Custom Images and Azure Local

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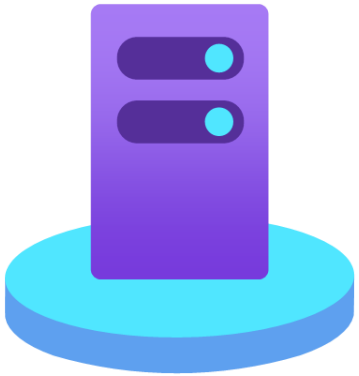

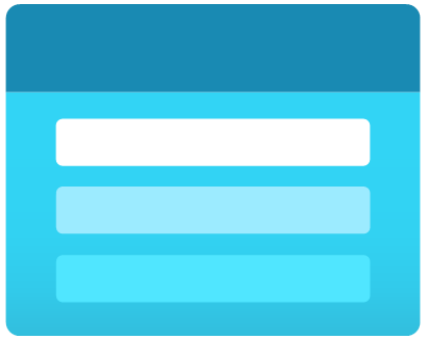

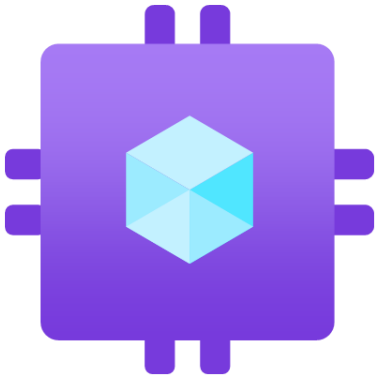

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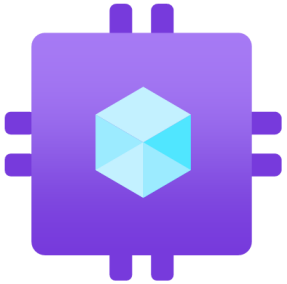
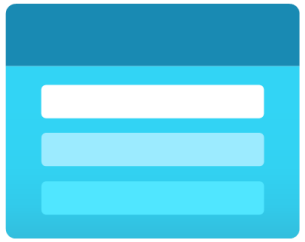
If in any doubt, please check latest documentation and Links for updated info!

Our Session Today – the plan!

- Why are custom images important?
- Building Images – and the Azure Compute Gallery
- Existing Images – The Process!
- How to use Custom Images with Azure Local
- Questions





Why are custom images important?

Infrastructure as Code

DevOps Benefits

Use existing images

Standardisation

Repeatability

Why are custom images important?

Infrastructure as Code

Define once, deploy many times – across Azure and Azure Local.

DevOps Benefits

Image Deployment becomes part of existing processes and tooling.

Use existing images

Existing Azure Images created using AIB or Packer can be extended to Azure Local.

Standardisation

Image Templates and Definitions can be used across Azure and Azure Local.

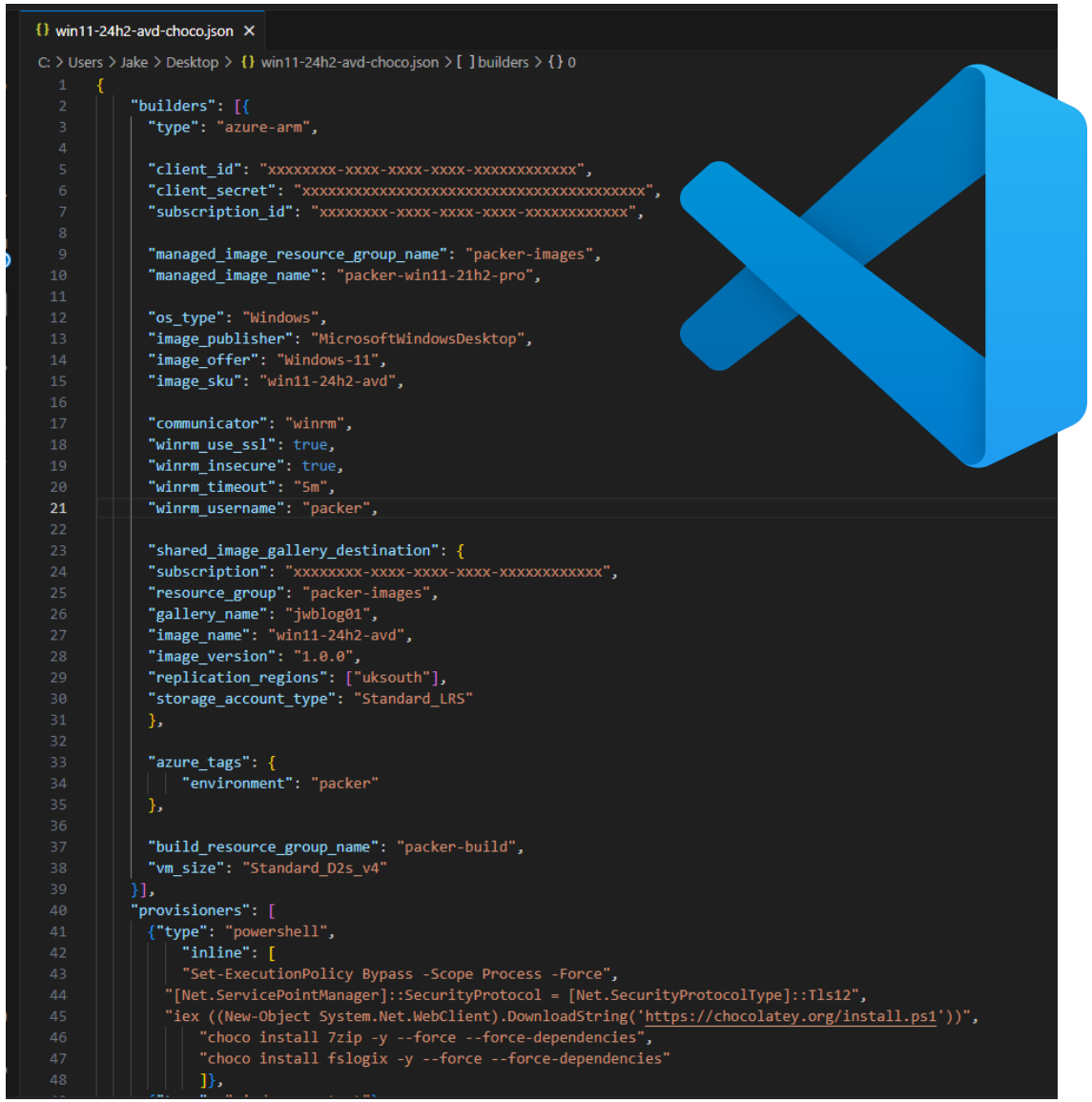
Repeatability

Multiple Deployments using the same image.

A Key Question – Why *not* do this LOCALLY?

Building Customized Images

Using a Packer Template!

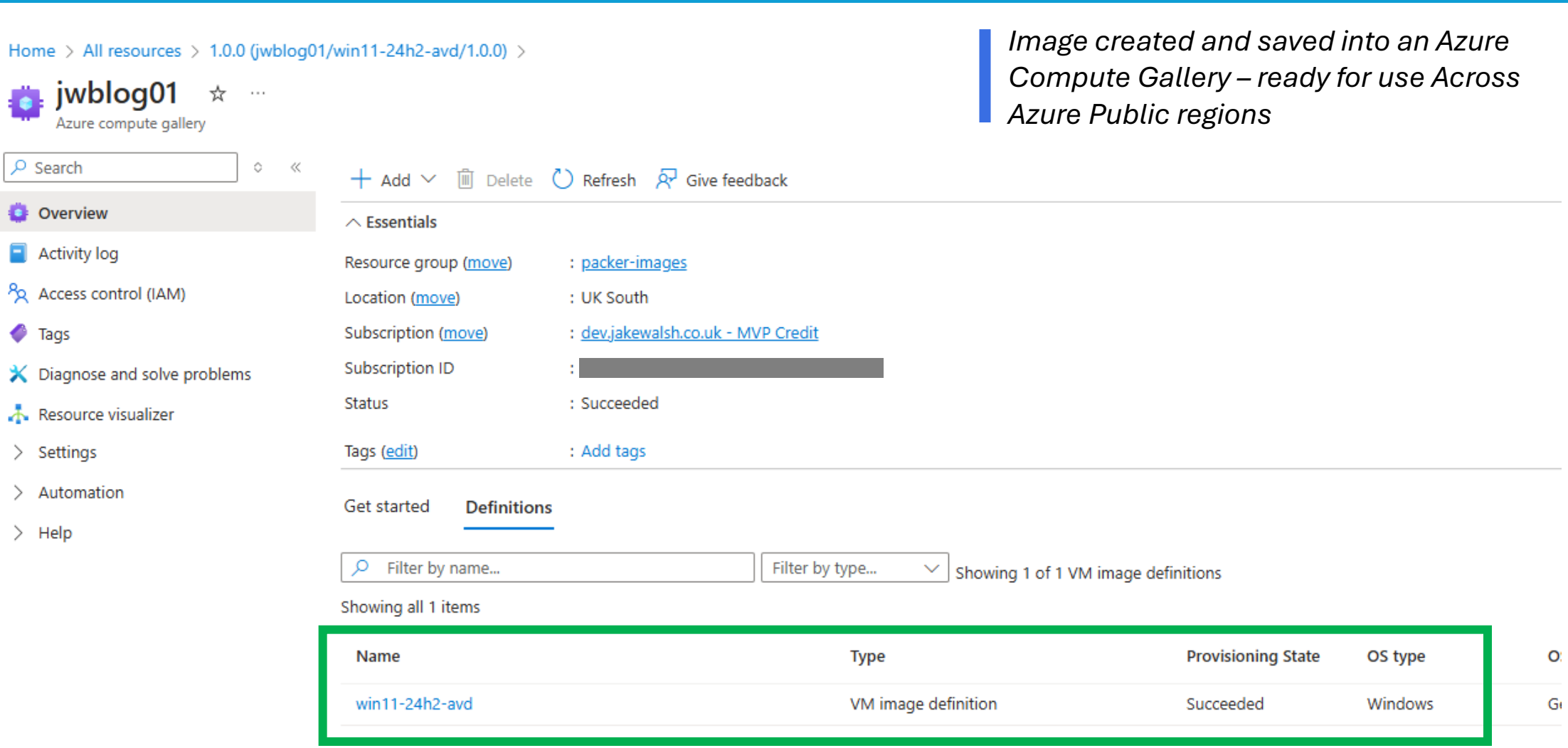


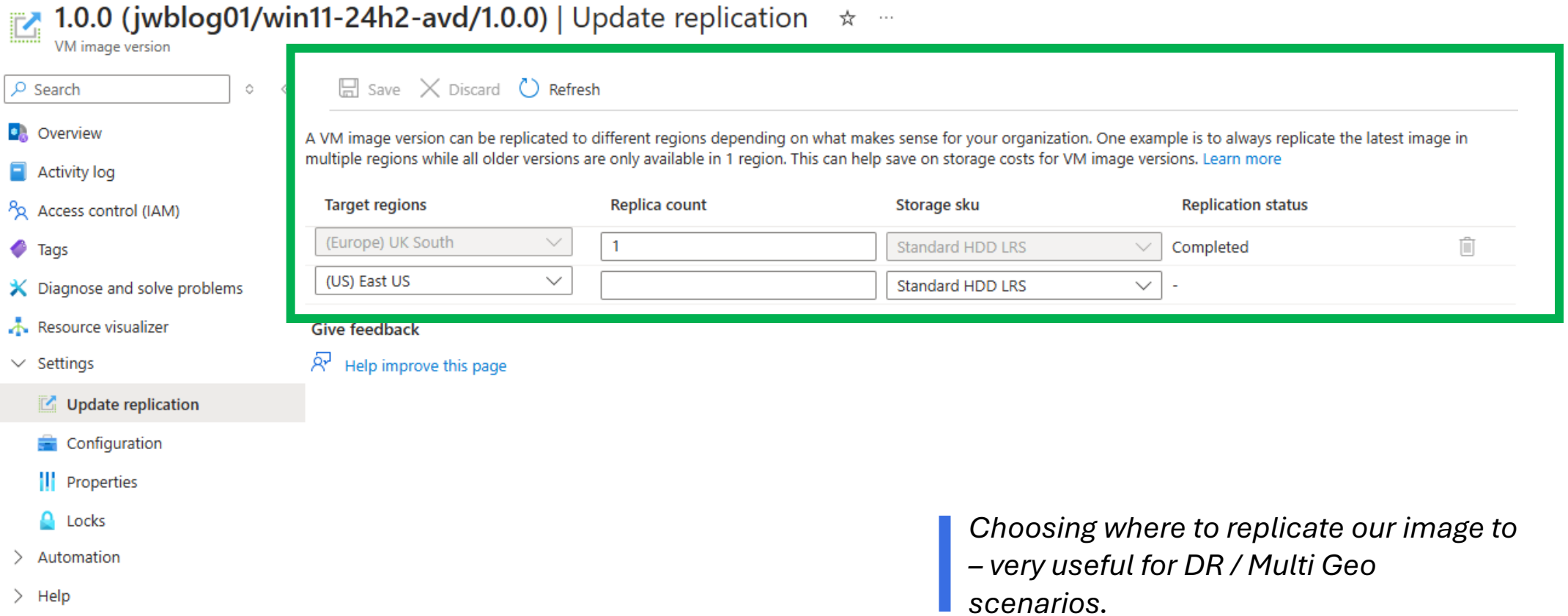
Storing Images

Azure Compute Gallery & its many benefits...

```
"shared_image_gallery_destination": {
"subscription": "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx",
"resource_group": "packer-images",
"gallery_name": "jwblog01",
"image_name": "win11-24h2-avd",
"image_version": "1.0.0",
"replication_regions": ["uksouth"],
"storage_account_type": "Standard_LRS"
},
```

Image created and saved into an Azure Compute Gallery – ready for use Across Azure Public regions



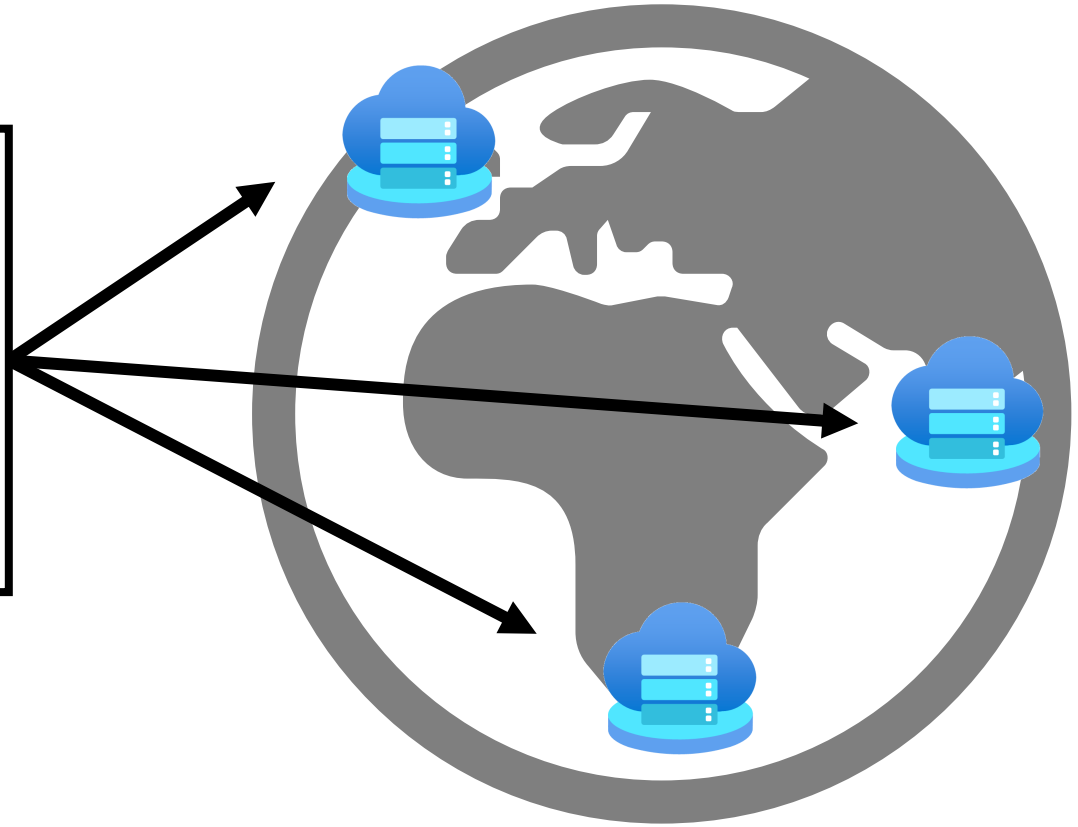


Choosing where to replicate our image to – very useful for DR / Multi Geo scenarios.

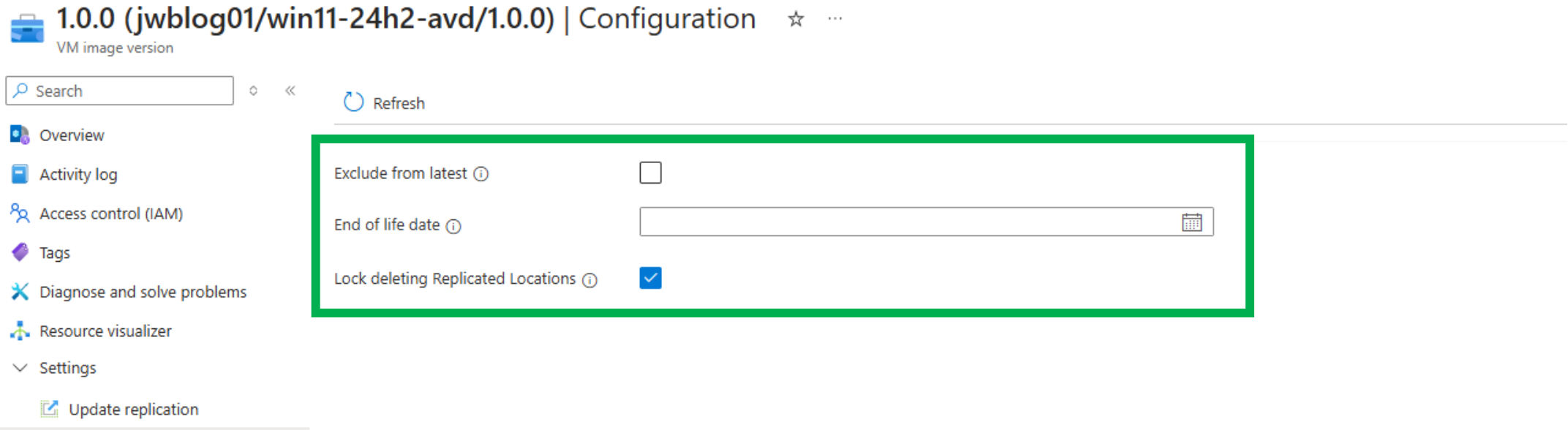
Let’s Talk Geography

1. A Single Azure Compute Gallery – with replication to Regions close to our Azure Local deployments.

2. An image replicated to the Regions we are operating in – close to our Azure Local deployments.

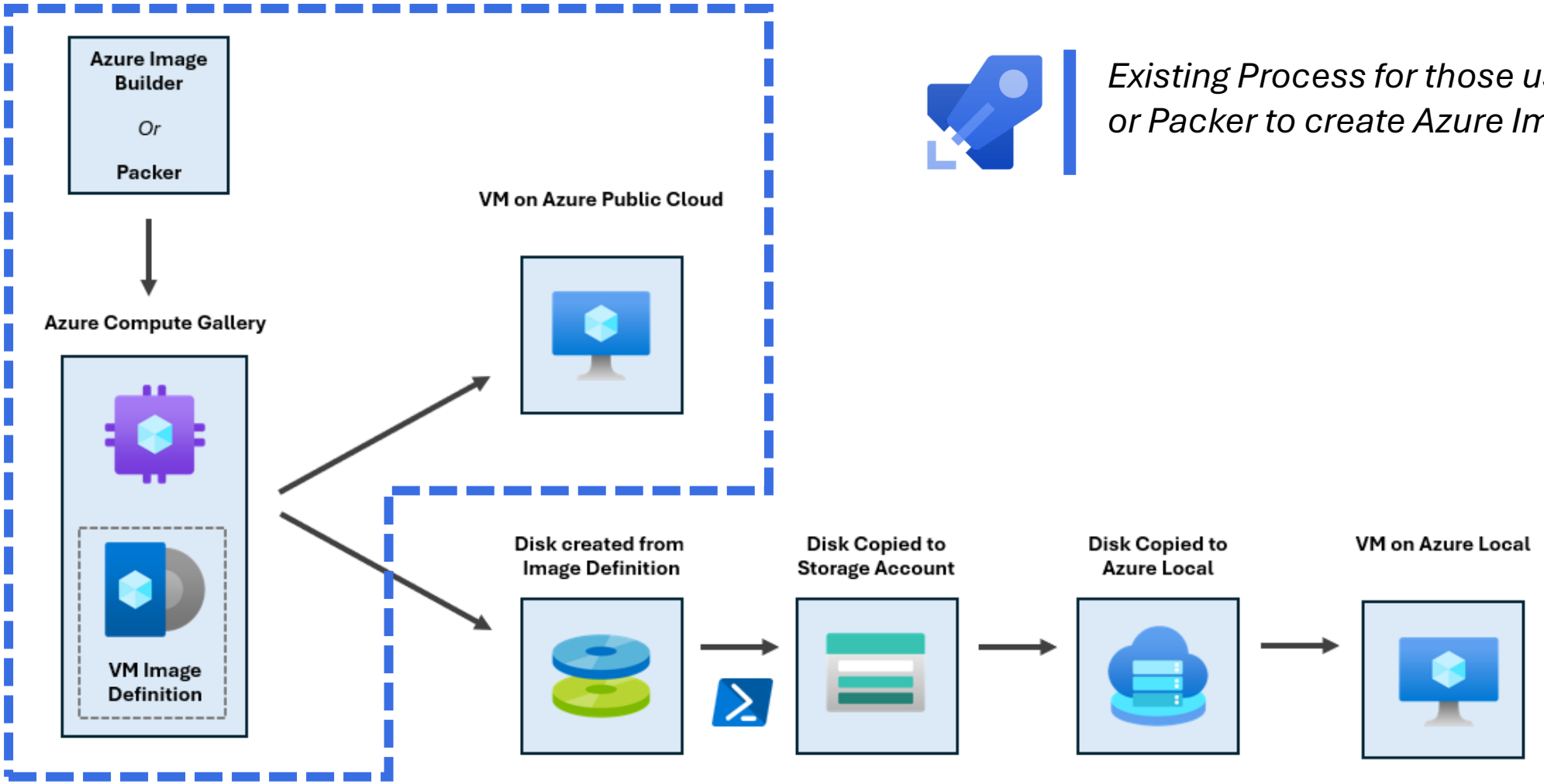


Additional configuration options for the image via the Image Version in the Azure Compute Gallery.



Existing Images

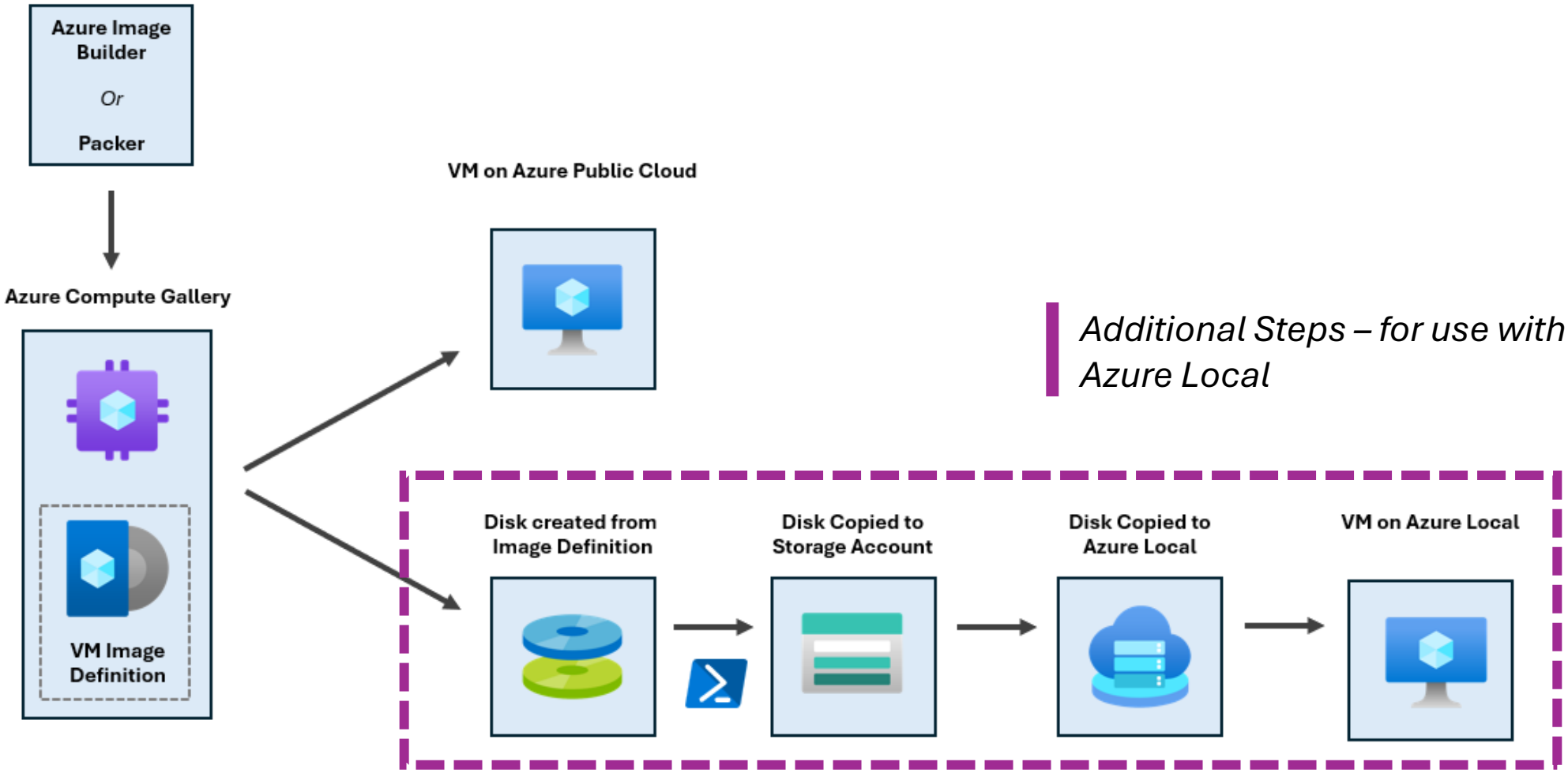
A Practical Example – the Azure Region



Existing Process for those using AIB or Packer to create Azure Images

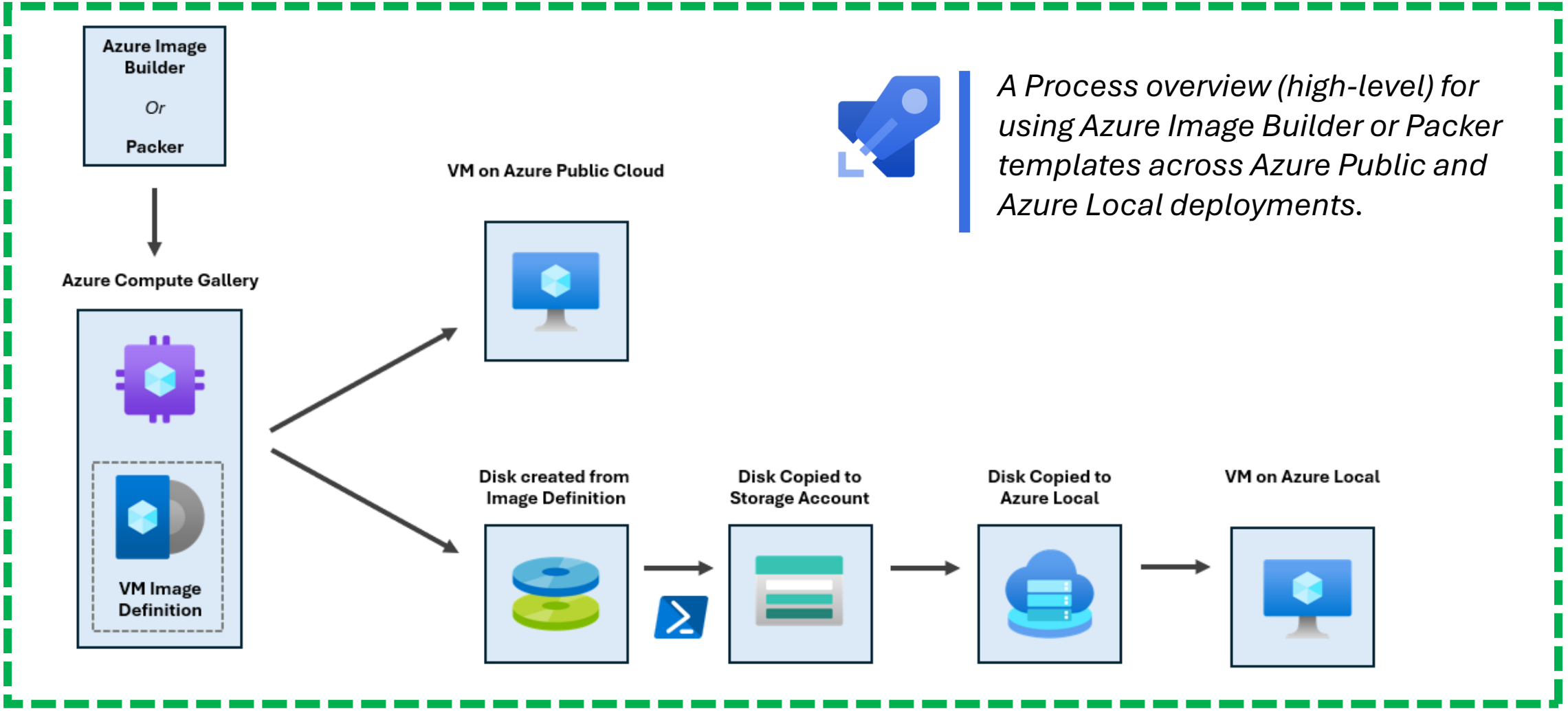
Existing Images

A Practical Example – Azure Local Process Extension



Existing Images

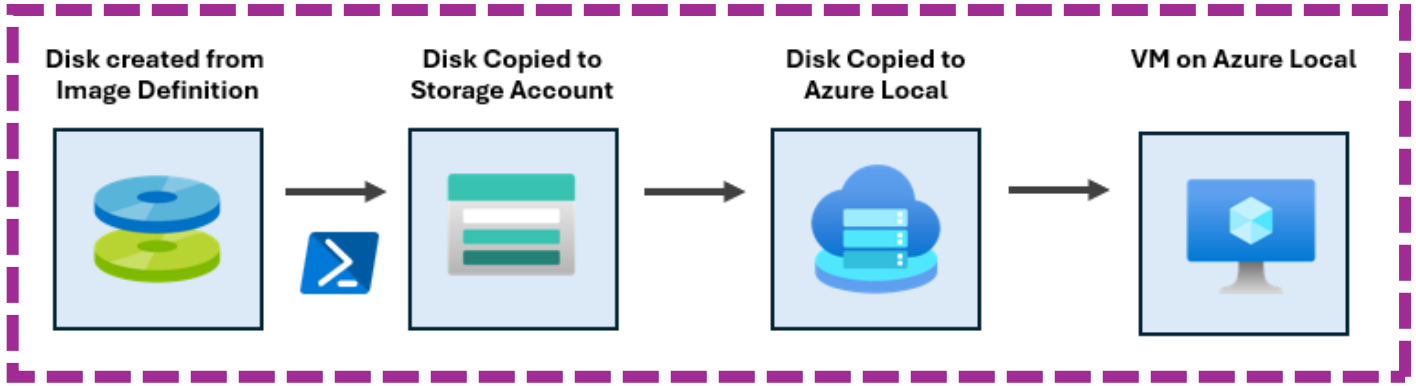
A Practical Example – Bringing it all together…



A Process overview (high-level) for using Azure Image Builder or Packer templates across Azure Public and Azure Local deployments.

Azure Local – The Process!

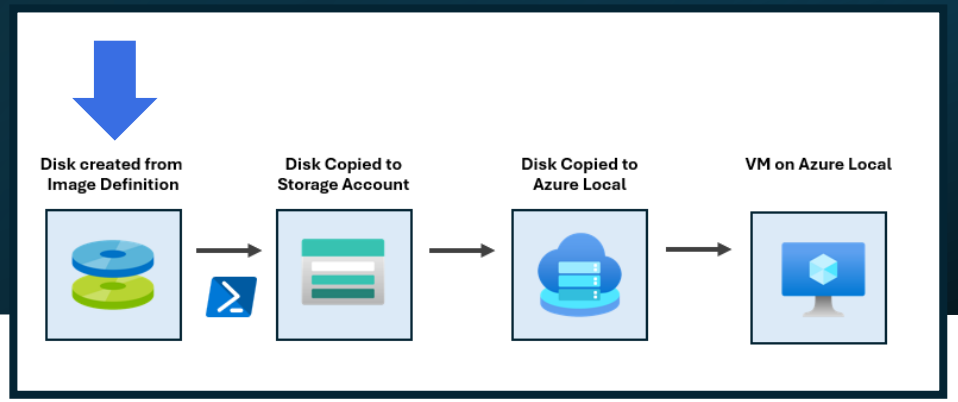
Getting the Image onto Azure Local



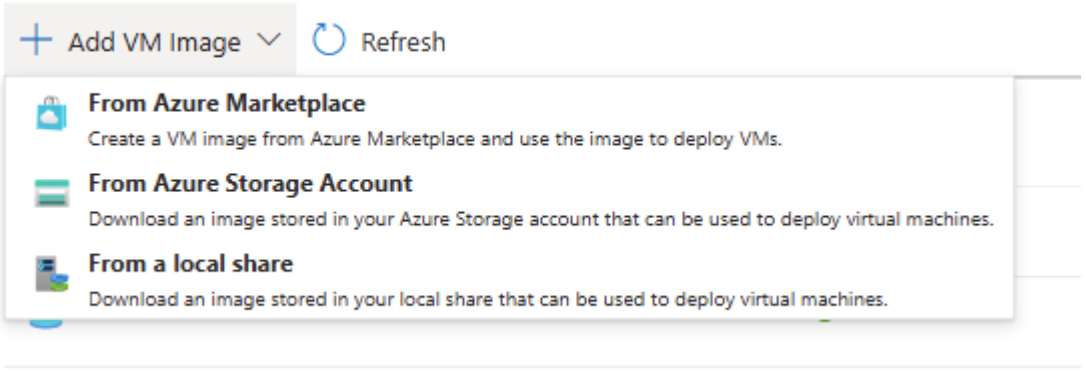
Additional Steps – for use with Azure Local

1. **Disk Creation** – from Image Definition in the Azure Compute Gallery
2. **Disk Copied to Storage Account** – to allow import to Azure Local
3. **Disk Copied to Azure Local** – to allow VM creation
4. **VM created on Azure Local**

Disk Creation

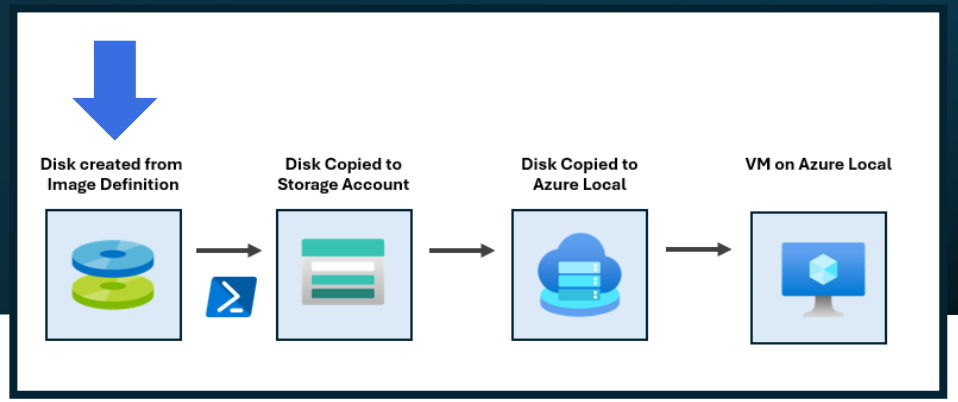


At the time of writing - we can only add VM Images to Azure Local from these sources:



So – we need to convert our Image in a Compute Gallery, to a Disk in a Storage Account.

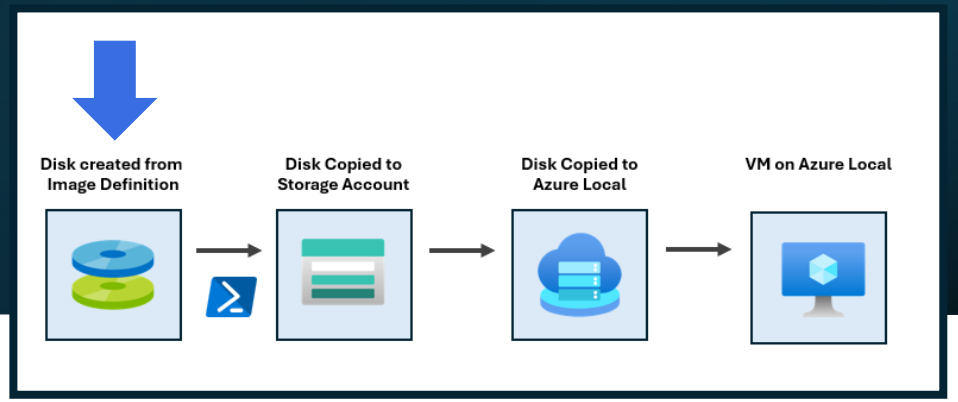
Disk Creation



Azure CLI to the Rescue – creating an Unattached Disk from our Compute Gallery:

```
$source = "/subscriptions/xxxxxxxx-xxxx-xxxx-xxxx-
  xxxxxxxxxxxx/resourceGroups/packer-
  images/providers/Microsoft.Compute/galleries/jwblog01/images/win11-
  24h2-avd/versions/1.0.0"

az disk create --resource-group packer-images --location uksouth --
name win11-24h2-avd --gallery-image-reference $source
```

Disk Creation



Once completed – we have a disk!

win11-24h2-avd

Disk

Search

Create VM | Create VM image version | Create snapshot | Delete | Refresh | Give feedback

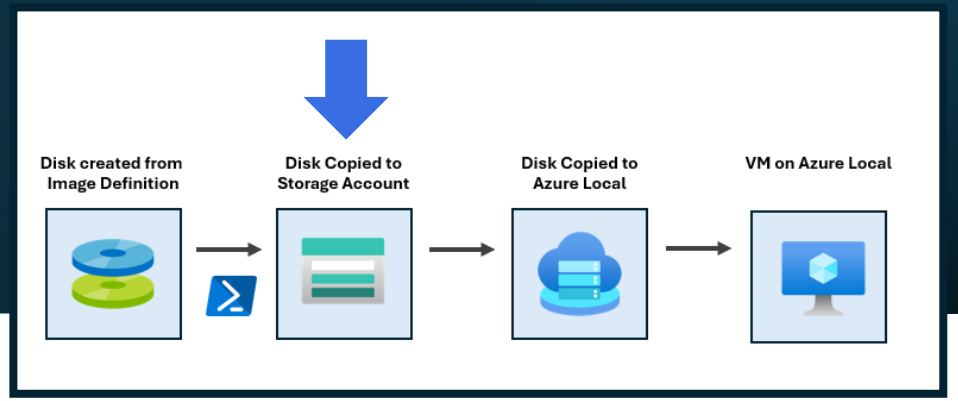
- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Resource visualizer
- Settings
- Monitoring
- Automation
- Help

Essentials

Resource group (move)	: PACKER-IMAGES	Disk size	: 127 GiB
Disk state	: Unattached	Storage type	: Premium SSD LRS
Last ownership updat...	: -	Managed by	: -
Location	: UK South	Operating system	: Windows
Subscription (move)	: dev.jakewalsh.co.uk - MVP Credit	Max shares	: 0
Subscription ID	:	Availability zone	: No infrastructure redundancy required
Time created	: 20/02/2025, 15:41:47	Performance tier	: P10 - 500 IOPS, 100 MB/s
		Security type	: Standard

Tags (edit) : Add tags

Copy to a Storage Account



Next – we need to copy this disk to an Azure Storage Account

Sample script

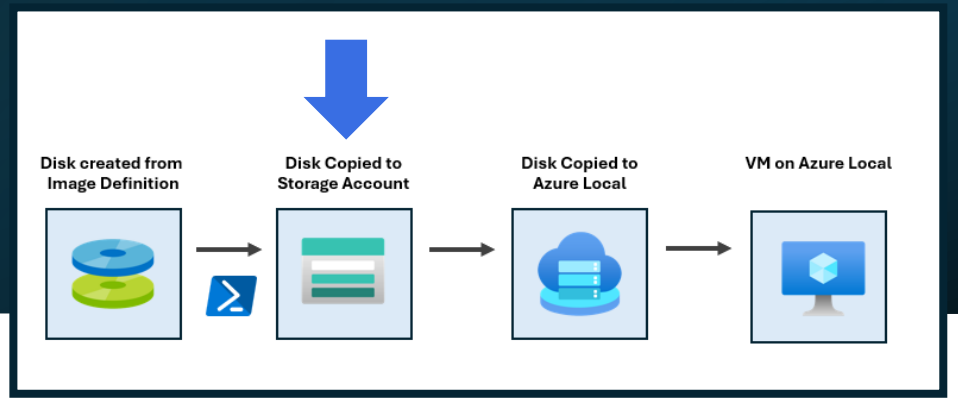
PowerShell Copy

```powershell
#Provide the subscription Id of the subscription where managed disk is created
$subscriptionId = "yourSubscriptionId"

#Provide the name of your resource group where managed is created
$resourceGroupName ="yourResourceGroupName"
```

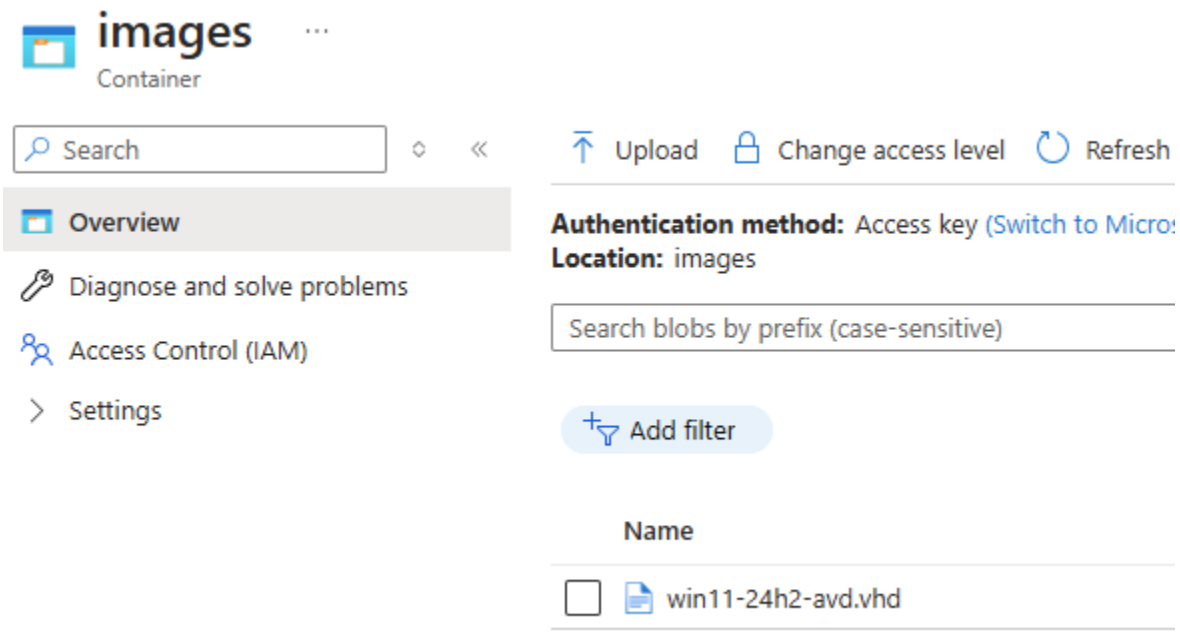
https://learn.microsoft.com/en-us/azure/virtual-machines/scripts/virtual-machines-powershell-sample-copy-managed-disks-vhd?WT.mc_id=AZ-MVP-5004974

```powershell
#Provide the subscription Id of the subscription where managed disk is created
$subscriptionId = "yourSubscriptionId"

#Provide the name of your resource group where managed is created
$resourceGroupName ="yourResourceGroupName"

#Provide the managed disk name
$diskName = "yourDiskName"

#Provide Shared Access Signature (SAS) expiry duration in seconds e.g. 3600.
#Know more about SAS here: https://docs.microsoft.com/en-us/Az.Storage/storage-dotnet-shared-access-signature-part-1
$sasExpiryDuration = "3600"

#Provide storage account name where you want to copy the underlying VHD of the managed disk.
$storageAccountName = "yourstorageaccountName"

#Name of the storage container where the downloaded VHD will be stored
$storageContainerName = "yourstoragecontainername"

#Provide the key of the storage account where you want to copy the VHD of the managed disk.
$storageAccountKey = 'yourStorageAccountKey'

#Provide the name of the destination VHD file to which the VHD of the managed disk will be copied.
$destinationVHDFileName = "yourvhdfilename"

#Set the value to 1 to use AzCopy tool to download the data. This is the recommended option for faster copy.
#Download AzCopy v10 from the link here: https://docs.microsoft.com/en-us/azure/storage/common/storage-use-azcopy-v10
#Ensure that AzCopy is downloaded in the same folder as this file
#If you set the value to 0 then Start-AzStorageBlobCopy will be used. Azure storage will asynchronously copy the data.
$useAzCopy = 0

# Set the context to the subscription Id where managed disk is created
Select-AzSubscription -SubscriptionId $SubscriptionId

#Generate the SAS for the managed disk
$sas = Grant-AzDiskAccess -ResourceGroupName $ResourceGroupName -DiskName $diskName -DurationInSecond $sasExpiryDuration -Access Read

#Create the context of the storage account where the underlying VHD of the managed disk will be copied
$destinationContext = New-AzStorageContext -StorageAccountName $storageAccountName -StorageAccountKey $storageAccountKey

#Copy the VHD of the managed disk to the storage account
if($useAzCopy -eq 1)
{
    $containerSASURI = New-AzStorageContainerSASToken -Context $destinationContext -ExpiryTime(get-date).AddSeconds($sasExpiryDuration) -FullUri -Name $storageContainerName -Permission rw
    azcopy copy $sas.AccessSAS $containerSASURI

}else{

Start-AzStorageBlobCopy -AbsoluteUri $sas.AccessSAS -DestContainer $storageContainerName -DestContext $destinationContext -DestBlob $destinationVHDFileName
}
```

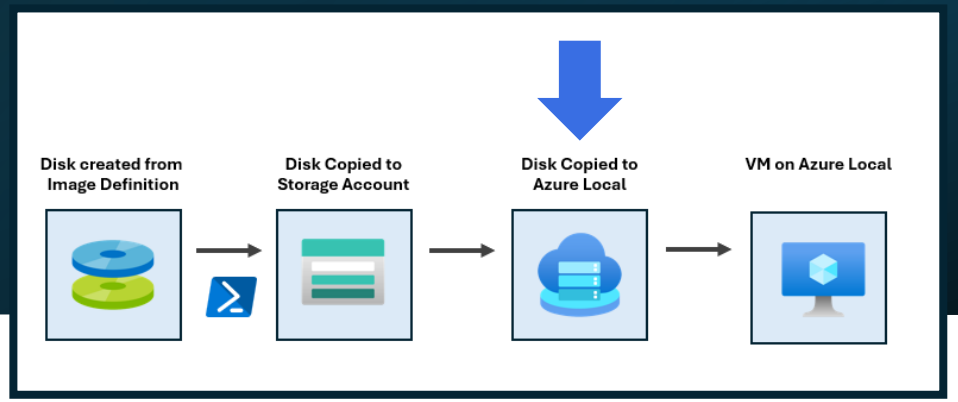
Copy to a Storage Account



We then have a disk ready in our Storage Account:



Copy to Azure Local



This is done using the Normal Process via the Azure Portal:

Home > Azure Arc | Azure Local > azurelocal01 | VM images > Create an image >

Create an image ...

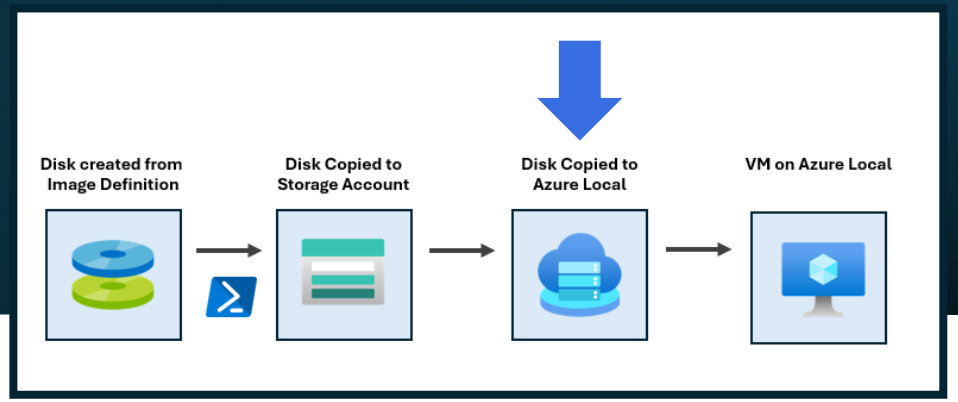
Validation passed.

Basics Tags Review + create

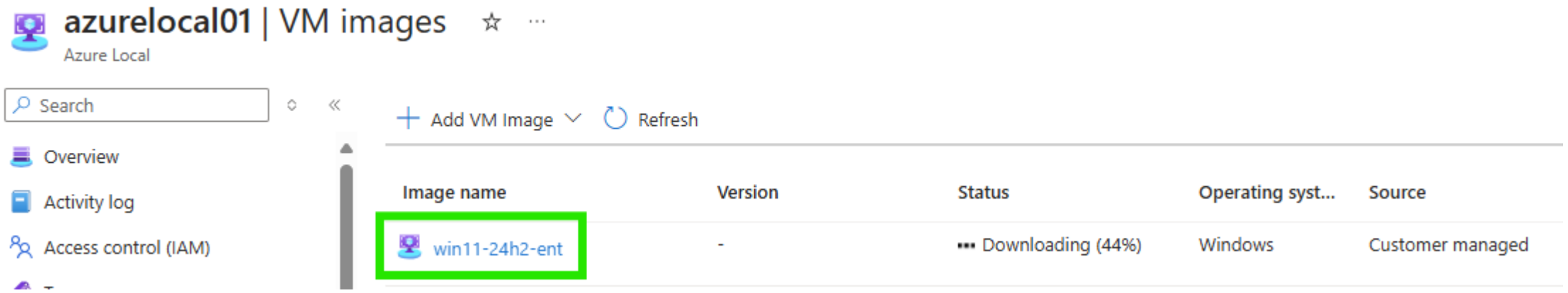
Basics

Subscription	dev.jakewalsh.co.uk - MVP Credit
Resource group	rg-local
Custom location	LIN
Image to download	https://jwblogpacker01.blob.core.windows.net/images/win11-24h2-avd.vhd
Save image as	test-packer
OS type	Windows
VM generation	Gen2

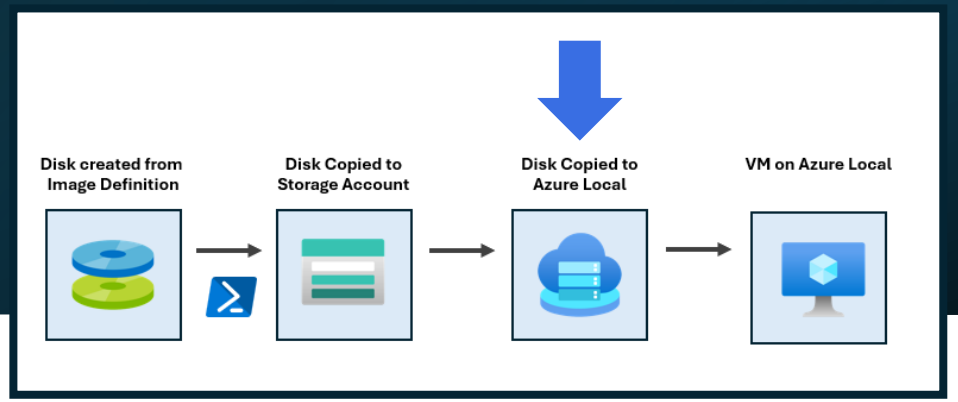
Copy to Azure Local



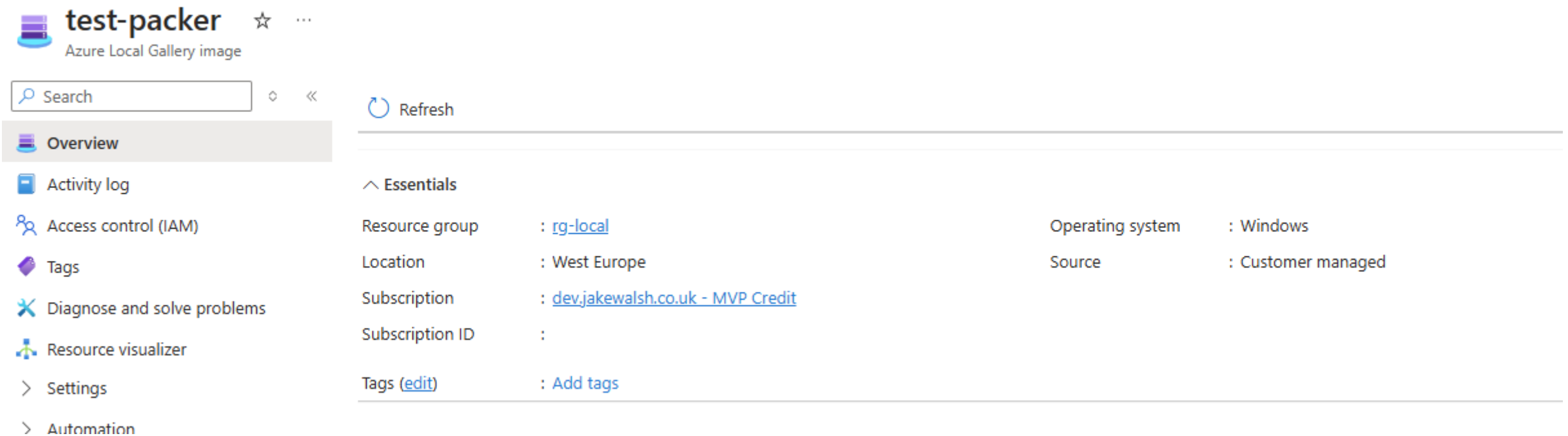
This copy process will take some time whilst the image downloads from the Storage Account:



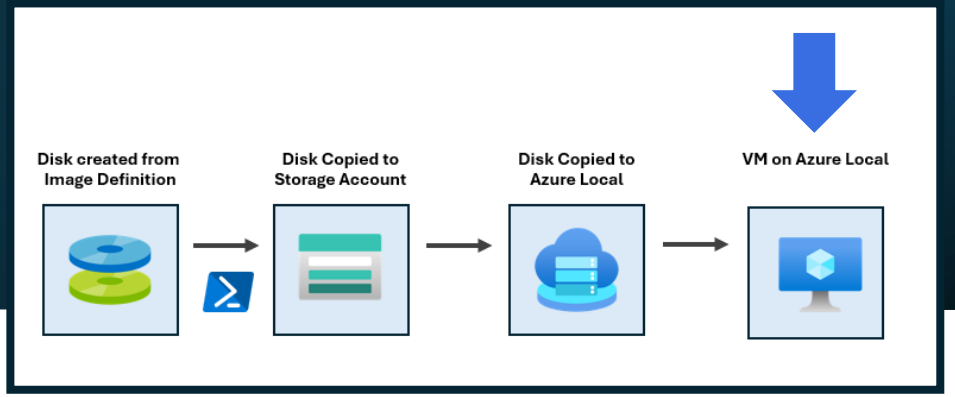
Copy to Azure Local

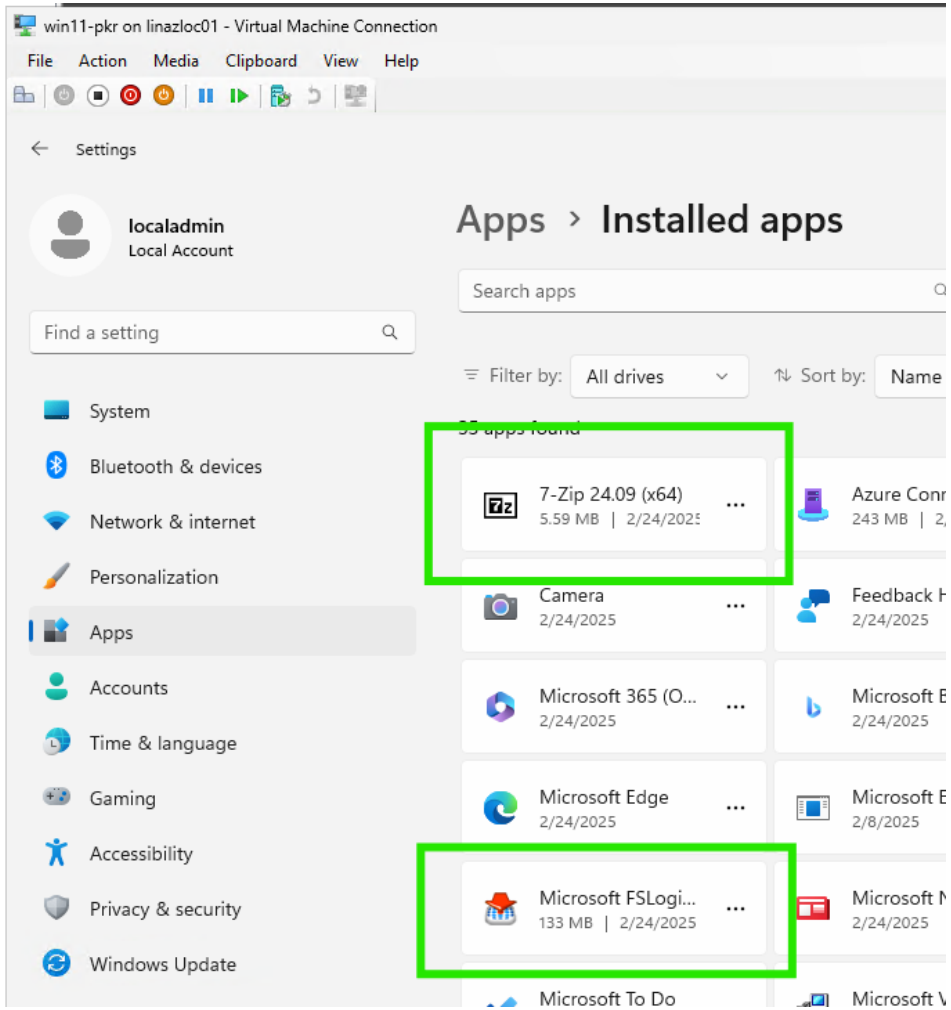


Once done – we have an image on Azure Local!



VM Test



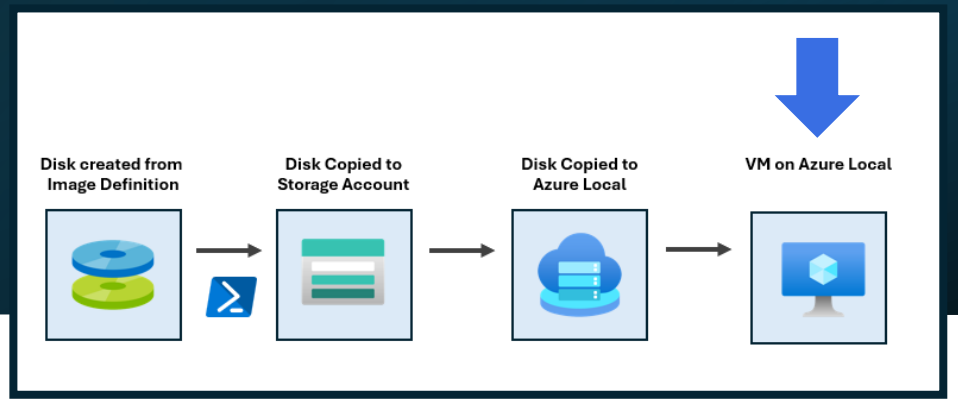


We can then use this Image to create a VM on Azure Local.

You can see here 7-Zip and FSLogix Installed – from our Packer Template:

```
}],
"provisioners": [
  {"type": "powershell",
      "inline": [
      "Set-ExecutionPolicy Bypass -Scope Process -Force",
    "[Net.ServicePointManager]::SecurityProtocol = [Net.SecurityProtocolType]::Tls12",
    "iex ((New-Object System.Net.WebClient).DownloadString('https://chocolatey.org/install.ps1'))",
        "choco install 7zip -y --force --force-dependencies",
        "choco install fslogix -y --force --force-dependencies"
        ]},
  {"type": "windows-restart"},
  {"type": "powershell",
```

Success!



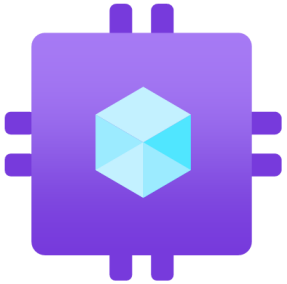
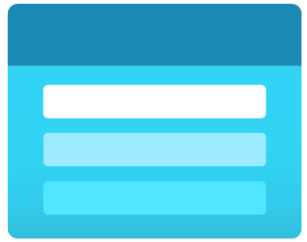
✓ We have now confirmed a successful custom image deployment!

Any Questions?

A Recap of what we have covered today...

- Why are custom images important?
- Building Images – and the Azure Compute Gallery
- Existing Images – The Process!
- How to use Custom Images with Azure Local
- Questions



References / Further Reading

- Create Azure Local VM image using image in Azure Storage account - https://learn.microsoft.com/en-us/azure/azure-local/manage/virtual-machine-image-storage-account?view=azloc-24112&%3FWT.mc_id=AZ-MVP-5004974view%3Dazloc-24112&tabs=azurecli
- Export/Copy the VHD of a managed disk to a storage account in different region with PowerShell (Windows) - https://learn.microsoft.com/en-us/azure/virtual-machines/scripts/virtual-machines-powershell-sample-copy-managed-disks-vhd?WT.mc_id=AZ-MVP-5004974
- Create Azure Local VM image using images in a local share - https://learn.microsoft.com/en-us/azure/azure-local/manage/virtual-machine-image-local-share?view=azloc-24112&viewFallbackFrom=azloc-24112%3Fwt.mc_id%3Daz-mvp-5004974&tabs=azurecli
- Packer Template used today - https://github.com/jakewalsh90/Packer-Azure/blob/847c599bfa51a7ae5fe3889a3d08c2f6346197c6/Windows%20Desktop/win11-24h2-avd-choco.json

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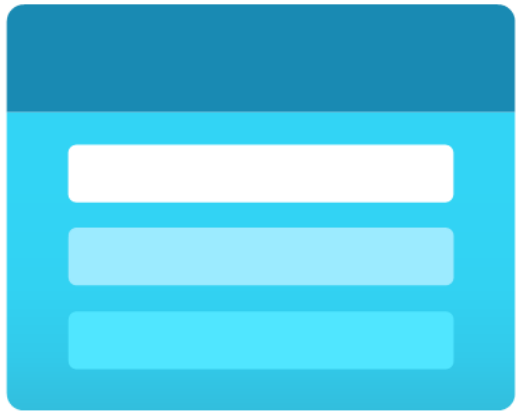
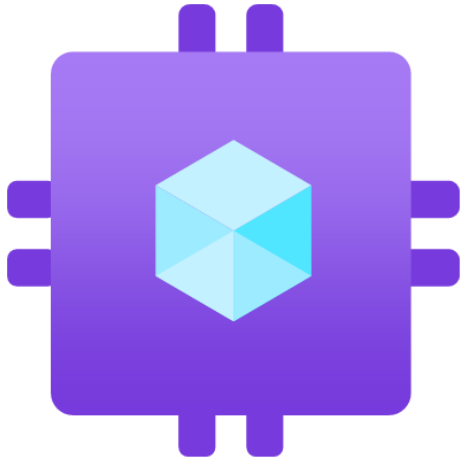
Thank You!





Please note – the views/opinions in this presentation are entirely my own. If in any doubt, please check latest documentation and Links for updated info!