HTMD Community Conference - 2024

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Speaker

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Azure Virtual Desktop

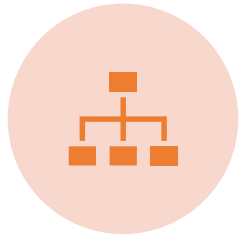
Image and Session Host Management

Image Management

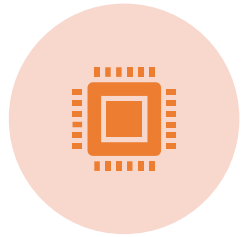
Managed Images

A SINGLE IMAGE OF A VM THAT INCLUDES THE OS DISK AND OPTIONALLY ANY ATTACHED DATA DISKS.

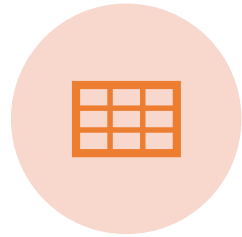
PRIMARILY USED FOR CREATING VM WITH A CONSISTENT CONFIGURATION. SUITABLE FOR SMALLER-SCALE DEPLOYMENTS.



SIMPLICITY: EASY TO CREATE AND MANAGE.



LIMITATIONS: LIMITED TO 20 SIMULTANEOUS VM DEPLOYMENTS FROM A SINGLE IMAGE.

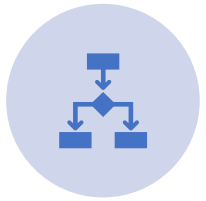


REGION BOUND: MANAGED IMAGES ARE REGION-SPECIFIC AND CANNOT BE REPLICATED ACROSS REGIONS.

Azure Compute Gallery

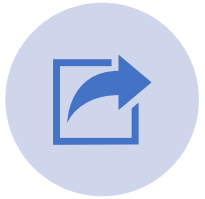
Azure Compute Gallery (formerly Shared Image Gallery) is a service that helps you manage and share custom VM images and applications across your organization.

Global Replication: Allows you to replicate images across multiple regions, ensuring high availability and reducing latency.



Versioning: Supports multiple versions of an image, making it easier to manage updates and rollbacks.

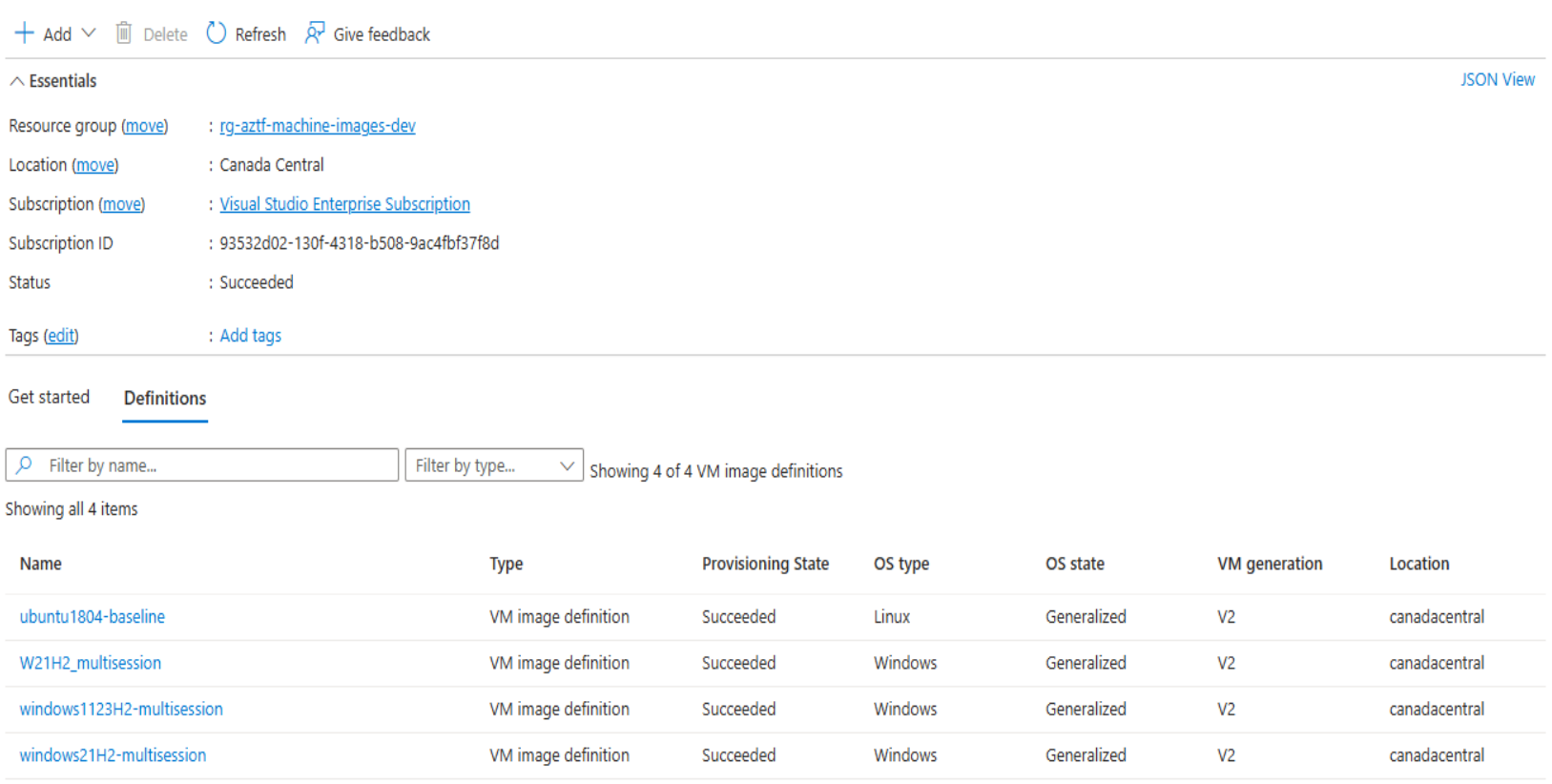
Scalability: Enables large-scale deployments with resource replicas in each region.



Sharing: Images can be shared within your organization, across subscriptions, or even publicly through a community gallery.

High Availability: Utilizes Zone Redundant Storage (ZRS) for better resilience against zonal failures.

VM Image Definition

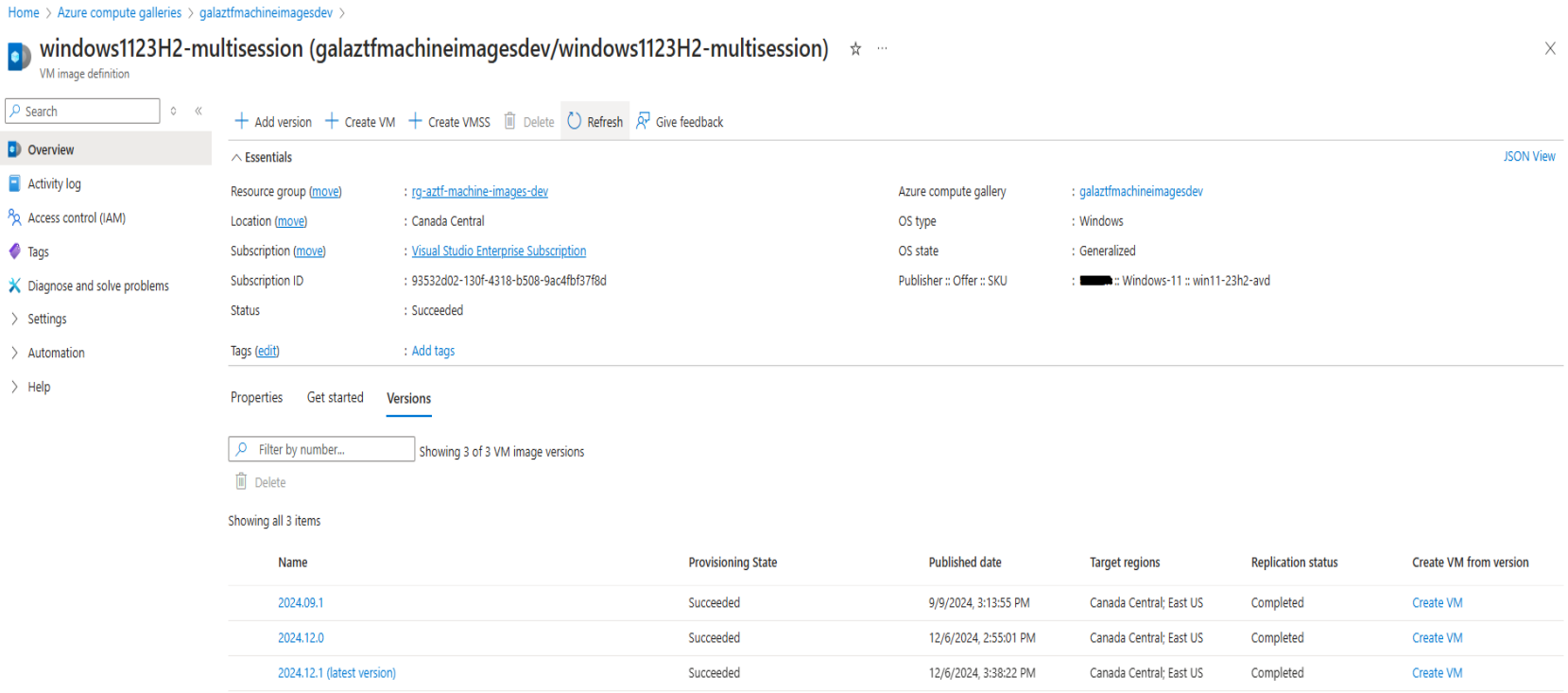


A VM Definition in Azure Compute Gallery is a template that defines the configuration of a virtual machine, including the OS, data disks, and other settings.

Standardization: Ensures consistency across VMs created from the same definition.

Management: Simplifies the management of VM configurations by centralizing them in a gallery.

VM Image Version



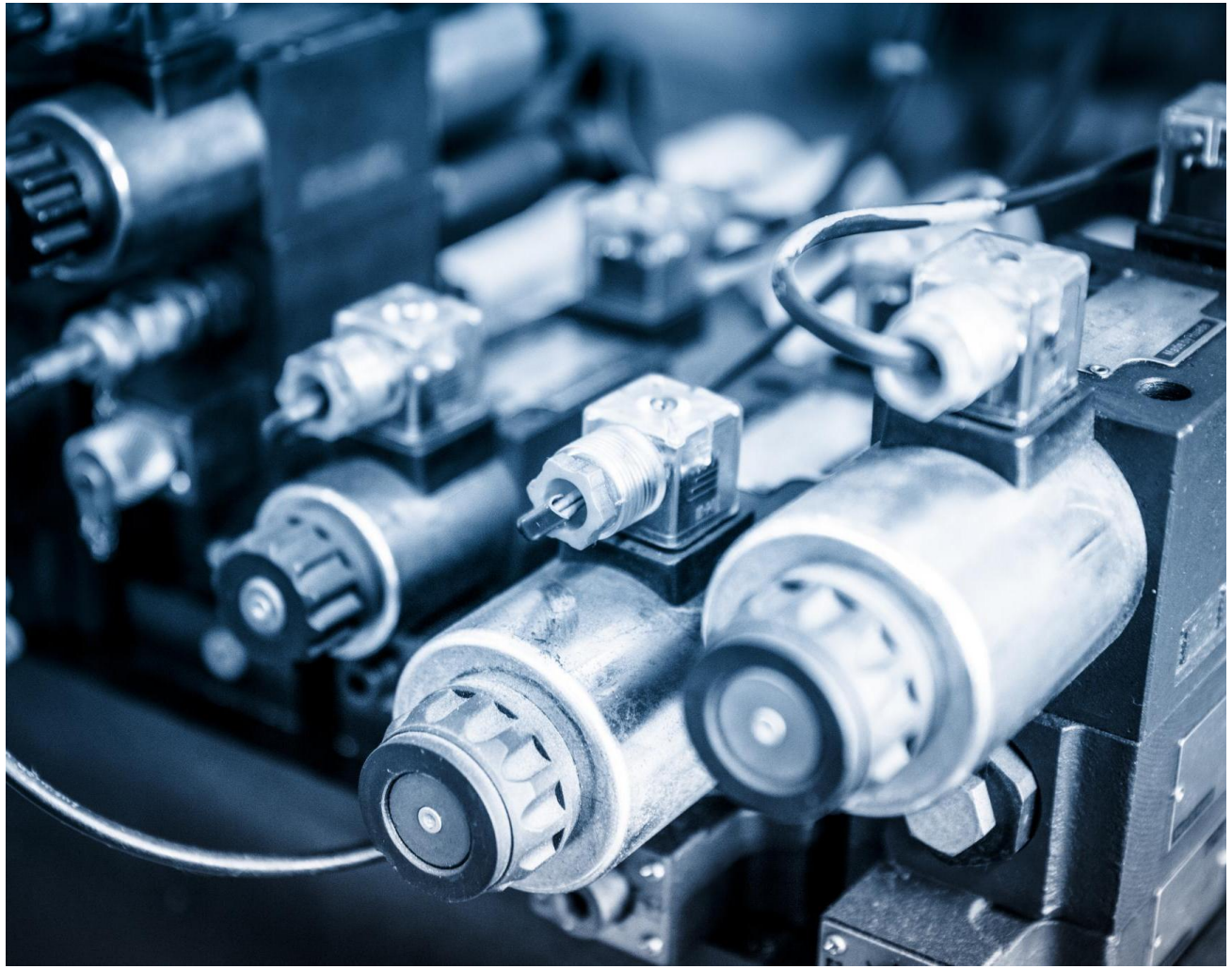
A versioned image stored in a gallery, which can include multiple versions of an image.

Versioning: Supports multiple versions of an image, allowing for better management and updates.

Scalability: Can handle large-scale deployments and supports features like ARM64, Trusted Launch, and Confidential VMs.

Packer

- Platform-agnostic: Supports multiple providers like Azure, AWS, VMware, etc.
- Highly customizable with scripts, plugins, and extensions.
- Build once, deploy anywhere approach.
- The workflow entails creating templates and executing build commands.
- Although it is a robust tool, Packer necessitates a certain level of expertise for optimal utilization.



packer build

View raw log

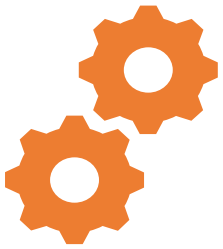
```
Author       : Microsoft Corporation
Help         : https://docs.microsoft.com/azure/devops/pipelines/tasks/utility/bash
================================================================================
Generating script.
Formatted command: exec bash '/home/vsts/work/1/s/.azdo-pipelines/scripts/packer.sh'
========================== Starting Command Output ===========================
/usr/bin/bash /home/vsts/work/_temp/60c04042-8891-4c5a-9a9c-75791df495a9.sh
Packer Image Version:2024.12.1
Build Agent IP Address:4.188.240.102
Image Name:windows1123H2-multisession
Installed plugin github.com/hashicorp/azure v2.2.0 in "/home/vsts/.config/packer/plugins/github.com/hashicorp/azure/packer-plugin-azure_v2.2.0_x5.0_linux_amd64"
azure-arm.vm: output will be in this color.

==> azure-arm.vm: Running builder ...
    azure-arm.vm: Creating Azure Resource Manager (ARM) client ...
    azure-arm.vm: ARM Client successfully created
==> azure-arm.vm: Getting source image id for the deployment ...
==> azure-arm.vm:  -> SourceImageName: '/subscriptions/93532d02-130f-4318-b508-9ac4fbf37f8d/providers/Microsoft.Compute/locations/canadacentral/publishers/MicrosoftWindowsDesktop/ArtifactTyp
==> azure-arm.vm: Using existing resource group ...
==> azure-arm.vm:  -> ResourceGroupName : 'rg-aztf-machine-images-dev'
==> azure-arm.vm:  -> Location          : 'canadacentral'
==> azure-arm.vm: Validating deployment template ...
==> azure-arm.vm:  -> ResourceGroupName : 'rg-aztf-machine-images-dev'
==> azure-arm.vm:  -> DeploymentName    : 'kvpkrdp1nzww44o0r'
==> azure-arm.vm: Deploying deployment template ...
==> azure-arm.vm:  -> ResourceGroupName : 'rg-aztf-machine-images-dev'
==> azure-arm.vm:  -> DeploymentName    : 'kvpkrdp1nzww44o0r'
==> azure-arm.vm: Getting the certificate's URL ...
==> azure-arm.vm:  -> Key Vault Name        : 'pkrkv1nzww44o0r'
==> azure-arm.vm:  -> Key Vault Secret Name : 'packerKeyVaultSecret'
==> azure-arm.vm:  -> Certificate URL       : 'https://pkrkv1nzww44o0r.vault.azure.net/secrets/packerKeyVaultSecret/9f12a945914b4b2e84a221a9f2fad359'
==> azure-arm.vm: Setting the certificate's URL ...
==> azure-arm.vm: Validating deployment template ...
==> azure-arm.vm:  -> ResourceGroupName : 'rg-aztf-machine-images-dev'
==> azure-arm.vm:  -> DeploymentName    : 'pkrdp1nzww44o0r'
==> azure-arm.vm: Deploying deployment template ...
==> azure-arm.vm:  -> ResourceGroupName : 'rg-aztf-machine-images-dev'
==> azure-arm.vm:  -> DeploymentName    : 'pkrdp1nzww44o0r'
==> azure-arm.vm: Getting the VM's IP address ...
==> azure-arm.vm:  -> ResourceGroupName   : 'rg-aztf-machine-images-dev'
```

packer build

View raw log

```
==> azure-arm.vm: Querying the machine's properties ...
==> azure-arm.vm:  -> ResourceGroupName : 'rg-aztf-machine-images-dev'
==> azure-arm.vm:  -> ComputeName       : 'packertempvm'
==> azure-arm.vm:  -> Managed OS Disk   : '/subscriptions/93532d02-130f-4318-b508-9ac4fbf37f8d/resourceGroups/rg-aztf-machine-images-dev/providers/Microsoft.Compute/disks/pkros1nzww44o0r'
==> azure-arm.vm: Querying the machine's additional disks properties ...
==> azure-arm.vm:  -> ResourceGroupName : 'rg-aztf-machine-images-dev'
==> azure-arm.vm:  -> ComputeName       : 'packertempvm'
==> azure-arm.vm: Powering off machine ...
==> azure-arm.vm:  -> ResourceGroupName : 'rg-aztf-machine-images-dev'
==> azure-arm.vm:  -> ComputeName       : 'packertempvm'
==> azure-arm.vm:  -> Compute ResourceGroupName : 'rg-aztf-machine-images-dev'
==> azure-arm.vm:  -> Compute Name              : 'packertempvm'
==> azure-arm.vm:  -> Compute Location          : 'canadacentral'
==> azure-arm.vm: Generalizing machine ...
==> azure-arm.vm: Publishing to Shared Image Gallery ...
==> azure-arm.vm:  -> Source ID used for SIG publish       : '/subscriptions/93532d02-130f-4318-b508-9ac4fbf37f8d/resourceGroups/rg-aztf-machine-images-dev/providers/Microsoft.Compute/virt
==> azure-arm.vm:  -> SIG publish resource group           : 'rg-aztf-machine-images-dev'
==> azure-arm.vm:  -> SIG gallery name                     : 'galaztfmachineimagesdev'
==> azure-arm.vm:  -> SIG image name                       : 'windows1123H2-multisession'
==> azure-arm.vm:  -> SIG image version                    : '2024.12.1'
==> azure-arm.vm:  -> SIG target regions                   : '[canadacentral eastus]'
==> azure-arm.vm:  -> SIG storage account type             : 'Standard_LRS'
==> azure-arm.vm:  -> SIG image version endoflife date     : '2025-03-06T09:48:52Z'
==> azure-arm.vm:  -> SIG image version exclude from latest : 'false'
==> azure-arm.vm:  -> Shared Gallery Image Version ID : '/subscriptions/93532d02-130f-4318-b508-9ac4fbf37f8d/resourceGroups/rg-aztf-machine-images-dev/providers/Microsoft.Compute/galleries/
==> azure-arm.vm:
==> azure-arm.vm: Deleting Virtual Machine deployment and its attached resources...
==> azure-arm.vm: Deleted -> packertempvm : 'Microsoft.Compute/virtualMachines'
==> azure-arm.vm: Deleted -> pkrni1nzww44o0r : 'Microsoft.Network/networkInterfaces'
==> azure-arm.vm: Deleted -> packertempvm/extension-customscript : 'Microsoft.Compute/virtualMachines/extensions'
==> azure-arm.vm: Deleted -> pkrip1nzww44o0r : 'Microsoft.Network/publicIPAddresses'
==> azure-arm.vm: Deleted -> Microsoft.Compute/disks : '/subscriptions/93532d02-130f-4318-b508-9ac4fbf37f8d/resourceGroups/rg-aztf-machine-images-dev/providers/Microsoft.Compute/disks/pkros
==> azure-arm.vm: Removing the created Deployment object: 'pkrdp1nzww44o0r'
==> azure-arm.vm:
==> azure-arm.vm: Deleting KeyVault created during build
==> azure-arm.vm: Deleted -> pkrkv1nzww44o0r : 'Microsoft.KeyVault/vaults'
==> azure-arm.vm: Removing the created Deployment object: 'kvpkrdp1nzww44o0r'
==> azure-arm.vm:
==> azure-arm.vm: The resource group was not created by Packer, not deleting ...
Build 'azure-arm.vm' finished after 31 minutes 20 seconds.
```

Azure Image Builder



Azure Image Builder is a managed service that simplifies the creation, customization, and management of VM images in Azure.

Key Features:

Customization: Allows you to create custom images by specifying configurations and customizations using existing scripts and tools.

Integration: Works with Azure DevOps, Azure Compute Gallery, and other Azure services for seamless image management.

Scalability: Supports large-scale image building and distribution across multiple regions.

Security: Ensures images are secure by integrating with Azure security services and maintaining compliance.

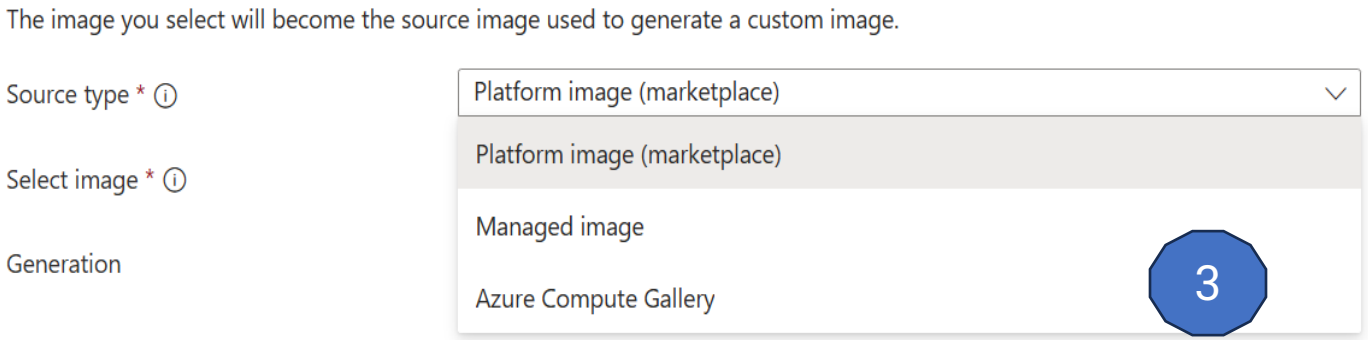
Efficiency: Reduces the complexity and time required to build and manage VM images

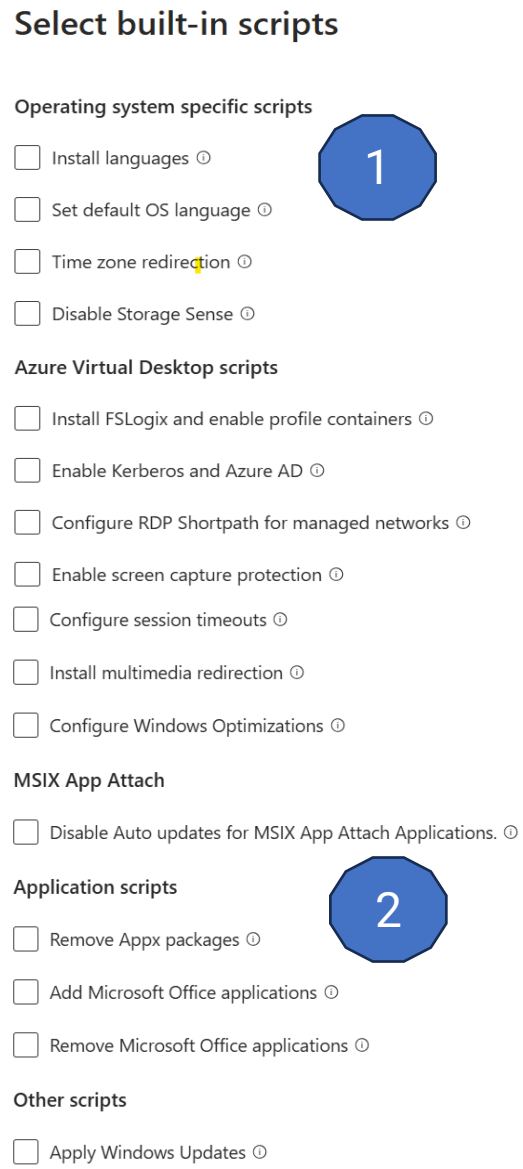
.

Custom Image Template in AVD

Key Features

1. Specifically optimized for AVD settings.
2. May incorporate applications, policies, and user preferences tailored for AVD.
3. Expands upon pre-set base images.





Comparison

Aspect	Azure Image Builder	Packer	Custom Image Templates(AVD)
Ease of Use	Medium	Medium	High
Customizability	Moderate	High	Low
Automation	High	High	Low
AVD Optimization	High	High	High
Cross-platform	No	Yes	No
Dependency on Azure	Yes	No	Yes
Scalability	High	High	Low
Expertise Required	Medium	High	Medium

Best Practices for Image Building in Azure

Using Automation

Implementing automation tools can streamline the image building process, reducing manual errors and saving time.

Maintaining Version Control

Version control is crucial for tracking changes and managing updates, ensuring the integrity and consistency of images.

Regular Updates

Regularly updating images is essential for security and performance, allowing for the integration of the latest features and fixes.

Session Host Management Using Intune

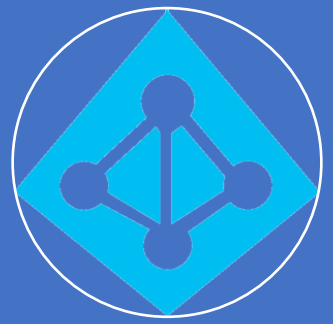
Prerequisites - Multisession

Supported OS

Windows 10 multi-session (version 1903 or later) or Windows 11 multi-session

Deployment

Set up as remote desktops in pooled host pools deployed through Azure Resource Manager



Tenant

Must be under the same tenant as Intune

AVD Agent

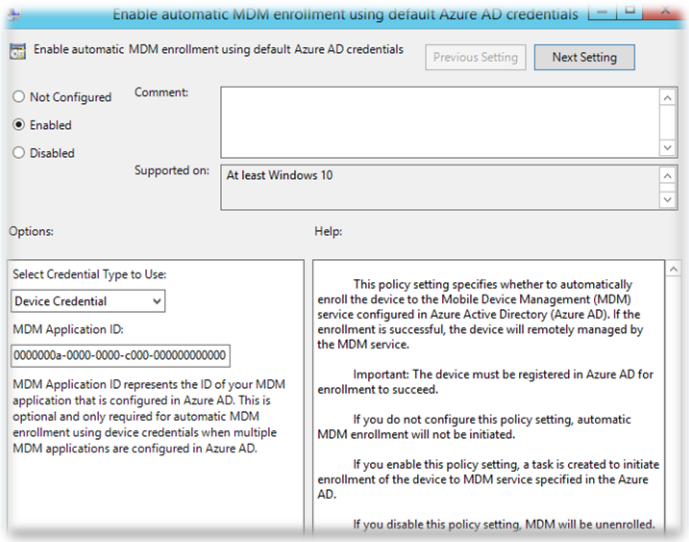
Running Azure Virtual Desktop agent version 1.0.2944.1400 or later

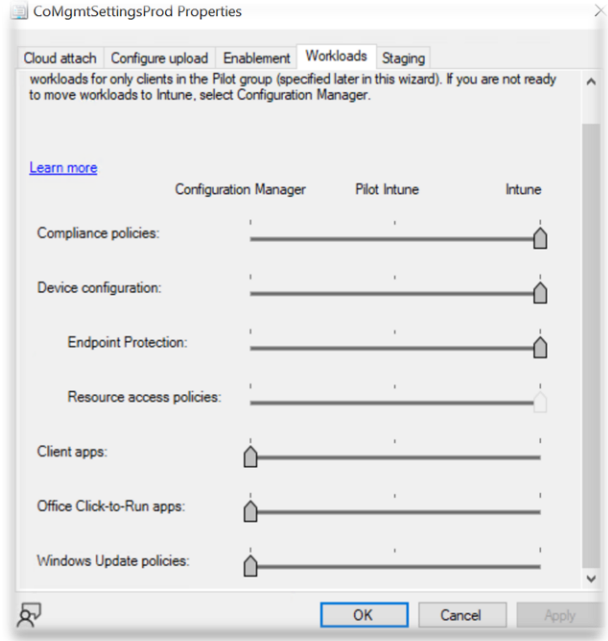
Licensing

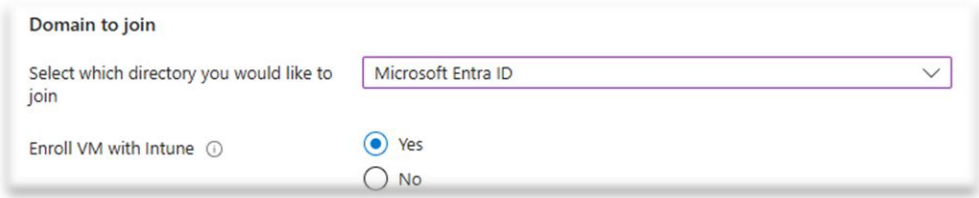
Requires appropriate Azure Virtual Desktop and Microsoft Intune licenses

Enrollment

- **Hybrid Join**:
  - Enrolled in Intune using Active Directory group policy
  - Configuration Manager co-management policy
- **Entra AD Join**: Enrolled in Intune by enabling "Enroll the VM with Intune" in the Azure portal.

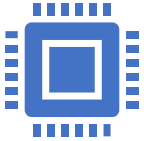






Policy

Use the Settings catalog in Intune to create and deploy configuration profiles



Device Context: Policies can be applied to devices for system-wide settings

User Context: Policies can be applied to users for user-specific settings

Compliance & Conditional Access Policy

Administrative Templates

ADMX-backed and ADMX-Ingested policies

Home > Devices | Configuration > AVD M365 Policies >

Edit profile - AVD M365 Policies

Settings catalog

1 Configuration settings 2 Review + save

+ Add settings

Microsoft Office 2016 (Machine) Remove category

OneDrive Remove category

77 of 86 settings in this category are not configured

Exclude specific kinds of files from being uploaded — Enabled

Keywords: (Device)

Delete Sort Import Export

- msedge.exe
- Microsoft Teams.lnk
- Microsoft Edge.lnk

Prompt users when they delete multiple OneDrive files on their local computer — Enabled

Number of files: (Device) * 20

Require users to confirm large delete operations — Enabled

Silently move Windows known folders to — Enabled

Review + save Cancel

Settings picker

Use commas "," among search terms to lookup settings by their keywords

Search for a setting Search

Add filter

Add filter

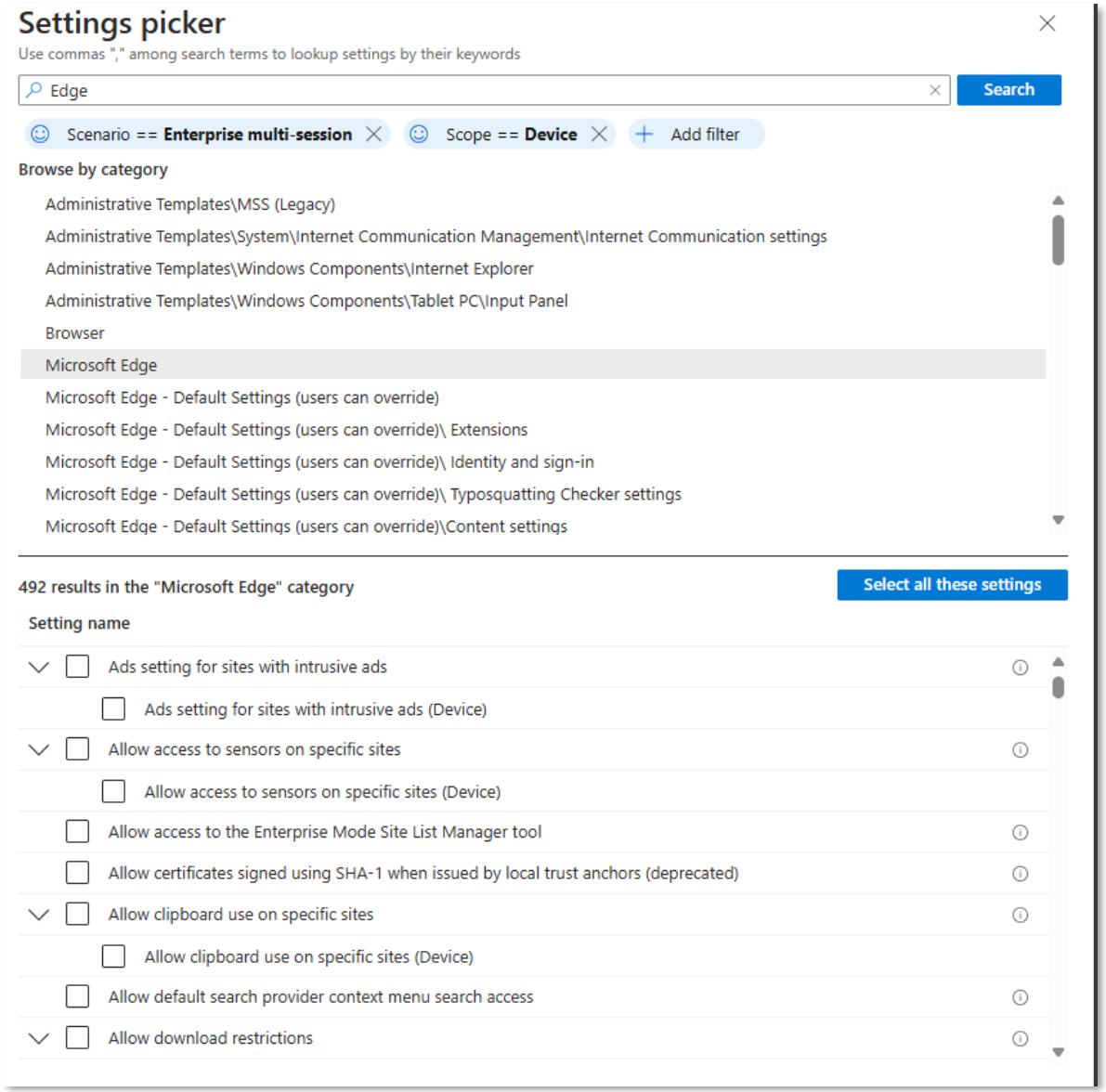
Choose filter type for resources

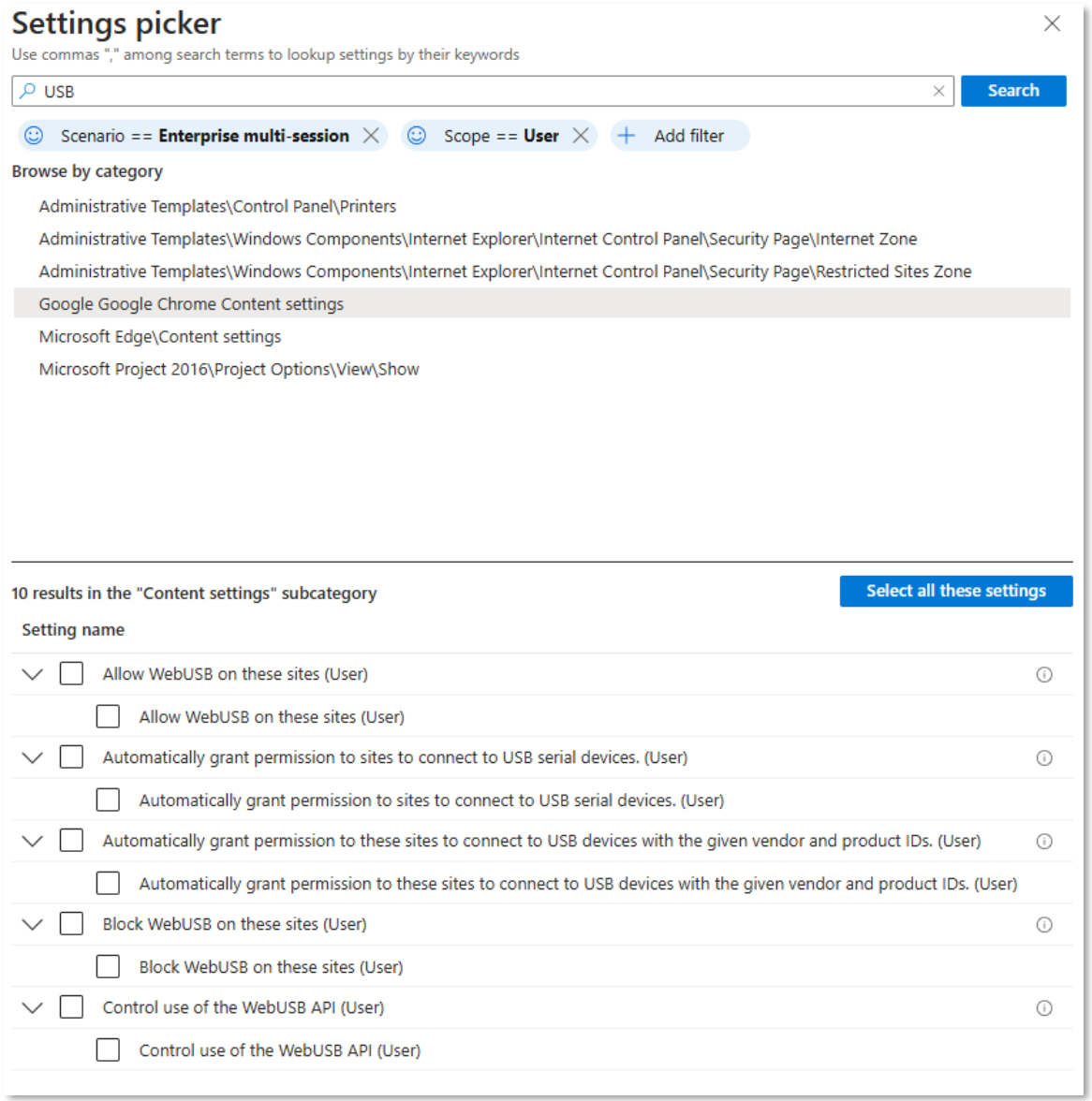
Key: OS Edition

Operator: ==

Value: Enterprise m...

- [ ] Holographic For Business
- [ ] IoT Enterprise
- [ ] Windows Education
- [ ] Windows Enterprise
- [ ] Windows Home
- [x] Enterprise multi-session
- [ ] Windows Professional


Settings picker
Use commas "," among search terms to lookup settings by their keywords
Edge
Search
Scenario == Enterprise multi-session
Scope == Device
Add filter
Browse by category
Administrative Templates\MSS (Legacy)
Administrative Templates\System\Internet Communication Management\Internet Communication settings
Administrative Templates\Windows Components\Internet Explorer
Administrative Templates\Windows Components\Tablet PC\Input Panel
Browser
Microsoft Edge
Microsoft Edge - Default Settings (users can override)
Microsoft Edge - Default Settings (users can override)\ Extensions
Microsoft Edge - Default Settings (users can override)\ Identity and sign-in
Microsoft Edge - Default Settings (users can override)\ Typosquatting Checker settings
Microsoft Edge - Default Settings (users can override)\Content settings
492 results in the "Microsoft Edge" category
Select all these settings
Setting name
Ads setting for sites with intrusive ads
Ads setting for sites with intrusive ads (Device)
Allow access to sensors on specific sites
Allow access to sensors on specific sites (Device)
Allow access to the Enterprise Mode Site List Manager tool
Allow certificates signed using SHA-1 when issued by local trust anchors (deprecated)
Allow clipboard use on specific sites
Allow clipboard use on specific sites (Device)
Allow default search provider context menu search access
Allow download restrictions


Settings picker
Use commas "," among search terms to lookup settings by their keywords
USB
Search
Scenario == Enterprise multi-session
Scope == User
Add filter
Browse by category
Administrative Templates\Control Panel\Printers
Administrative Templates\Windows Components\Internet Explorer\Internet Control Panel\Security Page\Internet Zone
Administrative Templates\Windows Components\Internet Explorer\Internet Control Panel\Security Page\Restricted Sites Zone
Google Google Chrome Content settings
Microsoft Edge\Content settings
Microsoft Project 2016\Project Options\View\Show
10 results in the "Content settings" subcategory
Select all these settings
Setting name
Allow WebUSB on these sites (User)
Allow WebUSB on these sites (User)
Automatically grant permission to sites to connect to USB serial devices. (User)
Automatically grant permission to sites to connect to USB serial devices. (User)
Automatically grant permission to these sites to connect to USB devices with the given vendor and product IDs. (User)
Automatically grant permission to these sites to connect to USB devices with the given vendor and product IDs. (User)
Block WebUSB on these sites (User)
Block WebUSB on these sites (User)
Control use of the WebUSB API (User)
Control use of the WebUSB API (User)

Application Deployment for Windows 10/11 Enterprise Multi-Session

01

System Context: All apps must be installed in the system/device context and targeted to devices.

02

User Context: Web apps are applied in the user context by default and won't apply to multi-session VMs.

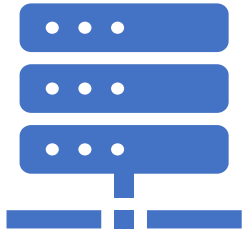
03

Assignment Intent: Only "Required" or "Uninstall" app assignment intents are supported. "Available" apps deployment intent is not supported.

04

Dependencies: Win32 apps with dependencies or supersedence relationships in the user context won't be installed. Ensure all dependencies are configured for the system context.

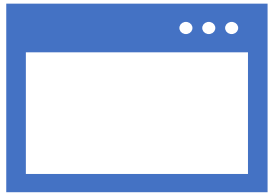
Script Deployment and Windows Update for Business



Script Deployment:

System Context: Supported on Windows 10/11 Enterprise multi-session. Assignment target should be device group

User Context: Supported on Windows 10/11 Enterprise multi-session. Assignment target should be user group



Windows Update for Business:

Management: Use the settings catalog to manage Windows Update settings for quality updates.

Limitations on Multi-Session Desktop

- Intune does not support using a cloned image of a computer that is already enrolled
- If you're joining session hosts to Microsoft Entra Domain Services, you can't manage them using Intune
- Device-based configuration cannot be assigned to users and user-based configuration cannot be assigned to devices.
- Configuration and compliance policies for BitLocker, Secure Boot, and features leveraging vTPM (Virtual Trusted Platform Module) are not supported at this time for Azure Virtual Desktop VMs
- User-targeted compliance configurations aren't supported
- Security Baselines are not supported on
- Only below configuration profile templates are supported
  - Trusted Certificate (Device)
  - SCEP Certificate (Device)
  - PKCS Certificate (Device)
  - VPN (Device Tunnel)
- Remote Actions not supported are below
  - Autopilot Reset
  - Bitlocker Key Rotation
  - Fresh Start
  - Remote Lock
  - Reset Password
  - Wipe

Questions?