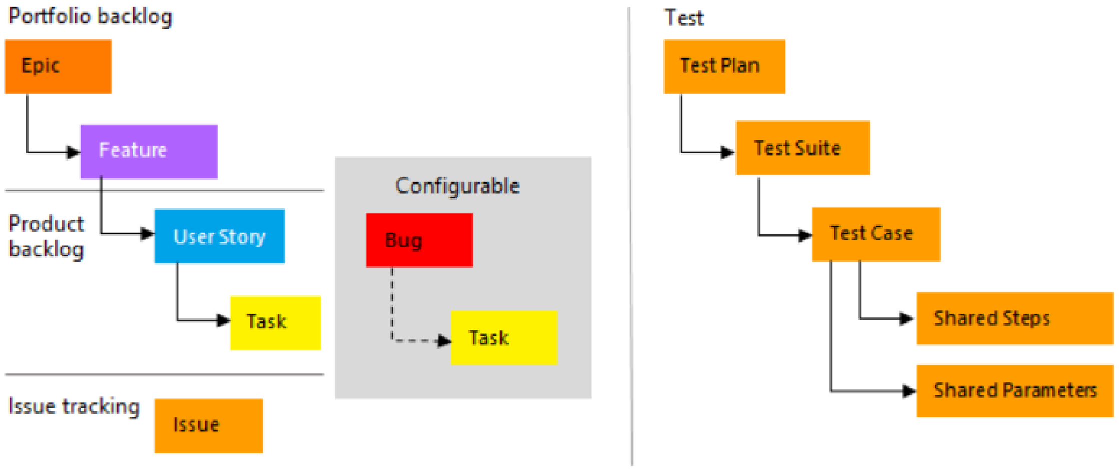


Image Source: https://docs.microsoft.com/en-us/azure/devops/boards/work-items/guidance/agile-process

In Scrum template, we have Epic, Feature, Product Backlog Item, Impediment, Feedback Request and response, Task, Bug etc.

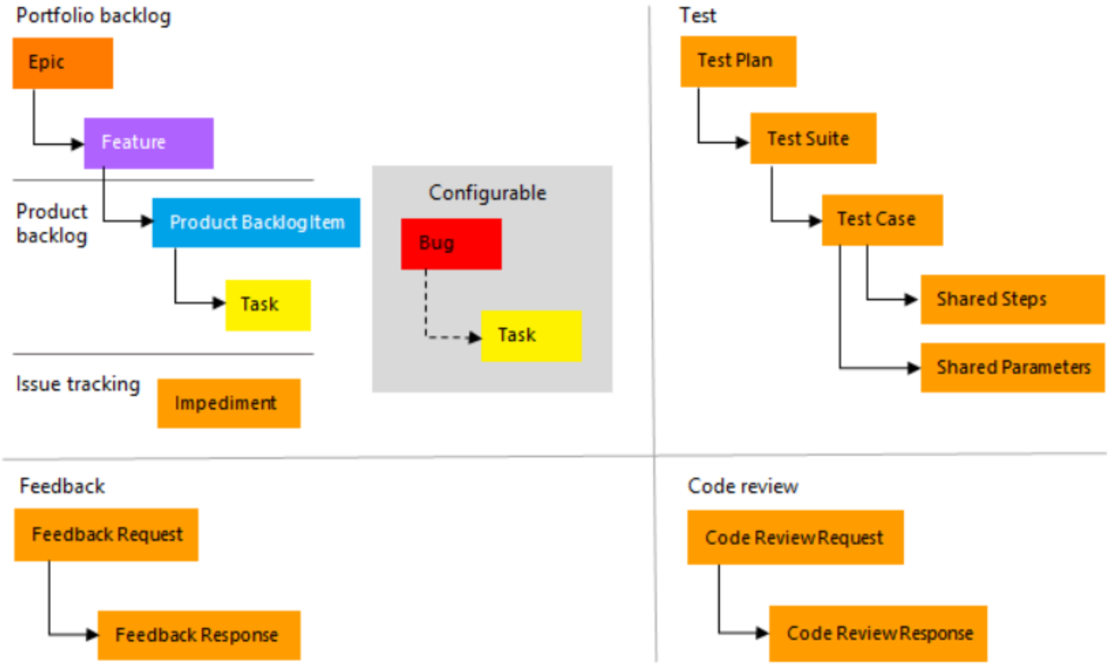


Image Source: https://docs.microsoft.com/en-us/azure/devops/boards/work-items/guidance/agile-process

Same way in CMMI work template we have Epic, Feature, Requirements, Tasks, Bugs, Change Request, Review, Etc.

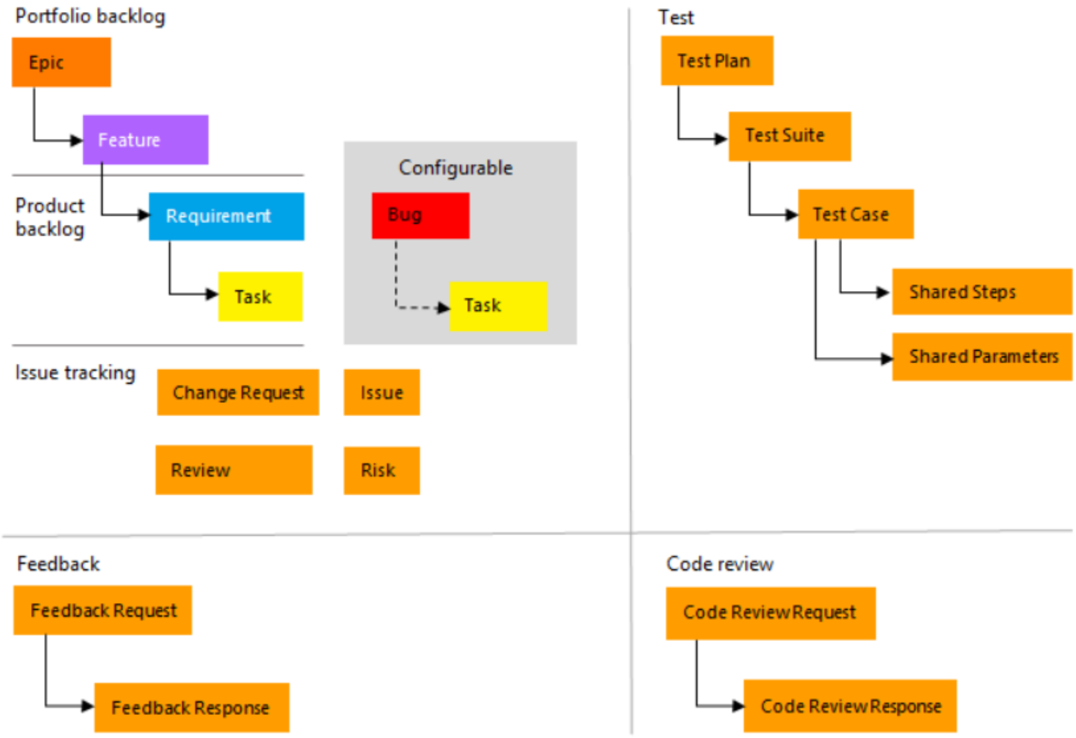
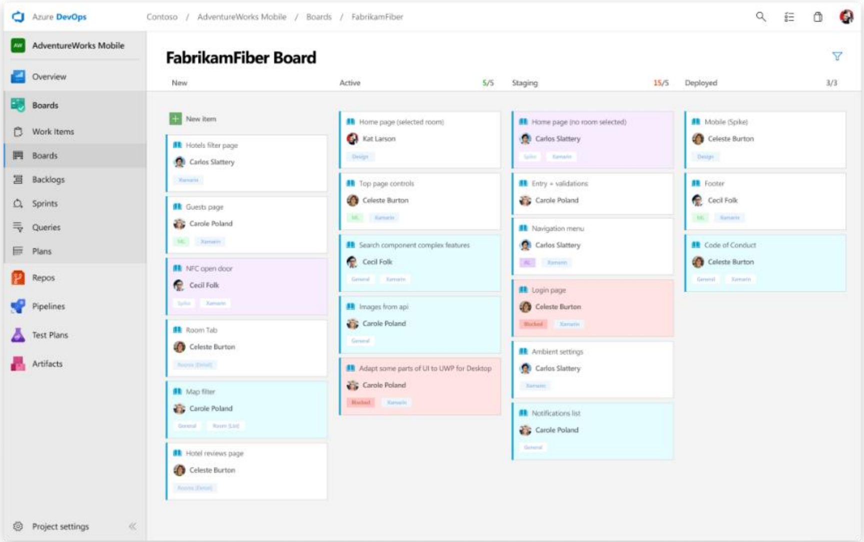


Image Source: https://docs.microsoft.com/en-us/azure/devops/boards/work-items/guidance/agile-process

Q4. What is the use of Kanban Board?

Ans. Kanban board is useful for visualizing and track project progress, using board we can easily identify who is working on what tasks and the status of those tasks. It will create transparency between the team and the stakeholders.



FabrikamFiber Board

New
- New item
- Hotels filter page — Carlos Slattery
- Guests page — Carole Poland
- NFC open door — Cecil Folk
- Room Tab — Celeste Burton
- Map filter — Carole Poland
- Hotel reviews page — Celeste Burton

Active 5/5
- Home page (selected room) — Kat Larson
- Top page controls — Celeste Burton
- Search component complex features — Cecil Folk
- Images from api — Carole Poland
- Adapt some parts of UI to UWP for Desktop — Carole Poland

Staging 15/5
- Home page (no room selected) — Carlos Slattery
- Entry + validations — Carole Poland
- Navigation menu — Carlos Slattery
- Login page — Celeste Burton
- Ambient settings — Carlos Slattery
- Notifications list — Carole Poland

Deployed 3/3
- Mobile (Spike) — Celeste Burton
- Footer — Cecil Folk
- Code of Conduct — Celeste Burton

Following are the main features of Azure Kanban Boards.

- Customizable columns on your Kanban board as per the team's requirement.
- You can set the Work in Progress (WIP) limits to control work in progress.
- Easy and user-friendly status change option by just drag-and-drop.
- View the Cumulative flow chart.

Q5. What are Portfolio backlogs?

Ans. Portfolio backlog management provides the facility to the Product Owner to add and manage the product backlog. Product owners can define and manage ideas and plan as Epics or Features.

Further, break down by team into the user stories and tasks.

Following is the example, where we have epic and feature items like Account Management, Service Delivery and based on that further breakdown into user stories and tasks.

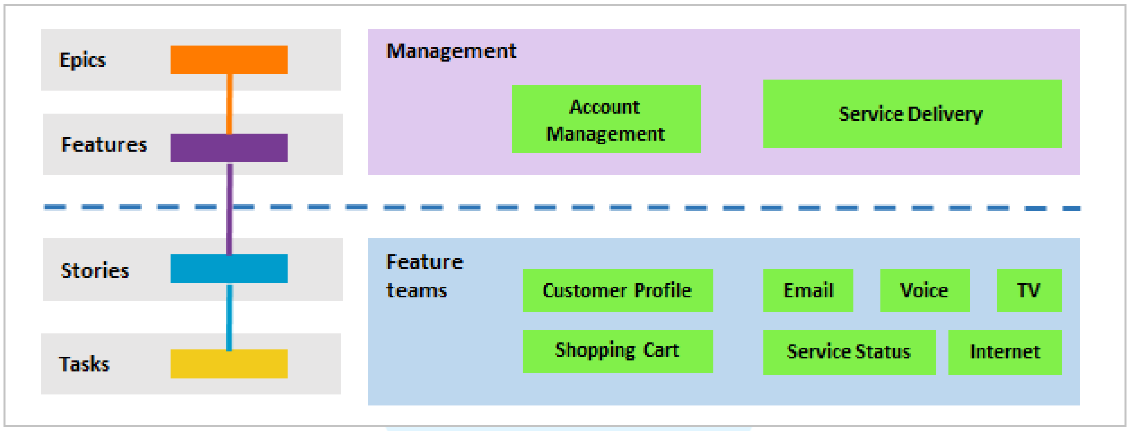
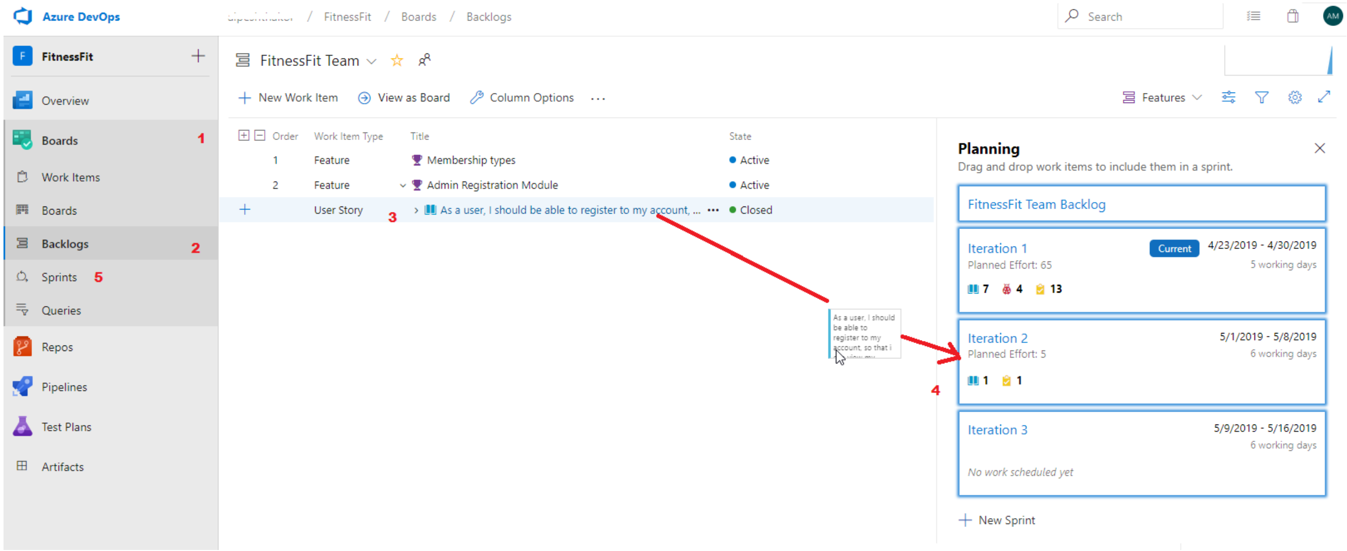


Image Source: https://www.azuredevopslabs.com/labs/azuredevops/agile/

Q6. How to manage Sprint using Azure Boards?

Ans. Once you have your backlog items ready, all you have to do is, navigate to Backlogs from Azure boards, select the user stories that are ready for next sprint and drag and drop in the Iteration in which you want to develop that.



Order	Work Item Type	Title	State
1	Feature	Membership types	● Active
2	Feature	Admin Registration Module	● Active
	User Story	As a user, I should be able to register to my account, ...	● Closed

Planning
Drag and drop work items to include them in a sprint.

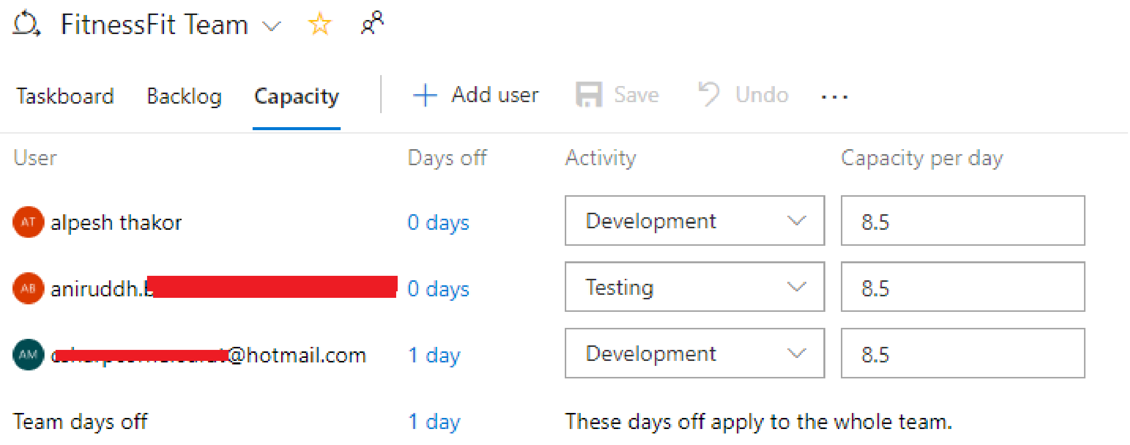
FitnessFit Team Backlog

Iteration 1 — Current — 4/23/2019 - 4/30/2019
Planned Effort: 65 — 5 working days
7 4 13

Iteration 2 — 5/1/2019 - 5/8/2019
Planned Effort: 5 — 6 working days
1 1

Iteration 3 — 5/9/2019 - 5/16/2019
6 working days
No work scheduled yet

Once you move all the items in the next Iteration, navigates to Sprints and then select the Capacity tab.



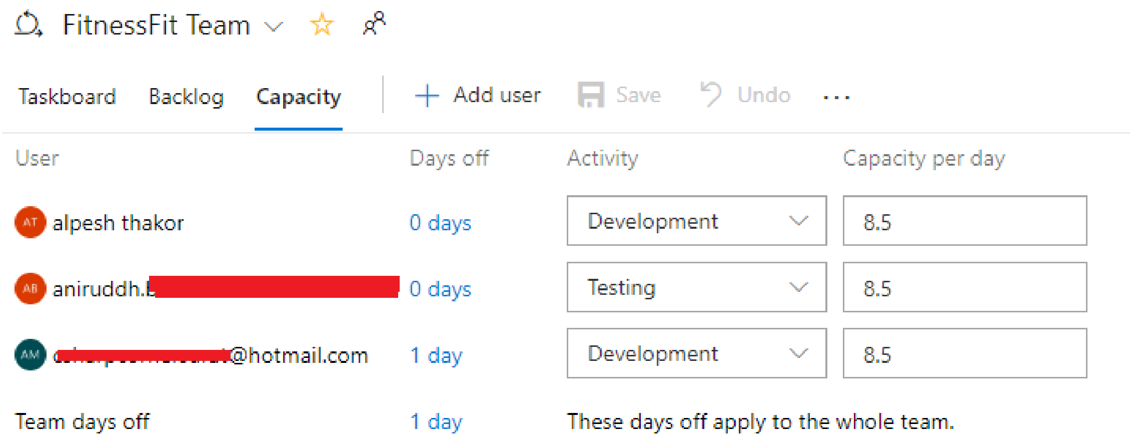
User	Days off	Activity	Capacity per day
alpesh thakor	0 days	Development	8.5
aniruddh.[redacted]	0 days	Testing	8.5
[redacted]@hotmail.com	1 day	Development	8.5
Team days off	1 day	These days off apply to the whole team.	

Here you have to select or add team members, select the activities for them, set capacity per day in hours and manage any off day or holiday in the sprint for the Individual or team and then track the progress day by day.

That way one can manage and plan sprint using Azure Boards.

Q7. What is Team capacity? How to manage Capacity in Sprint?

Ans. Team capacity is team member’s working hours per day. You can manage team capacity from the sprint capacity tab.

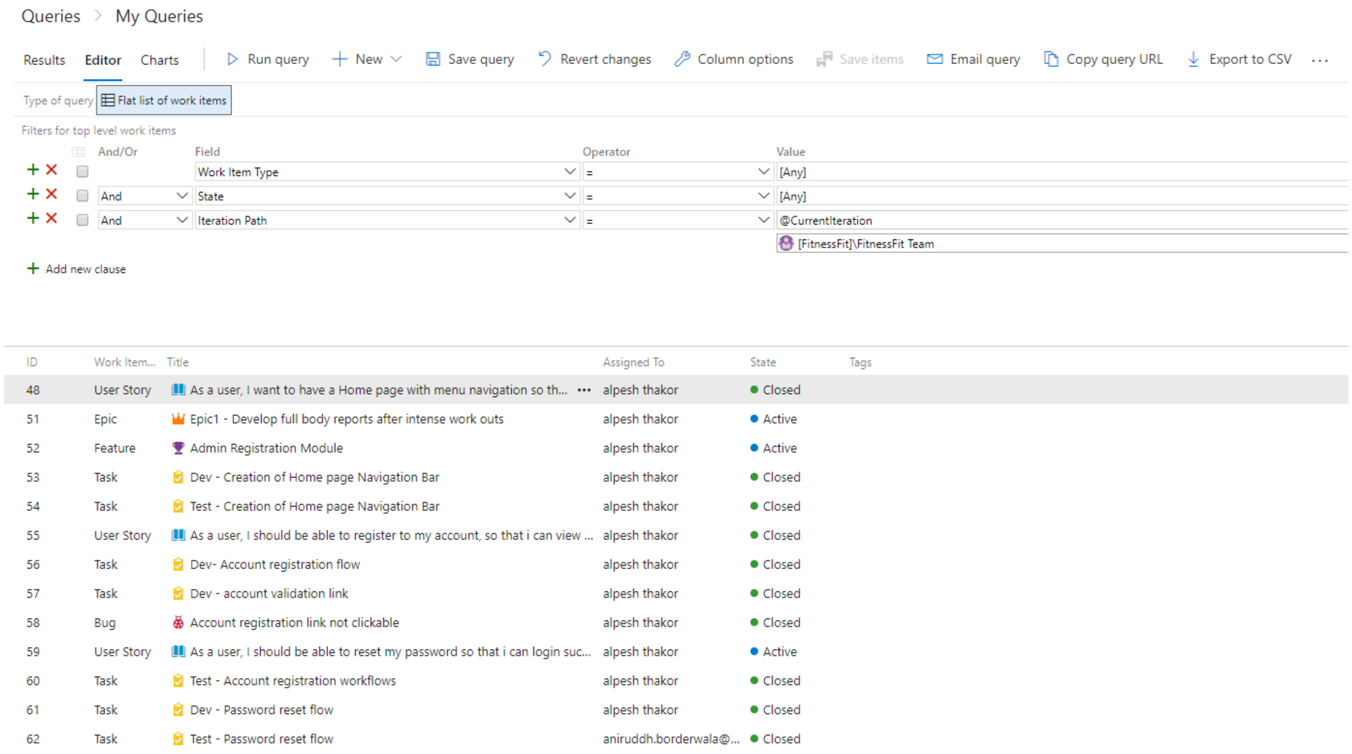


User	Days off	Activity	Capacity per day
alpesh thakor	0 days	Development	8.5
aniruddh.b[redacted]	0 days	Testing	8.5
[redacted]@hotmail.com	1 day	Development	8.5
Team days off	1 day	These days off apply to the whole team.	

Here you can add Individual day off, team day off, their activity area and working capacity per day in hours as shown in the above screen.

Q8. What is the use of Query Editor in Azure boards?

Ans. Query Editor is one of the powerful dynamic query builders and reporting feature of Azure Board. Using that we can create a report dynamically by just selecting the parameter and passing the values as shown in below screen.



Type of query: Flat list of work items

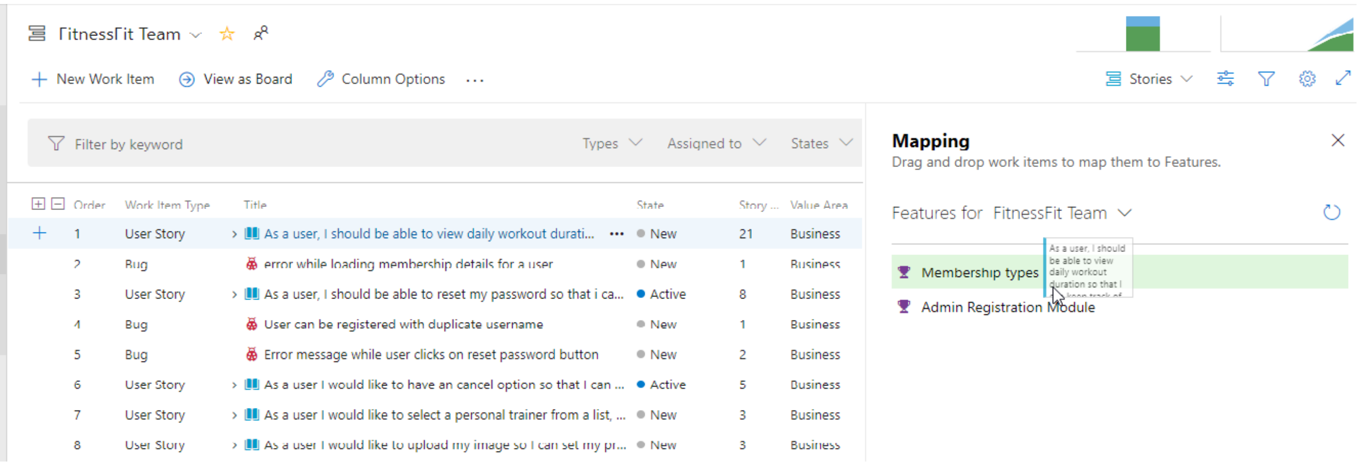
Filters for top level work items

And/Or	Field	Operator	Value
	Work Item Type	=	[Any]
And	State	=	[Any]
And	Iteration Path	=	@CurrentIteration [FitnessFit]\FitnessFit Team

ID	Work Item...	Title	Assigned To	State	Tags
48	User Story	As a user, I want to have a Home page with menu navigation so th... ⋯	alpesh thakor	● Closed	
51	Epic	Epic1 - Develop full body reports after intense work outs	alpesh thakor	● Active	
52	Feature	Admin Registration Module	alpesh thakor	● Active	
53	Task	Dev - Creation of Home page Navigation Bar	alpesh thakor	● Closed	
54	Task	Test - Creation of Home page Navigation Bar	alpesh thakor	● Closed	
55	User Story	As a user, I should be able to register to my account, so that i can view ...	alpesh thakor	● Closed	
56	Task	Dev- Account registration flow	alpesh thakor	● Closed	
57	Task	Dev - account validation link	alpesh thakor	● Closed	
58	Bug	Account registration link not clickable	alpesh thakor	● Closed	
59	User Story	As a user, I should be able to reset my password so that i can login suc...	alpesh thakor	● Active	
60	Task	Test - Account registration workflows	alpesh thakor	● Closed	
61	Task	Dev - Password reset flow	alpesh thakor	● Closed	
62	Task	Test - Password reset flow	aniruddh.borderwala@...	● Closed	

Q9. How to map Requirements with Feature item?

Ans. To map user stories with feature item, from the backlogs just drag and drop the item on the particular feature item from the right-side mapping area as shown in below screen.



FitnessFit Team

Order	Work Item Type	Title	State	Story ...	Value Area
1	User Story	As a user, I should be able to view daily workout durati...	New	21	Business
2	Bug	error while loading membership details for a user	New	1	Business
3	User Story	As a user, I should be able to reset my password so that i ca...	Active	8	Business
4	Bug	User can be registered with duplicate username	New	1	Business
5	Bug	Error message while user clicks on reset password button	New	2	Business
6	User Story	As a user I would like to have an cancel option so that I can ...	Active	5	Business
7	User Story	As a user I would like to select a personal trainer from a list, ...	New	3	Business
8	User Story	As a user I would like to upload my image so I can set my pr...	New	3	Business

Mapping

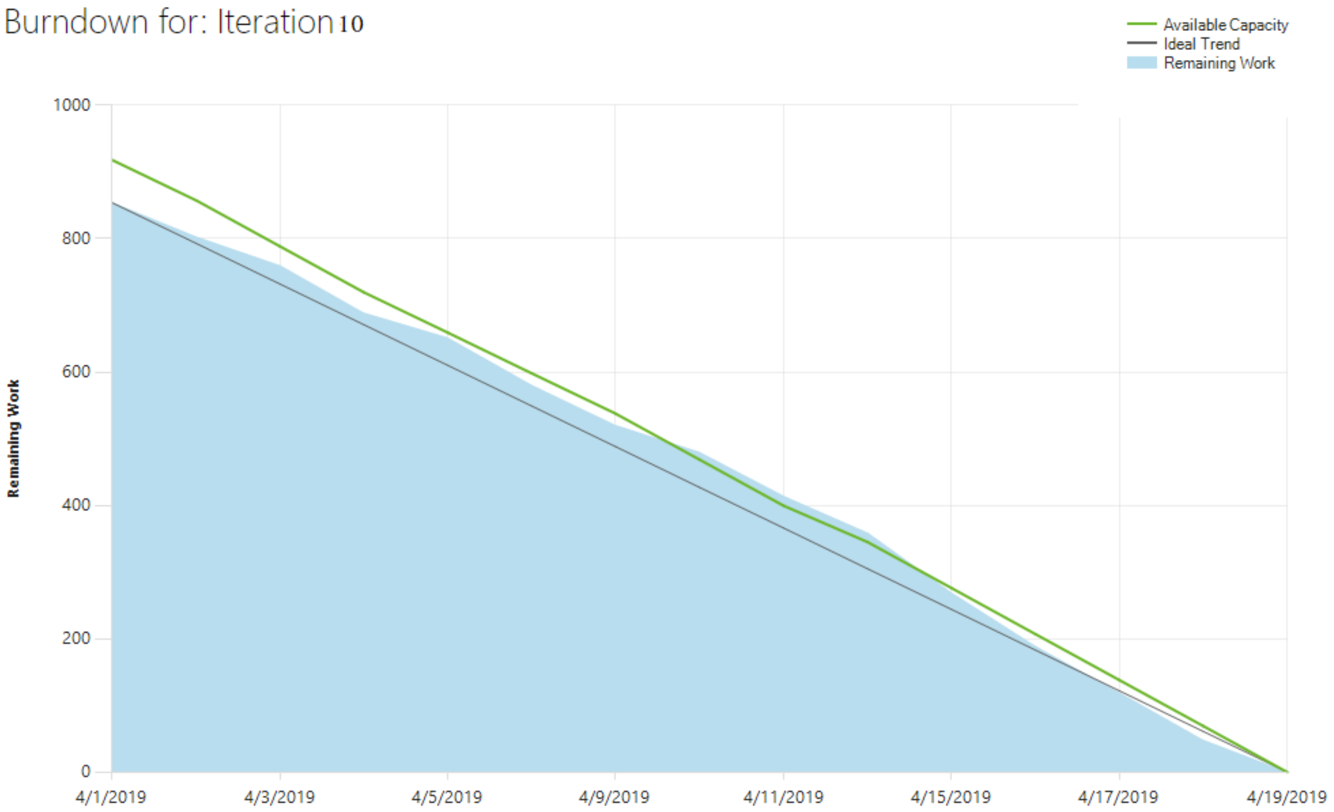
Drag and drop work items to map them to Features.

Features for FitnessFit Team

- Membership types
- Admin Registration Module

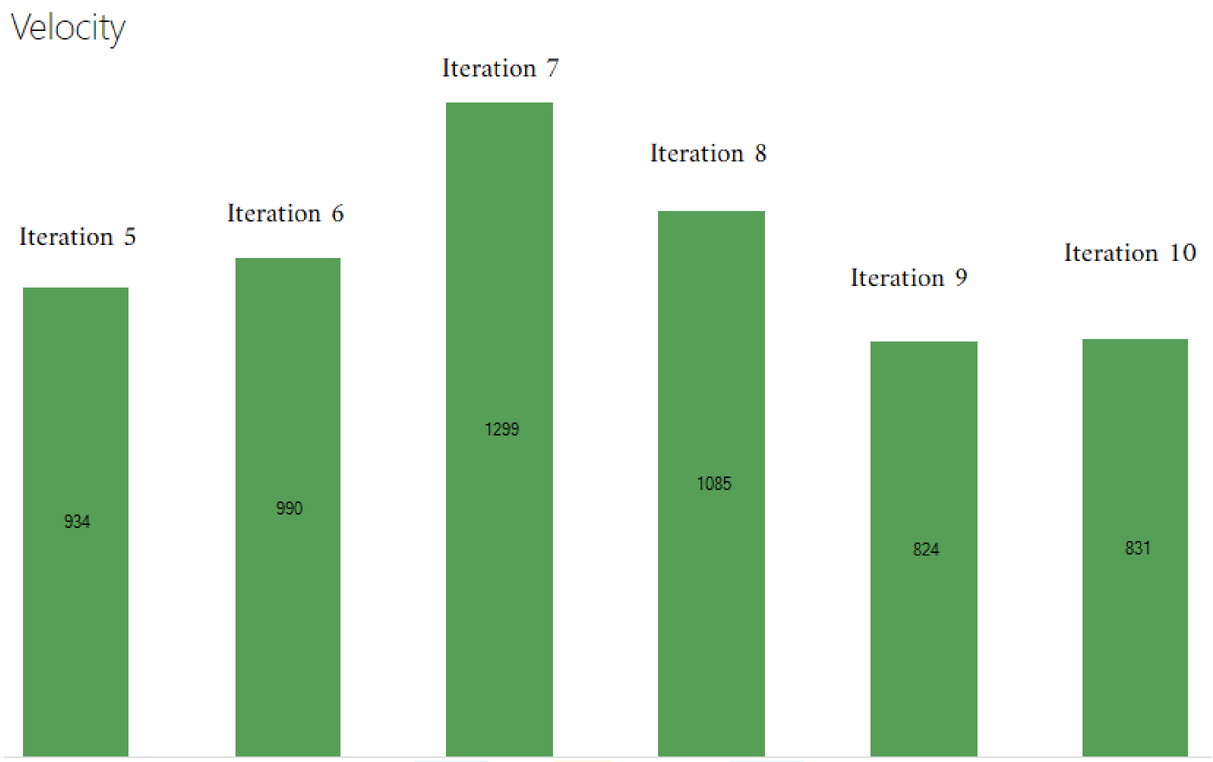
Q10. What is Burndown Graph in Azure DevOps, how to check the burndown graph of a sprint?

Ans. Burndown graph represents the remaining work of a Scrum Team. The vertical axis represents the story points or hours and vertical axis represent the dates (between the sprint start date and end date).



Q11. What is Velocity? How to check Velocity for a particular Team?

Ans. Velocity is the amount of work team can manage during the single sprint.



To check velocity report in Azure Boards, navigate to Backlogs and from the upper right-side corner click on velocity report. It will open the Velocity report of the selected team or area.

4

Azure Repos

Q1. What is version control?

Ans. Version Control means keeping the copies of your code or files from every stage in its project lifecycle. Using Version control system, we can manage all versions of our code with representing a single version at a time.

Version control manages and saves a snapshot of the changes permanently so you can recall it later if you need.

Q2. What is Azure Repos?

Ans. Repo (Repository) is your code or project's folders and files that you want to track. While working with a team using the repo team can work together and collaborate.

Azure DevOps provides two Repos models of version control: Git and TFVC (Team Foundation Version Control)

Using repo, we can upload code, and invite team members to work in the repo. It supports IDE like Visual Studio, Web, Xcode, Eclipse, Command-line and IntelliJ.

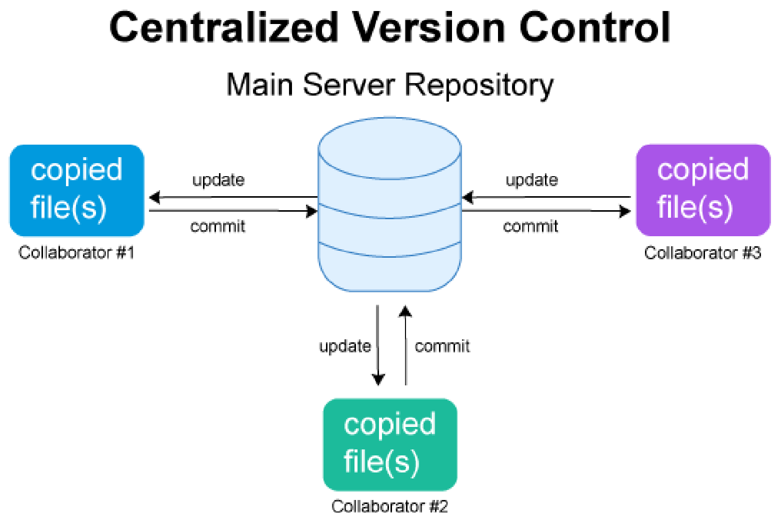
we can also import an existing repo from GitHub, Bitbucket and GitLab.

Q3. What are the benefits of Azure Repos?

Ans. Using Azure Repos and Git or TFVC version control system we can manage and clone existing repos, save work with commits and rollback, create and manage code branches share and update the code with push-pull-fetch mechanism, review code with pull requests and review history.

Q4. What is Team Foundation version control (TFVC)?

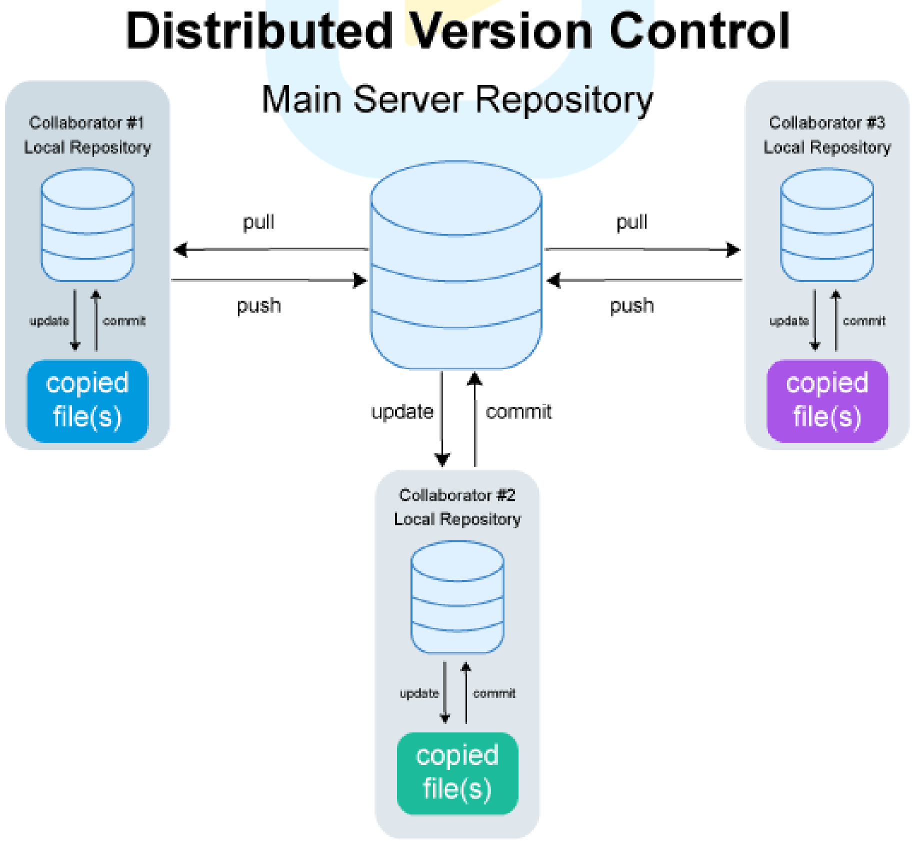
Ans. Team Foundation Version Control is a Centralized Version Control system provided by Azure DevOps to manage your code and files and track changes you make in your code over time.



In centralized version control, System changes are committed by developers and it directly goes into the main server repository. So, any single point of failure or change can destroy all builds. Also, remote commits are very slow in a Centralized System.

Q5. What is Git?

Ans. Git is an Opensource Distributed Version Control system that is designed to manage project version control speedy and effectively.



In the distributed Version control system, all team members have their local copies of files on the local repo, and when they push or comment the changes are stored at local repo first. As per above screen, you can see that the commit was first created locally, and then after checking you can Sync changes to the server, that means we are pushing code from the local repo to main repos or on the server repo.

Q6. What is the difference between Centralized version control and distributed version control?

Ans. Centralized version control system you always need connection with the server so remote commits are very slow, in Distributed version control we have local repos so commits are fast and no active connection needed with the server all the time.

Single point of failure or unsolicited change can destroy all builds in a Centralized System.

Git is open source and it supports all platforms and multiple sets if languages and frameworks.

Git has an automatic backup mechanism of the repository, and all the history managed so well for the pull, push and commits. When one repo gets lost take one of those present on every workstation.

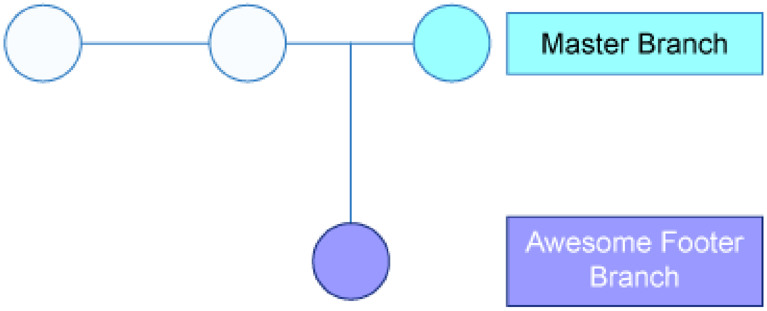
Branching and merging algorithms are much more efficient in Git. So, compete to TFVC, Git is very advanced and with rich features.

Q7. What is Branch? How to create a new branch in Azure Repos?

Ans. Branching a feature of a version control system using that team can work collaboratively.

Just imagine we have a project tree and then we have projects features we can create feature wise branches and the team can work on selected branches, once they finish the work the all they have to do is merge the feature branches to the main branches.

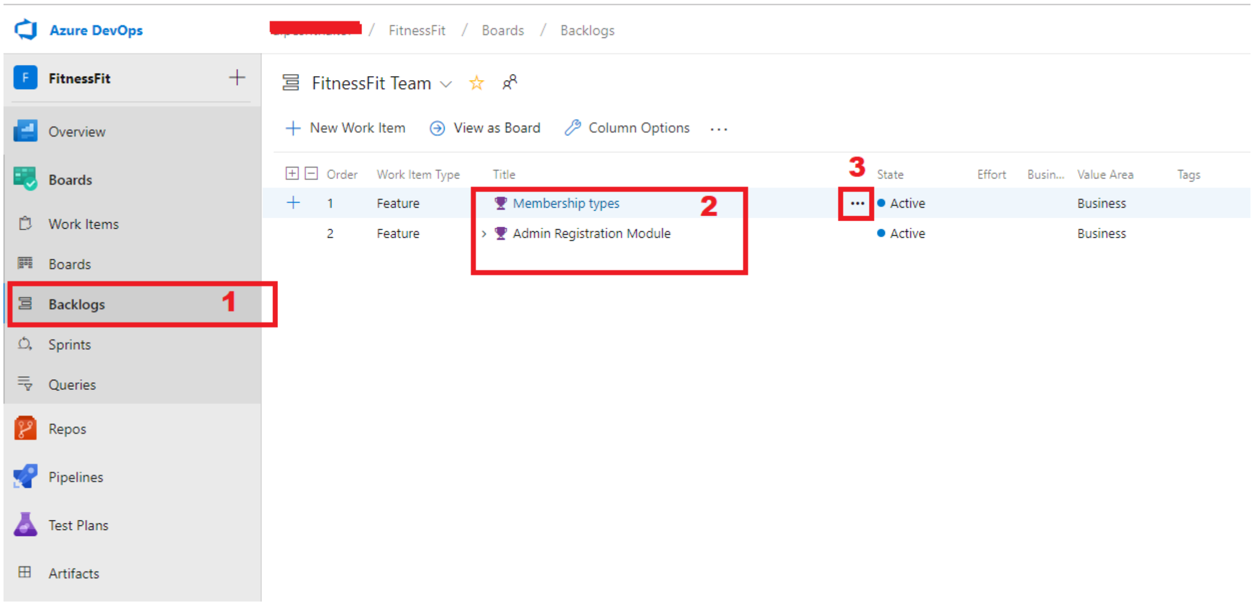
In every project's files, there must be a master copy, we can say that the master branch.



When team working on feature items, we can create a branch from the master branch that represents an independent line of development. Once the team complete the work, they can commit the changes to main or master branch, here in the above example the branch 'Awesome Footer Branch' are just pointers to the commits.

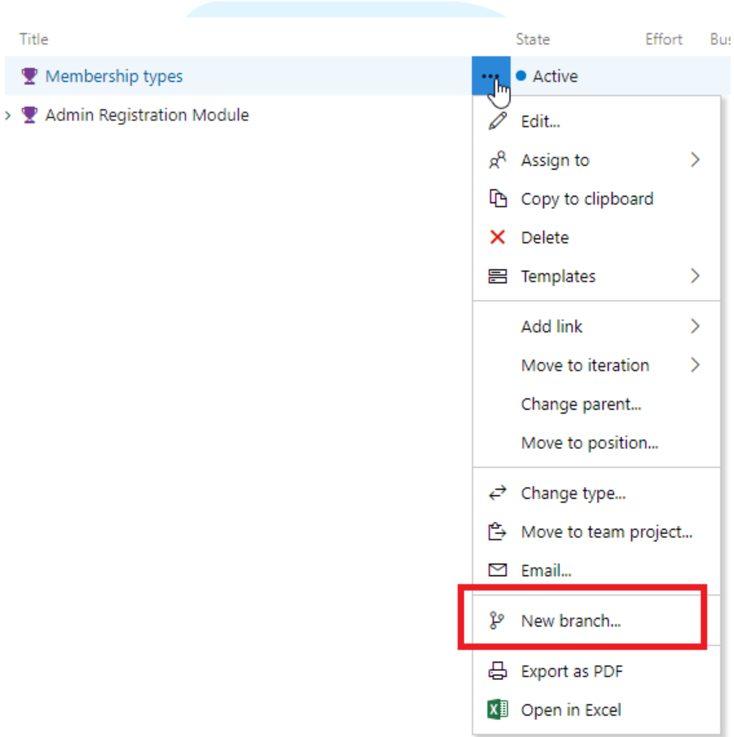
Q8. How to create a branch from a work item with Azure Boards?

Ans. It is very easy to create a branch using Azure Boards, login into your Azure DevOps and navigate to Boards.

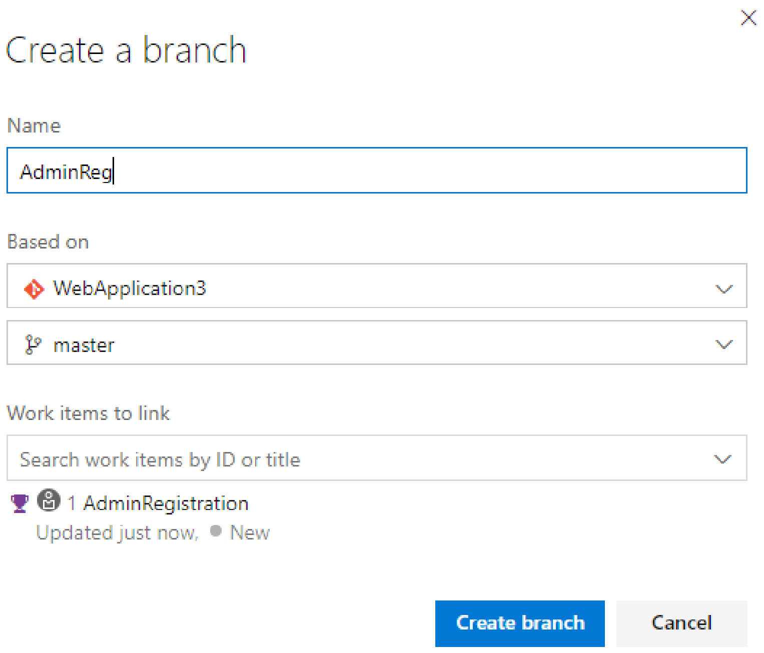


Order	Work Item Type	Title	State	Effort	Busin...	Value Area	Tags
1	Feature	Membership types	Active			Business	
2	Feature	Admin Registration Module	Active			Business	

from the Backlogs select any feature and click on the options menu, and click on ‘New Branch’



It will open a popup, where we have to specify the name of the branch, Based on Branch that is master branch and clicks on Create.



Create a branch

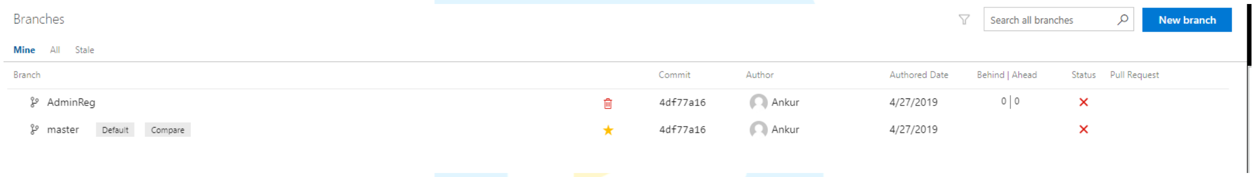
Name: AdminReg

Based on: WebApplication3 / master

Work items to link: Search work items by ID or title

1 AdminRegistration
Updated just now, ● New

It will create a new feature branch and the team can work on that by just changing their code from IDE.



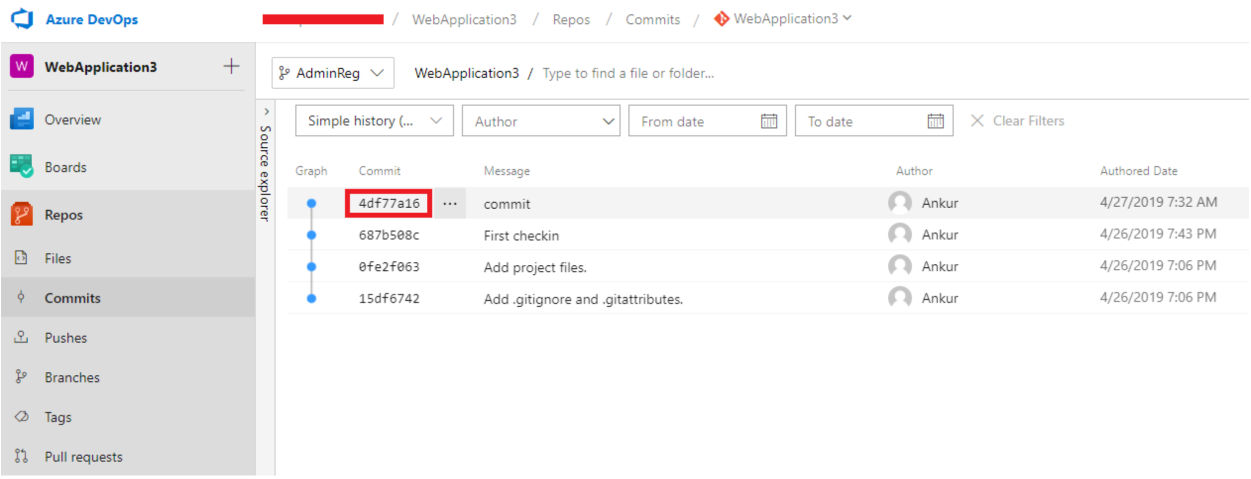
Branches

Mine All Stale

Branch		Commit	Author	Authored Date	Behind | Ahead	Status	Pull Request
AdminReg		4df77a16	Ankur	4/27/2019	0 | 0	✗	
master Default Compare	★	4df77a16	Ankur	4/27/2019		✗	

Q9. What is commits in Azure Repos? When should you make Git commits?

Ans. When developers complete the code, to push that on the main repository they have to commit the changes as git does not automatically snapshot the changes. You have to tell which changes you want to add to the next snapshot by staging those changes. After that, you have to commit to save the changes to your repository.



Azure DevOps [redacted] / WebApplication3 / Repos / Commits / WebApplication3

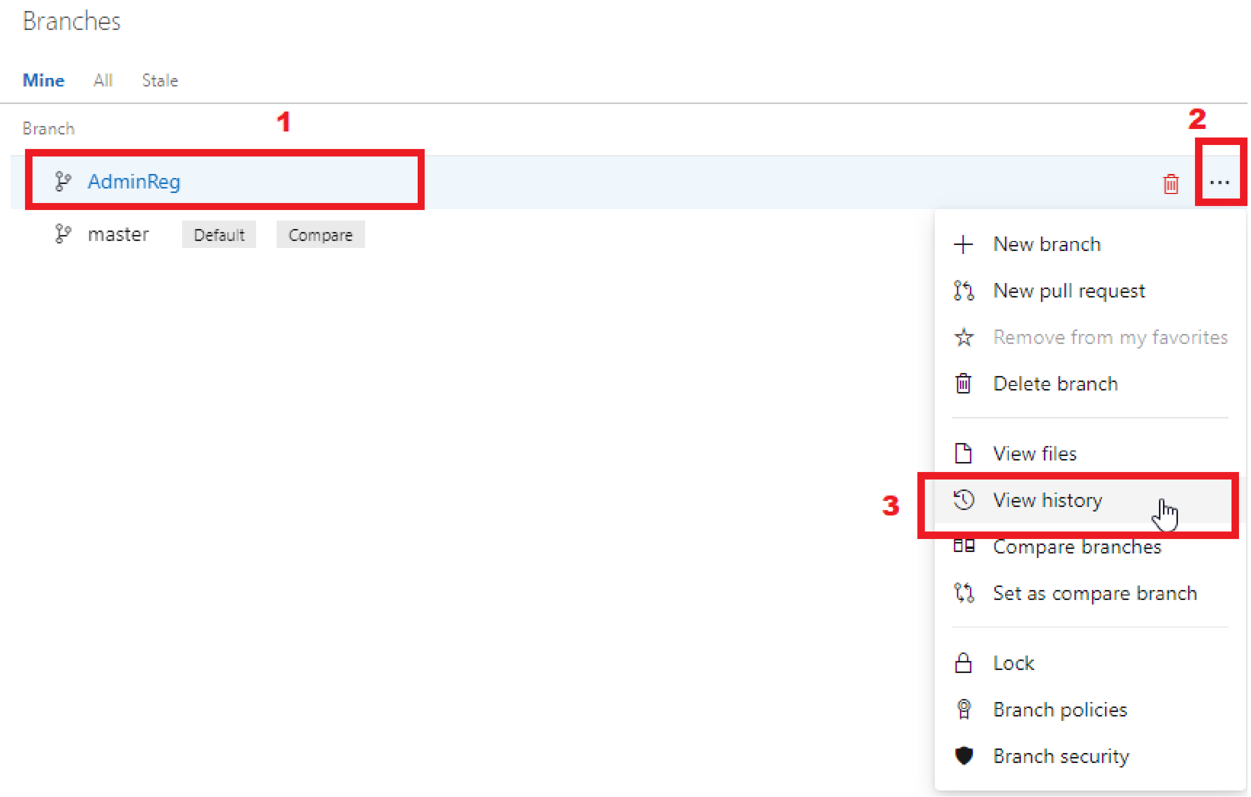
WebApplication3 — AdminReg — WebApplication3 / Type to find a file or folder...

Graph	Commit	Message	Author	Authored Date
●	4df77a16	commit	Ankur	4/27/2019 7:32 AM
●	687b508c	First checkin	Ankur	4/26/2019 7:43 PM
●	0fe2f063	Add project files.	Ankur	4/26/2019 7:06 PM
●	15df6742	Add .gitignore and .gitattributes.	Ankur	4/26/2019 7:06 PM

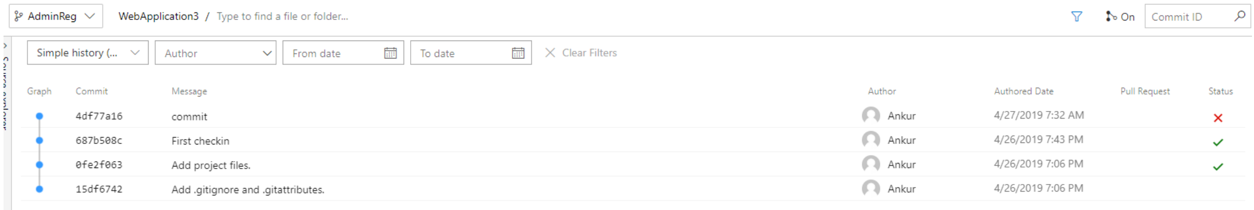
As you can see in the above picture, whenever developers make commits it will create a commit reference point with a unique id to track the changes.

Q10. How to check Branch history in Azure Repos?

Ans. To check the branch history from the Repos, navigates to branches and select the branch for which you want to check the history.



Click on the options button and navigate to View history.



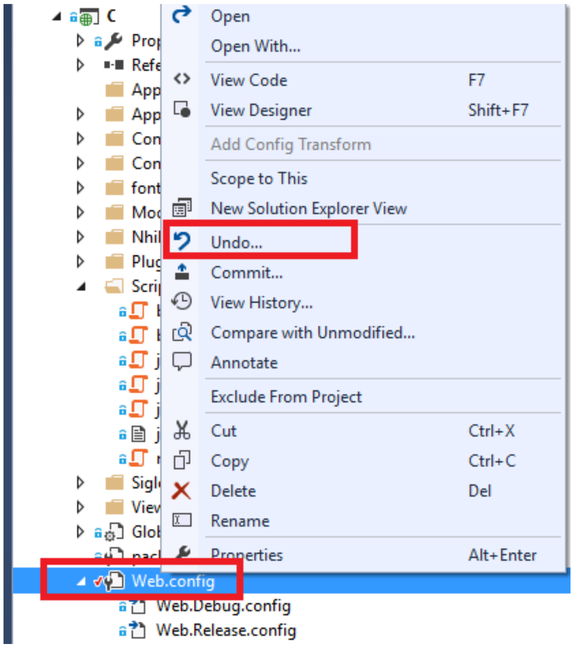
Graph	Commit	Message	Author	Authored Date	Pull Request	Status
●	4df77a16	commit	Ankur	4/27/2019 7:32 AM		✗
●	687b508c	First checkin	Ankur	4/26/2019 7:43 PM		✓
●	0fe2f063	Add project files.	Ankur	4/26/2019 7:06 PM		✓
●	15df6742	Add .gitignore and .gitattributes.	Ankur	4/26/2019 7:06 PM		

Here you can see all the changes and commits for the selected branch.

Q11. How to rollback Git commit that has already been pushed?

Ans. To undo your changes there are 3 ways.

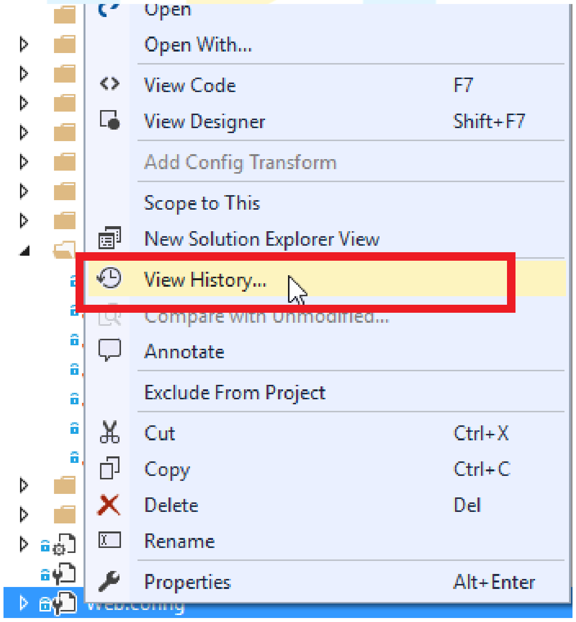
1. **Discard uncommitted change from the file.**



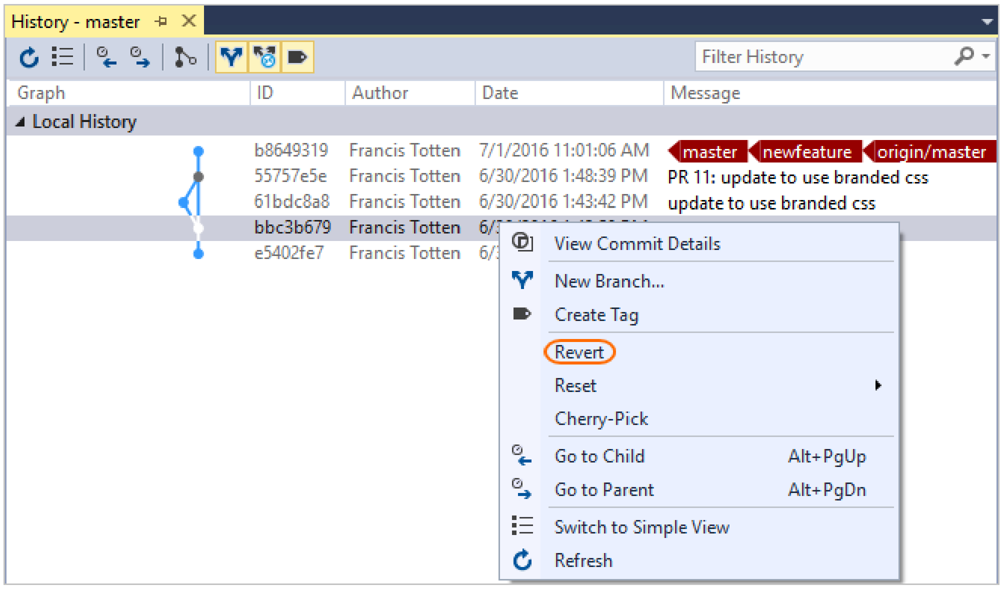
Right click on the file and click on undo to rollback changes.

2. Rollback changes in shared commits

You can rollback changes in shared commits by right click on view history option as shown in below screen.

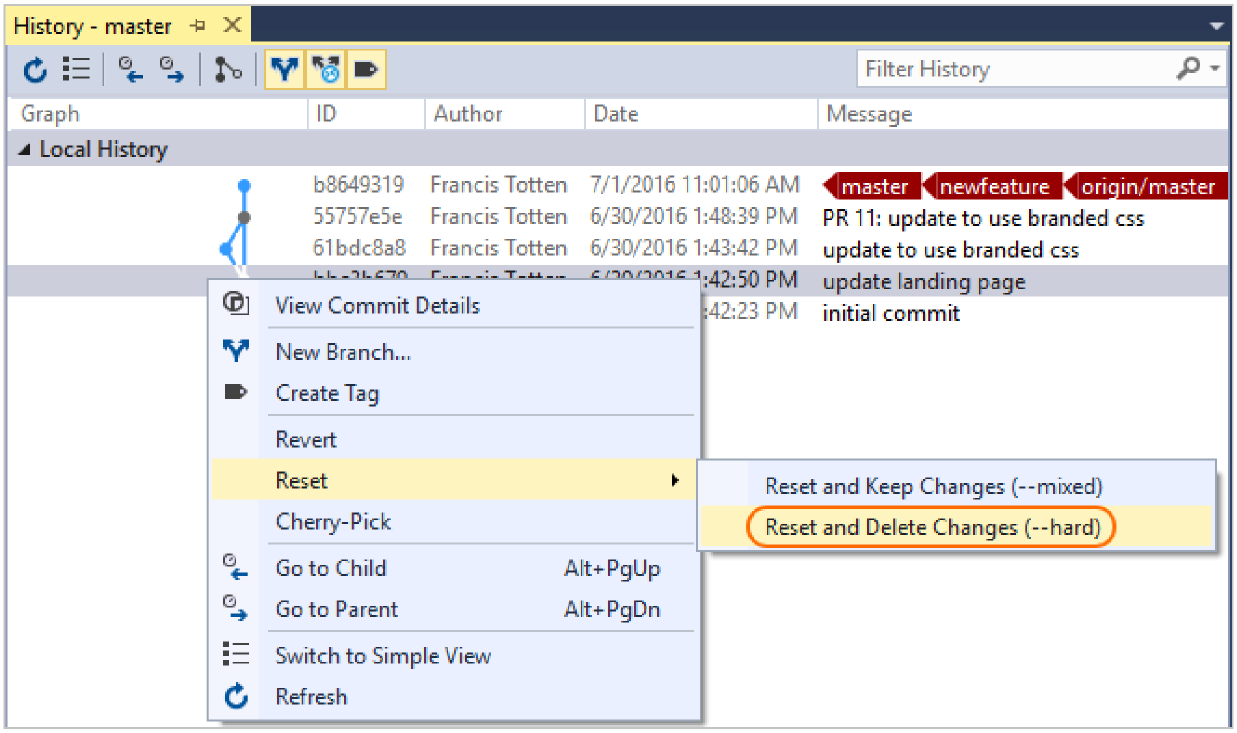


From the local history, just right click on the Commit Id and click on Revert to roll back the changes.



Graph	ID	Author	Date	Message
	b8649319	Francis Totten	7/1/2016 11:01:06 AM	master newfeature origin/master
	55757e5e	Francis Totten	6/30/2016 1:48:39 PM	PR 11: update to use branded css
	61bdc8a8	Francis Totten	6/30/2016 1:43:42 PM	update to use branded css
	bbc3b679	Francis Totten	6/	
	e5402fe7	Francis Totten	6/	

3. **Reset the entire branch to a previous state.**



Graph	ID	Author	Date	Message
	b8649319	Francis Totten	7/1/2016 11:01:06 AM	master newfeature origin/master
	55757e5e	Francis Totten	6/30/2016 1:48:39 PM	PR 11: update to use branded css
	61bdc8a8	Francis Totten	6/30/2016 1:43:42 PM	update to use branded css
	bbc3b679	Francis Totten	6/30/2016 1:42:50 PM	update landing page
			:42:23 PM	initial commit

To rollback entire branch to the previous branch, from the history windows right click on the commit and then click on reset and select ‘Reset and Delete Changes’

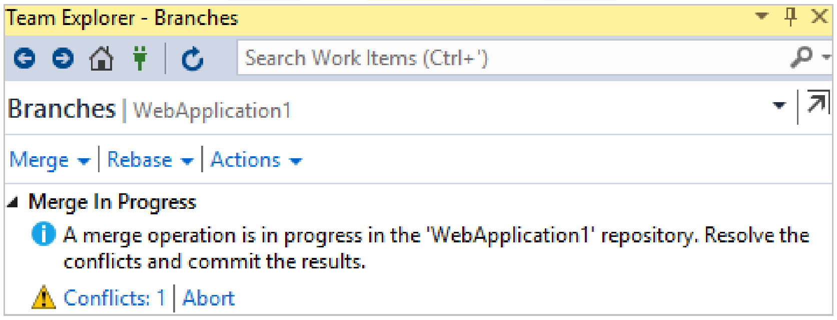
Q12. Explain Git commands you use frequently.

Ans. Here are the Git commands which are being used frequently.

- git config: for setup the author name and email address to be used with your commits.
- git init: for init and start new repo
- git clone: for cloning project from an existing URL.
- git add: to add a file
- git commit: for commit changes and take a snapshot in the version history.
- git diff: for finding the difference between two files which not yet staged.
- git reset: for unstages the file, but it preserves the file contents.
- git status: for listing out all the files that have to be committed.
- git rm: for removing the file from your working directory and stages the deletion.
- git log: for checking version history of the current branch.
- git show: for checking the metadata and content changes of the specified commit.
- git branch: to finds all current branch in the current repo.
- git checkout: for switching branch
- git merge: to merge specified branch's history into the current branch.
- git remote: for fetches and merges changes on the remote server to your working folder.
- git push: push the committed changes of the main branch to your remote repository.
- git pull: for fetching and merging changes on the remote server to your working folder.

Q13. Explain, how to resolve conflicts in Azure DevOps?

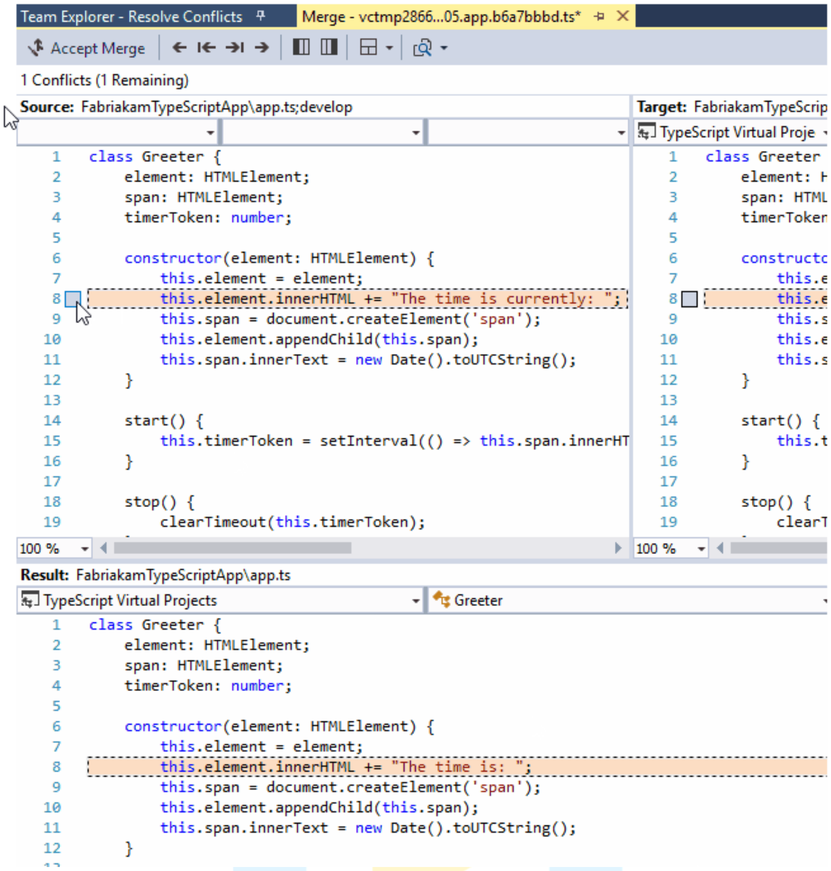
Ans. When you pull changes or merge two branches at that time if there is a conflict then the system will notify you about that and then you have to resolve those conflicts.



A merge operation is in progress in the 'WebApplication1' repository. Resolve the conflicts and commit the results.

You can see a list of files and once you select any file it will show the 2 files, both source and target.

Based on your correction if you want to get changes from source branch or target branch you have to select Take target or Take Source. Use the checkboxes next to the lines modified to select between source and target changes entirely. Once done, click Accept Merge.



Team Explorer - Resolve Conflicts
Merge - vctmp2866...05.app.b6a7bbbd.ts*
Accept Merge

1 Conflicts (1 Remaining)

Source: FabriakamTypeScriptApp\app.ts;develop

```
class Greeter {
    element: HTMLElement;
    span: HTMLElement;
    timerToken: number;

    constructor(element: HTMLElement) {
        this.element = element;
□       this.element.innerHTML += "The time is currently: ";
        this.span = document.createElement('span');
        this.element.appendChild(this.span);
        this.span.innerText = new Date().toUTCString();
    }

    start() {
        this.timerToken = setInterval(() => this.span.innerHT
    }

    stop() {
        clearTimeout(this.timerToken);
```

Target: FabriakamTypeScrip

TypeScript Virtual Proje

```
class Greeter
    element: H
    span: HTML
    timerToker

    constructc
        this.e
□       this.e
        this.s
        this.e
        this.s
    }

    start() {
        this.t
    }

    stop() {
        clearT
```

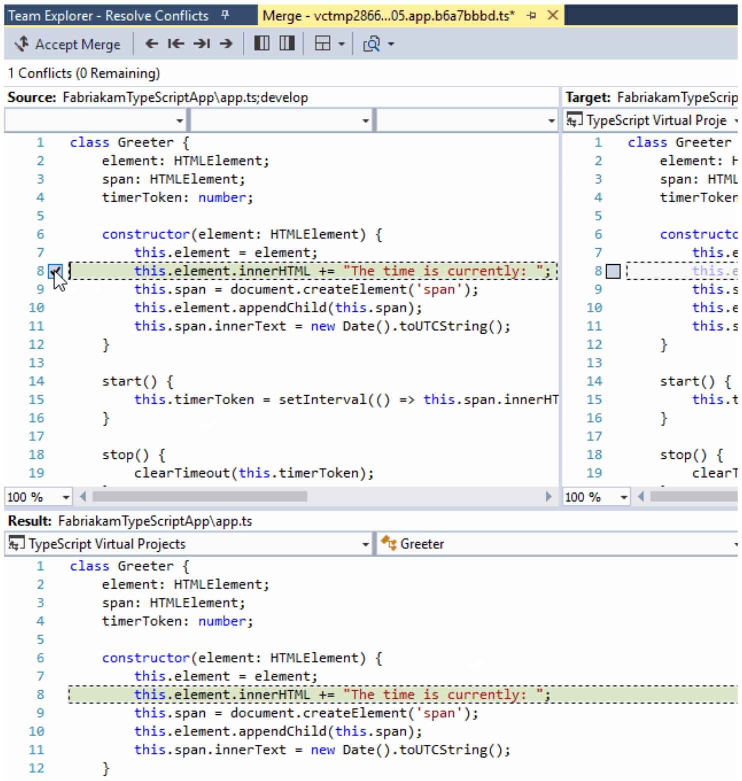
100 %

Result: FabriakamTypeScriptApp\app.ts

TypeScript Virtual Projects | Greeter

```
class Greeter {
    element: HTMLElement;
    span: HTMLElement;
    timerToken: number;

    constructor(element: HTMLElement) {
        this.element = element;
        this.element.innerHTML += "The time is: ";
        this.span = document.createElement('span');
        this.element.appendChild(this.span);
        this.span.innerText = new Date().toUTCString();
    }
```



Team Explorer - Resolve Conflicts
Merge - vctmp2866...05.app.b6a7bbbd.ts*
Accept Merge

1 Conflicts (0 Remaining)

Source: FabriakamTypeScriptApp\app.ts;develop

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class Greeter {
    element: HTMLElement;
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        this.span.innerText = new Date().toUTCString();
    }

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    stop() {
        clearTimeout(this.timerToken);
```

Target: FabriakamTypeScrip

TypeScript Virtual Proje

```
class Greeter
    element: H
    span: HTML
    timerToker

    constructc
        this.e
□       this.e
        this.s
        this.e
        this.s
    }

    start() {
        this.t
    }

    stop() {
        clearT
```

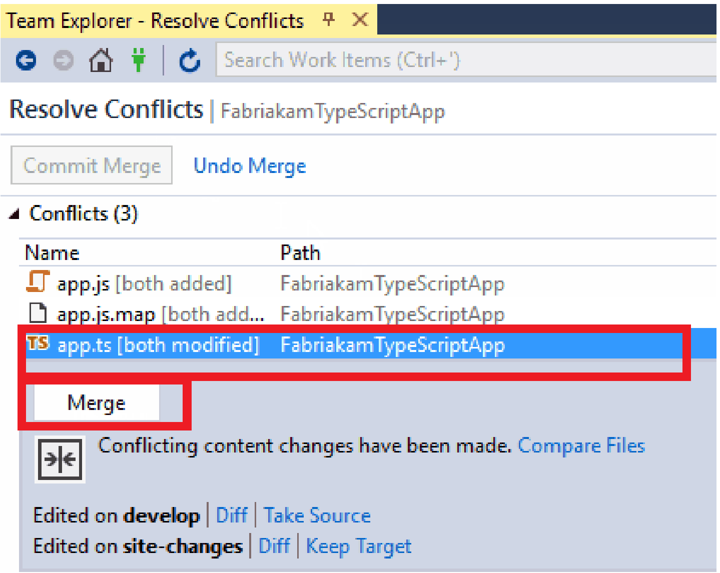
100 %

Result: FabriakamTypeScriptApp\app.ts

TypeScript Virtual Projects | Greeter

```
class Greeter {
    element: HTMLElement;
    span: HTMLElement;
    timerToken: number;

    constructor(element: HTMLElement) {
        this.element = element;
        this.element.innerHTML += "The time is currently: ";
        this.span = document.createElement('span');
        this.element.appendChild(this.span);
        this.span.innerText = new Date().toUTCString();
    }
```

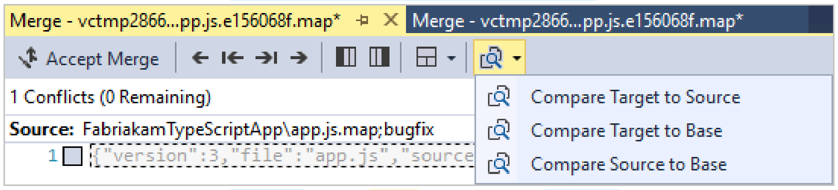

Team Explorer - Resolve Conflicts
Search Work Items (Ctrl+')
Resolve Conflicts | FabriakamTypeScriptApp
Commit Merge
Undo Merge
Conflicts (3)
Merge
Compare Files
Diff
Take Source
Diff
Keep Target

Name	Path
app.js [both added]	FabriakamTypeScriptApp
app.js.map [both add...	FabriakamTypeScriptApp
app.ts [both modified]	FabriakamTypeScriptApp

Conflicting content changes have been made. Compare Files

Edited on **develop** | Diff | Take Source
Edited on **site-changes** | Diff | Keep Target

Compare the conflicting commits as well as the differences between the common history with the options in Visual Studio's merge tool.



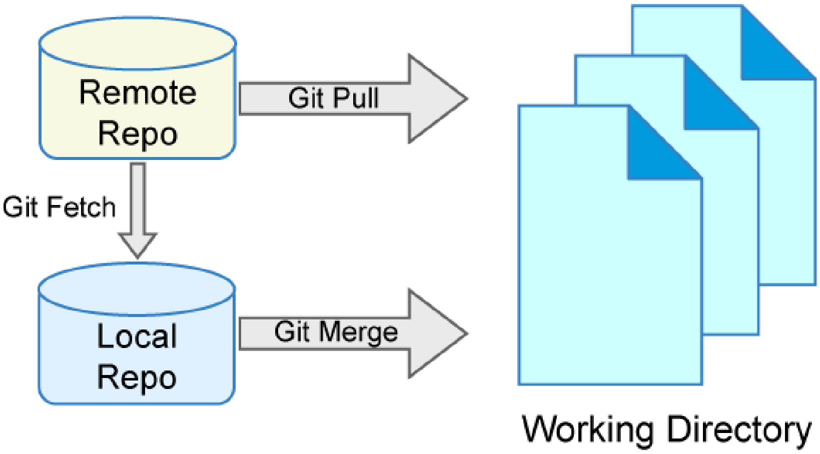
1 Conflicts (0 Remaining)

Source: FabriakamTypeScriptApp\app.js.map;bugfix

```
1 {"version":3,"file":"app.js","source
```

Q14. What is the difference between git fetch, git pull and git merge?

Ans. Git Fetch: is used for downloading remote repository on a local repository.

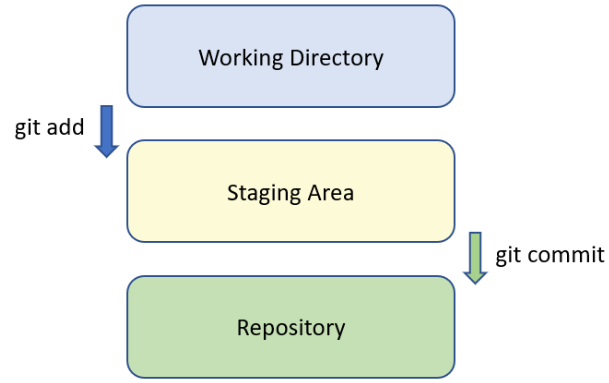


Git Pull: is used for fetch remote repository to the current working copy files

Git Merge: is used to merging local repository to the working directory.

Q15. What is 'staging area' in Git?

Ans. Staging area or we can say index area is the area before the commit process.



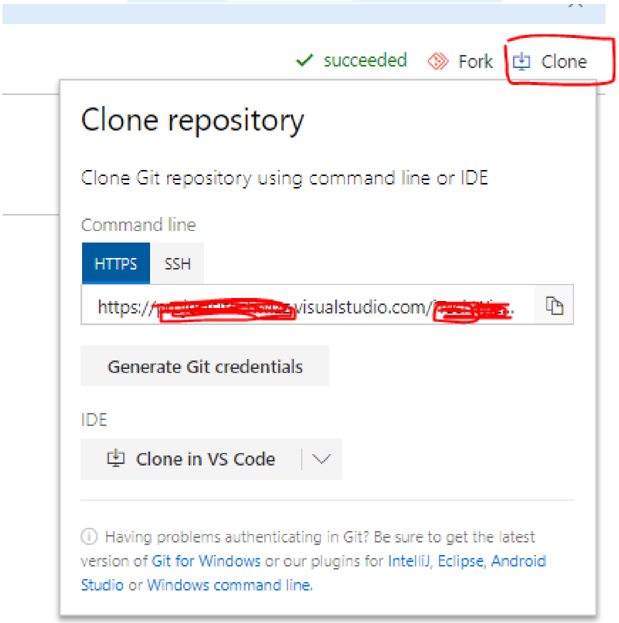
In git, it performed in two steps staging and actual commit.

Q16. What are the Pull Requests?

Ans. Pull request is useful when you want to tell other team members about your changes you've pushed to the repository. Once you send a pull request reviewer can review the set of changes, discuss potential change request and even push commits if all looks good.

Q17. How to Clone an existing Git Repo in Azure Repos?

Ans. From Azure DevOps, navigates to Repos and Files. from the upper right corner, click Clone and from the pop-up, select and copy the URL.



Clone repository

Clone Git repository using command line or IDE

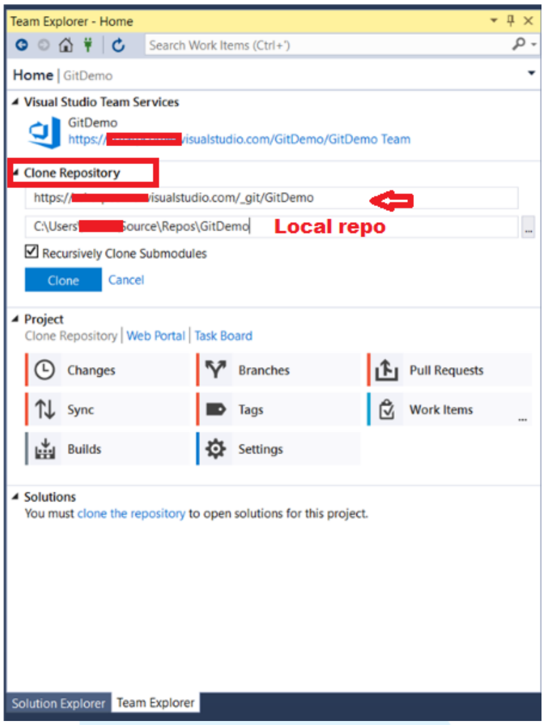
Command line

https://[redacted]visualstudio.com/[redacted].

IDE

ⓘ Having problems authenticating in Git? Be sure to get the latest version of Git for Windows or our plugins for IntelliJ, Eclipse, Android Studio or Windows command line.

from visual studio IDE, connect Team Explorer and then from the clone repository section paste the URL that you have copied from the Azure DevOps.



https://[redacted]visualstudio.com/GitDemo/GitDemo Team

https://[redacted]visualstudio.com/_git/GitDemo

C:\Users[redacted]Source\Repos\GitDemo

Local repo

You must clone the repository to open solutions for this project.

And then click on the Clone button to clone the project on your machine. That will clone a project copy into your system.

Q18. What is Changesets in TFS?

Ans. It is a grouping of your code files that you're checking in to TFS or Azure DevOps using Team Foundation version control. So, working on one feature item and you have some features done you want to check-in code, that group of files that you are going to checked in is called changesets.

Q19. What is Shelvesets in TFS?

Ans. Shelvesets means you are working on feature item and you want to keep the changes aside to work later you can make it Shelvesets so that changes are not available for a team member. It's kind of context switching for your code.

5

Azure Pipelines

Q1. What are Azure Pipelines?

Ans. Azure Pipelines are one of the key features for implementing DevOps, as It supports Continuous Integration (CI) and Continuous delivery (CD) using that we can automatically build and test your code projects.

That is useful for the constantly test and build your code and ship it to any target.

Q2. How do you create a pipeline in Azure pipelines?

Ans. To create a pipeline, login into your DevOps organization account and then navigate to Pipelines. Choose the action to create a pipeline, you can choose to build a pipeline or release pipeline.

There are 4 steps to setup Continuous Integration Connect, Select, Configure and Review.

Connect: to connect with your code repo from git or GitHub.

Select: select your repository and branch you want to build.

Configure: there are lots of default templates available to achieve the tasks also you can set Configuration as code sing YAML.

Apply the appropriate templates and setup the agent and other configurations.

Review: to run the tasks and review the live progress and logs of all the activities.

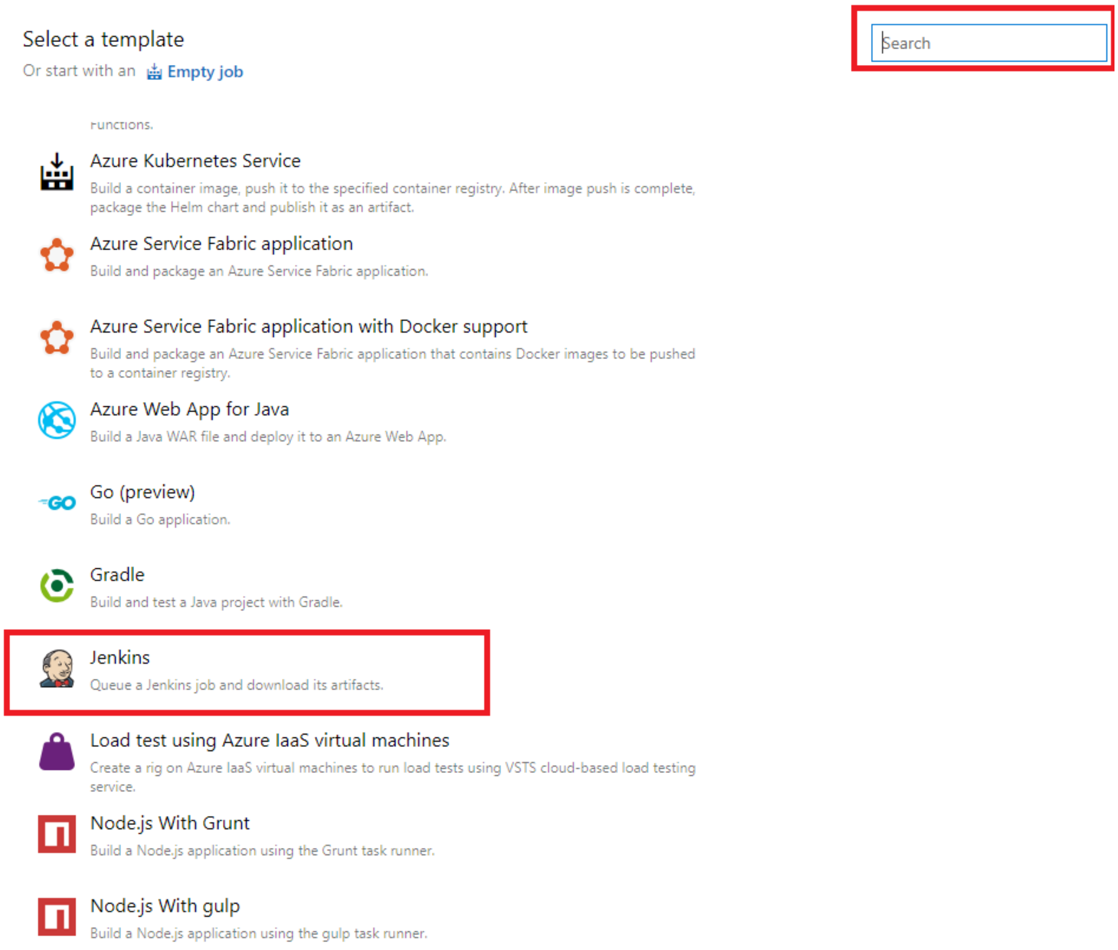
To setup Continuous Deployment, navigate to release tab and set new release pipeline. Select the build artifacts and set the stages like Dev, UAT or production with appropriate templates that have all the tasks and agent for the deployment. Also, you can schedule the triggers the actions and tasks to automatically deploy the build on a particular stage server.

Q3. Can we Setup .NET Project Build Using Jenkins?

Ans. Yes, we can set the .net project build using Jenkins.

Q4. How to setup .NET Project Build Using Jenkins?

Ans. For that from the 2nd step that is select a template, look for the Jenkins and click on Apply.



Select a template

Or start with an Empty job

Search

Functions.

Azure Kubernetes Service

Build a container image, push it to the specified container registry. After image push is complete, package the Helm chart and publish it as an artifact.

Azure Service Fabric application

Build and package an Azure Service Fabric application.

Azure Service Fabric application with Docker support

Build and package an Azure Service Fabric application that contains Docker images to be pushed to a container registry.

Azure Web App for Java

Build a Java WAR file and deploy it to an Azure Web App.

Go (preview)

Build a Go application.

Gradle

Build and test a Java project with Gradle.

Jenkins

Queue a Jenkins job and download its artifacts.

Load test using Azure IaaS virtual machines

Create a rig on Azure IaaS virtual machines to run load tests using VSTS cloud-based load testing service.

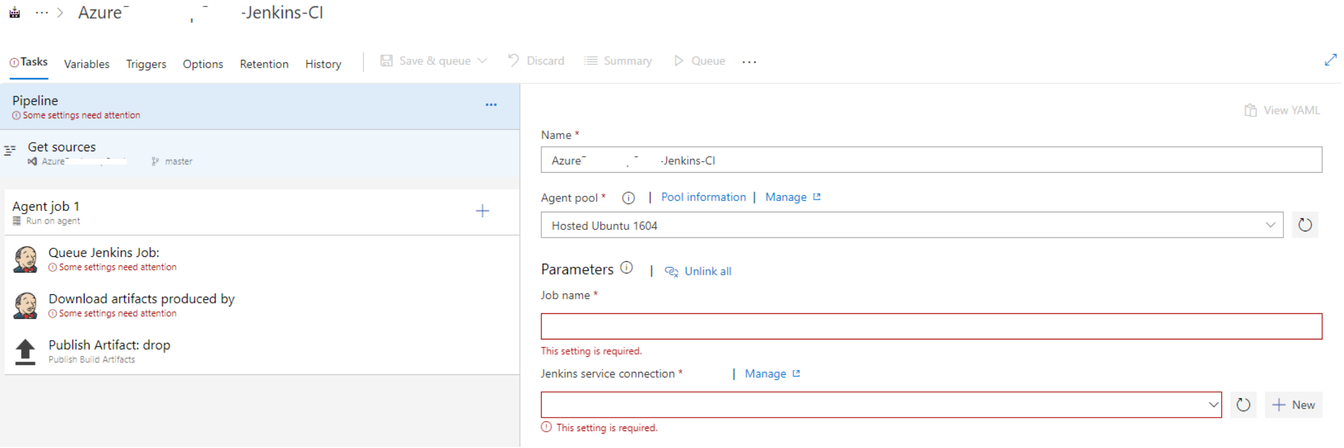
Node.js With Grunt

Build a Node.js application using the Grunt task runner.

Node.js With gulp

Build a Node.js application using the gulp task runner.

Configure the Jenkins service connection, agent pool, parameters and agents and then run the builds as shown in the below screen.



Pipeline

Some settings need attention

Get sources

Azure master

Agent job 1

Run on agent

Queue Jenkins Job:

Some settings need attention

Download artifacts produced by

Some settings need attention

Publish Artifact: drop

Publish Build Artifacts

Name *

Azure -Jenkins-CI

Agent pool * | Pool information | Manage

Hosted Ubuntu 1604

Parameters | Unlink all

Job name *

This setting is required.

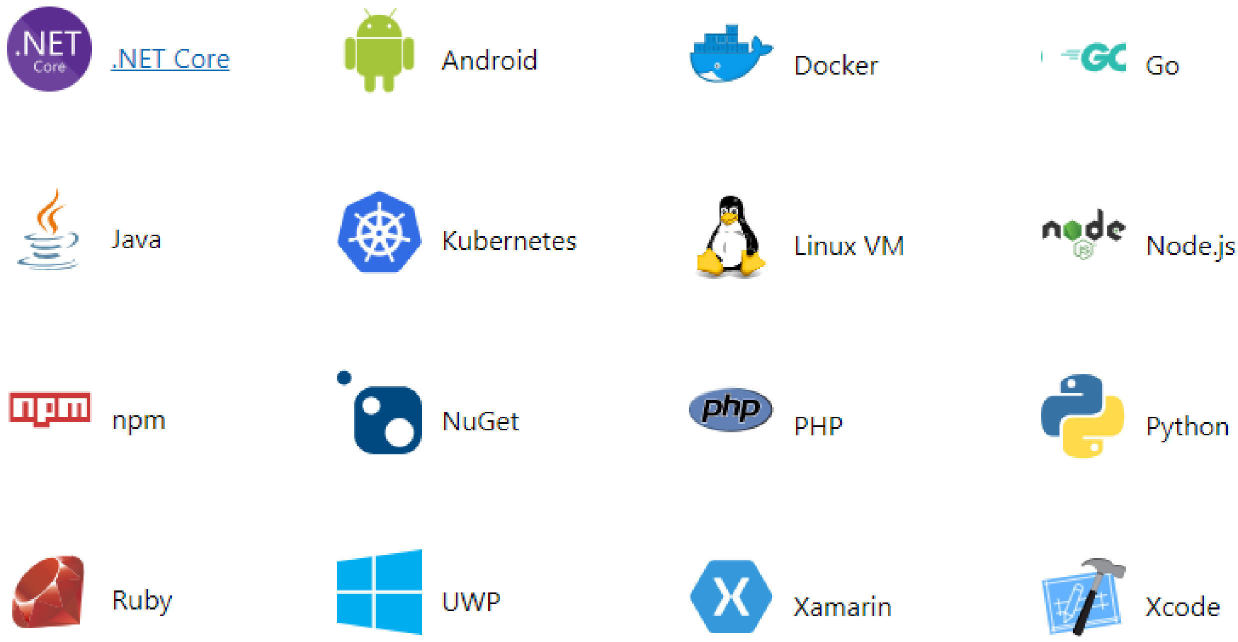
Jenkins service connection * | Manage

This setting is required.

Q5. Which platform supported by Azure Pipelines?

Ans. Azure pipelines work with almost all the platforms like Windows, Linux, MacOS, Windows Virtual Machine, Kubernetes, and many.

It also works with any cloud platforms or app store like, AWS or GCP



.NET Core	Android	Docker	Go
Java	Kubernetes	Linux VM	Node.js
npm	NuGet	PHP	Python
Ruby	UWP	Xamarin	Xcode

Q6. Which language supported by Azure Pipelines?

Ans. Azure pipelines work with almost all the languages like, C#, Java, PHP, Python, Ruby and Go.

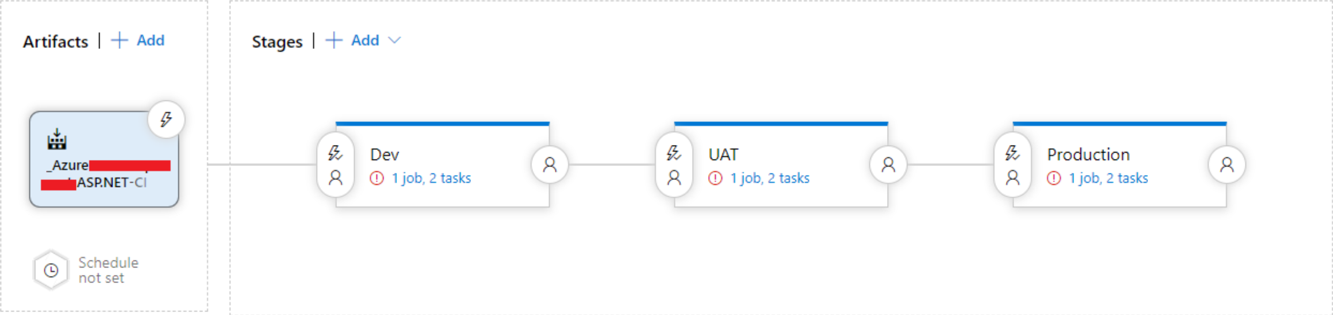
Q7. What are the Benefits of YAML in Azure Pipelines?

Ans. You can setup the build and CI/CD Pipeline using YAML (Yet Another Markup Language) also. Using YAML team can easily access the same pipelines feature as they are in Azure DevOps visual designer.

The YAML file is just like a normal source file, and easy to manage by simply adding to the root repos.

Q8. What are the Release pipelines?

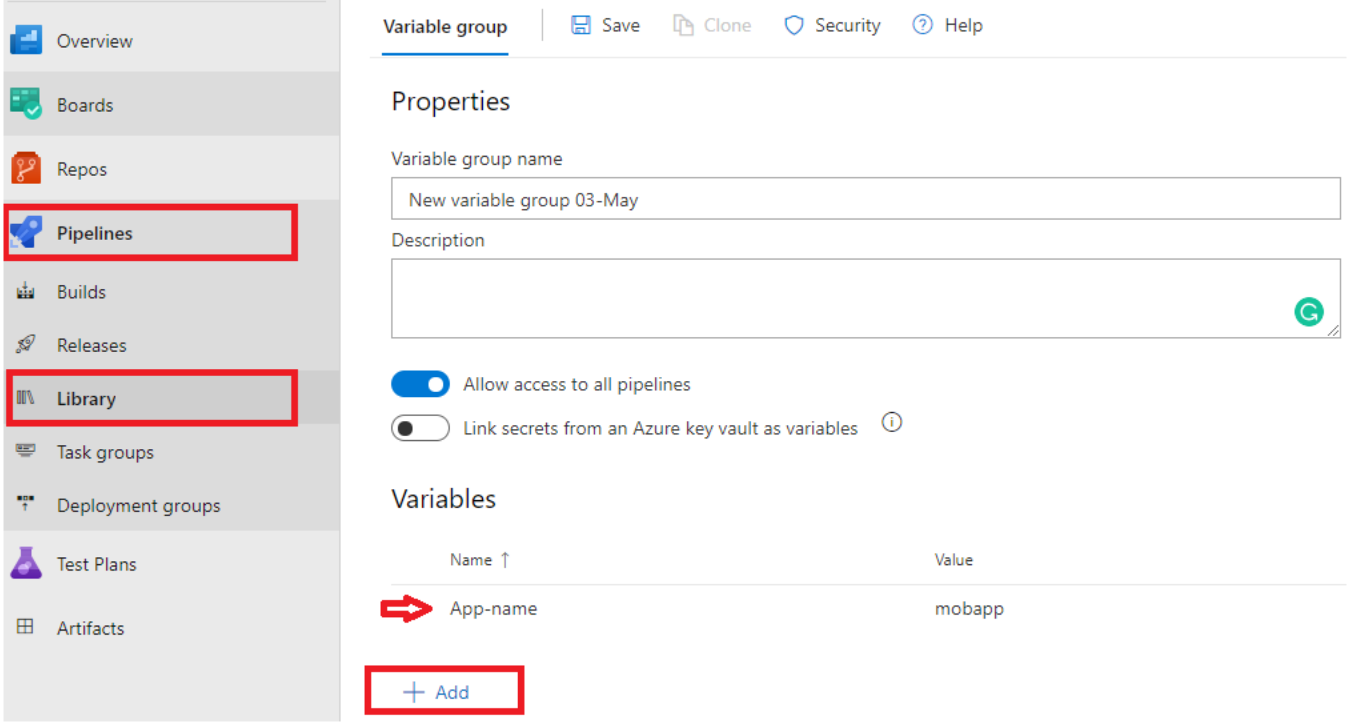
Ans. Release pipelines mainly use for setup the deployment channel on the stage area or servers.



Once your build is ready, from the Release pipeline you can select that artifacts and set the stages like UAT or Production as per above screen.

Q9. What is Variable group and Library in Pipelines?

Ans. The variable group are the master copy of your variables that you want to share across the pipelines. Variable groups are defined in the Library tab of the Pipelines hub, where you have to define the name of the group and add all the common variables that you want to share across the pipelines.



Properties

Variable group name

New variable group 03-May

Description

Allow access to all pipelines

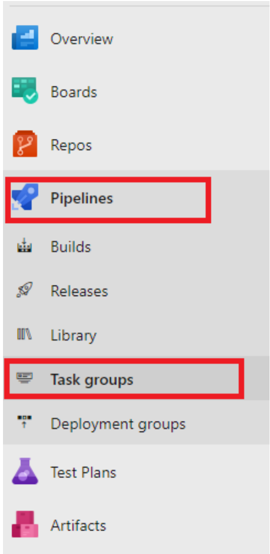
Link secrets from an Azure key vault as variables

Variables

Name ↑	Value
App-name	mobapp

Q10. What is the use of Task group?

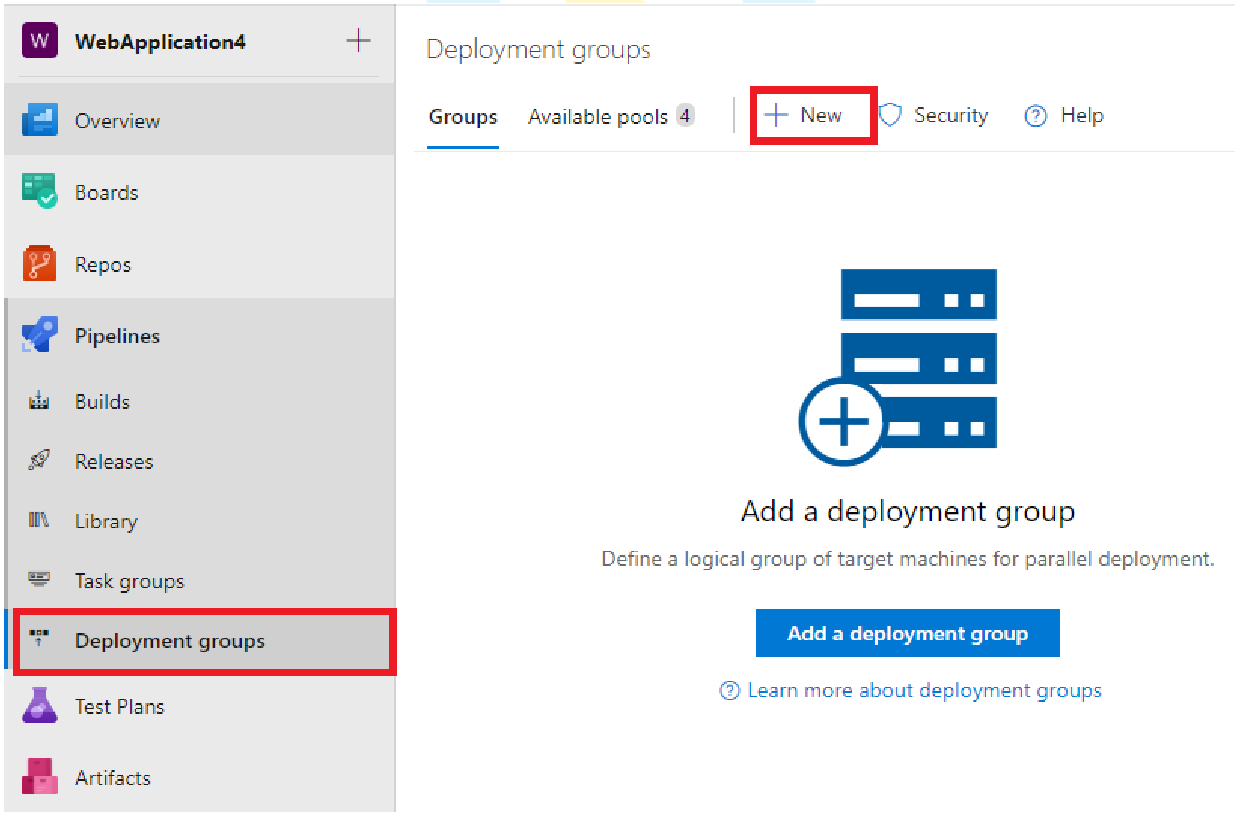
Ans. Task groups are useful for making common builds and release steps for your apps. Using that we can customize a group of tasks and we can use that as a template just like any other task.



From the pipelines hub, you can navigate to Task groups to create and manage the new group.

Q11. What is Deployment Groups?

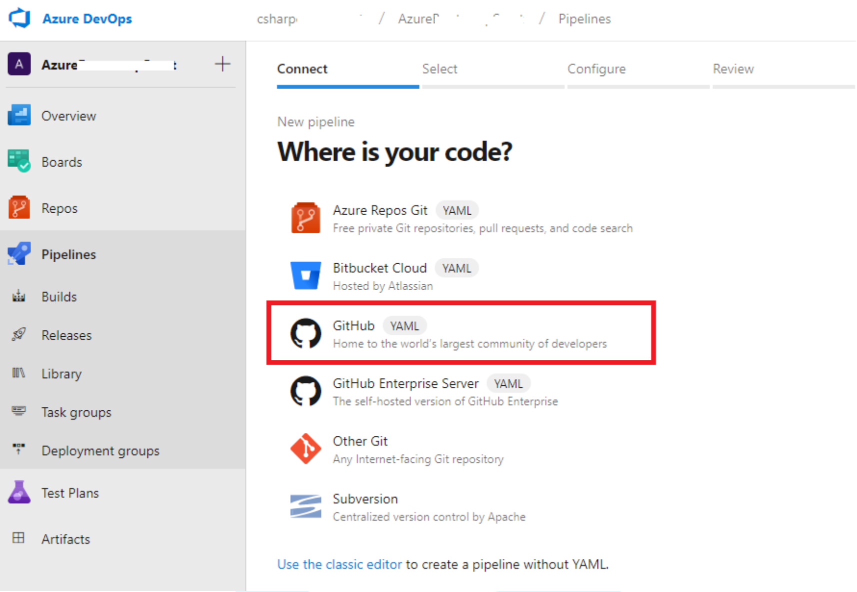
Ans. A deployment group is just another grouping of agents to achieve parallel deployment on different servers. Much like an agent pool It represents a different environment as Dev servers in one group, QA servers in one group and UAT servers in another group.



You can create a deployment group from the Deployment Groups option under the pipelines.

Q12. Can we create pipelines for GitHub Projects using Azure Pipelines?

Ans. Yes, we can create a pipeline for GitHub projects using Azure Pipelines. From the Builds option connect for GitHub and enter GitHub credentials and repository information.

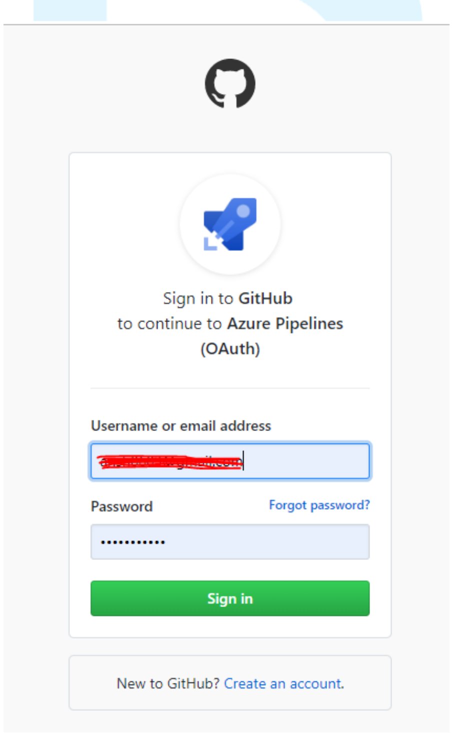


New pipeline

Where is your code?

- Azure Repos Git YAML — Free private Git repositories, pull requests, and code search
- Bitbucket Cloud YAML — Hosted by Atlassian
- GitHub YAML — Home to the world's largest community of developers
- GitHub Enterprise Server YAML — The self-hosted version of GitHub Enterprise
- Other Git — Any Internet-facing Git repository
- Subversion — Centralized version control by Apache

Use the classic editor to create a pipeline without YAML.



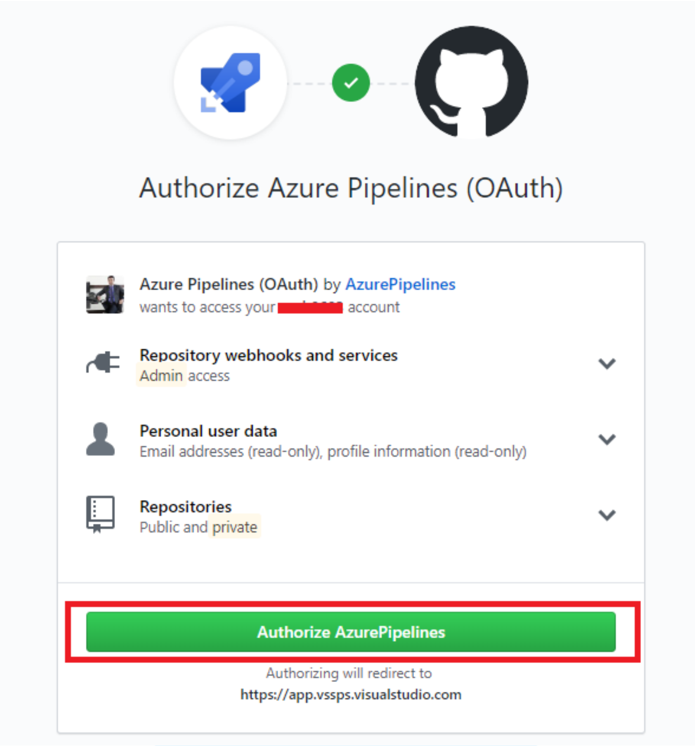
Sign in to GitHub
to continue to Azure Pipelines
(OAuth)

Username or email address: [redacted]

Password: •••••••••••

New to GitHub? Create an account.

It will authorize the access of Azure Pipelines and ask for select a repo from GitHub



Authorize Azure Pipelines (OAuth)

Azure Pipelines (OAuth) by AzurePipelines
wants to access your [redacted] account

Repository webhooks and services
Admin access

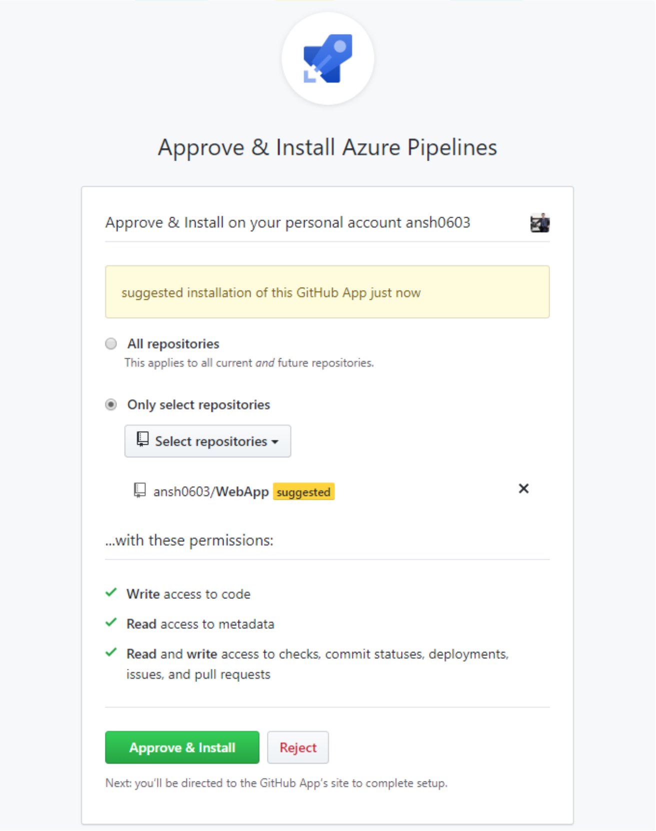
Personal user data
Email addresses (read-only), profile information (read-only)

Repositories
Public and private

Authorize AzurePipelines

Authorizing will redirect to
https://app.vssps.visualstudio.com

Select the repos and click on Approve & Install Azure Pipelines



Approve & Install Azure Pipelines

Approve & Install on your personal account ansh0603

suggested installation of this GitHub App just now

○ All repositories
This applies to all current *and* future repositories.

● Only select repositories

Select repositories ▾

ansh0603/WebApp suggested ×

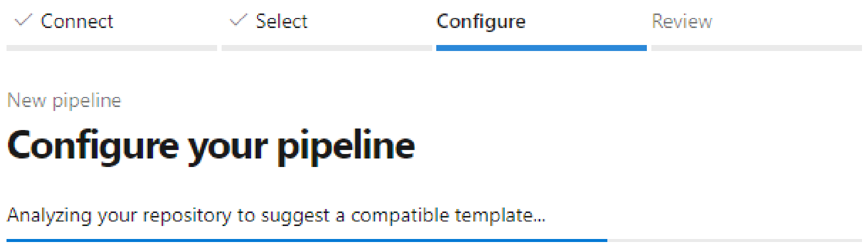
...with these permissions:

✓ Write access to code
✓ Read access to metadata
✓ Read and write access to checks, commit statuses, deployments, issues, and pull requests

Approve & Install | Reject

Next: you'll be directed to the GitHub App's site to complete setup.

It will configure your pipeline on Azure DevOps Account.



✓ Connect ✓ Select **Configure** Review

New pipeline

Configure your pipeline

Analyzing your repository to suggest a compatible template...

Select the template from the configure tab that best suits to your app. click on save and run to start the build.

Q13. What is Agent? Can you explain the process of how the agent works?

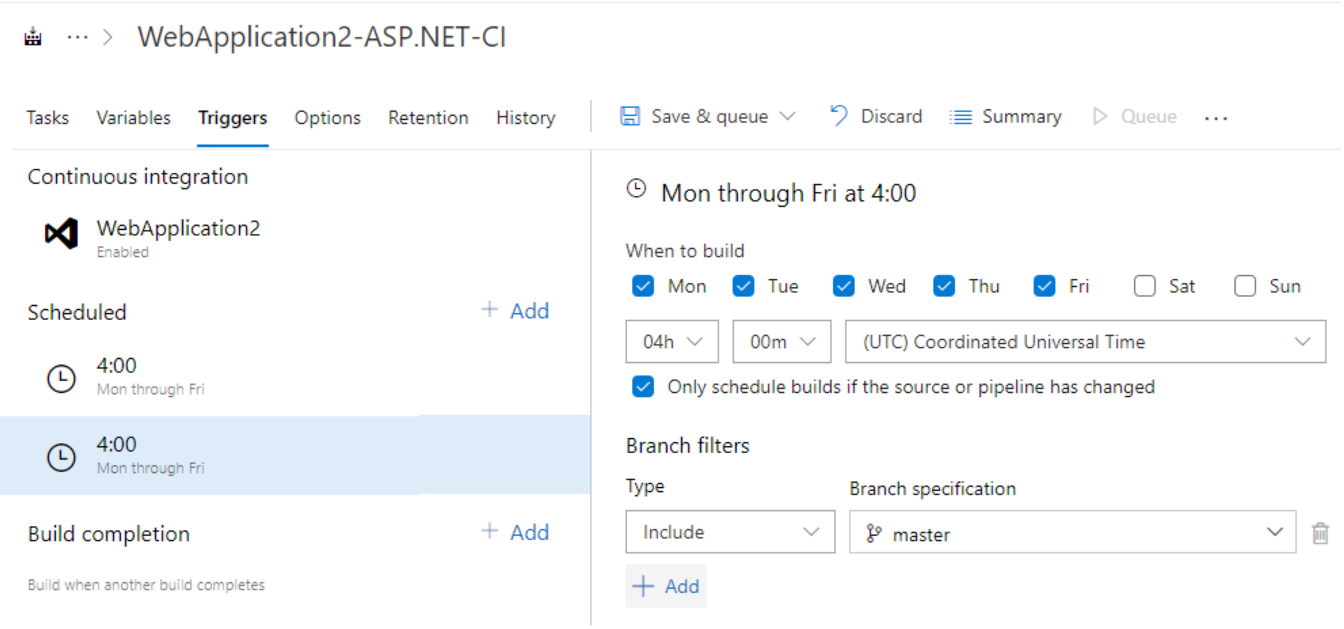
Ans. To deploy your software or apps or to build your code we need an agent. It is an installable software group that runs build/deployment jobs one at a time. There are Microsoft hosted agent and self-hosted agent.

Q14. What is Job?

Ans. Job is a series of tasks that run one by one in the sequence on the same target machine. jobs may be run on the host or in a container.

Q15. What is Trigger in Pipelines, what are the different way to execute the Trigger?

Ans. To set the Continuous Integration and build event, we can use the trigger option to control and schedule the builds. Basically, we can automate build by scheduling it on a specific time.



··· > WebApplication2-ASP.NET-CI

Tasks Variables **Triggers** Options Retention History | Save & queue Discard Summary Queue ···

Continuous integration

WebApplication2
Enabled

Scheduled + Add

4:00
Mon through Fri

4:00
Mon through Fri

Build completion + Add

Build when another build completes

Mon through Fri at 4:00

When to build

☑ Mon ☑ Tue ☑ Wed ☑ Thu ☑ Fri ☐ Sat ☐ Sun

04h 00m (UTC) Coordinated Universal Time

☑ Only schedule builds if the source or pipeline has changed

Branch filters

Type: Include

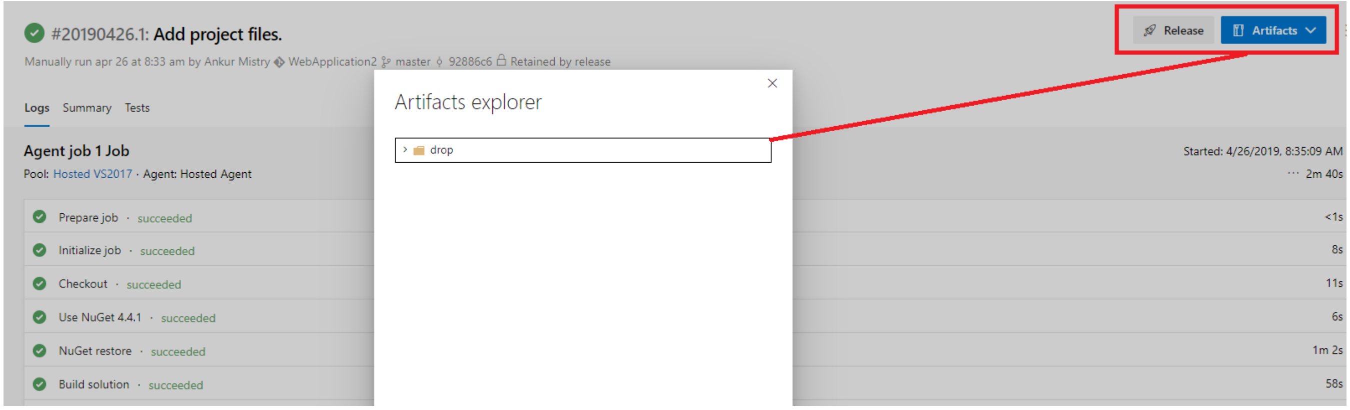
Branch specification: master

+ Add

Either we can do that manually, or we can set a particular day and time or we can automate it on every check-in.

Q16. What is Build Artifacts?

Ans. Artifacts are the files that we need to make or produce our builds. Build artifacts are the files that we need to deploy apps.



#20190426.1: Add project files.

Manually run apr 26 at 8:33 am by Ankur Mistry WebApplication2 master 92886c6 Retained by release

Release | Artifacts

Logs Summary Tests

Agent job 1 Job

Pool: Hosted VS2017 · Agent: Hosted Agent

Started: 4/26/2019, 8:35:09 AM

··· 2m 40s

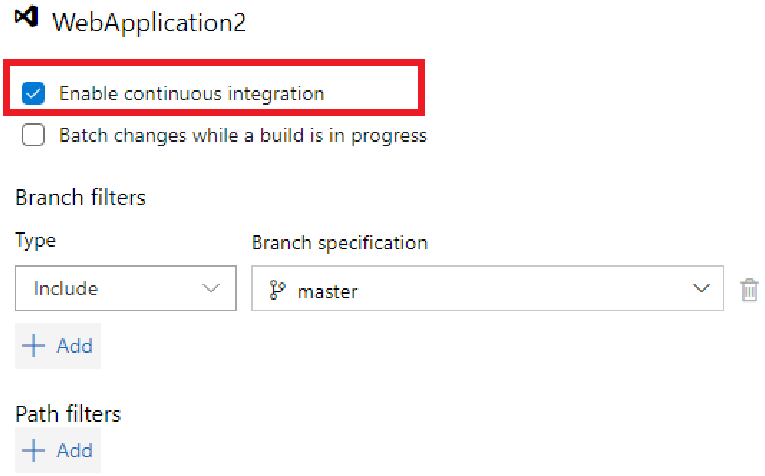
Prepare job · succeeded	<1s
Initialize job · succeeded	8s
Checkout · succeeded	11s
Use NuGet 4.4.1 · succeeded	6s
NuGet restore · succeeded	1m 2s
Build solution · succeeded	58s

Artifacts explorer

› drop

Q17. Explain the steps to enable Continuous Integration from Code check-in?

Ans. To enable CI on every Check-in you have to check ‘Enable continuous Integration’. From Triggers option inside build pipelines as shown in below screen.



WebApplication2

☑ Enable continuous integration

□ Batch changes while a build is in progress

Branch filters

Type: Include

Branch specification: master

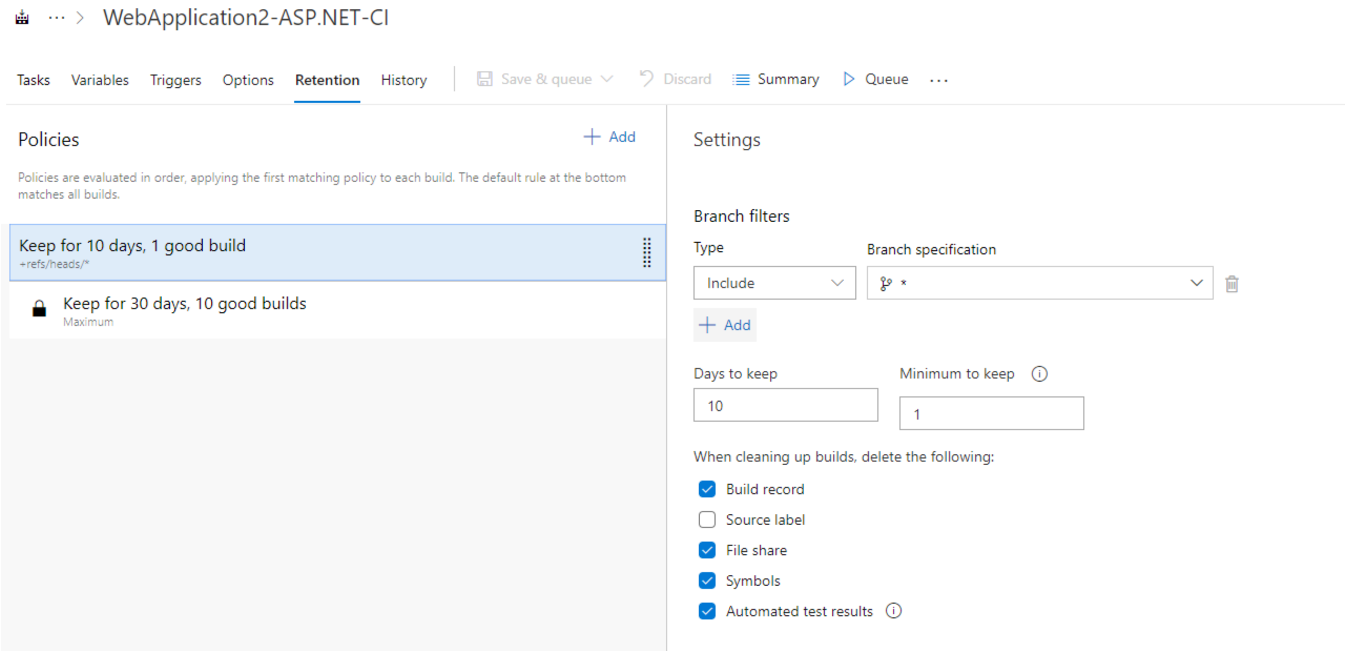
+ Add

Path filters

+ Add

Q18. Can you explain the retention policy in Azure Pipelines?

Ans. Using Retention policy, we can set how many days we need the last builds and files so we can rollback if needed. By setting the retention policy we can automate delete unwanted builds and files for a particular branch.



Policies

Policies are evaluated in order, applying the first matching policy to each build. The default rule at the bottom matches all builds.

Keep for 10 days, 1 good build
+refs/heads/*

Keep for 30 days, 10 good builds
Maximum

Settings

Branch filters

Type: Include

Branch specification: *

Days to keep: 10

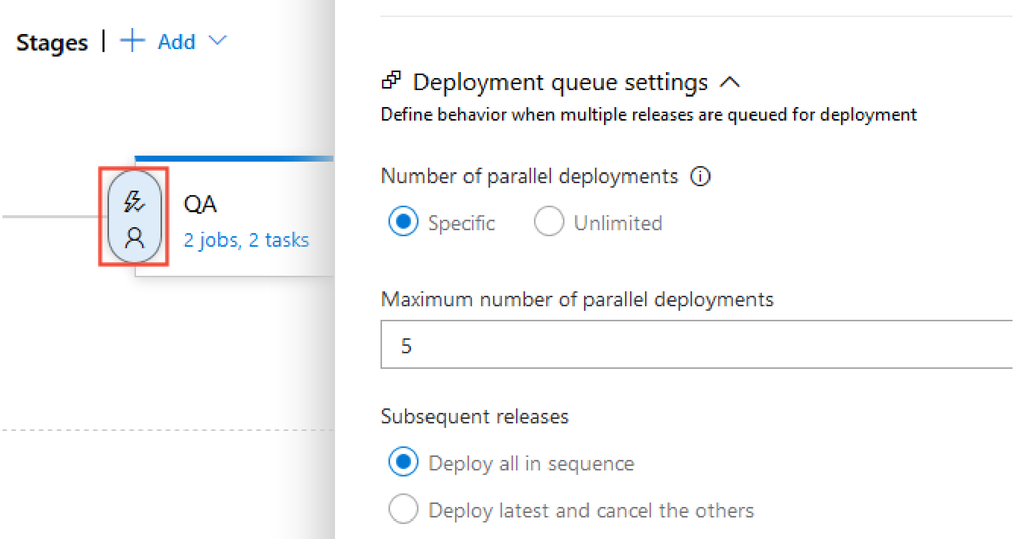
Minimum to keep: 1

When cleaning up builds, delete the following:

☑ Build record
☐ Source label
☑ File share
☑ Symbols
☑ Automated test results

Q19. Can I deploy my Artifacts same time on different stages like Dev, Staging or Production?

Ans. Yes, you can deploy Artifacts same time on different stages by setting up Number of parallel deployments.



Deployment queue settings

Define behavior when multiple releases are queued for deployment

Number of parallel deployments

● Specific ○ Unlimited

Maximum number of parallel deployments

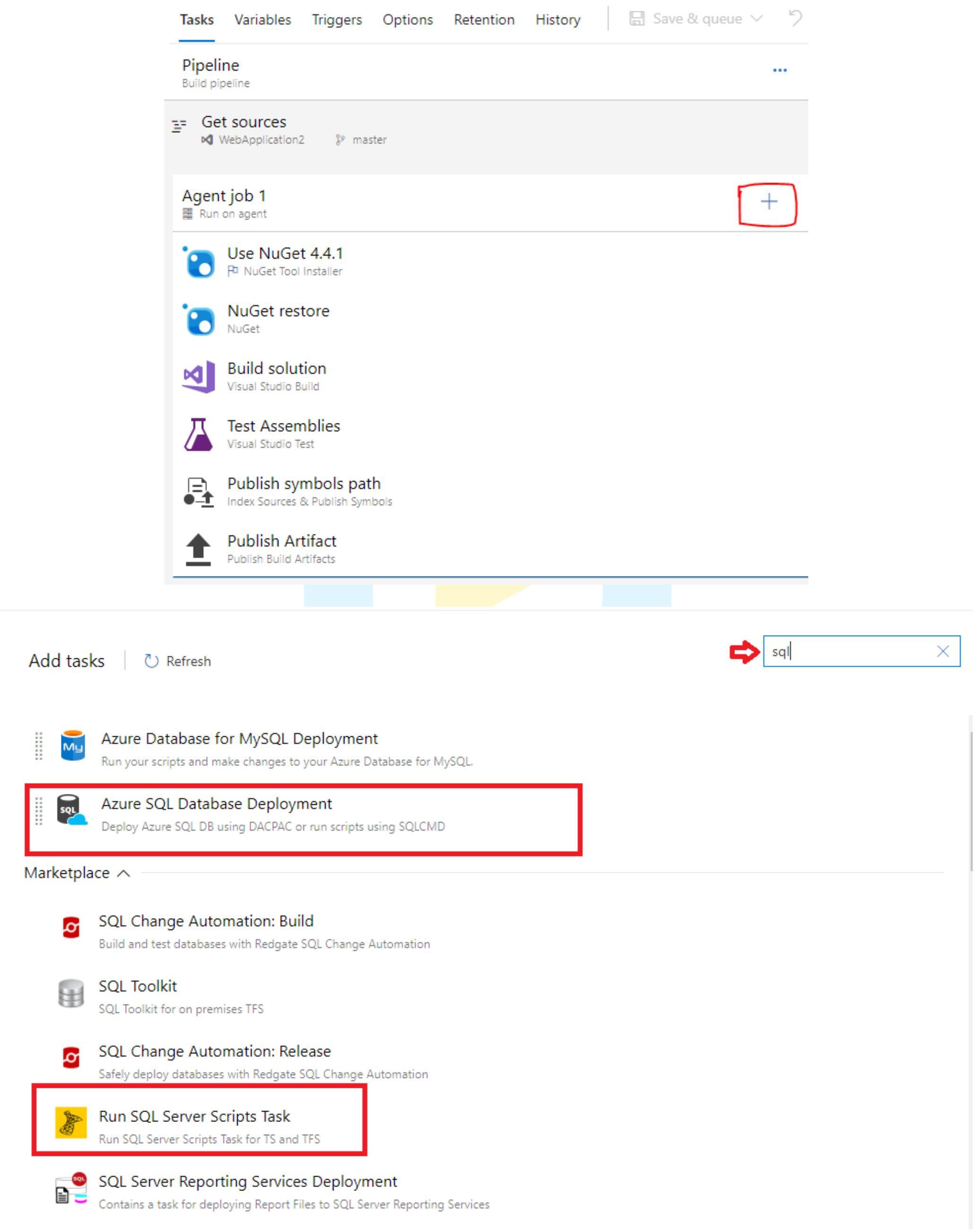
5

Subsequent releases

● Deploy all in sequence
○ Deploy latest and cancel the others

Q20. Can we automatically deploy database updates to Azure SQL database after every successful build?

Ans. Yes, we can do that and for that, we have a task in azure DevOps to migrate SQL DB in the release pipeline. From Agent, Job task clicks on add tasks and look for SQL. Azure DevOps supports many database scripting tools you can select the best suits for your job.



Pipeline
Build pipeline

Get sources
WebApplication2 master

Agent job 1
Run on agent

Use NuGet 4.4.1
NuGet Tool Installer

NuGet restore
NuGet

Build solution
Visual Studio Build

Test Assemblies
Visual Studio Test

Publish symbols path
Index Sources & Publish Symbols

Publish Artifact
Publish Build Artifacts

Azure Database for MySQL Deployment
Run your scripts and make changes to your Azure Database for MySQL.

Azure SQL Database Deployment
Deploy Azure SQL DB using DACPAC or run scripts using SQLCMD

SQL Change Automation: Build
Build and test databases with Redgate SQL Change Automation

SQL Toolkit
SQL Toolkit for on premises TFS

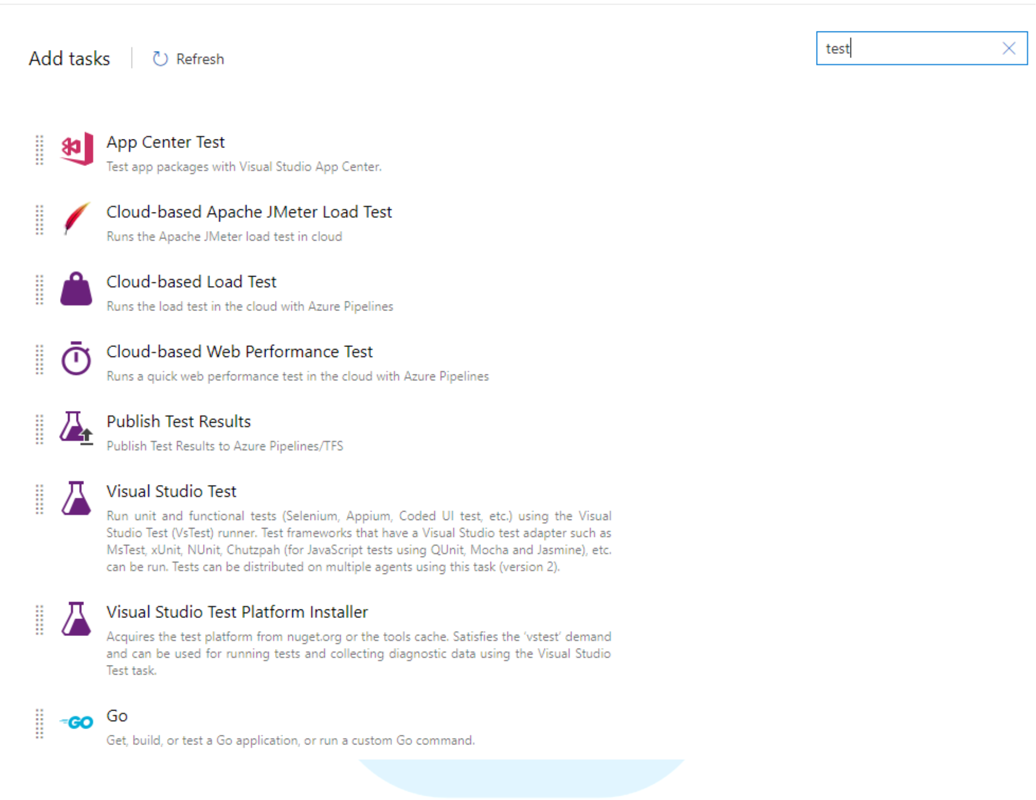
SQL Change Automation: Release
Safely deploy databases with Redgate SQL Change Automation

Run SQL Server Scripts Task
Run SQL Server Scripts Task for TS and TFS

SQL Server Reporting Services Deployment
Contains a task for deploying Report Files to SQL Server Reporting Services

Q21. What are the typical types of tests I can run to validate my app and deployment?

Ans. We can do the Smoke test, sanity test, User Acceptance to test to validate my app and deployment. We can also do regression testing if we have more time. You can add QA tasks from your builds to check and validate deployment.



Add tasks | Refresh

test

App Center Test

Test app packages with Visual Studio App Center.

Cloud-based Apache JMeter Load Test

Runs the Apache JMeter load test in cloud

Cloud-based Load Test

Runs the load test in the cloud with Azure Pipelines

Cloud-based Web Performance Test

Runs a quick web performance test in the cloud with Azure Pipelines

Publish Test Results

Publish Test Results to Azure Pipelines/TFS

Visual Studio Test

Run unit and functional tests (Selenium, Appium, Coded UI test, etc.) using the Visual Studio Test (VsTest) runner. Test frameworks that have a Visual Studio test adapter such as MsTest, xUnit, NUnit, Chutzpah (for JavaScript tests using QUnit, Mocha and Jasmine), etc. can be run. Tests can be distributed on multiple agents using this task (version 2).

Visual Studio Test Platform Installer

Acquires the test platform from nuget.org or the tools cache. Satisfies the 'vstest' demand and can be used for running tests and collecting diagnostic data using the Visual Studio Test task.

Go

Get, build, or test a Go application, or run a custom Go command.

6

Azure Test Plans

Q1. What are Azure Test Plans?

Ans. Azure Test Plans is the hub for all your testing and quality assurance activities. **I**t has tools for testing your apps, create and run manual test plans, test suits, generate automated tests and script executions.

Q2. What are the test cases? How to add a test case in Azure test plans?

Ans. A test case is useful for validating individual part of your module or user requirement. We write test cases to make sure that work item works correctly and there are no bug or defects and it meets the business needs of the client. We can say that it is an acceptance criterion of a work item.

Q3. What is the use of the test suite?

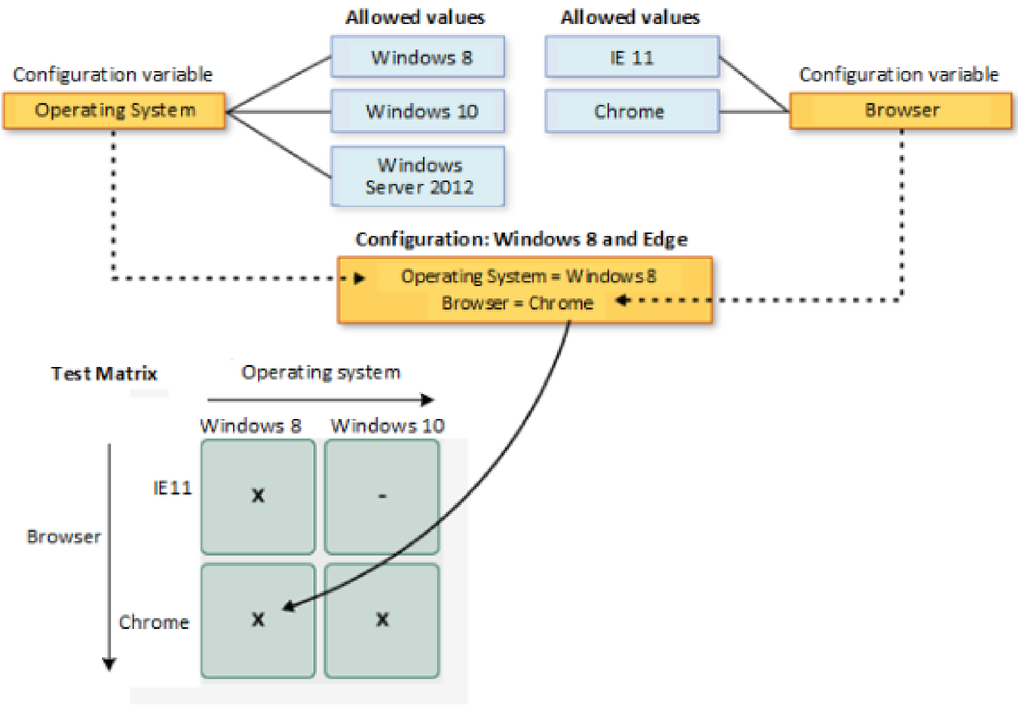
Ans. For particular requirement we have to writes test cases to check and validate the modules, the group of test cases is called test suite. So, we can group test cases of a particular scenario of the user requirement and easily manage which scenario has been completed.

Q4. What is Parameter sets?

Ans. Parameters are the shared variable set, which has value and properties. While doing manual testing many times, we have to supply values like size, quantity, repetition etc. We can manage that by creating one-time parameter sets in Azure Test Plans and use that while running test.

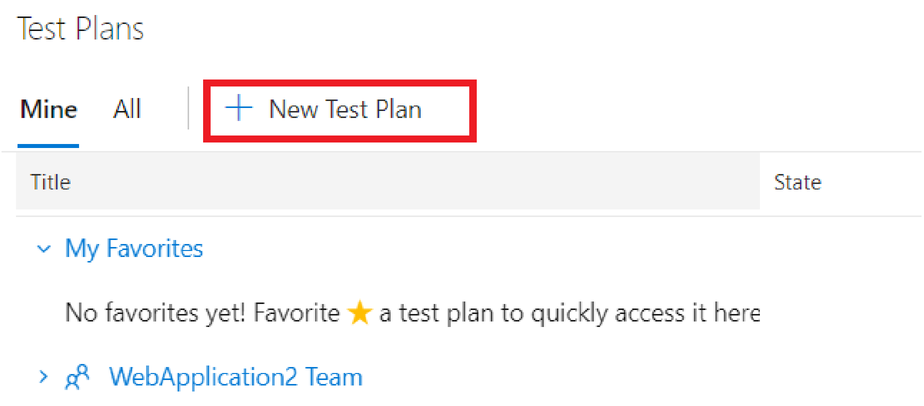
Q5. What are the test configurations? And what is Configuration valuable?

Ans. Using test configuration, we can setup platform such as operating system, web browsers and other variations. We can choose and provides configurations to check particular test plans and scenario.



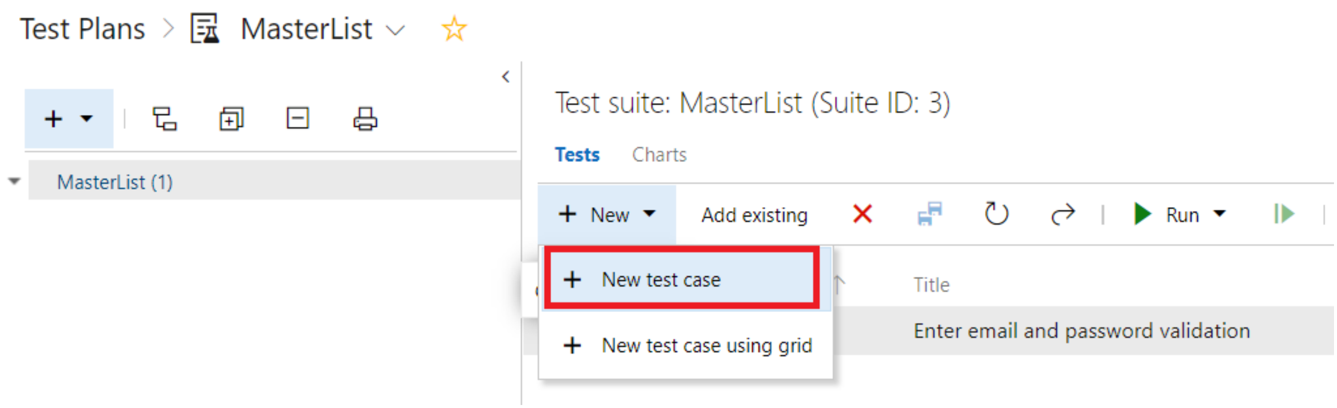
Q6. How to create a test plan and test cases in Azure DevOps?

Ans. To create a test plan first navigates to Test Plans and then click on New Test Plan, then enter the name you want to give for your test plan.

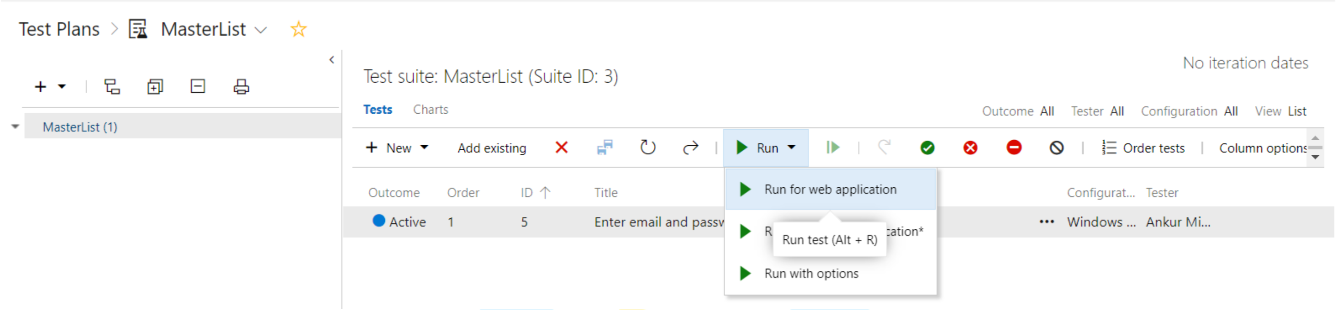


No favorites yet! Favorite ★ a test plan to quickly access it here

We can create a test case inside the test plan so for creating a test plan, select the test plan and then click on the new test case. Enter the details of your test case and save it.



You can check and run the case from the top action button as shown in below screen.



Q7. What are the benefits of a Test Plan?

Ans. Using the Test plan, we can make sure of the quality of the product, by analyzing the product features.

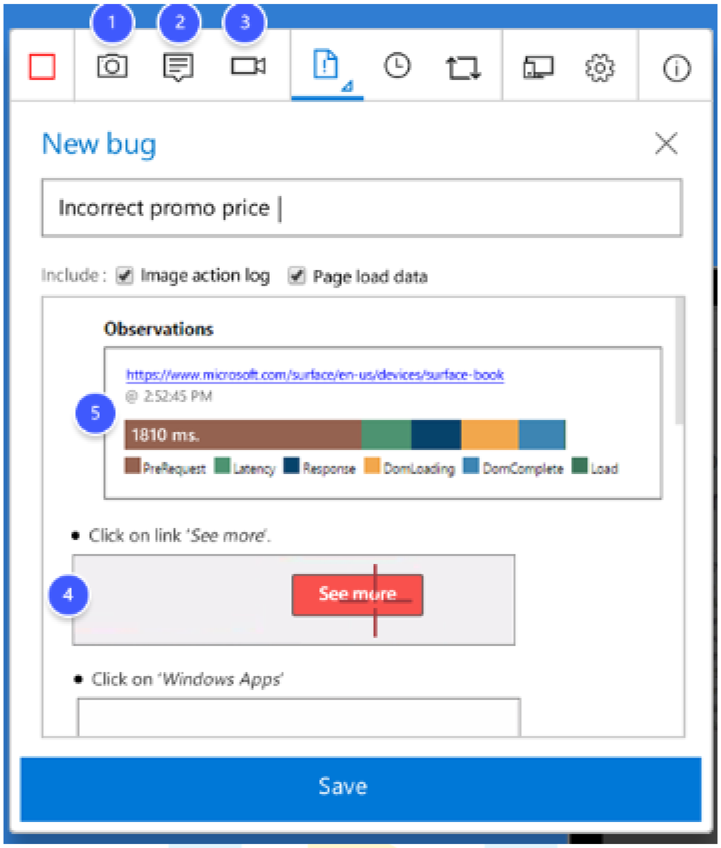
Other benefits of test plans are we can define the scope, develop a strategy of the test, develop a schedule, identify the risk and define roles and responsibilities.

Q8. What are Test and Feedback tools?

Ans. Test and feedback tool are the browser extension to provide feedback on particular work items. For example, the team has completed one feature and you want to ask stakeholder to test and give feedback, using test and feedback tool you can request them to provide feedback on the particular work item.

Q9. What are the main features of Test and Feedback tools?

Ans. The main features of the test and feedback tool are to capture images while doing Exploratory Testing, you can take notes, screenshots with annotations, and screen recordings to capture issues.



New bug

Incorrect promo price |

Include : ☑ Image action log ☑ Page load data

Observations

https://www.microsoft.com/surface/en-us/devices/surface-book
@ 2:52:45 PM

1810 ms.

🟫 PreRequest 🟩 Latency 🟦 Response 🟧 DomLoading 🟦 DomComplete 🟩 Load

- Click on link '*See more*'.

See more

- Click on '*Windows Apps*'

Save

You can directly create an issue or bug in Azure Boards using the tool, that save lots of time of passing the information to team so team collaboration makes easy using the tool.

7

Artifacts

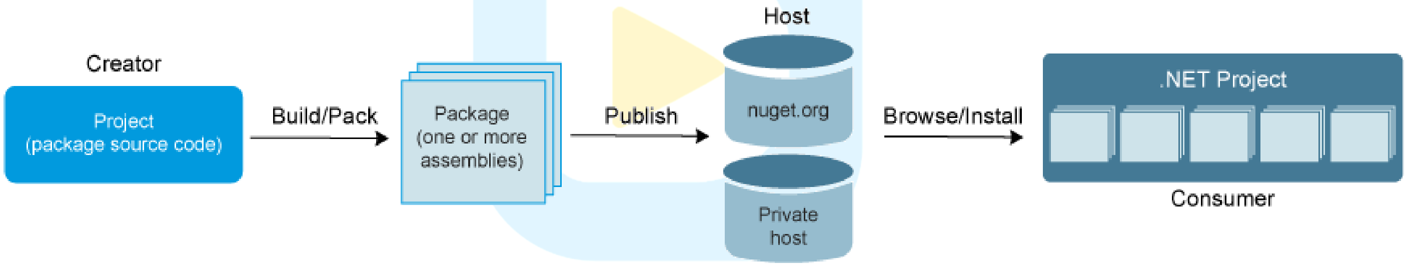
Q1. What are Azure Artifacts?

Ans. Artifacts is a group of packages or say extension, using Azure Artifacts we can create, host and share packages with teams.

We can share code across teams, and manage all package types like npm, Marven, NuGet, Gradle etc.

Q2. What is NuGet?

Ans. NuGet is an open source package manager using that we can create and share a useful common code.



Often these codes are bundled into packages that have compiled the code with content needed in the projects that consume these packages.

Q3. What are Upstream Sources?

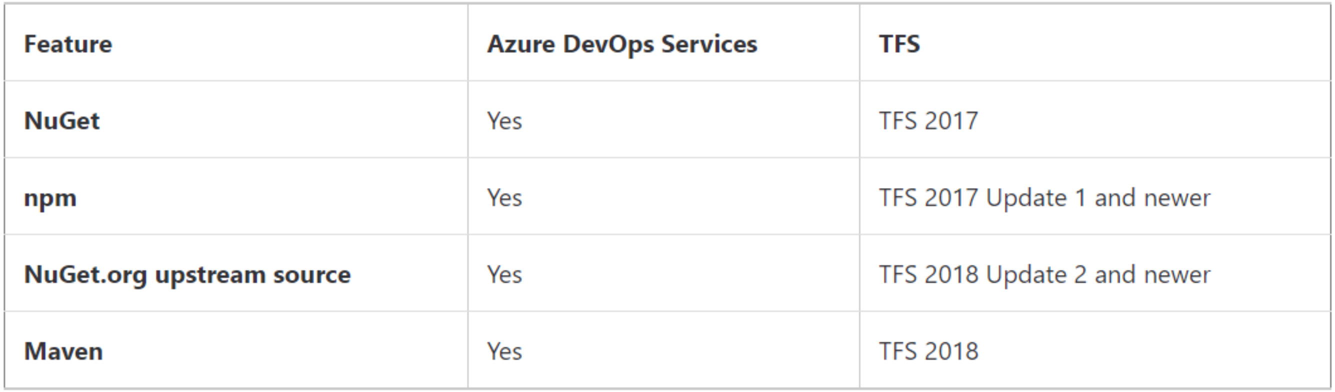
Ans. Using Upstream sources, we can store both the package you consume and the package you produce.

To use packages from a public source or VSTS feeds we add upstream source in Artifacts section.

Q4. Which Packages support is available in Azure DevOps Artifacts?

Ans. Azure DevOps Artifacts supports NuGet, Marven, npm and NuGet.org upstream source.

Following are the feature and its support chart in Azure DevOps and old TFS.



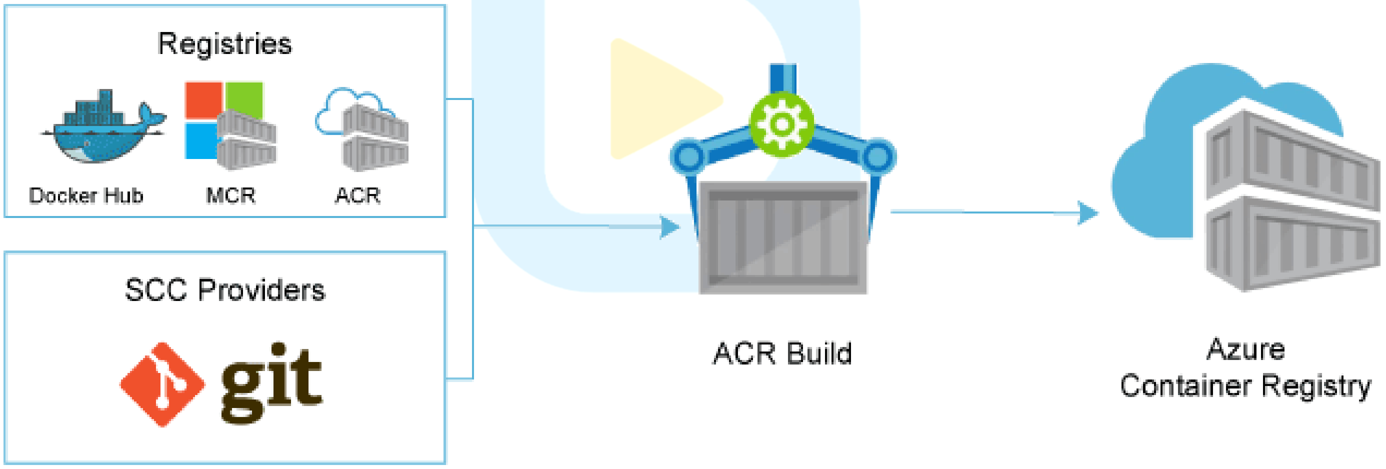
Feature	Azure DevOps Services	TFS
NuGet	Yes	TFS 2017
npm	Yes	TFS 2017 Update 1 and newer
NuGet.org upstream source	Yes	TFS 2018 Update 2 and newer
Maven	Yes	TFS 2018

Q5. What are Universal Packages?

Ans. Universal packages are a collection of files with name and version. They are stored in the feed section of the Artifacts hub.

Q6. What is Azure Container Registry?

Ans. Azure Container Registry allows us to create, build, store and manage images of any kind of container-based deployment.



8

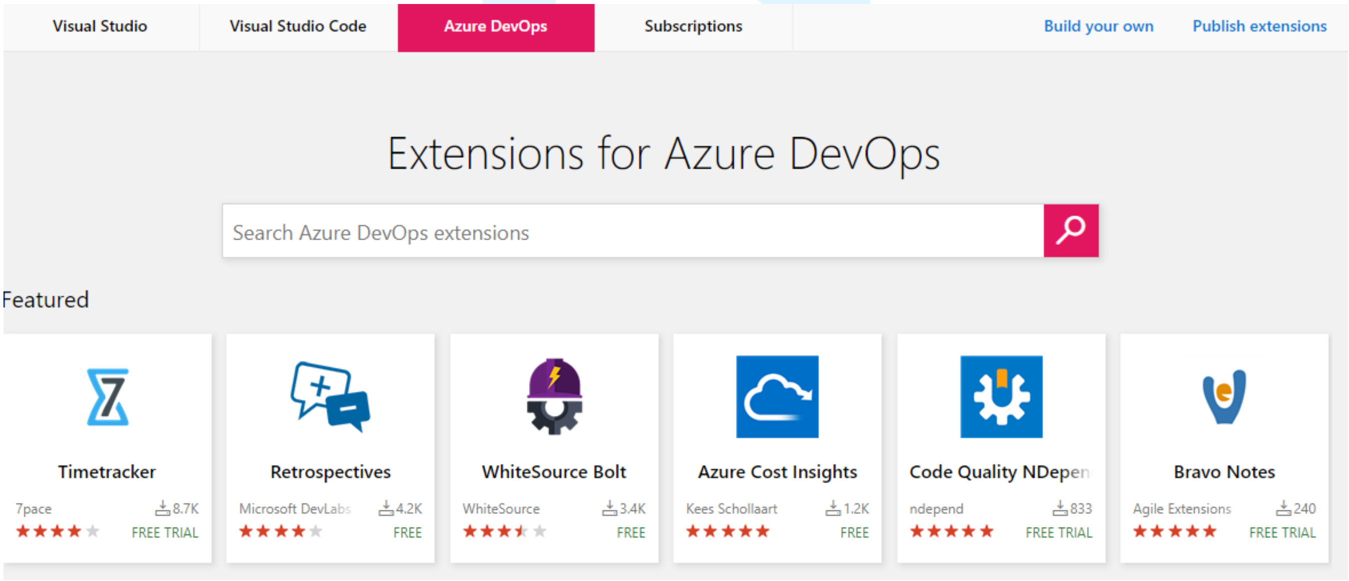
Extensions & Marketplace

Q1. What is Azure DevOps Extension?

Ans. Extensions are the small programs or we can say plugins to customize and extend the DevOps features. It is written in simple development languages and rest API and easily available from Marketplace.

Q2. What is Marketplace?

Ans. The marketplace is the hub for all the Azure DevOps Extensions. Just like app stores. You can search and browse plugins, read the description, ratings and uses and easily add in your Azure DevOps Services account.

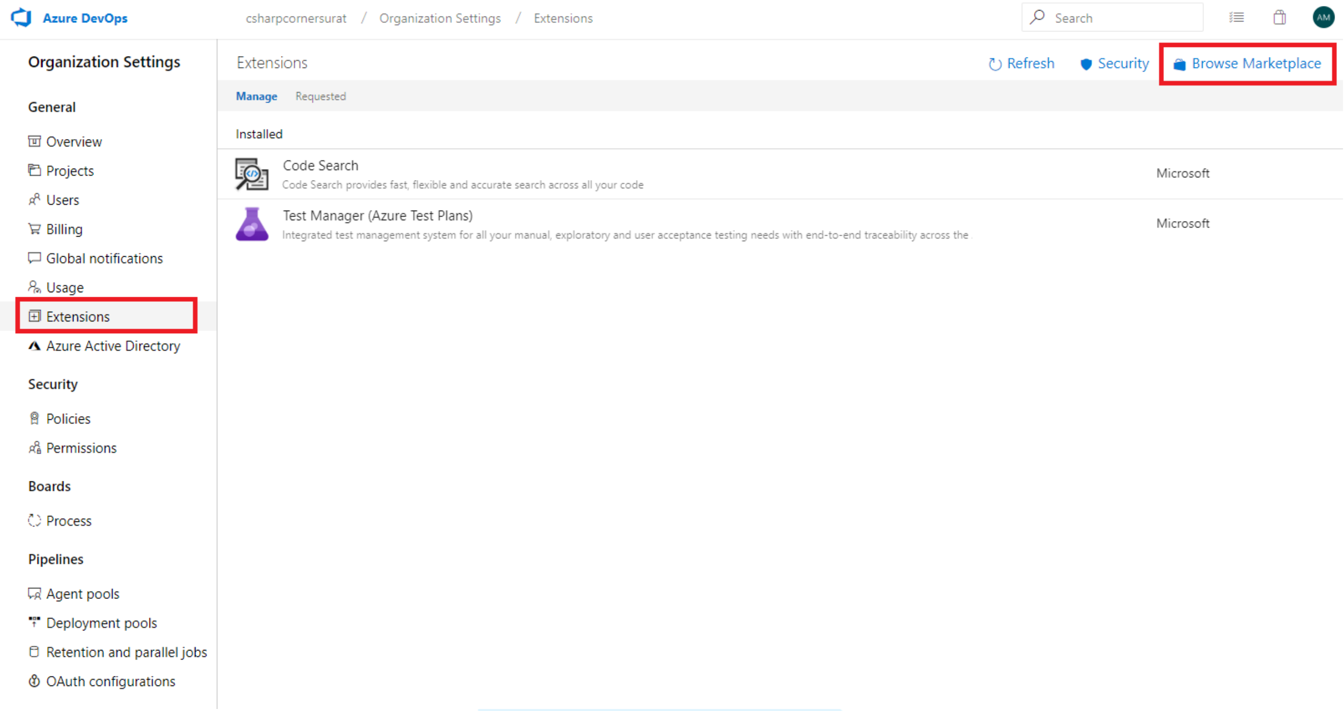


Q3. What are the different types of extensions?

Ans. There are private and public extensions available on Azure DevOps Marketplace, some are free and some are paid one. Also, some extensions are browser-based and some are directly available inside Azure DevOps.

Q4. How to install extensions for Azure DevOps Services?

Ans. You can Install Extension from Organization Settings – Extension tab. Click on Brose Marketplace to find and install the extension just shown in below screen.



Azure DevOps   csharpcornersurat / Organization Settings / Extensions   Search

Organization Settings

Extensions   Refresh   Security   Browse Marketplace

Manage   Requested

General
- Overview
- Projects
- Users
- Billing
- Global notifications
- Usage
- Extensions
- Azure Active Directory

Security
- Policies
- Permissions

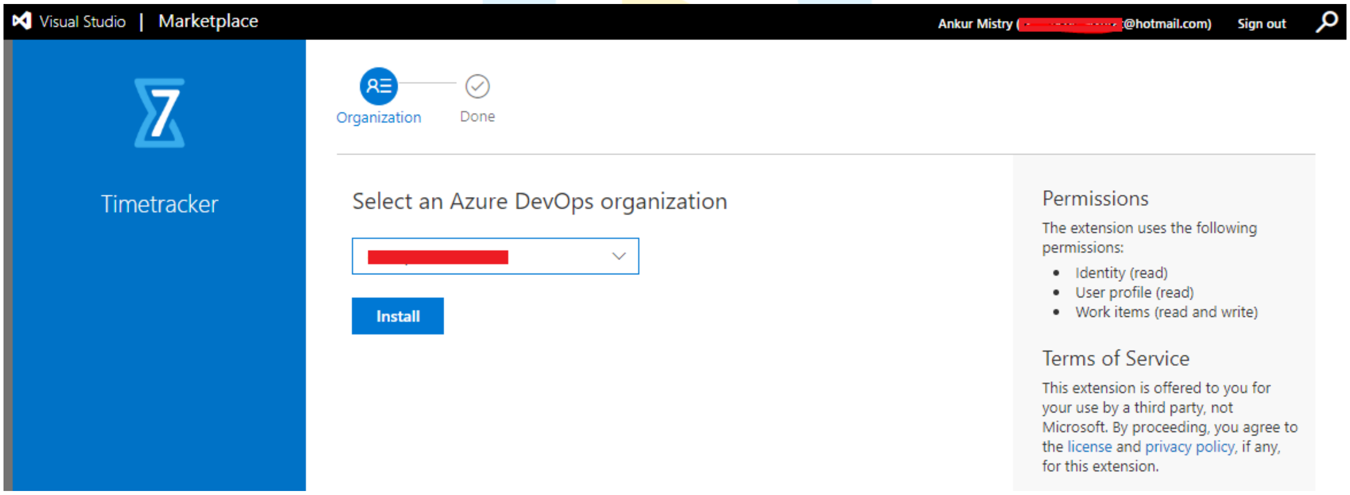
Boards
- Process

Pipelines
- Agent pools
- Deployment pools
- Retention and parallel jobs
- OAuth configurations

Installed

Code Search Code Search provides fast, flexible and accurate search across all your code	Microsoft
Test Manager (Azure Test Plans) Integrated test management system for all your manual, exploratory and user acceptance testing needs with end-to-end traceability across the	Microsoft

Once you find the Extension, select the Azure DevOps service account and just click on install and follow the installation instruction.



Visual Studio | Marketplace   Ankur Mistry ([redacted]@hotmail.com)   Sign out

Timetracker

Organization   Done

Select an Azure DevOps organization

[redacted]

Install

Permissions

The extension uses the following permissions:
- Identity (read)
- User profile (read)
- Work items (read and write)

Terms of Service

This extension is offered to you for your use by a third party, not Microsoft. By proceeding, you agree to the license and privacy policy, if any, for this extension.