

如何幽默的玩歪 Azure DevOps

— 紿適合挑戰各種工具極限的(工具)人



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2020/8/23 @ Study4.tw



自我介紹

- 主業：把同事做成貼圖、講幹話、跑龍套、跑腿
- 副業：Azure Solution
- 不定期更新：<https://medium.com/@huier23>

為什麼要這樣？不用理由！

像極了愛情

Agenda

- 初步了解
- 各種歪掉的姿勢 / 極限挑戰
 - 專案管理
 - 持續集成、測試以及部屬 (CI/CD)
 - 維運 : Log 管理
- Useful New Feature !!! (May - Aug)

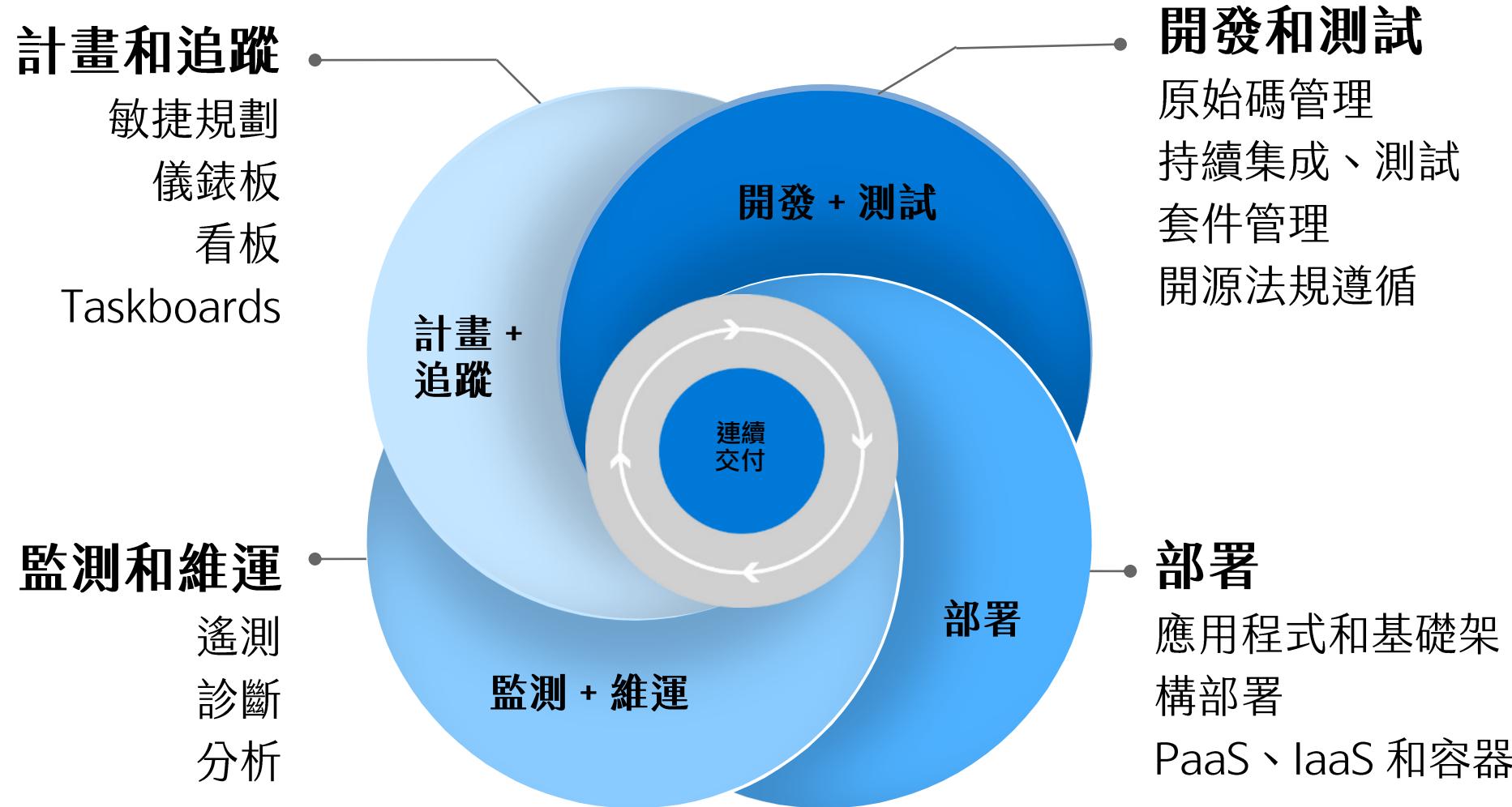
先來個初步了解

DevOps 在微軟

Azure DevOps 是 Microsoft 開發環境首選的平台，擁有超過九萬六千個內部使用者



“DevOps 是人、流程和技術的結合，用來對最終用戶持續得交付價值”



Microsoft DevOps Solution

Azure DevOps Services & Azure DevOps Server

Azure DevOps 實踐開發流程

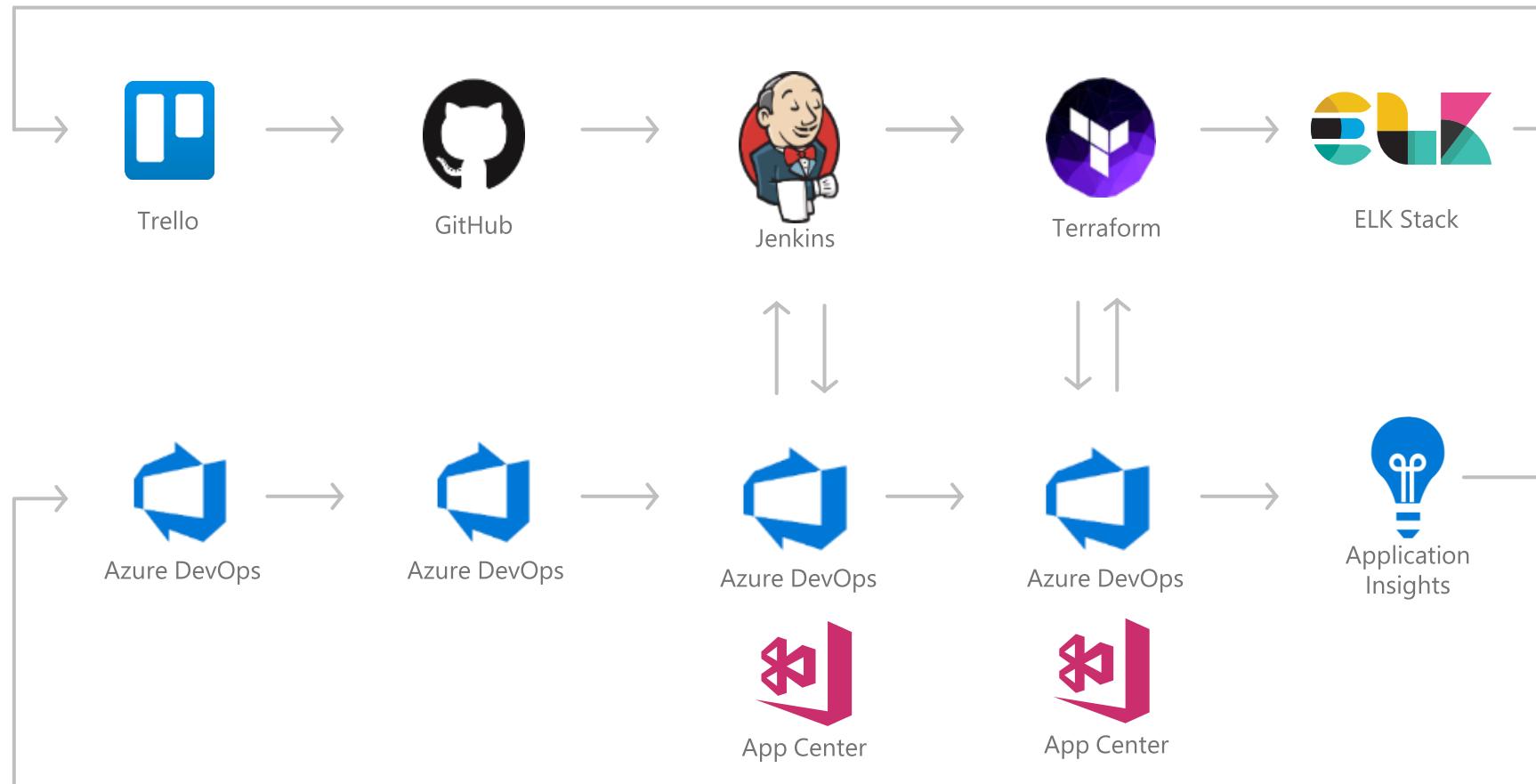
計畫和追蹤

版本控制

建置及測試

部屬

監控





Azure Boards

使用經實證的敏捷式工具與所有小組一起規劃、追蹤及討論工作，更快傳遞價值給您的使用者。



Azure Test Plans

使用手動與探勘測試工具放心測試及交付。



Azure Pipelines

以適用於任何語言、平台和雲端的 CI/CD 建置、測試及部署。連線到 GitHub 或任何其他 Git 提供者並持續部署。



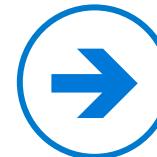
Azure Artifacts

建立、裝載套件並與您的小組共用，只要按一下即可將成品新增至您的 CI/CD 管線。



Azure Repos

取得無限的雲端託管私人 Git 存放庫，並透過提取要求和進階檔案管理來共同作業以建置更佳的程式碼。

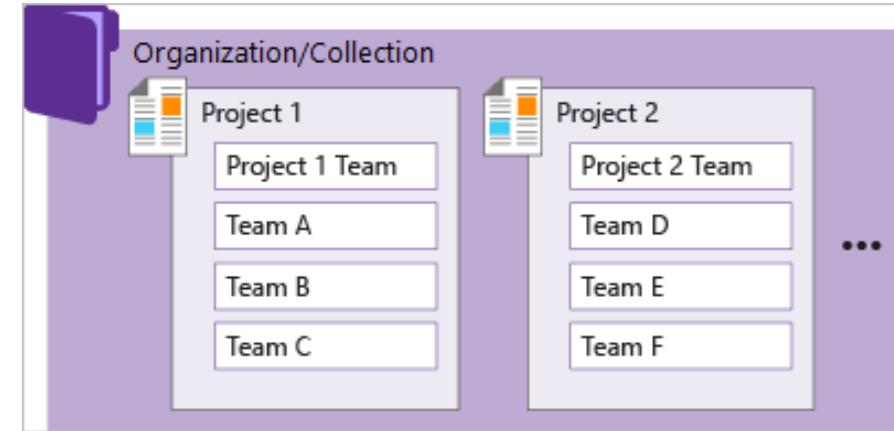
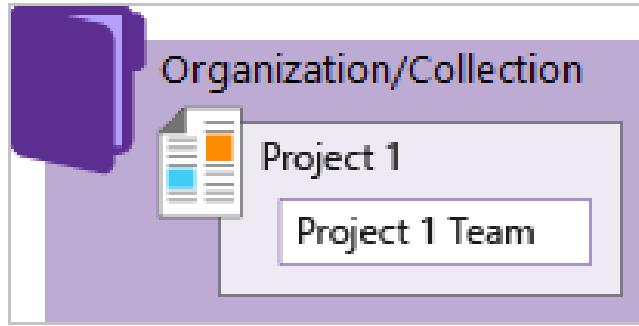


<https://azure.com/devops>

各種歪掉的姿勢 / 極限挑戰

組織與專案間的關係

Organization / Project / Team :



選擇要不要切分成獨立的專案：

- ✓ 限制或管理一個專案中不同角色對於資訊的存取
- ✓ 支援組織中特定事業體的客製化工作流程追蹤
- ✓ 支援組織中不同事業體完全獨立且有自己的 admin 權限和 policy
- ✓ 支援 Open Source Software (OSS) 專案

- H huier-teamservice
- M msazure
- M mseng
- C contosohotelsdev

6 more organizations

New organization

組織

huier-teamservice

Projects My work items My pull requests

+ New project

Filter projects



Functions



AppCenterDemo



AspNetCore.Sample

Deploy to virtual machine of window IIS web server and Azure web app

專案



Functions



AKS.Demo



AppCenterDemo



AspNetCore.Sample

Deploy to virtual machine of window IIS web server and Azure web app



AspNetFramework



Docker.Demo

Generated by Azure DevOps Demo Generator

PM

Developer

Infra

Sprint 173

Sprint 173 Release Notes

In this sprint, we have introduced a new option that allows customers to set a custom default branch name for all new repositories. Learn more [👉](#)

專案管理

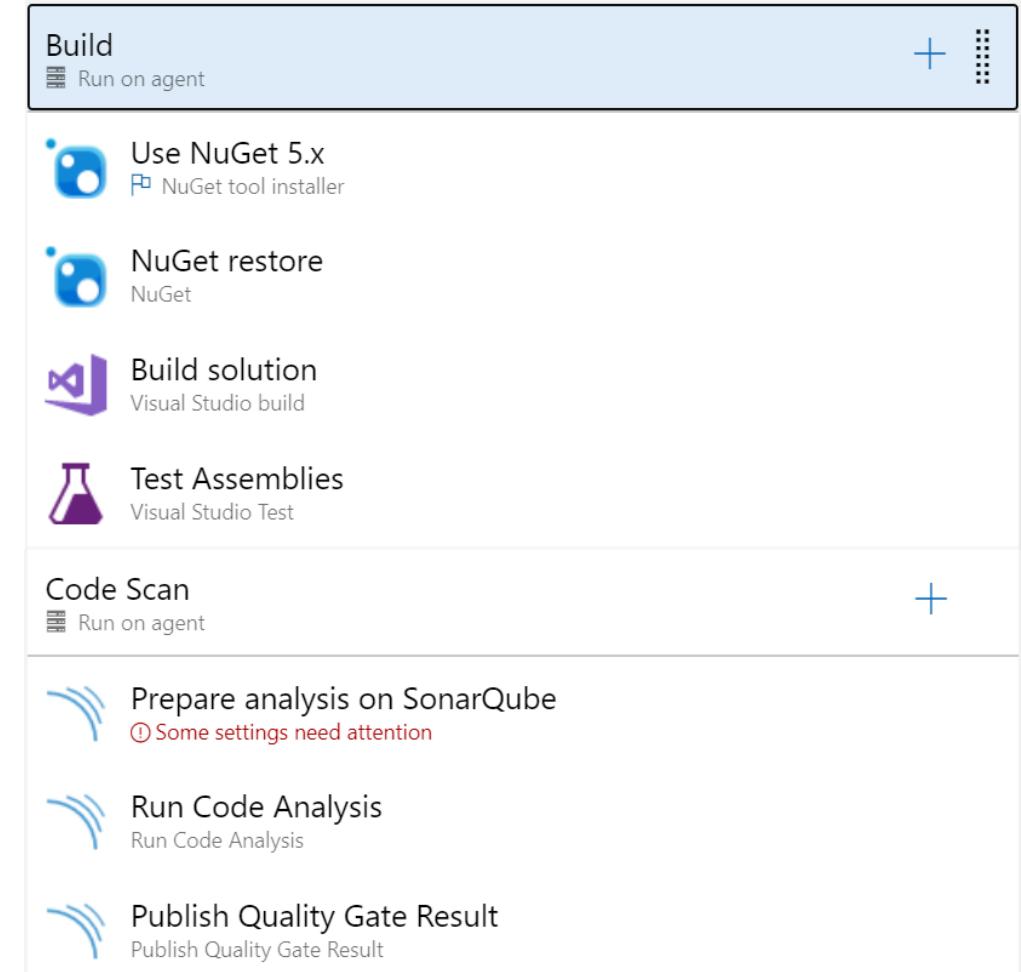
組織/專案/Epic/Feature 的切分方法：

- Developer 和 Operation 分不同組織
 - 資訊不透明，開發及維運仍是不同的平台
- 需求管理、系統、開發拆分不同 project
 - 權限劃分的設計需慎思
- 一間公司只開一個Project，透過Epic切分不同系統/專案
 - 系統、專案量大時難以管理
 - 透過 team 及 area path 管理

持續集成、測試以及部屬 (CI/CD)

Pipeline 中跨 Stage 傳遞Artifact

- 應用場景
 - 在不同的 agent 上處理 artifact
(build code → code scan)



持續集成、測試以及部屬 (CI/CD)

Pipeline 中跨 Stage 傳遞Artifact

- 解決方案(一)

- 使用 Publish Artifact 和 Download Build Artifact task (YAML support)

- 問題

Summary Tests Code Coverage WhiteSource Bolt Build Report

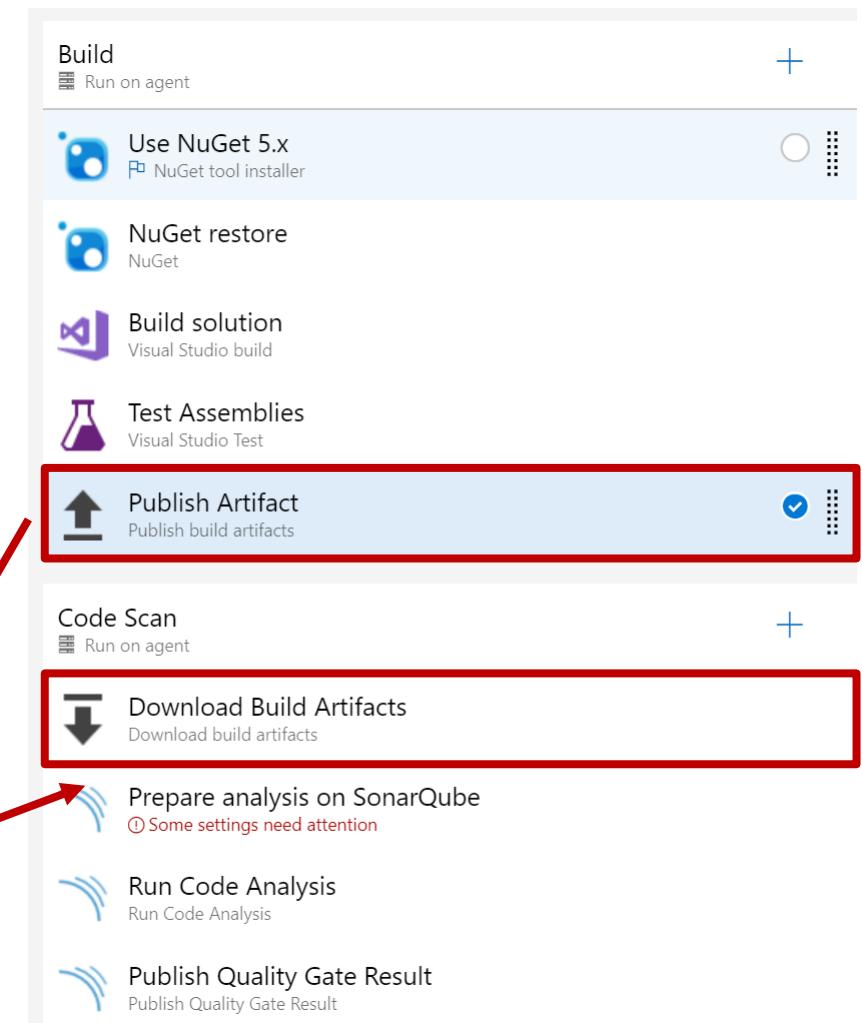
Scheduled

Repository and version
AspNetCoreSample
master bcb97bc

Time started and elapsed
Aug 3 at 7:00 AM
2m 18s

Related
0 work items

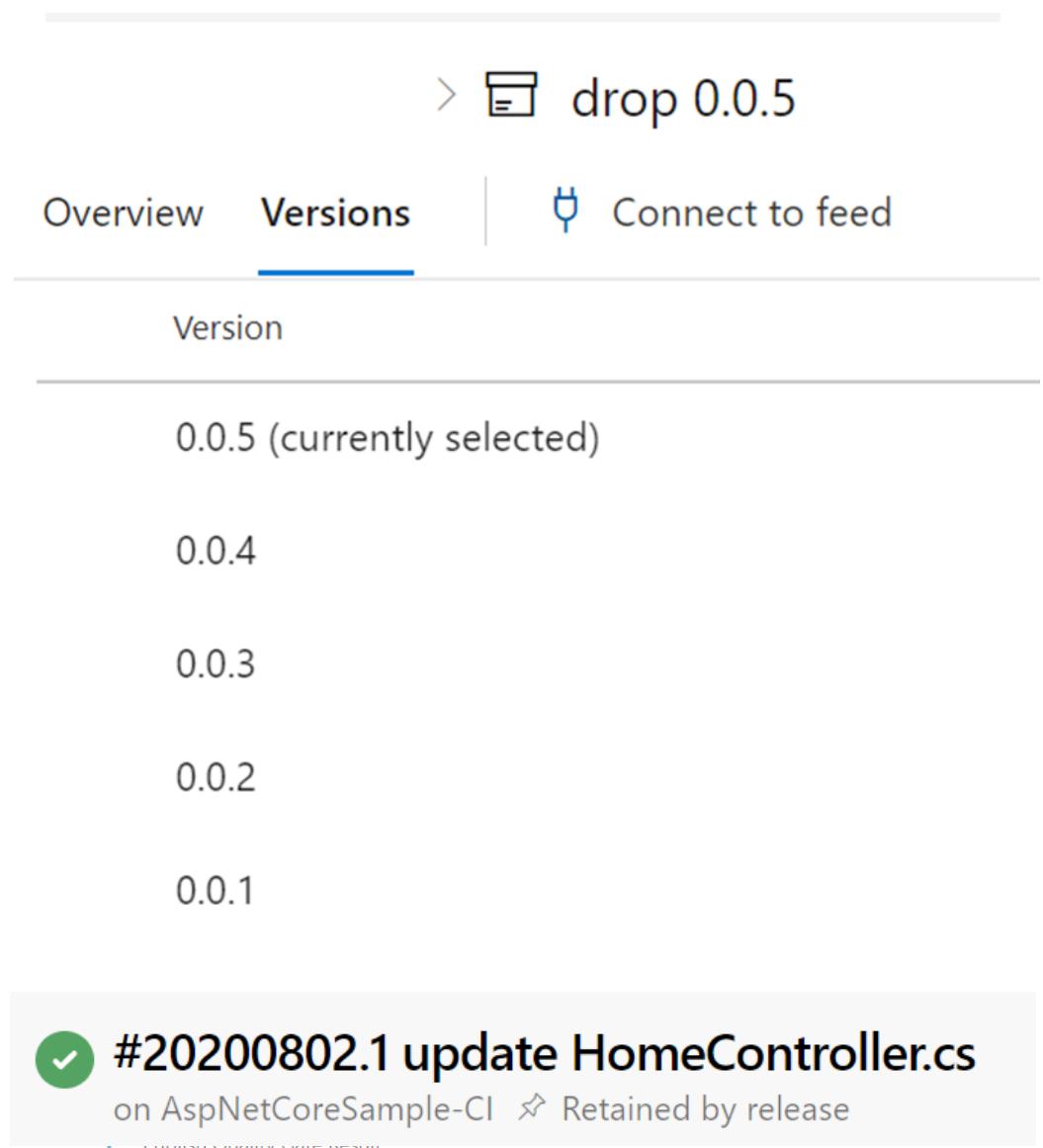
1 published



持續集成、測試以及部屬 (CI/CD)

Pipeline 中跨 Stage 傳遞Artifact

- 解決方案(二)
 - 採用 Universal Package
 - Universal Package：
 - 將一個或多個文件儲存在具有名稱和版本的單個單元中
 - 可使用於 YAML
 - 支援 Azure CLI (download/publish)、REST API (Get/Delete/Update Information)
- 問題
 - 版本與版號



The screenshot shows the 'Versions' tab of an artifact named 'drop 0.0.5'. It lists five versions: 0.0.5 (currently selected), 0.0.4, 0.0.3, 0.0.2, and 0.0.1. Below the table, a message indicates that version 0.0.5 was retained by a release.

Version
0.0.5 (currently selected)
0.0.4
0.0.3
0.0.2
0.0.1

#20200802.1 update HomeController.cs
on AspNetCoreSample-Cl ✘ Retained by release

持續集成、測試以及部屬 (CI/CD)

Pipeline 中跨 Stage 傳遞Artifact

- 解決方案(三)
 - 採用 Azure Blob Storage
- 問題
 - 沒有 Download Task

Build
Run on agent +

- Use NuGet 5.x
NuGet tool installer
- NuGet restore
NuGet
- Build solution
Visual Studio build
- Test Assemblies
Visual Studio Test
- Universal publish
Universal packages

Upload files to Azure Storage container
! Some settings need attention



✓ #20190808.1 Update smarthote360.website.deployment.json

on SmartHotel_Petchecker-Web ✘ Retained by release

Run new



Summary WhiteSource Bolt Build Report

Manually run by Huier Huang

Repository and version

❖ SmartHotel360-Website
⌚ master ⚖ b99ce4d

Time started and elapsed

⌚ Aug 8, 2019 at 2:35 PM
⌚ 11m 41s

Related

⌚ 0 work items
⌚ 3 published

Tests and coverage

⌚ Get started

Warnings 4

! Source\SmartHotel360.WebsiteFunction\PetChecker.cs(26,13): Warning CS0618: 'TraceWriter' is obsolete: 'Will be removed in an upcoming version. Use Microsoft.Extensions.Logging.ILogger instead.'
Build Pet Checker Functions App • Build solution Source/SmartHotel360.WebsiteFunction/SmartHotel360.WebsiteFunction.csproj

- 自定義 pipeline tab 內容供內部查看

- ## 關於 Azure DevOps Extension

- 主要用於客製化 Azure DevOps 和 TFS 的 DevOps 體驗
- 使用 HTML、CSS、JavaScript/PowerShell 編寫
- REST API library 與 Azure DevOps 應用程序/服務進行互動
- 可上架到 Visual Studio Marketplace 提供給其他使用者或團隊內部自行使用

持續集成、測試以及部屬 (CI/CD)

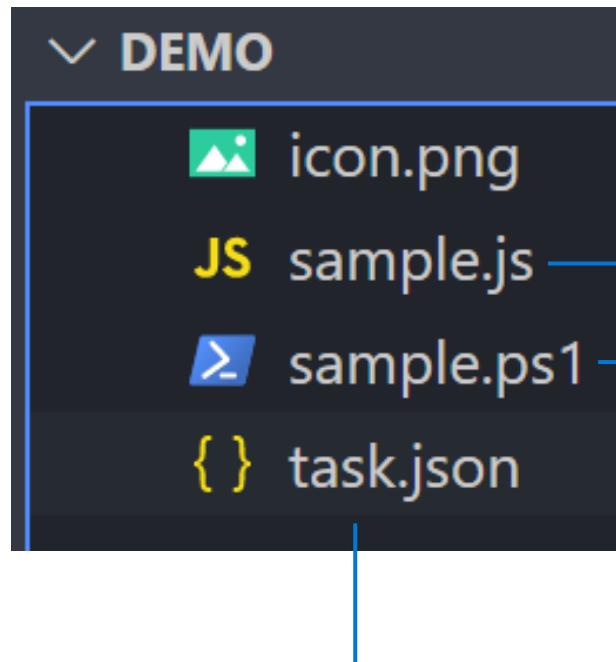
開發 Azure DevOps Extension

- 環境準備
 - 安裝Node.js
 - 透過 `npm install -g tfx-cli` 安裝 Azure DevOps Extension Tool (TFX)
跨平台指令工具
 - 使用 `tfx` 指令進行登入、新增專案、建置、上架 marketplace 上
 - `Tfx login`
 - `tfx extension create --manifest-globs vss-extension.json`
 - `tfx build tasks upload --task-path {path2file}`
 - `tfx extension publish --manifest-globs vss-extension.json`

持續集成、測試以及部屬 (CI/CD)

開發 Azure DevOps Extension

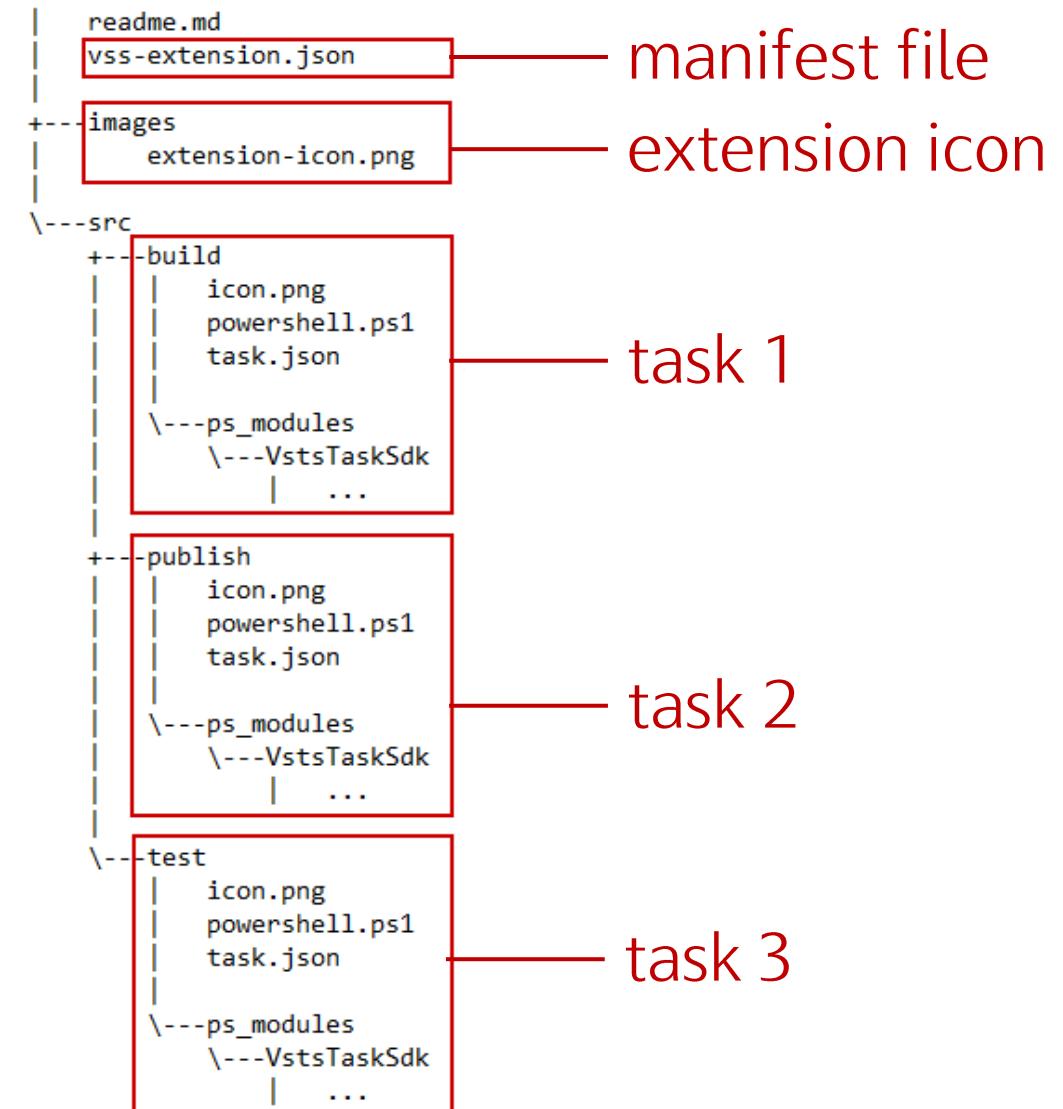
- 專案結構



定義 task 介面、欄位、欄位互動方式等

task 執行腳本
(可運行於所有環境上)

task 執行腳本
(僅能運行於windows)



持續集成、測試以及部屬 (CI/CD)

開發 Azure DevOps Extension

- 定義介面：task.json

```
{  
    "id": "7757a6d2-4caf-4247-99ea-1231286a9953",  
    "name": "build-task",  
    "friendlyName": "Test service endpoint - huier",  
    "description": "Task with a dynamic property getting data from an endpoint REST data source",  
    "author": "HuierHuang",  
    "helpMarkDown": "Replace with markdown to show in help",  
    "category": "Build",  
    "visibility": [  
        "Build",  
        "Release"  
    ],  
    "demands": [],  
    "version": {  
        "Major": "5",  
        "Minor": "4",  
        "Patch": "3"  
    },  
    "minimumAgentVersion": "1.95.0",  
    "instanceNameFormat": "Service Endpoint Build Task $(project)",  
    "inputs": [ ...  
    ],  
    "dataSourceBindings": [ ...  
    ],  
    "execution": {  
        "Node": {  
            "target": "sample.js",  
            "argumentFormat": ""  
        },  
        "PowerShell3": {  
            "target": "sample.ps1"  
        }  
    }  
}
```

基本定義

版本

顯示名稱

欄位

欄位資料來源

執行腳本定義

```
"inputs": [
  {
    "name": "ServiceConnection",
    "type": "connectedService:generic",
    "label": "service/server end point",
    "defaultValue": "178ed82d-93c3-428a-bb2e-a07d6afc758b",
    "required": true,
    "helpMarkDown": "Select the end point to use. If needed, selecton 'manage',
  },
  {
    "name": "myproject",
    "type": "pickList",
    "label": "My Project",
    "required": true,
    "helpMarkDown": "Select the name of the Project to analyze.",
    "properties": {
      "EditableOptions": "True"
    }
  },
  {
    "name": "defaultteam",
    "type": "pickList",
    "label": "Default Team",
    "required": true,
    "helpMarkDown": "",
    "properties": {
      "EditableOptions": "True"
    }
  }
],
```

定義取得 service connection 欄位

其他輸入欄位

- Boolean (數值)
- filePath (路徑)
- String (字串)
- multiLine (多欄位)
- pickList (下拉式)
- Radio (選單)

Server URL

https://dev.azure.com/huier-teamservice/

endpoint.url

```
"dataSourceBindings": [
    {
        "target": "myproject",
        "endpointId": "$(ServiceConnection)",
        "endpointUrl": "{{endpoint.url}}_apis/projects?api-version=5.1",
        "resultSelector": "jsonpath:$['value'].[*].['name']",
        "authKey": "$(ServiceConnection)"
    },
    {
        "target": "defaultteam",
        "endpointId": "$(ServiceConnection)",
        "endpointUrl": "{{endpoint.url}}_apis/projects/$(myproject)?api-version=5.1",
        "resultSelector": "jsonpath:$['defaultTeam'].['name']",
        "authKey": "$(ServiceConnection)"
    }
],
```

目標欄位
資料來源
Endpoint URL
Endpoint output 篩選

持續集成、測試以及部屬 (CI/CD)

開發 Azure DevOps Extension

- 定義介面：實作動態連動欄位

Test service endpoint - huier ⓘ

Task version 5.* ▾

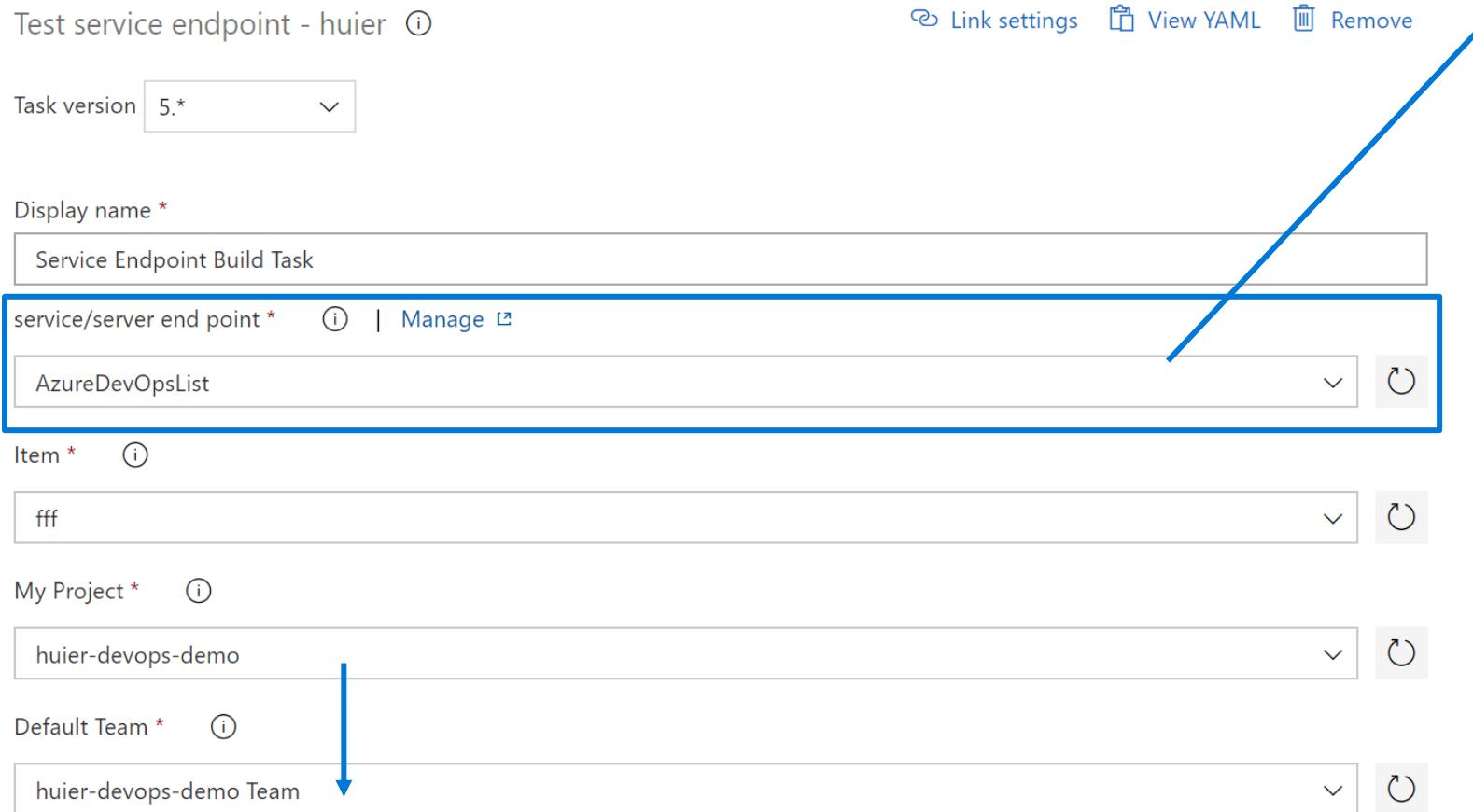
Display name * Service Endpoint Build Task

service/server end point * ⓘ | Manage ↗
AzureDevOpsList

Item * ⓘ fff

My Project * ⓘ huier-devops-demo

Default Team * ⓘ huier-devops-demo Team



New Generic service connection X

Server URL

Authentication

Username (optional)

Username for connecting to the endpoint

Password/Token Key (optional)

Password/Token Key for connecting to the endpoint

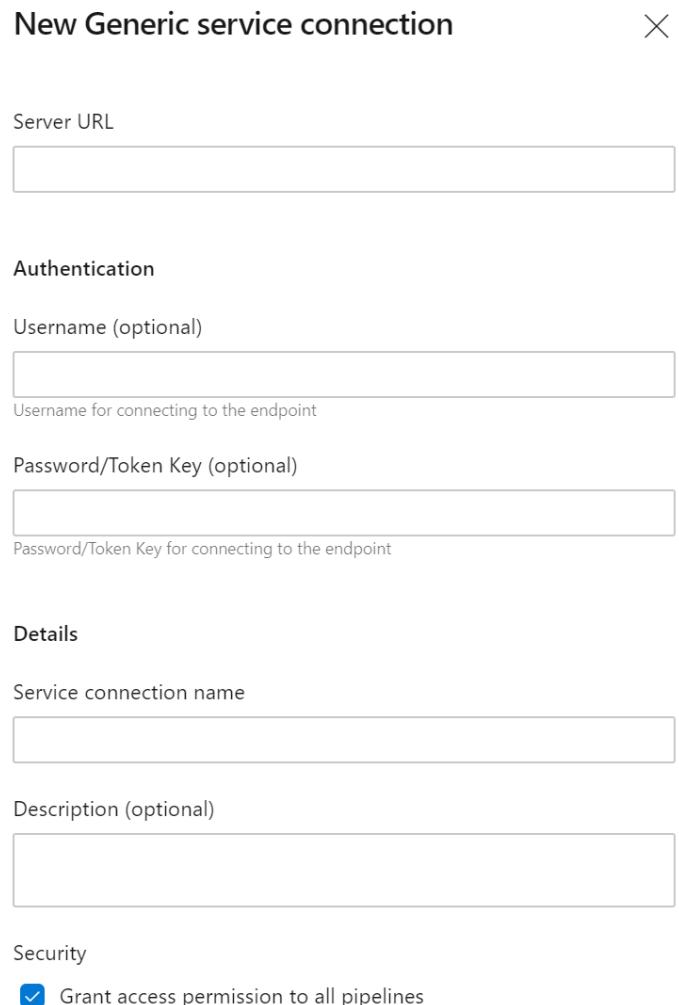
Details

Service connection name

Description (optional)

Security

Grant access permission to all pipelines



持續集成、測試以及部屬 (CI/CD)

開發 Azure DevOps Extension

- 定義介面：實作動態連動欄位

```
"dataSourceBindings": [
    {
        "target": "myproject",
        "endpointId": "$(ServiceConnection)",
        "endpointUrl": "{{endpoint.url}}_apis/projects?api-version=5.1",
        "resultSelector": "jsonpath:$['value'].[*].['name']",
        "authKey": "$(ServiceConnection)"
    },
    {
        "target": "defaultteam",
        "endpointId": "$(ServiceConnection)",
        "endpointUrl": "{{endpoint.url}}_apis/projects/$(myproject)/api-version=5.1",
        "resultSelector": "jsonpath:$['defaultTeam'].['name']",
        "authKey": "$(ServiceConnection)"
    }
],
```

持續集成、測試以及部屬 (CI/CD)

開發 Azure DevOps Extension

- task 執行腳本 (以js為例)
 - 使用 Azure Pipeline Task 相關 library

```
> npm install azure-pipelines-task-lib –save
```
 - 引用進 js

```
var tl = require('azure-pipeline-task-lib');
```
 - 取得介面輸入值

```
var echo = new tl.ToolRunner(tl.which('echo', true));
```

```
var msg = tl.getInput('msg', true);
var cwd = tl.getPathInput('cwd', false);
```

持續集成、測試以及部屬 (CI/CD)

開發 Azure DevOps Extension

- 撰寫 vss-extension.json
 - 上架必須
 - 使用 tfx Publish 時會根據此檔案 build 出.vsix，上傳.vsix 至 marketplace



HuierHuang.service-endpoint-tutorial-1.0.0.vsix

```
{  
    "manifestVersion": 1,  
    "id": "service-endpoint-tutorial", _____ extension's identifier, unique  
    "version": "1.0.0",  
    "name": "Sample extension that leverages a service endpoint",  
    "description": "A sample Azure DevOps Services extension which shows how to create a custom endpoint  
    "publisher": "HuierHuang", _____ 與 marketplace 上建立的一致  
    "categories": [  
        "Azure Pipelines" _____ 至少需填入一個，無上限  
    ],  
    "targets": [  
        {  
            "id": "Microsoft.VisualStudio.Services"  
        }  
    ],  
    "files": [ _____ 要添加的檔案位置  
        {  
            "path": "BuildTaskFolder"  
        }  
    ],  
    "contributions": [ _____ 每個 task 需要有對應的contribution  
        {  
            "id": "build-task",  
            "description": "Task with a dynamic property getting data from an endpoint REST data source",  
            "type": "ms.vss-distributed-task.task",  
            "targets": [ "ms.vss-distributed-task.tasks" ],  
            "properties": {  
                "name": "BuildTaskFolder"  
            }  
        }  
    ]  
}
```

持續集成、測試以及部屬 (CI/CD)

開發 Azure DevOps Extension

- Visual Studio Marketplace 設定
 - Visual Studio Marketplace > Publish Extension
 - 可選擇公開或私人分享給特定組織使用

The screenshot shows the Microsoft Visual Studio Marketplace interface. At the top, there's a navigation bar with the Visual Studio logo, 'Marketplace', the user name 'Huier Huang (Huier.Huang@microsoft.com)', a 'Sign out' link, and a search icon.

The main area is titled 'Manage Publishers & Extensions'. On the left, there's a sidebar for 'Microsoft' publishers, showing two entries: 'HuierHuang' (Owner) and 'ServiceEndpointExtens' (Owner). A button '+ Create publisher' is at the bottom of this sidebar.

The main content area shows a publisher named 'HuierHuang (HuierHuang)'. Below it, there are tabs: 'Extensions' (which is selected), 'Details', and 'Members'. A blue box highlights the '+ New extension' button. To the right of the tabs is a search bar with a magnifying glass icon.

A table lists extensions under 'HuierHuang'. The columns are: Name ↑, Version, Updated, Availability, Rating, and Installs. One extension is listed: 'Sample extension that l...' (Version 1.0.0, Updated 2 months ago, Private (not shared), 0 installs).

維運：Log 管理

自動封存 Log

- 解決方案

- 採用 Azure DevOps Service Hooks



HTTP POST

Pipeline 完成
(Azure DevOps Service Hooks)

NEW SERVICE HOOKS SUBSCRIPTION

Service

Select a service to integrate with. [Discover more integrations](#)

- Grafana
- HipChat
- HockeyApp
- Jenkins
- Micro
- MyGet
- Office
- Slack
- Trello
- UserV
- Web H
- Workpla
- Zapier
- Zende

Web Hooks

Provides event communication via HTTP

Supported events:
All events

Supported actions:
Post via HTTP

[Learn more about this service](#)

Azure (build/release)

Previous Next Test Finish Cancel

Previous Next Test Finish Cancel

blob Storage

Useful New Feature !!! (May - Aug)

General

Preview of scale set agents

Azure Virtual Machine Scale Set 可自動縮放機器數量已滿足變動的彈性需求，並能自行定義機器規格及 image

- 更多的 memory、儲存空間或 IO
- 需要 NC 系列機器
- 部署在私有虛擬網路環境
- 限制 agent 網路連接
- 作業時間超過 Microsoft host agent timeout 長度
- 在 agent 執行前先運行其他配置或緩存預熱

Add agent pool X

Agent pools are shared across an organization.

Pool type: ⓘ

Azure virtual machine scale set (Preview) ▼

Project for Service Connections:

AspNetCore.Sample ▼

Azure subscription:

Select a Virtual Machine Scale Set ▼ 

Name:

New agent pool name ▼

Description (optional):

ⓘ Markdown supported.

Pool options:

Automatically tear down virtual machines after every use

Maximum number of virtual machines in the scale set

Number of agents to keep on standby

Delay in minutes before deleting excess idle agents

30

General

Cross-project sharing of service connections is now public

- 場景：service connection admin 定義好使用者所需的 service connection 讓使用者可以在任一 project 中使用

The screenshot shows the Azure DevOps service connection catalog. On the left, there is a list of pre-defined service connections:

- Azure Classic
- Azure Repos/Team Foundation Server
- Azure Resource Manager
- Azure Service Bus
- Bitbucket Cloud
- Chef
- Docker Host
- Docker Registry
- Generic

On the right, there is another list of service connections:

- GitHub
- Github Enterprise Server
- Incoming WebHook
- Jenkins
- Jira
- Kubernetes
- Maven
- NuGet
- Other Git
- Python package download
- Python package upload
- SSH
- Service Fabric
- SonarQube
- Subversion
- Visual Studio App Center
- WhiteSource
- npm

A blue arrow points from the 'Service Fabric' entry in the list to the 'New Generic service connection' dialog box on the right.

New Generic service connection

Server URL:

Authentication

Username (optional):

Username for connecting to the endpoint:

Password/Token Key (optional):

Password/Token Key for connecting to the endpoint:

User permissions

Project

Organization

Add

Undo

Save

Inheritance

User

[AKS.Demo]\AKS.Demo Team

可針對 team 或個人設定 service connection 的權限

Role

Administrator

Assigned



Administrator

Inherited

User

Reader

Assigned

Huier Huang

Pipeline permissions

Restrict permission



No restrictions

Any pipeline may use this resource

Learn more

Project permissions

The projects below have access to this service connection.

Project

AKS.Demo
test123-AKS.Demo

跨專案使用



Board

State transition restriction rules

- 場景：限制特定狀態或team的工單做狀態的變更

The screenshot shows the configuration interface for State Transition Restriction Rules in Azure Boards. It is divided into two main sections: 'Conditions' and 'Actions'.

Conditions:

- Name:** Restrict Someone cannot move to close*
- When:** Current user is not member of group ...
[.NET Core] [AspNetCore.Sam...]
- Actions:** Restrict the transition to state ...
Closed

Conditions (Right Panel):

- Name:** Restrict test*
- When:** A work item state moved from ...
New
- Actions:** Restrict the transition to state ...
Closed
- And:** Restrict the transition to state ...
Resolved
- And:** Restrict the transition to state ...
Removed

Repo

Add attachments while creating a pull request

Create

New pull request

release into master

Overview Files 1 Commits 1

Title
Updated README.md

Description
Updated README.md
![Annotation 2020-08-20 115135.png](blob:https://dev.azure.com/3e979342-5573-495f-bf10-1c35a2f97c60)
[study4-sharing.pptx](blob:https://dev.azure.com/43194351-015c-4fa2-9198-551c8aa5cfaa)

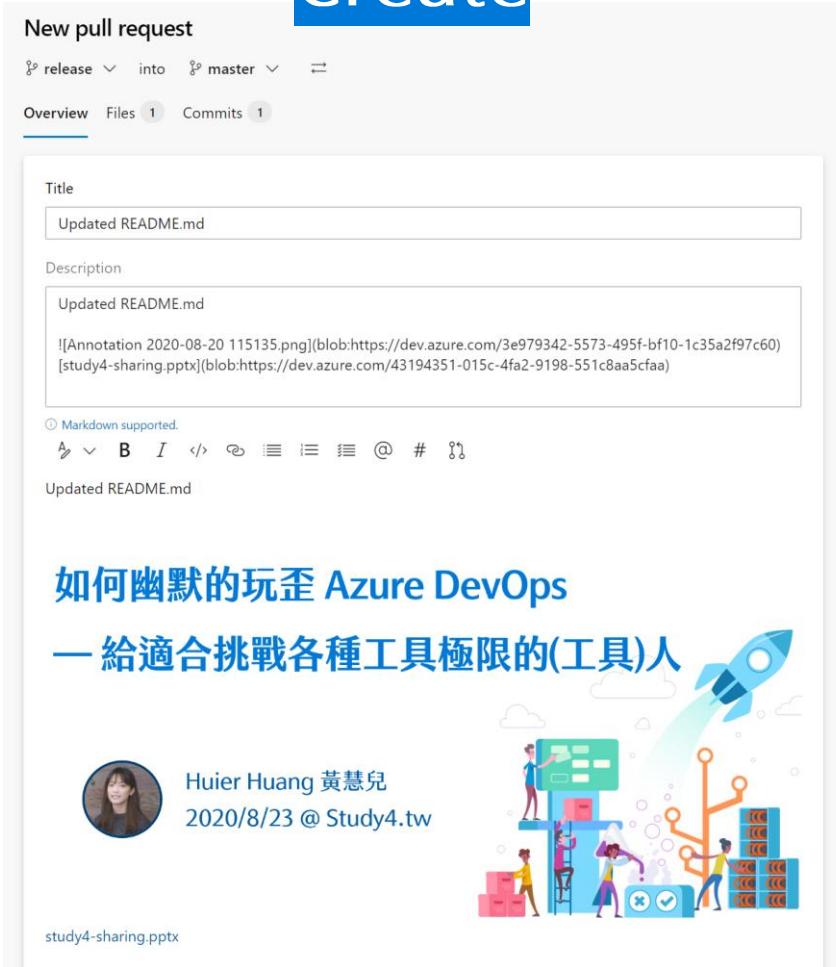
Markdown supported.

Updated README.md

如何幽默的玩歪 Azure DevOps
— 給適合挑戰各種工具極限的(工具)人

Huier Huang 黃慧兒
2020/8/23 @ Study4.tw

study4-sharing.pptx



Review

Updated README.md

Active 157 Huier Huang release into master

Overview Files Updates Commits

No merge conflicts
Last checked 4m ago

Description
Updated README.md

Reviewers
Required
No required reviewers

Optional
No optional reviewers

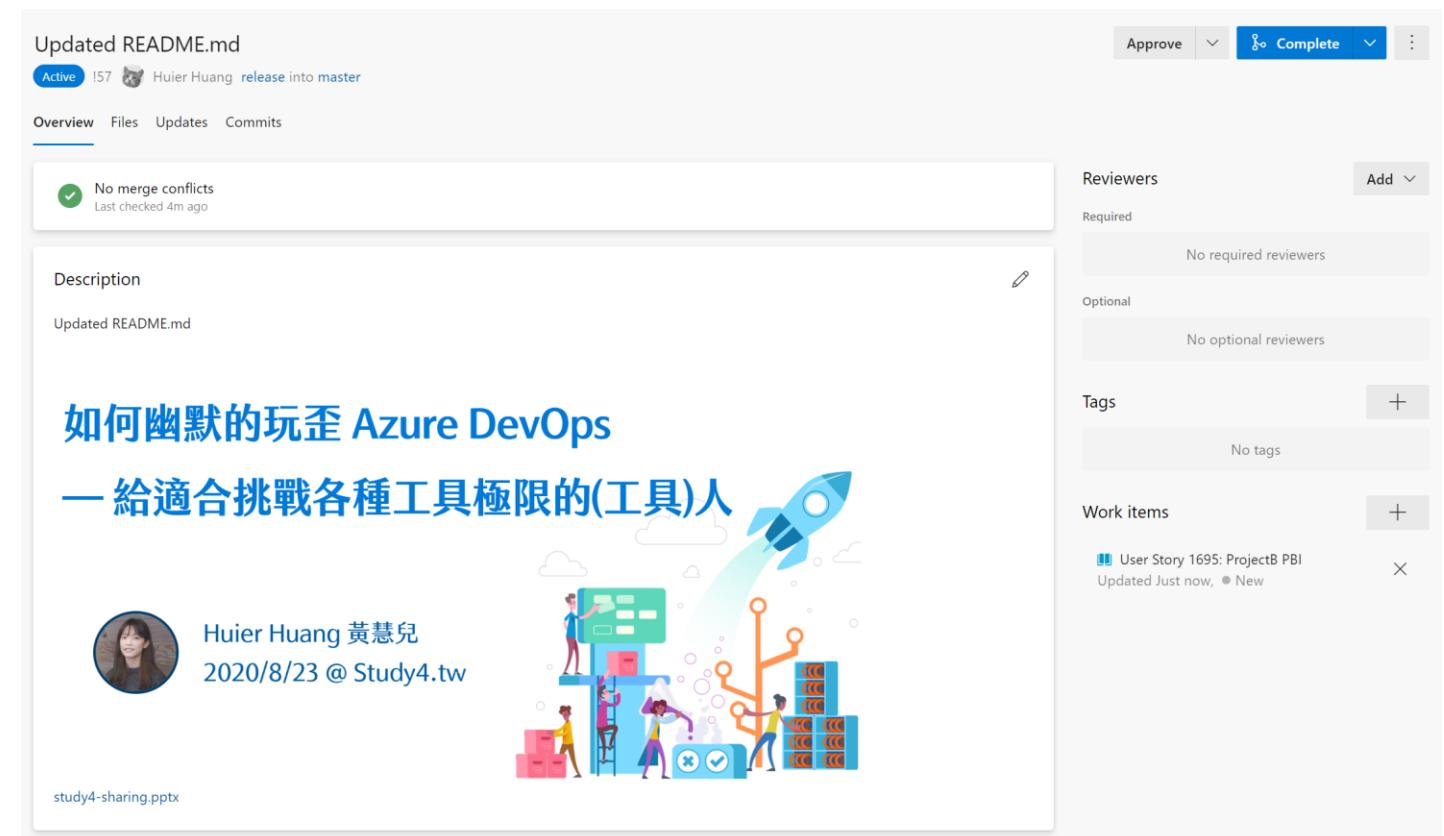
Tags
No tags

Work items
User Story 1695: ProjectB PBI
Updated Just now, New

如何幽默的玩歪 Azure DevOps
— 給適合挑戰各種工具極限的(工具)人

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study4-sharing.pptx



總結

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- Best Practice (No) , 逐步改善 符合需求 (Yes)
- 彈性、擴展大
- 善用 Azure 、 Azure DevOps API

謝謝！

Reference

- <https://codingsight.com/developing-azure-devops-extension/>
- <https://docs.microsoft.com/en-us/azure/devops/extend/overview?view=azure-devops>
- <https://www.youtube.com/watch?v=uzQFvYY0xiM&list=PLe14MLC-Nwy6saThL6NSv2rTtFNpkvfp3>
- <https://docs.microsoft.com/en-us/azure/devops/extend/overview?view=azure-devops>
- <https://www.youtube.com/watch?v=uzQFvYY0xiM&list=PLe14MLC-Nwy6saThL6NSv2rTtFNpkvfp3>
- <https://docs.microsoft.com/en-us/azure/devops/extend/develop/manifest?view=azure-devops>