

MNP Tech Challenge Solution Screen Shots

1: Automated deploy of VM from my GitHub repository using the deploy to Azure button

The screenshot shows the 'Custom deployment' page in the Microsoft Azure portal. At the top, a green bar indicates 'Validation Passed'. Below it, a note states: 'Neither subscription credits nor monetary commitment funds may be used to purchase non-Microsoft offerings. These purchases are billed separately.' Another note below says: 'If any Microsoft products are included in a Marketplace offering (e.g. Windows Server or SQL Server), such products are licensed by Microsoft and not by any third party.' The 'Basics' section lists deployment details:

Setting	Value
Subscription	Free Trial
Resource group	Mnpchallange
Region	Canada Central
Admin Username	MNPVMWebserver
Admin Password	*****
Dns Label Prefix	MNP-devcc-webvm_dns
Public IP Name	MNP-devcc-webvm_PublicIP
Public IP Allocation Method	Dynamic
Public IP Sku	Basic
OS Version	2019-Datacenter
Vm Size	Standard_A1_v2
Location	[resourceGroup().location]
Vm Name	MNP-devcc-webvm

At the bottom, there are 'Create' and 'Next' buttons.

2: Deployment completed with IIS automated install on the VM

The screenshot shows the 'Deployment Details' blade for the deployment named 'Microsoft.Template-20201224111946'. It displays the following information:

- Your deployment is complete**
- Deployment name:** Microsoft.Template-20201224111946
- Subscription:** Free Trial
- Resource group:** Mnpchallange
- Start time:** 12/24/2020, 11:19:46 AM
- Correlation ID:** 1c888582-b7b8-415c-991d-b442914c6b08

The 'Deployment details' table lists the resources and their status:

Resource	Type	Status	Operational Status
MNP-devcc-webvm/ConfigureIIS	Microsoft.Compute/virtualMachines/...	OK	Operational
MNP-devcc-webvm	Microsoft.Compute/virtualMachines	OK	Operational
MNP_WebserverVMStorageNic	Microsoft.Network/networkInterfaces	Created	Operational
MNP-devcc-webvm_PublicIP	Microsoft.Network/publicIPAddresses	OK	Operational
mnpstoragev3ciomrziw2x4	Microsoft.Storage/storageAccounts	OK	Operational
MNP-devcc-webvm_VNET	Microsoft.Network/virtualNetworks	OK	Operational
MNP-devcc-webvm_NS	Microsoft.Network/networkSecurityGroups	OK	Operational

On the right side, there are links to 'Security Center', 'Free Microsoft tutorials', 'Work with an expert', and 'Find an Azure expert'.

https://portal.azure.com/#@norbertobiekwe@yahoo.onmicrosoft.com/resource/subscriptions/ef83523f-8e18-400d-ad8f-3074d3980225/resourceGroups/Mnpch...

Mnpchallenge Resource group

Search (Ctrl+)

Add Edit columns Delete resource group Refresh Export to CSV Open query Assign tags Move Delete Export template Feedback

Overview Activity log Access control (IAM) Tags Events

Subscription (change) : Free Trial Deployment : 1 Failed, 1 Succeeded

Subscription ID : ef83523f-8e18-400d-ad8f-3074d3980225 Location : Canada Central

Tags (change) : Click here to add tags

Filter by name... Type == all Location == all Add filter

No grouping List view

Showing 1 to 9 of 9 records. Show hidden types

Name	Type	Location
bootdiagsv3ciomrizv2x4	Storage account	Canada Central
MNP-devcc-webvm	Virtual machine	Canada Central
MNP-devcc-webvm_disk2_6cbf8d30059845b9b2b5a8172f5f345b	Disk	Canada Central
MNP-devcc-webvm_NS	Network security group	Canada Central
MNP-devcc-webvm_OsDisk_1_2907f7897e0943eba3bfd6411fa23974	Disk	Canada Central
MNP-devcc-webvm_PublicIP	Public IP address	Canada Central
MNP-devcc-webvm_VNET	Virtual network	Canada Central
MNP_WebserverVMStorageNic	Network interface	Canada Central
mnpstoragev3ciomrizv2x4	Storage account	Canada Central

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3: VM deployed:

https://portal.azure.com/#@norbertobiekwe@yahoo.onmicrosoft.com/resource/subscriptions/ef83523f-8e18-400d-ad8f-3074d3980225/resourceGroups/Mnpch...

MNP-devcc-webvm Virtual machine

Search (Ctrl+)

Connect Start Restart Stop Capture Delete Refresh Open in mobile

Overview Activity log Access control (IAM) Tags Diagnose and solve problems

Resource group (change) : Mnpchallenge Status : Running Operating system : Windows (Windows Server 2019 Datacenter)

Location : Canada Central Size : Standard A1 v2 (1 vcpus, 2 GiB memory)

Subscription (change) : Free Trial Public IP address : 13.71.187.174

Subscription ID : ef83523f-8e18-400d-ad8f-3074d3980225 Virtual network/subnet : MNP-devcc-webvm_VNET/Subnet

Tags (change) : Click here to add tags DNS name : mnp-devcc-webvm-azujye7tpjnw.canadacentral.cloudapp.azure.com

Properties Monitoring Capabilities (7) Recommendations Tutorials

Virtual machine

Computer name	MNP-devcc-webvm
Operating system	Windows (Windows Server 2019 Datacenter)
Publisher	MicrosoftWindowsServer
Offer	WindowsServer
Plan	2019-Datacenter
VM generation	V1
Agent status	Ready
Agent version	2.7.41491.1005
Host group	None
Host	-
Proximity placement group	N/A
Colocation status	N/A

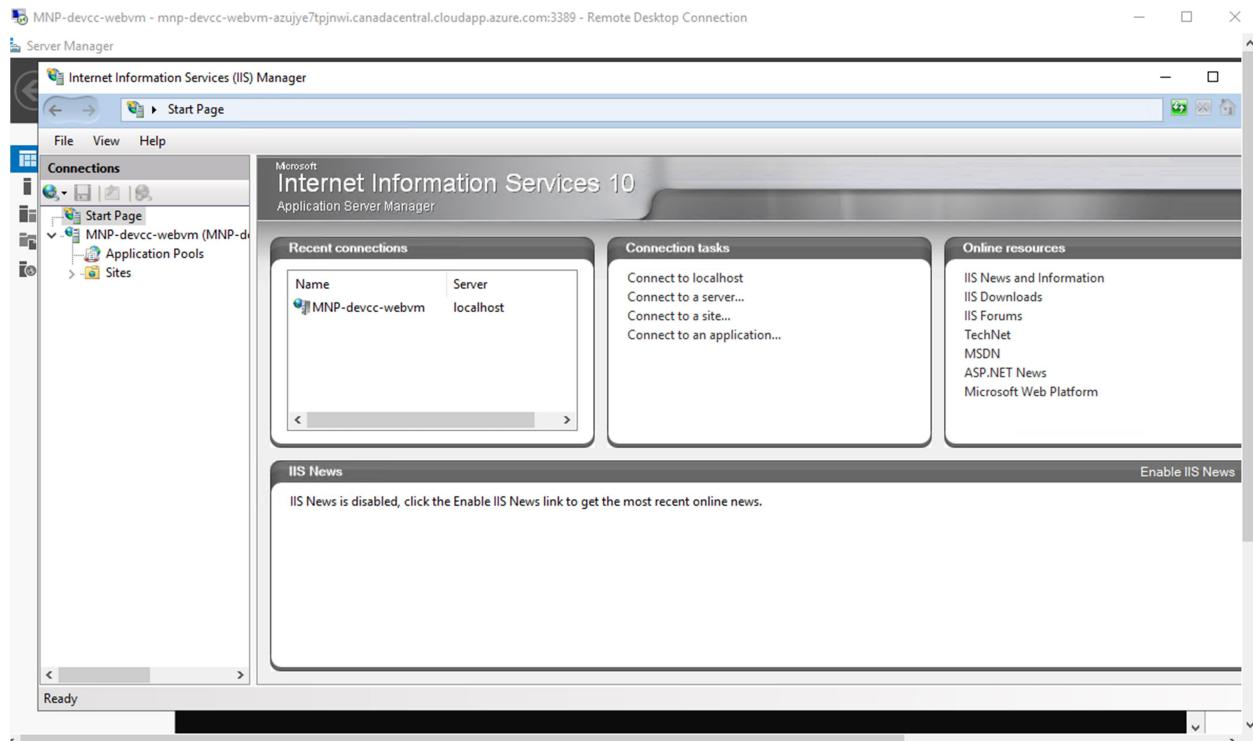
Networking

Public IP address	13.71.187.174
Public IP address (IPv6)	-
Private IP address	10.0.0.4
Private IP address (IPv6)	-
Virtual network/subnet	MNP-devcc-webvm_VNET/Subnet
DNS name	mnp-devcc-webvm-azujye7tpjnw.canadacentral.cloudapp.azure.com

Size

Size	Standard A1 v2
vCPUs	1
RAM	2 GiB

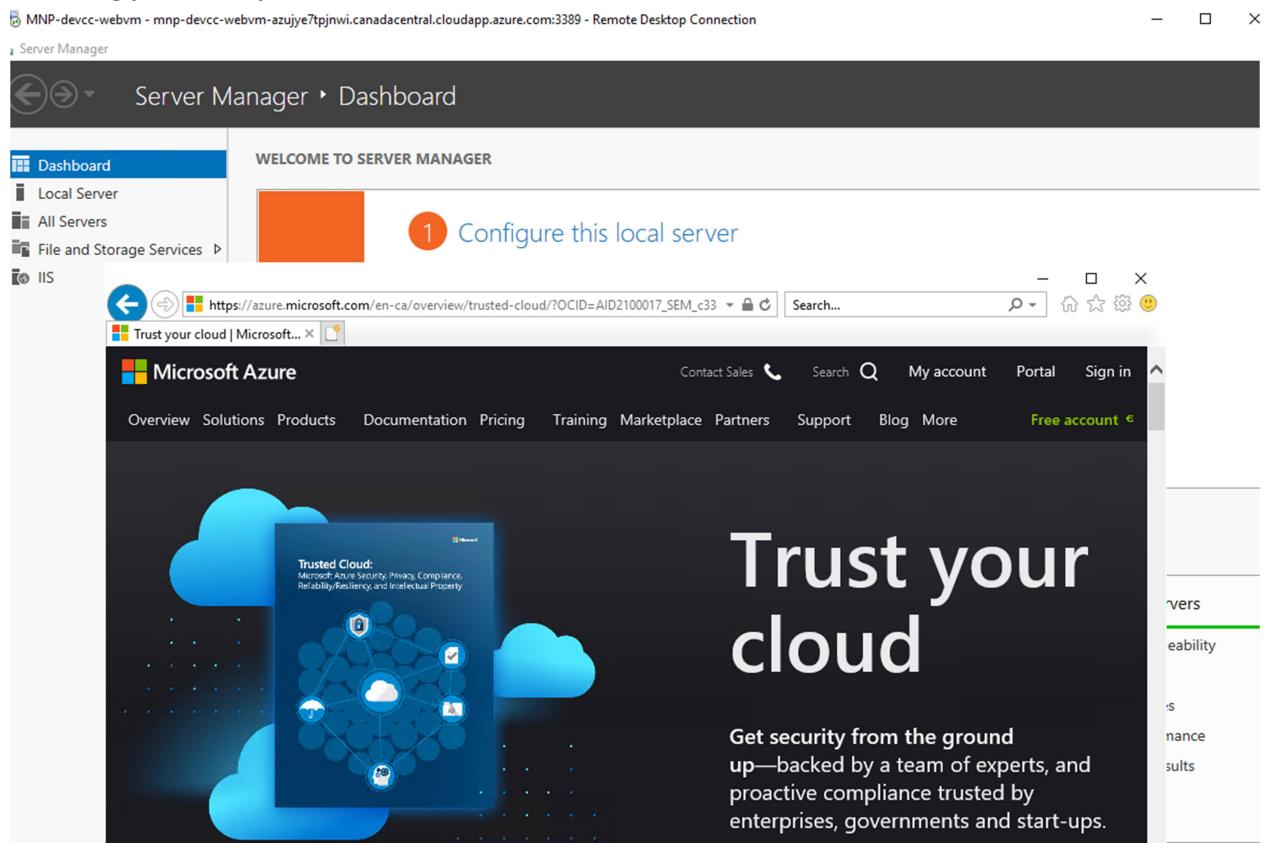
4: Confirmed IIS installed on server via ARM Template deployment:



5: Welcome to Azure 😊



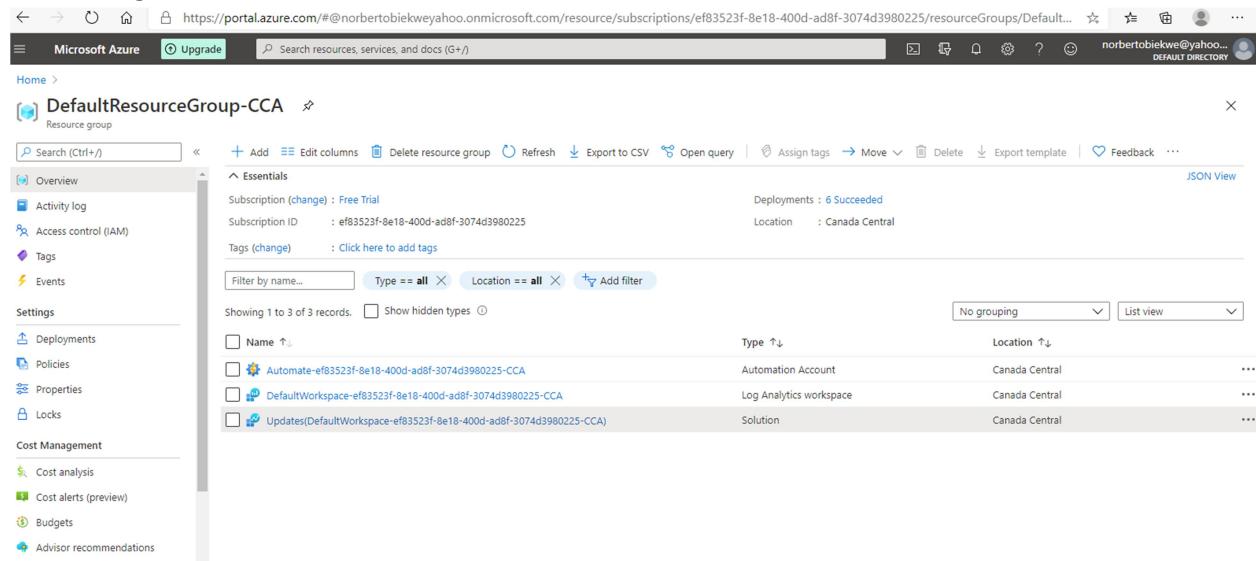
6: Hitting public endpoint from the server



7: System Update enabled on the vm

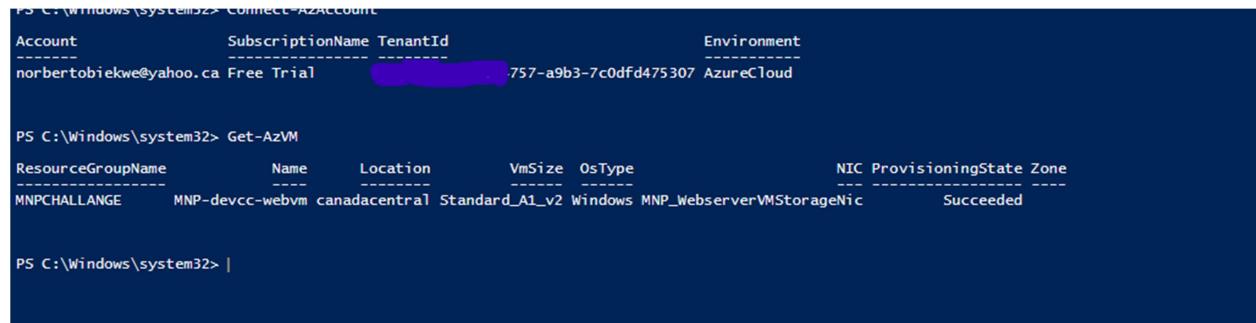
The screenshot shows the Microsoft Azure portal interface. On the left, a sidebar lists various workspace components like Overview, Activity log, Access control (IAM), and Virtual machines. The "Virtual machines" section is currently selected. The main content area displays a table for the "Updates(DefaultWorkspace-ef83523f-8e18-400d-ad8f-3074d3980225-CCA)" workspace. The table has columns for Name, OS, Subscription, Resource group, and Location. One row is visible, showing "MNP-devcc-webvm" as the name, "Windows" as the OS, "ef83523f-8e18-400d-ad8f-3074d3980225-CCA" as the subscription, "Mnpchallenge" as the resource group, and "canadacentral" as the location. A search bar at the top of the main content area contains the text "Search resources, services, and docs (G+)".

8: Automation, log analytics workspace and update solution deployed for server update and monitoring



The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes links for Home, Microsoft Azure, Upgrade, Search resources, services, and docs (G+), and a user account section. The main content area is titled "DefaultResourceGroup-CCA" and is described as a "Resource group". The left sidebar contains sections for Overview, Activity log, Access control (IAM), Tags, Events, Settings (Deployments, Policies, Properties, Locks), Cost Management (Cost analysis, Cost alerts (preview), Budgets, Advisor recommendations), and Log Analytics (Logs, Metrics, Detections). The main pane displays the "Essentials" section with details about the subscription (change) to "Free Trial", subscription ID "ef83523f-8e18-400d-ad8f-3074d3980225", location "Canada Central", and deployment status "6 Succeeded". It also shows tags ("Click here to add tags") and a filter bar. Below this is a table listing three resources: "Automate-ef83523f-8e18-400d-ad8f-3074d3980225-CCA" (Automation Account, Canada Central), "DefaultWorkspace-ef83523f-8e18-400d-ad8f-3074d3980225-CCA" (Log Analytics workspace, Canada Central), and "Updates(DefaultWorkspace-ef83523f-8e18-400d-ad8f-3074d3980225-CCA)" (Solution, Canada Central).

9: Routing VM infrastructure managements from Az PowerShell



```
PS C:\Windows\system32> Connect-AzAccount
Account          SubscriptionName TenantId          Environment
-----          -----
norbertobiekwe@yahoo.ca Free Trial          [REDACTED] 757-a9b3-7c0dfd475307 AzureCloud

PS C:\Windows\system32> Get-AzVM
ResourceGroupName      Name      Location       VmSize OsType          NIC ProvisioningState Zone
-----      -----
MNPCHALLANGE        MNP-devcc-webvm  canadacentral Standard_A1_v2 Windows MNP_WebserverVMStorageNic  Succeeded

PS C:\Windows\system32> |
```

10: Virtual network

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure logo, an 'Upgrade' button, a search bar, and a user profile. Below the header, the URL is https://portal.azure.com/#@norbertobiekwe@yahoo.onmicrosoft.com/resource/subscriptions/ef83523f-8e18-400d-ad8f-3074d3980225/resourceGroups/Mnpch... . The main content area displays the 'MNP-devcc-webvm_VNET' virtual network details. On the left, there's a sidebar with navigation links like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Address space, Connected devices, Subnets, DDoS protection, Firewall, Security, DNS servers, Peerings, Service endpoints, and Private endpoints. The 'Overview' tab is selected. The 'Essentials' section shows the Resource group (Mnpchallenge), Location (Canada Central), Subscription (Free Trial), Subscription ID (ef83523f-8e18-400d-ad8f-3074d3980225), and Tags (Click here to add tags). The 'Connected devices' section lists 'MNP_WebserverVMStorageNic' as a Network interface with IP Address 10.0.0.4 and Subnet. The 'Address space' is listed as 10.0.0.0/16 and DNS servers are set to Azure provided DNS service.

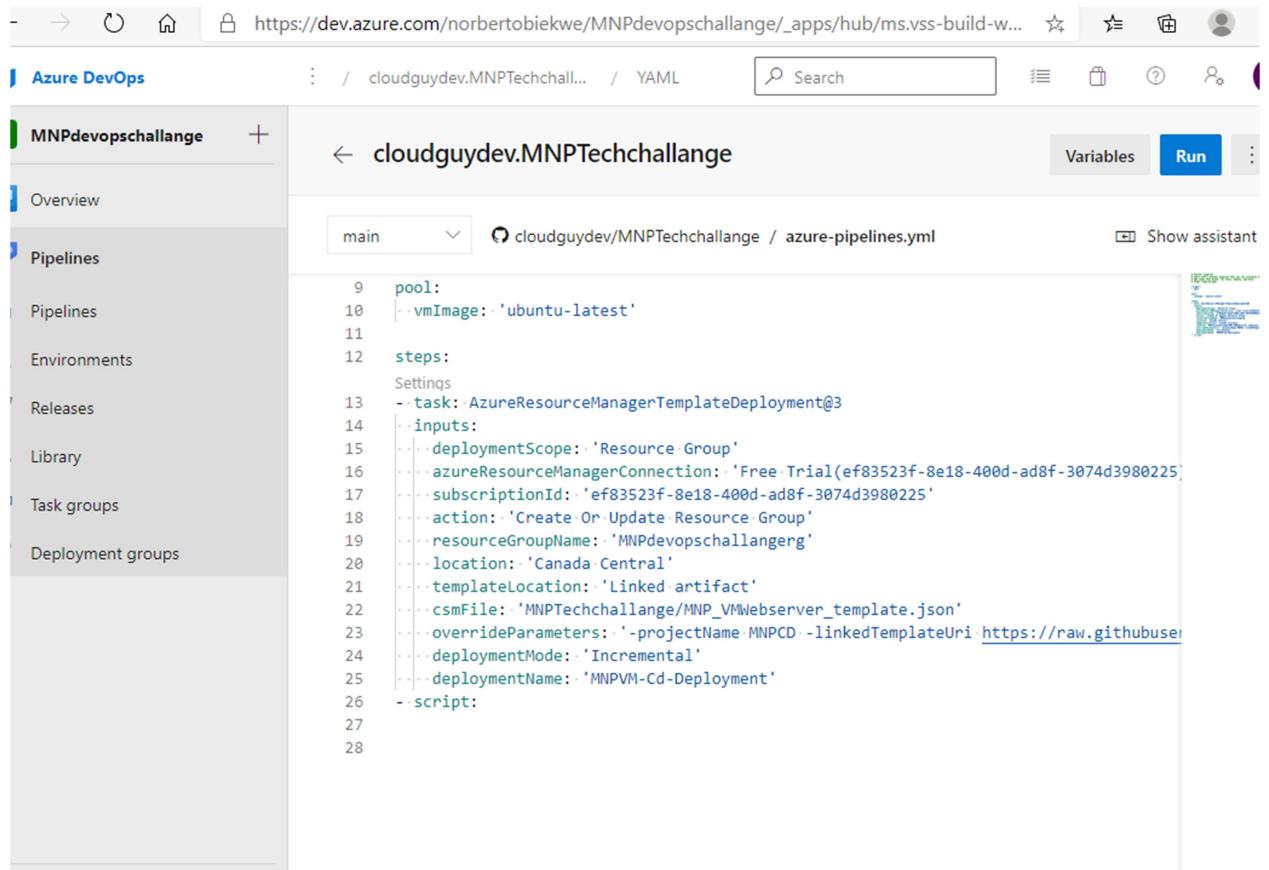
Git Action Set-Up

The screenshot shows a GitHub repository page for 'cloudguydev / MNPTechchallange'. The repository has 1 star, 0 forks, and 0 issues. The 'Code' tab is selected. A modal window is open over the repository page, titled 'MNPTechchallange .github / workflows / MNPGitHubActionmain:'. The modal contains a code editor with the following YAML configuration:

```
4 build-and-deploy:
5   runs-on: ubuntu-latest
6   steps:
7     # Checkout code
8     - uses: actions/checkout@main
9
10    # Log into Azure
11    - uses: azure/login@v1
12      with:
13        creds: ${{ secrets.AZURE_CREDENTIALS }}
14
15    # Deploy ARM template
16    - name: Run ARM deploy
17      uses: azure/arm-deploy@v1
18      with:
19        subscriptionId: ${{ secrets.AZURE_SUBSCRIPTION }}
20        resourceGroupName: ${{ secrets.AZURE_RG }}
21        template: https://raw.githubusercontent.com/cloudguydev/MNPTechchallange/main/MNP_VMwe...
22        parameters: storageAccountType=Standard_LRS
23
24
```

To the right of the code editor, there's a 'Marketplace' section with a search bar and two featured actions: 'Setup Node.js environment' and 'Upload a Build Artifact'.

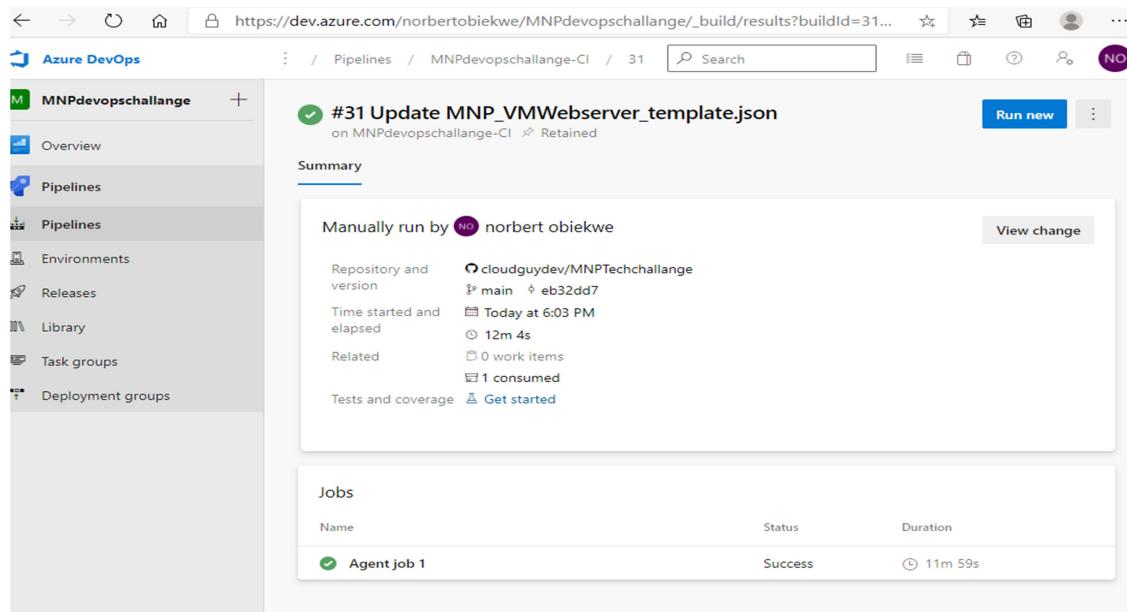
Yaml



The screenshot shows the Azure DevOps interface for managing a YAML pipeline. On the left, there's a sidebar with navigation links: Overview, Pipelines, Pipelines (selected), Environments, Releases, Library, Task groups, and Deployment groups. The main area displays the 'main' branch of the pipeline configuration file, titled 'cloudguydev/MNPTechchallange / azure-pipelines.yml'. The code content is as follows:

```
9 pool:
10   vmImage: 'ubuntu-latest'
11
12 steps:
13   - task: AzureResourceManagerTemplateDeployment@3
14     inputs:
15       deploymentScope: 'Resource Group'
16       azureResourceManagerConnection: 'Free Trial (ef83523f-8e18-400d-ad8f-3074d3980225'
17       subscriptionId: 'ef83523f-8e18-400d-ad8f-3074d3980225'
18       action: 'Create Or Update Resource Group'
19       resourceGroupName: 'MNPdevopschallangerg'
20       location: 'Canada Central'
21       templateLocation: 'Linked artifact'
22       csmFile: 'MNPTechchallange/MNP_VMWeserver_template.json'
23       overrideParameters: '-projectName MNPVM -linkedTemplateUri https://raw.githubusercontent.com/norbertobiekwe/MNPVM-Cd-Deployment'
24       deploymentMode: 'Incremental'
25       deploymentName: 'MNPVM-Cd-Deployment'
26   - script:
```

Success CD Yml deployment



The screenshot shows the Azure DevOps build results page for a specific pipeline run. The sidebar on the left is identical to the previous screenshot, with 'Pipelines' selected. The main content area displays a summary of the successful build, identified by the ID '#31 Update MNP_VMWeserver_template.json' and the name 'MNPdevopschallange-Cl'. The status is marked with a green checkmark. Below the summary, there are two sections: 'Summary' and 'Jobs'.

Summary

- Manually run by norbert obiekwe
- Repository and version: cloudguydev/MNPTechchallange main eb32dd7
- Time started and elapsed: Today at 6:03 PM 12m 4s
- Related: 0 work items 1 consumed
- Tests and coverage: Get started

Jobs

Name	Status	Duration
Agent job 1	Success	11m 59s

Resources here were deployed via CD azure-pipelines.yml

The screenshot shows the Azure Resource Groups blade for the 'MNPdevopschallangerg' resource group. The left sidebar includes sections for Overview, Activity log, Access control (IAM), Tags, Events, Deployments, Policies, Properties, Locks, Cost Management, Cost analysis, Cost alerts (preview), Budgets, Advisor recommendations, and Insights (preview). The main area displays the 'Essentials' section with details about the subscription (Free Trial, ID: ef83523f-8e18-400d-ad8f-3074d3980225) and location (Canada Central). A table lists 10 resources, including a virtual machine, disk, network security group, and storage account, all located in Canada Central.

Name	Type	Location
MNP-devcc-webvm	Virtual machine	Canada Central
MNP-devcc-webvm_disk2_5c882066c34e40a59b8f3b6729ac9555	Disk	Canada Central
MNP-devcc-webvm_NSG	Network security group	Canada Central
MNP-devcc-webvm_OsDisk_1_a596f71e48744a79a38900d34e58cdb	Disk	Canada Central
MNP-devcc-webvm_PublicIP	Public IP address	Canada Central
MNP-devcc-webvm_VNET	Virtual network	Canada Central
MNP_WebserverVMNic	Network interface	Canada Central
monitoringcloudguydev	Storage account	Canada Central

The screenshot shows the Azure DevOps Pipelines blade. The left sidebar has icons for Dashboards, Pipelines, Repositories, Artifacts, Pipelines, and Pipelines. The top navigation bar includes links for Azure DevOps, Pipelines, and a search bar. The main area displays the 'Pipelines' tab, which shows a list of recently run pipelines. Two pipelines are listed: 'cloudguydev.MNPTechchallange' (last run #20201224.17) and 'MNPdevopschallange-CI' (last run #31).

Pipeline	Last run
cloudguydev.MNPTechchallange	#20201224.17 • Update azure-pipelines.y... ⌚ 20m ago 🕒 31s
MNPdevopschallange-CI	#31 • Update MNP_VMWebserver_templ... ⌚ 1h ago 🕒 12m 4s