

# Experience in using Azure DevOps and .NET to increase the productivity of development organizations

Jungwoo Kim





## Introducing the speaker

# Jungwoo (Jayden) Kim

[rokag3@gmail.com](mailto:rokag3@gmail.com)

<https://rokag3-gb.github.io>

주로 .NET 기술을 활용하여 웹, 서버, 클라이언트를 개발하고 그 서비스가 비즈니스 목적을 달성하는지에 집중하고 있으며, Cloud Native 기반 애플리케이션을 개발하고자 노력하고 있습니다.

물류, 제조, 유통, 여행, 클라우드 도메인에서 B2B, B2C 비즈니스를 경험했습니다.

SI 스타트업에서 물류 & 유통 프로젝트 4년, ERP & ASP.NET MVC 개발 11년, BI 시각화 프로젝트 3년, 클라우드 SaaS 개발을 4년 가량 경험 했습니다.

복잡한 비즈니스를 C#과 SQL로 구현하고 성능 개선시키는 것을 재미있어 합니다.

# Agenda

1. What is the Agile process
2. What is the Azure DevOps service
3. Azure DevOps supports .NET stack
4. Increasing the productivity



01

**What is the Agile process**

# Manifesto for Agile Software Development

# Manifesto for Agile Software Development



**We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:**

Kent Beck, Mike Beedle, Arie van Bennekum, Alistair Cockburn, Ward Cunningham, Martin Fowler, James Grenning, Jim Highsmith, Andrew Hunt, Ron Jeffries, Jon Kern, Brian Marick, Robert C. Martin, Steve Mellor, Ken Schwaber, Jeff Sutherland, Dave Thomas

reference: <https://agilemanifesto.org>





# Manifesto for Agile Software Development



## 애자일 소프트웨어 개발 선언

우리는 소프트웨어를 개발하고, 또 다른 사람의 개발을 도와주면서 소프트웨어 개발의 더 나은 방법들을 찾아가고 있다. 이 작업을 통해 우리는 다음을 가치 있게 여기게 되었다:

공정과 도구보다 **개인과 상호작용**을

포괄적인 문서보다 **작동하는 소프트웨어**를

계약 협상보다 **고객과의 협력**을

계획을 따르기보다 **변화에 대응**하기를

가치 있게 여긴다. 이 말은, 왼쪽에 있는 것들도 가치가 있지만, 우리는 오른쪽에 있는 것들에 더 높은 가치를 둔다는 것이다.

Kent Beck  
Mike Beedle  
Arie van Bennekum  
Alistair Cockburn  
Ward Cunningham  
Martin Fowler  
James Grenning  
Jim Highsmith  
Andrew Hunt  
Ron Jeffries  
Jon Kern  
Brian Marick  
Robert C. Martin  
Steve Mellor  
Ken Schwaber  
Jeff Sutherland  
Dave Thomas

reference: <https://agilemanifesto.org>

# 12 Principles of Agile Software

“

## Agile 매니페스토의 원칙

우리는 다음과 같은 원칙을 따릅니다.

당사의 최우선 순위는 가치 있는 소프트웨어를 조기에 지속적으로 제공하여 고객을 만족시키는 것입니다

개발 후반에도 요구 사항의 변화를 환영합니다  
. Agile 프로세스는  
고객의 경쟁 우위를 위해 변화를 활용합니다.

몇 주에서 몇 달까지 자주 작동하는 소프트웨어를 제공하지만 ,  
짧은 기간을 선호합니다.

사업가와 개발자는  
프로젝트 내내 매일 함께 작업해야 합니다.

동기가 부여된 개인을 중심으로 프로젝트를 구축하세요.  
그들에게 필요한 환경과 지원을 제공하고,  
그들이 일을 완수할 수 있도록 신뢰하세요.

reference: <https://agilemanifesto.org/principles.html>



# 12 Principles of Agile Software



개발팀 내에서 정보를 전달하는 가장 효율적이고 효과적인 방법은  
직접 대화하는 것입니다.

작동하는 소프트웨어는 진행 상황을 측정하는 주요 기준입니다.

Agile 프로세스는 지속 가능한 개발을 촉진합니다.

스폰서, 개발자, 사용자는  
무기한 일정한 속도를 유지할 수 있어야 합니다.

기술적 우수성  
과 훌륭한 디자인에 대한 지속적인 관심은 민첩성을 강화합니다.

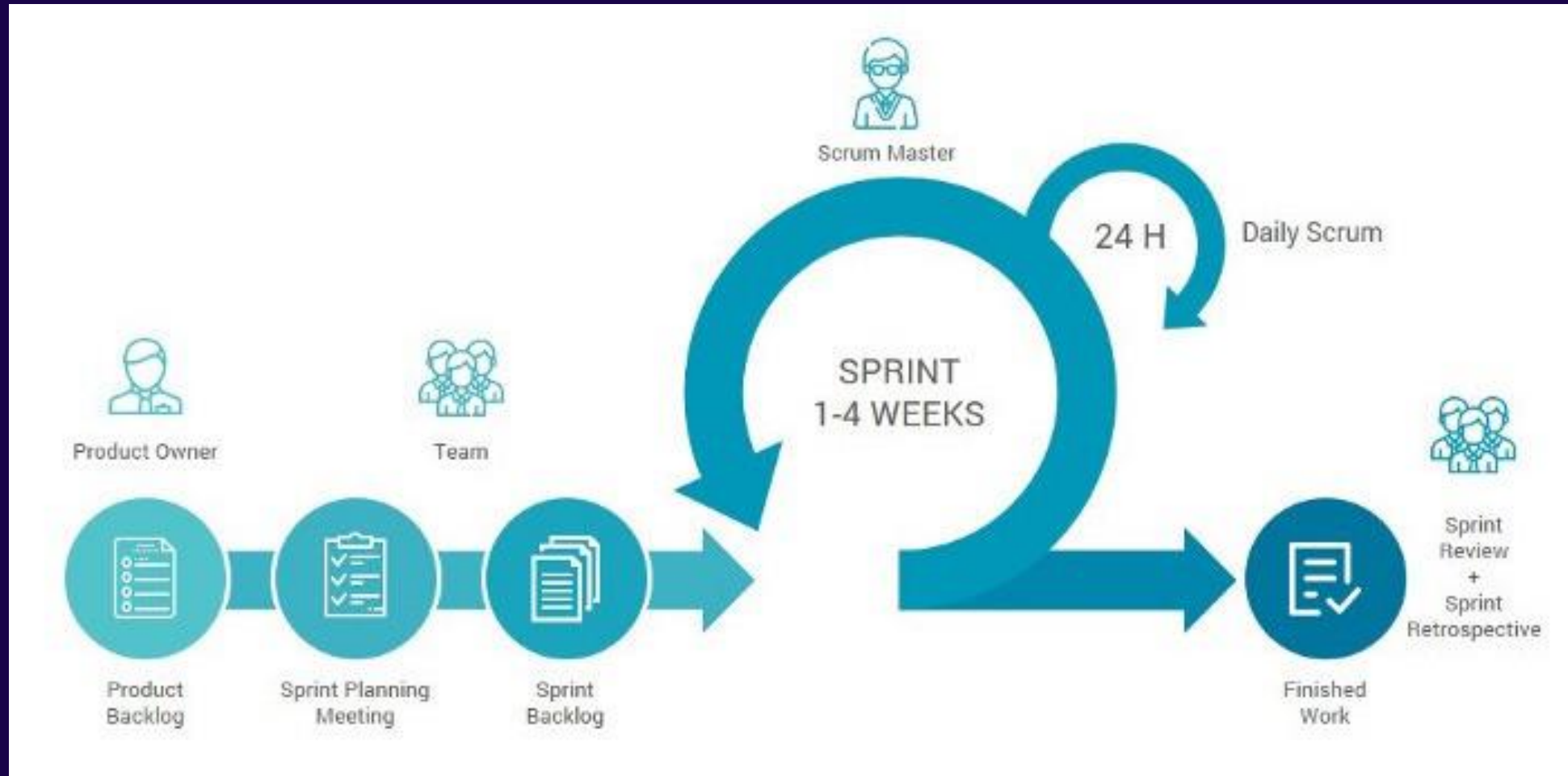
단순성, 즉 끝나지 않는 일의 양을 극대화하는 기술이 필수적이다.

가장 뛰어난 아키텍처, 요구 사항, 디자인은  
자유 조직화 팀에서 나옵니다.

정기적으로 팀은 더 효과적이 되기 위한 방법을 반성하고 , 그에 따라 행동을  
조정합니다 .

reference: <https://agilemanifesto.org/principles.html>

# Sprint





02

**What is the Azure DevOps service**

# Azure DevOps features

## FEATURES

Improve code quality and boost productivity with Azure DevOps.



### Azure Boards

Deliver value to your users faster using proven agile tools to plan, track, and discuss work across your teams.

[Learn more](#)



### Azure Pipelines

Build, test, and deploy with CI/CD that works with any language, platform, and cloud. Connect to GitHub or any other Git provider and deploy continuously.

[Learn more](#)



### Azure Repos

Get unlimited, cloud-hosted private Git repos and collaborate to build better code with pull requests and advanced file management.

[Learn more](#)



### GitHub Advanced Security for Azure DevOps

Develop securely from inception to ship.

[Learn more](#)



### Azure Test Plans

Test and ship with confidence using manual and exploratory testing tools.

[Learn more](#)



### Azure Artifacts

Create, host, and share packages with your team, and add artifacts to your CI/CD pipelines with a single click.

[Learn more](#)

reference: <https://azure.microsoft.com/en-us/products/devops>

# Azure DevOps Organization

The screenshot displays the Azure DevOps web interface for an organization named 'ACME-Product'. The left sidebar shows the organization's structure with a list of projects: 'ACME-Product', 'acme-dev2', 'POC-Cloudmt', and 'youngbinhan'. Below this list are links for '6 more organizations' and 'New organization'. The main content area is titled 'ACME-Product' and features a 'New project' button. It lists several projects, each with a unique icon and a brief description:

- SDTeam-Project**: SD Team에서 2022년부터 개발하는 다양한 제품들을 포괄하는 프로젝트 (Managed Report, RPM, SalesOps, IAM, mateBilling, mateCDN, 챗봇, BI portal 등)
- Mate365.Billing**: 클라우드메이트 빌링 웹앱 프로젝트
- [Red Bar Chart Icon]-SW**: 신규 기능 개발 및 유지 보수
- AP Airflow pipeline PoC**: 병렬 작업이 가능한 background worker 로서 Airflow 가 적합한지 PoC 진행한 프로젝트. Ex. mateBilling 파이프라인, [Red Bar Chart Icon] 보안점검 엔진 등
- N CacheSolution**: 캐시 솔루션 개발 프로젝트 (Nginx)
- [Red Bar Chart Icon]-SW**: 신규 기능 개발 및 유지 보수
- M Mate365.Billing**: 클라우드메이트 빌링 웹앱 프로젝트
- M MateNOC**: NOC = network operation center 구축

At the bottom left, there is a link for 'Organization settings'.



# Azure DevOps Project

The screenshot displays the Azure DevOps interface for the 'SDTeam-Project'. The left sidebar contains navigation links: Overview, Summary, Dashboards, Wiki, Boards, Repos, Pipelines, Test Plans, and Artifacts. The main content area is titled 'SDTeam-Project' and includes a search bar, a 'Private' status indicator, and an 'Invite' button. The 'About this project' section describes the project as a collection of products developed by the SD Team starting in 2022, including Managed Report, RPM, SalesOps, IAM, mateBilling, mateCDN, 챗봇, and BI portal. It also lists the languages used, CSS and JavaScript, and provides a link to the Wiki / SD Team Project Home. The 'Project stats' section shows metrics for the last 30 days: 78 work items created, 79 work items completed, 26 pull requests opened, and 294 commits by 8 authors. The 'Pipelines' section shows a 98% success rate for builds and a 0% success rate for deployments. The 'Members' section lists 21 team members, including SH, HK, KM, HJ, GP, and HC.

Azure DevOps ACME-Product / SDTeam-Project / Overview / Summary

Search

SDTeam-Project

Private Invite

### About this project

Like 1

SD Team에서 2022년부터 개발하는 다양한 제품들을 포괄하는 프로젝트  
(Managed Report, RPM, SalesOps, IAM, mateBilling, mateCDN, 챗봇, BI portal 등)

#### Languages

CSS JavaScript

[Wiki / SD Team Project Home](#)

2022년 - IAM, SalesOps, Colson, CacheCat

2023년 - Managed Report, RPM, ...

### Project stats

Period: Last 30 days

#### Boards

78 Work items created

79 Work items completed

#### Repos

26 Pull requests opened

294 Commits by 8 authors

#### Pipelines

98% Builds succeeded

0% Deployments succeeded

### Members

21

SH HK KM HJ GP HC

Project settings

# Backlog

ACME-Product / SDTeam-Project / Boards / Backlogs

SD

☆

⚙

+ New Work Item

View as Board

Column Options

Backlog

Analytics

Feature Timeline

Epic Roadmap

Features

⚙

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⚙

↗

Order	ID	Work Item ...	Title	Assig...	State	Iteration Path	Progress by Task	Count of Work Items	Tags
	2934	Epic	2024 Billing 3.0 in CMP	Jungw...	Active	SDTeam-Project\iter_2024.07	95%	308	
	3262	Feature	사용량 조회	Jungw...	Active	SDTeam-Project	100%	19	
	3201	Feature	고객사 및 고객사 유저 관리 기능	Jungw...	Active	SDTeam-Project	94%	22	
	2927	Feature	Billing FE 관련 공통 개발	Jinho ...	Active	SDTeam-Project	93%	109	
	2980	Feature	Billing API 관련 공통 개발	Sangh...	Active	SDTeam-Project	100%	29	
	3031	Feature	[FE] Merlin (구 IAM)	Yeawo...	Active	SDTeam-Project	100%	20	
	3141	Feature	Billing NCP 데이터 수집 프로그램 구현	Kwang...	Active	SDTeam-Project\iter_2024.10	100%	6	
	3142	Feature	Merlin API 수정 및 검증작업	Kwang...	Active	SDTeam-Project\iter_2024.10	92%	18	
+	3255	Feature	대시보드 페이지 개발	Jungw...	Active	SDTeam-Project	94%	20	
	3256	User Story	대시보드 FE 개발	Jin...	Active	SDTeam-Project	93%	14	
	3395	User Story	대시보드 BE 개발	Sangh...	Active	SDTeam-Project	100%	4	
	3396	Task	Dashboard 조회 API 개발	Sangh...	Closed	SDTeam-Project\iter_2024.12		0	
	3400	Task	요청월 기준 최근 3개월의 월별 청구액 합산을 계산합니다.	Sangh...	Closed	SDTeam-Project\iter_2024.12		0	
	3401	Task	최근 12개월의 회사별 청구액 합산을 계산합니다	Sangh...	Closed	SDTeam-Project\iter_2024.12		0	
	3410	Task	당월 청구 상세 api 작성	Sangh...	Closed	SDTeam-Project\iter_2024.12		0	
	3259	Feature	청구서 관리 기능 개발	Jungw...	Active	SDTeam-Project	82%	13	
	3348	Feature	이메일 인증을 통한 비밀번호 변경 기능	Jungw...	Active	SDTeam-Project	100%	11	

Jungwoo Kim  
<jungwoo.kim@ahnlabcloudmate.com>

# Backlog

ACME-Product / SDTeam-Project / Boards / Backlogs

SD

Backlog Analytics Feature Timeline Epic Roadmap

Order	ID	Work Item ...	Title	Assign...	State	Iteration P
	2934	Epic	2024 Billing 3.0 in CMP	Jungw...	Active	SDTeam-Pr
	3262	Feature	사용량 조회	Jungw...	Active	SDTeam-Pr
	3201	Feature	고객사 및 고객사 유저 관리 기능	Jungw...	Active	SDTeam-Pr
	2927	Feature	Billing FE 관련 공통 개발	Jinho ...	Active	SDTeam-Pr
	2980	Feature	Billing API 관련 공통 개발	Sangh...	Active	SDTeam-Pr
	3031	Feature	[FE] Merlin (구 IAM)	Yeawo...	Active	SDTeam-Pr
	3141	Feature	Billing NCP 데이터 수집 프로그램 구현	Kwang...	Active	SDTeam-Pr
	3142	Feature	Merlin API 수정 및 검증작업	Kwang...	Active	SDTeam-Pr
	3255	Feature	대시보드 페이지 개발	Jungw...	Active	SDTeam-Pr
	3256	User Story	대시보드 FE 개발	Jinho ...	Active	SDTeam-Pr
	3395	User Story	대시보드 BE 개발	Sangh...	Active	SDTeam-Pr
	3396	Task	Dashboard 조회 API 개발	Sangh...	Closed	SDTeam-Pr
	3400	Task	요청월 기준 최근 3개월의 월별 청구액 합산을 계산합니다.	Sangh...	Closed	SDTeam-Pr
	3401	Task	최근 12개월의 회사별 청구액 합산을 계산합니다	Sangh...	Closed	SDTeam-Pr
	3410	Task	당월 청구 상세 api 작성	Sangh...	Closed	SDTeam-Pr
	3259	Feature	청구서 관리 기능 개발	Jungw...	Active	SDTeam-Pr
	3348	Feature	이메일 인증을 통한 패스워드 변경 기능	Jungw...	Active	SDTeam-Pr

Column options

Add or remove columns. To change the column order, drag and drop a field, or use the keyboard shortcut, Space.

ID

✕

Work Item Type

✕

Title

✕

Assigned To

✕

State

✕

Iteration Path

✕

Progress by Task

✕

Count of Work Items

✕

Tags

✕

+ Add a column

+ Add a rollout column

Cancel

OK

# Sprints - Kanban Board

The screenshot displays a Jira Sprints Kanban Board for the 'SDTeam-Project'. The board is organized into columns: 'New', 'Active', 'Resolved', and 'Closed'. A sidebar on the left contains navigation icons. The top navigation bar shows the project path 'ACME-Product / SDTeam-Project / Boards / Sprints' and a search bar. Below the navigation bar, the board is titled 'SD' with tabs for 'Taskboard', 'Backlog', 'Capacity', and 'Analytics'. The 'Taskboard' tab is active, showing a sprint named 'iter\_2025.01' with 'Person: All' selected. A date range '1월 1일 - 1월 31일' and '17 work days remaining' are displayed. The board contains several work items, each represented by a card with a title, status, and assignee. The 'New' column has three items, 'Active' has two, 'Resolved' has one, and 'Closed' has one. The 'Collapsed all' button is visible in the top left of the board area.

ACME-Product / SDTeam-Project / Boards / Sprints

Search

+ New Work Item Column Options

Taskboard Backlog Capacity Analytics

iter\_2025.01 Person: All

1월 1일 - 1월 31일  
17 work days remaining

Collapse all New Active Resolved Closed

3465 키클락 클러스터링 구축  
Active  
Kwangseok Moon

3466 키클락 클러스터링 구축 작업  
Kwangseok Mo...

3206 Colson - Zendesk ticket SLA 알림 프로그램 유지 보수  
Active  
Kwangseok Moon

3210 SLA 계산방식 변경  
Kwangseok Mo...

2928 UI 컴포넌트 구성  
Active  
Jinho Kim

3241 버튼 css props로 커스텀 스타일을 주면 일부 기존 스타일이 적용 안 되는 현상 개선  
Yeawon Lee

3430 모달 route일 때 사이드바에서 active된 menu 스타일 적용 안 되는 현상 fix  
New  
Yeawon Lee

3462 Selectbox 옵션 props 추가  
Jinho Kim

# Pipelines

ACME-Product / SDTeam-Project / Pipelines

Search

≡

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⚙️

Pipelines

New pipeline

⋮

Recent All Runs

Filter pipelines

Recently run pipelines

Pipeline	Last run
<div><div>🕒</div><div>FrontEnd-SmartReport</div></div>	<div>#20250102.2 • fix(MonthlyReport): 12월과 1월이 안 나오고 0월이 나오는 문제 fix</div> <div>Individual CI for  main</div> <div><div>🕒 1월 2일</div><div>🕒 5s</div></div>
<div><div>✅</div><div>pipeline-OpenAPI-DOC-azure-static-we...</div></div>	<div>#20241231.1 • Update Billing 3 API OpenAPI Doc - Build ID: 10327</div> <div>Individual CI for  main</div> <div><div>🕒 2024년 12월 31일</div><div>🕒 4m 5s</div></div>
<div><div>✅</div><div>BillingApiTres</div></div>	<div>#20241231.1 • 청구서 상세 조회 로직 수정</div> <div>Individual CI for  develop</div> <div><div>🕒 2024년 12월 31일</div><div>🕒 8m 15s</div></div>
<div><div>✅</div><div>pipeline-Gateway-IAM</div></div>	<div>#20241231.2 • Merged PR 1569: [v2.1.2.RC1] Release</div> <div>Individual CI for  main</div> <div><div>🕒 2024년 12월 31일</div><div>🕒 2m 44s</div></div>
<div><div>✅</div><div>pipeline-BackEnd-SalesAPI</div></div>	<div>#20241216.1 • 빈 컬렉션 조건 버그 수정</div> <div>Individual CI for  develop</div> <div><div>🕒 2024년 12월 16일</div><div>🕒 10m 28s</div></div>
<div><div>✅</div><div>argo-workflow-container</div></div>	<div>#20241206.1 • AWS ETL 스크립트 12월 일때 범위 지정 로직 버그 수정</div> <div>Individual CI for  main</div> <div><div>🕒 2024년 12월 6일</div><div>🕒 9m 24s</div></div>
<div><div>✅</div><div>BackEnd-RPM</div></div>	<div>#20241119.1 • hotfix/schedule-get: 스케줄 조회 시 조회된 사용자 목록이 빈 배열인 경우 고려하여 Outer Join 하여 반환</div> <div>Individual CI for  develop</div> <div><div>🕒 2024년 11월 19일</div><div>🕒 4m 51s</div></div>
<div><div>✅</div><div>pipeline-FrontEnd-IAM</div></div>	<div>#20241113.4 • Merge branch 'develop'</div> <div>Individual CI for  master</div> <div><div>🕒 2024년 11월 13일</div><div>🕒 4m 18s</div></div>
<div><div>✅</div><div>BackEnd-SmartReport</div></div>	<div>#20241016.1 • Merged PR 1503: 고객 리포트 데이터 조회 시 startDate, endDate 파라미터를 받을 수 있도록 수정</div> <div>Individual CI for  main</div> <div><div>🕒 2024년 10월 16일</div><div>🕒 4m 15s</div></div>



# Extensions for Azure DevOps

The screenshot displays the Visual Studio Marketplace interface for Azure DevOps extensions. The top navigation bar includes 'Visual Studio | Marketplace', a user profile for 'Jungwoo Kim', and links for 'Sign out' and a search icon. Below the navigation bar, tabs for 'Visual Studio', 'Visual Studio Code', 'Azure DevOps' (highlighted), and 'Subscriptions' are visible, along with links to 'Build your own' and 'Publish extensions'. The main heading is 'Extensions for Azure DevOps', followed by a search bar labeled 'Search Azure DevOps extensions'. The 'Featured' section lists five extensions: 'Code Search' (222K downloads), 'Team Calendar' (52.9K downloads), 'Migration Tools for Azure DevOps' (9.2K downloads), 'Wiql Editor' (4.7K downloads), and 'Jira to Azure DevOps' (3.4K downloads). The 'Most Popular' section lists six extensions: 'Azure DevOps Open in Visual Studio' (273K downloads), 'SARIF SAST Scans Tab' (201K downloads), 'SonarQube Server' (138K downloads), 'Test & Feedback' (131K downloads), 'Replace Tokens' (122K downloads), and 'Terraform' (110K downloads). Each extension card shows its icon, name, publisher, download count, star rating, and price (all are free).

Visual Studio | Marketplace

Jungwoo Kim (jungwoo.kim@cloudmt.co.kr) Sign out

Visual Studio Visual Studio Code **Azure DevOps** Subscriptions

Build your own Publish extensions

## Extensions for Azure DevOps

Search Azure DevOps extensions

### Featured

- Code Search**  
Microsoft  
microsoft.com  
222K  
★★★★★  
FREE
- Team Calendar**  
Microsoft DevLabs  
microsoft.com  
52.9K  
★★★★★  
FREE
- Migration Tools for Azure DevOps**  
naked Agility with  
nkdagility.com  
9.2K  
★★★★★  
FREE
- Wiql Editor**  
Microsoft DevLabs  
microsoft.com  
4.7K  
★★★★★  
FREE
- Jira to Azure DevOps**  
Solidify AB  
solidify.dev  
3.4K  
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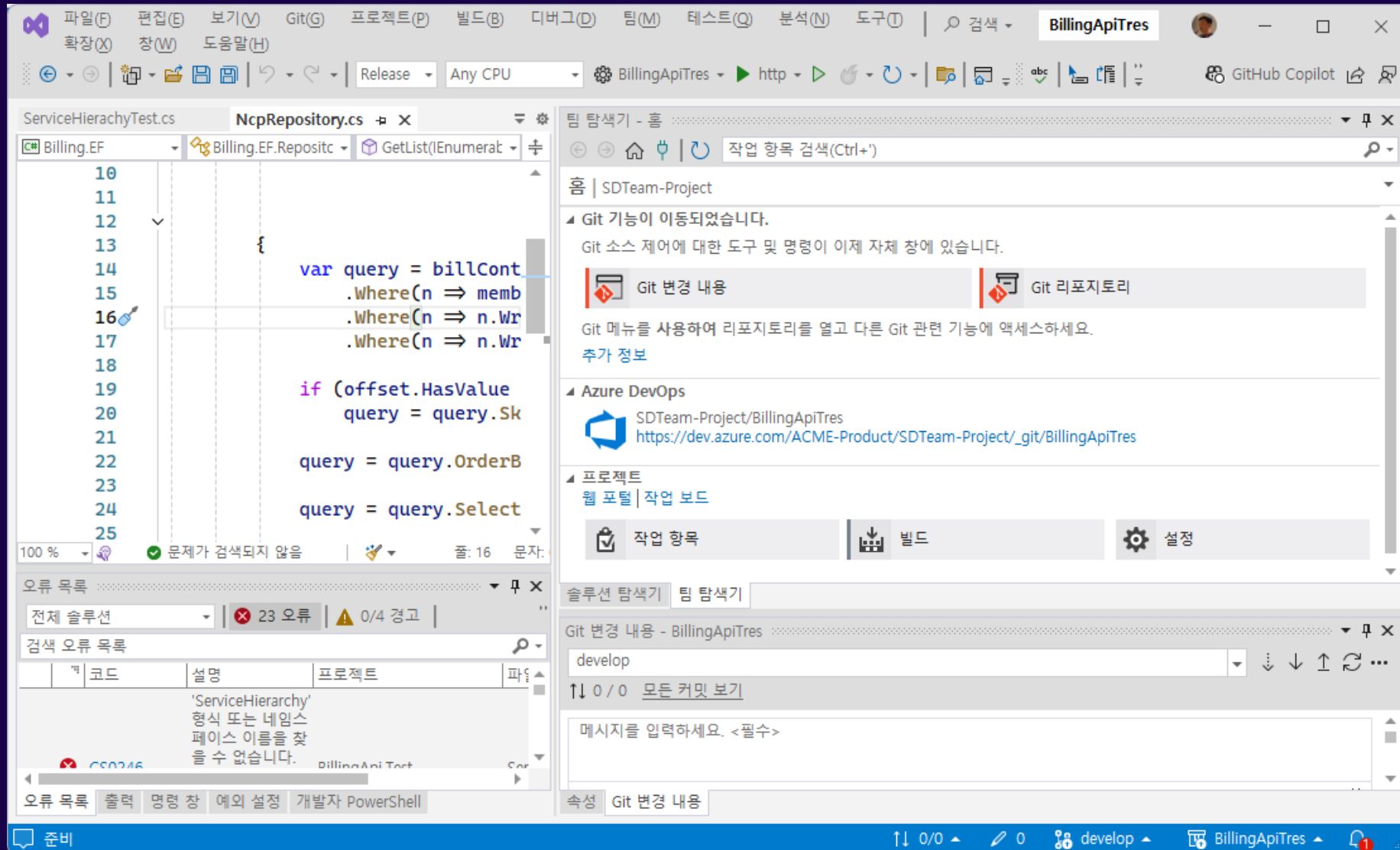
reference: <https://marketplace.visualstudio.com/azuredevops>



03

**Azure DevOps supports .NET stack**

# Visual Studio Team Explorer



# Pipeline template

The screenshot shows the 'Pipelines' section of the Azure DevOps interface for a project named 'ACME-Product / SDTeam-Project'. The left sidebar contains navigation icons for Source, Add, Build, Release, and Pipelines (which is highlighted). The main area is titled 'Choose a template' and includes a large circular arrow icon. Below the icon, it says 'Choose a template that builds your kind of app. Don't worry if it's not an exact match; you can add and customize the tasks later.'

On the right, the 'Select a template' section offers an 'Empty job' option. Under 'Configuration as code', there is a 'YAML' option with a link to learn more. The 'Featured' section lists several templates:

- .NET Desktop**: Build and test a .NET or Windows classic desktop solution.
- Android**: Build, test, sign, and align an Android APK.
- ASP.NET**: Build and test an ASP.NET web application. (Highlighted with a blue background and an 'Apply' button)
- Azure Web App for ASP.NET**: Build, package, test, and deploy an ASP.NET Azure Web App. (Highlighted with a blue background and an 'Apply' button)
- Docker container**: Build a Docker image and push it to a container registry.
- Maven**: Build and test a Java project with Apache Maven.

# So many pipeline templates

## Configuration as code



### YAML

Looking for a better experience to configure your pipelines using YAML files? Try the new YAML pipeline creation experience. [Learn more](#)

## Featured



### .NET Desktop

Build and test a .NET or Windows classic desktop solution.



### Android

Build, test, sign, and align an Android APK.



### ASP.NET

Build and test an ASP.NET web application.



### Azure Web App for ASP.NET

Build, package, test, and deploy an ASP.NET Azure Web App.



### Docker container

Build a Docker image and push it to a container registry.



### Maven

Build and test a Java project with Apache Maven.



### Python package

Create and test a Python package on multiple Python versions.



### Xcode

Build, test, archive, or package an Xcode workspace on macOS.

## Others



### Ant

Build and test a Java project with Apache Ant.



### ASP.NET Core

Build and test an ASP.NET Core web application.



### ASP.NET Core (.NET Framework)

Build an ASP.NET Core web application that targets the full .NET Framework.



### ASP.NET with containers

Build and push an ASP.NET application with container support.

Apply



### Azure Cloud Services

Build, package, test, and deploy an Azure Cloud Service.



### Azure Functions for .NET

Build and package a .NET based Azure Functions application to be deployed on Azure Functions.



### Azure Functions for Node.js

Build and package a Node.js based Azure Functions application to be deployed on Azure Functions.



### Azure Functions for Powershell

Build and package a Powershell based Azure Functions application to be deployed on Azure Functions.



### Azure Functions for Python

Build and package a Python based Azure Functions application to be deployed on Azure 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 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.



### Machine Learning Model

Build and deploy a ML model using Azure Machine Learning CLI.



### 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.



### Universal Windows Platform

Build and test a Universal Windows Platform application using Visual Studio.



### Xamarin.Android

Build an Android app and Xamarin.UITest assembly. Test on real devices with App Center.



### Xamarin.iOS

Build a Xamarin.iOS app and Xamarin.UITest assembly. Test on real devices with App Center.



# Azure DevOps Connector

The screenshot shows a Microsoft Teams interface. On the left is a sidebar with navigation icons and a list of channels. The main area displays a channel named 'Board Alerts - SD'. At the top, there's a header with 'SD Board Alerts - SD' and tabs for '게시물' (Posts) and '파일' (Files). Below the header, there's a section for '새 게시물을 시작' (Start new post) with buttons for '게시' (Post) and '알림' (Notify). The main content area shows a post from 'Azure DevOps' dated '어제 오후 6:09'. The post content includes a commit message: 'Yeawon Lee pushed a commit to SDTeam-Project : feature/modify-bills-customers'. Below the commit message, it says 'Repository: FrontEnd-2024-monorepo' and 'design(DetailsBillModal): 데이터 그리드 영역과 데이터 그리드 border가 안 맞는 현상 fix'. It also mentions 'Related to: #3417'. At the bottom of the post, there's a section for 'Task 3417: 청구서 디테일 모달 수정사항' (Task 3417: Invoice detail modal modification) with the update 'Updated by Yeawon Lee | Changed state to Closed'.

## "SD팀" 팀의 "Board Alerts - SD" 채널에 대한 커넥터

Office 365 Connectors within Teams will be retired soon. The Workflows app provides similar functionality with more scalability and security. [Learn More.](#)  
Note: To manage existing connections, please open Connectors page in [Teams web client](#).

The screenshot shows the 'Connectors' page in Microsoft Teams. At the top, there's a search bar and a dropdown menu set to 'All'. Below this, there's a section titled 'Connectors for your team'. Under 'MANAGE', there are links for 'Configured' and 'My Accounts'. Under 'CATEGORY', there's a link for 'All'. The main list of connectors includes: 'Azure DevOps' (Collaborate on and manage software projects online), 'Incoming Webhook' (Send data from a service to your Office 365 group in real time), 'Google Analytics' (Get Google Analytics summary reports), 'Forms' (Easily create surveys, quizzes, and polls), 'RSS' (Get RSS feeds for your group), and 'Jira Cloud' (Gather, organize, and assign). Each connector has a 'Configure' or 'Add' button.

# CI/CD

ACME-Product / SDTeam-Project / Pipelines

Search

Variables Validate and save

← BillingApiTres

develop BillingApiTres / azure-pipelines.yml \*

```
49     displayName: 'Build docker image'
50     script: |
51     docker login -u $(containerRegistryName) -p $(containerRegistryPassword) $(containerRegistry)
52     echo 'Pushing docker image...'
53     # echo $(containerRegistryPassword) | docker login $(containerRegistryName) --password-stdin
54     docker tag $(containerRegistry)/$(imageRepository):$(tag) $(containerRegistry)/$(imageRepository):$(latestTag)
55     docker push $(containerRegistry)/$(imageRepository):$(tag)
56     docker push $(containerRegistry)/$(imageRepository):$(latestTag)
57     displayName: 'Push docker image'

Settings
58     - task: AzureContainerApps@1
59       inputs:
60         appSourcePath: '$(Build.SourcesDirectory)'
61         azureSubscription: $(azureSubscriptionId)
62         acrName: $(containerRegistryName)
63         containerAppName: $(containerAppName)
64         resourceGroup: $(containerAppRg)
65         imageToDeploy: '$(containerRegistry)/$(imageRepository):$(tag)'
66   - job: Docs
67     displayName: Docs
68     pool:
69       vmImage: $(vmImageName)
70     steps:
71       - checkout: self
72       - submodules: recursive
```

← Azure Container Apps Deploy

Application source path ⓘ  
\$(Build.SourcesDirectory)

Azure Resource Manager connection \* ⓘ  
\$(azureSubscriptionId)

Azure Container Registry name ⓘ  
\$(containerRegistryName)

Azure Container Registry username ⓘ

Azure Container Registry password ⓘ

Dockerfile path ⓘ

Docker image to build ⓘ

Docker image to deploy ⓘ  
\$(containerRegistry)/\$(imageRepository):\$(tag)

About this task Add

# CI - Test Case

```
//assert
Assert.NotNull(result?.Value);
Assert.True(result.Value.Count == 6);
Assert.Contains(result.Value, s => s.ContractorId == _topRootAccountId && s.ContracteeId == _acmeAccountId);
Assert.Contains(result.Value, s => s.ContractorId == _acmeAccountId && s.ContracteeId == _partnerAccountId1);
Assert.Contains(result.Value, s => s.ContractorId == _acmeAccountId && s.ContracteeId == _partnerAccountId2);
Assert.Contains(result.Value, s => s.ContractorId == _partnerAccountId1 && s.ContracteeId == _partner1CustomerAccountId1);
Assert.Contains(result.Value, s => s.ContractorId == _partnerAccountId1 && s.ContracteeId == _partner1CustomerAccountId2);
Assert.Contains(result.Value, s => s.ContractorId == _partnerAccountId2 && s.ContracteeId == _partner2CustomerAccountId1);
}
```

CI pipeline 안에 Test Case 프로젝트를 빌드하는 task를 추가합니다.

테스트 케이스를 통과하지 못하면 pipeline은 자동으로 실패 하게 됩니다.

# CI/CD

S

+  
+ Add new pipeline

RPM API Release  
✓ DEV Deployment

p2 apps deploy pipeline  
✓ worker deploy ☆

ACME-Product / SDTeam-Project / Pipelines / Releases

Search all pipelines

New

p2 apps deploy pipeline

Edit Create release

All releases

Releases Deployments Analytics

Releases

Created Stages

Release-80  
20241014.... develop  
2024. 10. 14. 오후 6:15:34  
init gcloud api deploy scheduler ... worker de... Stage 1

Release-79  
20241013.... develop  
2024. 10. 13. 오후 6:18:56  
init gcloud api deploy scheduler ... worker de... Stage 1

Release-78  
20241004.... develop  
2024. 10. 4. 오후 6:15:17  
init gcloud api deploy scheduler ... worker de... Stage 1

Release-15  
20230531.... develop  
2023. 5. 31. 오후 4:20:41  
Stage 1

Release-14  
20230531.... develop  
2023. 5. 31. 오전 11:02:10  
Stage 1

Release-13  
20230526.... develop  
2023. 5. 26. 오후 2:39:16  
Stage 1

# CI/CD

ACME-Product / SDTeam-Project / Pipelines / Releases / p2 apps deploy pipeline / Release-80

Search

Help

p2 apps deploy pipeline > Release-80

Pipeline Variables History Deploy Cancel Refresh Edit

Release

Continuous deployment

for [redacted]

2024. 10. 14. 오후 6:15

Artifacts

\_p2-server-api

20241014.1

develop

\_p2-server-scheduler

20241013.1

develop

\_p2-server-worker

20241013.1

develop

Stages

init gcloud

Succeeded

on 2024. 10. 14. 오후 6:20

api deploy

Succeeded

on 2024. 10. 14. 오후 6:22

scheduler deploy

Succeeded

on 2024. 10. 14. 오후 6:22

worker deploy

Succeeded

on 2024. 10. 14. 오후 6:23

Stage 1

Not deployed

Azure DevOps 2024-12-31 오전 11:18

PR 1571: [v1.1.3.RC1] Release

Created by [redacted] in SDTeam-Project | BackEnd-IAM | Dev

merge dev -> main

회신





04

Increasing the productivity

# Pull Request linked work items

The screenshot displays a Pull Request (PR) interface for a repository named 'FrontEnd-2024-monorepo'. The breadcrumb navigation shows the path: 'ACME-Product / SDTeam-Project / Repos / Pull requests / FrontEnd-2024-monorepo'. The PR title is 'PR 진행 시 이러한 점들을 참고해 주세요' (Please refer to these points when proceeding with the PR). The 'Overview' tab is selected, showing 25 files and 5 commits. A section titled 'PR 진행 시 이러한 점들을 참고해 주세요' (Please refer to these points when proceeding with the PR) lists guidelines for reviewers and commenters. Below this, the 'Reviewers' section includes a search bar and an 'Add required reviewers' button. The 'Work items to link' section shows 2 items and a 'Clear all' button. A search bar for work items is present, and a list of work items is displayed, including 'Task 3432: 청구서 자동 생성 API 개발' and several 'User Story' items.

ACME-Product / SDTeam-Project / Repos / Pull requests / FrontEnd-2024-monorepo

Overview Files 25 Commits 5

PR 진행 시 이러한 점들을 참고해 주세요

- PR 진행 시 이러한 점들을 참고해 주세요
- Reviewer 분들은 코드 리뷰 시 좋은 코드의 방향을 제시하되, 코드 수정을 강제하지 말아 주세요.
- Reviewer 분들은 좋은 코드를 발견한 경우, 칭찬과 격려를 아끼지 말아 주세요.
- Review는 특수한 케이스가 아니면 Reviewer로 지정된 시점 기준으로 3일 이내에 진행해 주세요.
- Comment 작성 시 Prefix로 P1, P2, P3 를 적어 주시면 Assignee가 보다 명확하게 Comment에 대해 대응할 수 있어요
  - P1 : 꼭 반영해 주세요 (Request Changes) - 이슈가 발생하거나 취약점이 발견되는 케이스 등
  - P2 : 반영을 적극적으로 고려해 주시면 좋을 것 같아요 (Comment)
  - P3 : 이런 방법도 있을 것 같아요~ 등의 사소한 의견입니다 (Chore)

Reviewers Add required reviewers

Search users and groups to add as reviewers

Work items to link 2 Clear all

Search work items by ID or title

- Task 3432: 청구서 자동 생성 API 개발
- User Story 3264: 사용량 조회 BE 개발
- User Story 3395: 대시보드 BE 개발
- User Story 3206: Colson - Zendesk ticket SLA 알림 프로그램 유지 보수
- User Story 3271: 이메일 인증을 통한 패스워드 변경 기능 BE 개발
- Feature 3348: 이메일 인증을 통한 패스워드 변경 기능
- User Story 3351: 이메일 인증을 통한 패스워드 변경 기능 FE 개발
- User Story 3256: 대시보드 FE 개발
- User Story 3263: 사용량 조회 FE 개발

# Close work items on commit & push

```
Fixes #123
```

```
This fixed #123!
```

```
Change behavior to fix: #123
```

```
Fixes #123 and fixes #124
```

Azure DevOps Repository 특정 repo의 Default branch에 대해서만 작동 합니다.

실제로 테스트 해보면 fix, fix:, fixed, fixes 키워드 모두 가능합니다.

reference: <https://learn.microsoft.com/en-us/azure/devops/repos/git/resolution-mentions?view=azure-devops>

# Link work items on commit & push

## 작업 항목 연결

#[작업항목ID]

E.g., “Added login feature #2609”

이렇게 하면 커밋이 자동으로 해당 작업 항목에 링크됨

## 여러 작업 항목 연결

E.g., “청구서 생성 시 이메일 발송 로직 추가 #3001, #3002, #3003”

하나의 커밋으로 여러 작업 항목 링크 가능

# Link work items on commit

The screenshot displays the Azure DevOps interface for a work item. The breadcrumb navigation at the top shows the path: ACME-Product / SDTeam-Project / Boards / Sprints. The work item is titled "TASK 3473" and has a description in Korean: "[사용자 정보 관리 모달] 각 기능 버튼 및 메뉴 클릭 즉시 스낵바로 '요청하였습니다'를 보여주고 api 응답이 오면 스낵바에 결과를 출력하는 형". The work item is in a "Closed" state, with a reason of "Completed". It is associated with the "SDTeam-Project" area and the "SDTeam-Project\iter\_2025.01" iteration. The right sidebar shows a list of links, with the "Commit" link highlighted in a red box. The commit link is "a61c500 feat(UserInformationM..." and was updated yesterday. The bottom of the interface shows a list of users: Jinho Kim, Yeawon Lee, and Yeawon Lee.

ACME-Product / SDTeam-Project / Boards / Sprints

TASK 3473

3473 [사용자 정보 관리 모달] 각 기능 버튼 및 메뉴 클릭 즉시 스낵바로 '요청하였습니다'를 보여주고 api 응답이 오면 스낵바에 결과를 출력하는 형

0 Comments Add Tag

State: Closed Area: SDTeam-Project Reason: Completed Iteration: SDTeam-Project\iter\_2025.01 Updated by: Yesterday

Description

Click to add Description.

Discussion

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

switch to Markdown editor

Planning

Priority: 2 Activity

Effort (Hours)

Original Estimate Remaining Completed

Implementation

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

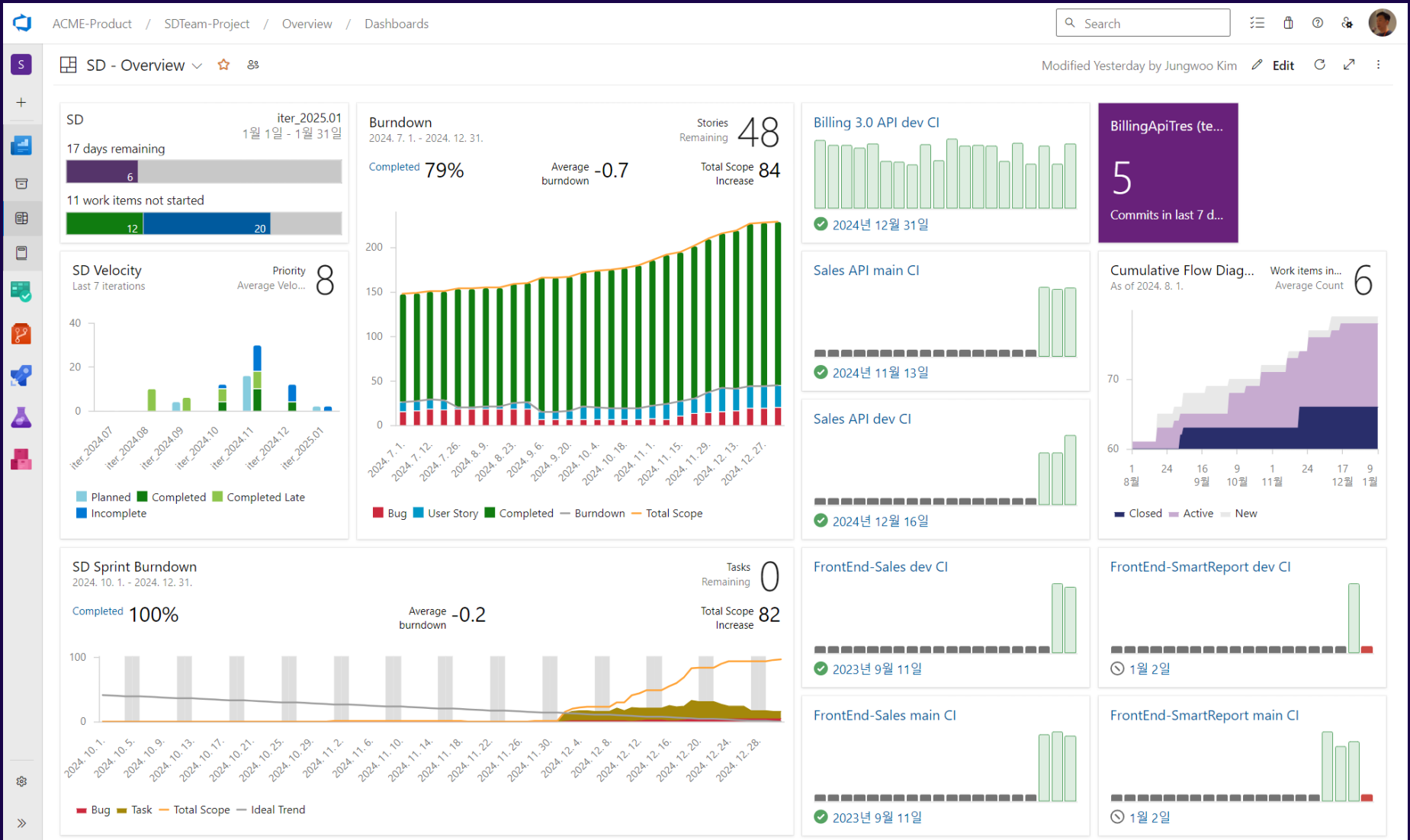
Add link

Commit

a61c500 feat(UserInformationM... Updated Yesterday

Jinho Kim Yeawon Lee Yeawon Lee

# Dynamic Dashboard



# Notifications

ACME-Product / SDTeam-Project / Settings / Notifications / SD

S

+

## Project Settings

SDTeam-Project

- General
  - Overview
  - Teams
  - Permissions
  - Notifications
  - Service hooks
  - Dashboards
- Boards
  - Project configuration
  - Team configuration
  - GitHub connections
- Pipelines
  - Agent pools
  - Parallel jobs
  - Settings
  - Test management
  - Release retention
  - Service connections
  - XAML build services
- Repos

Notifications
+ New subscription
⚙️ Delivery settings
🔗 Help

Description	Type	Notifies	State	
Build				
Build completes Build completes		Build completed (any project)	SD Individual members	<input checked="" type="checkbox"/>
Code (Git)				
Pull request reviewers added or removed Notifies the team when it is added or removed as a reviewer for a pull request		Pull request (any project)	SD Individual members	<input checked="" type="checkbox"/>
Pull request changes Notifies the team when changes are made to a pull request the team is a reviewer for		Pull request (any project)	SD Individual members	<input checked="" type="checkbox"/>
Extension management				
Extensions have been modified Extensions have been modified		Extension	SD Individual members	<input checked="" type="checkbox"/>
Extensions are requested or requests are updated Extensions are requested or requests are updated		Extension request (bat...	SD Individual members	<input checked="" type="checkbox"/>
Pipelines				
Run stage waiting for approval Notifies the team when a run stage approval is pending on them		Approval Pending (any project)	SD Individual members	<input checked="" type="checkbox"/>
Manual validation Pending Notifies the team when a manual validation is pending on them		Manual validation Pe... (any project)	SD Individual members	<input checked="" type="checkbox"/>
Release				




# Notifications sample

AD Azure DevOps


받는 사람: [redacted] Jungwoo Kim

화 2024-12-31 11:31

 Azure DevOps

청구서 상세 조회 로직 수정

**[redacted] completed the pull request**

 feature/fixBillDetail into develop

- Source branch deleted
- Automatically completed
- Branch was rebased

NcpDetail은 사용량을 매일 조회한 후 새로운 레코드로 추가합니다.  
청구서 상세 데이터를 조회할 때는 해당 청구서와 관련된 NcpDetail 데이터 중 가장 마지막 일자에 해당 하는 레코드만 조회하도록 합니다.

View pull request

Reviewers

Jungwoo Kim	Approved	Required
[redacted]		Optional

We sent you this notification due to a default subscription. [View](#) | [Unsubscribe](#)

Microsoft respects your privacy. Review our Online Services [Privacy Statement](#).


One Microsoft Way, Redmond, WA, USA 98052.


Sent from Azure DevOps

회신

전체 회신

전달

 Azure DevOps 2024-12-31 오전 11:31

 PR 1570: 청구서 상세 조회 로직 수정 (Approved)

Updated by [redacted] in SDTeam-Project | BillingApiTres | feature/fixBillDetail

NcpDetail은 사용량을 매일 조회한 후 새로운 레코드로 추가합니다. 청구서 상세 데이터를 조회할 때는 해당 청구서와 관련된 NcpDetail 데이터 중 가장 마지막 일자에 해당하는 레코드만 조회하도록 합니다.





# Get .NET 9



Download .NET 9  
[aka.ms/get-dotnet-9](https://aka.ms/get-dotnet-9)

**Thank you**

