

Gen5 to Gen6 Migration Prerequisites for Azure D & E Series VMs (Linux & Windows)

Source: Official Microsoft Learn Documentation
Last Updated: December 2025

1. Overview

This document provides **execution-ready** technical prerequisites and preparation steps for migrating Azure D and E Series Virtual Machines from v5 (Gen5) to v6 (Gen6). It is based on the official [General Purpose Sizes Migration Guide](#) from Microsoft Learn.

2. Recommended VM Size Mappings (v5 to v6)

Current VM Series (v5)	Target VM Series (v6)	Notes
Dv5, Dsv5, Ddsv5	Dsv6, Ddsv6	Intel-based, with/without local disk
Dasv5, Dadsv5	Dasv6, Dadsv6	AMD-based, with/without local disk
Ev5, Esv5, Edsv5	Esv6, Edsv6	Intel-based, with/without local disk
Easv5, Eadsv5	Easv6, Eadsv6	AMD-based, with/without local disk

Note: Use the [Azure VM size documentation](#) for detailed size mapping and specifications.

3. Critical v6 VM Requirements

3.1 Generation 2 VMs Only

- **v6 VMs support Generation 2 VMs only.** Generation 1 VMs are not supported.
- You can upgrade from Gen1 to Gen2 by [upgrading to Trusted Launch](#).

Check VM Generation:

```
# PowerShell
$vm = Get-AzVM -Name <vm-name> -ResourceGroupName <rg-name>
$vm.StorageProfile.OsDisk.OsType
$vm.StorageProfile.OsDisk.ManagedDisk
```

```
# Azure CLI
az vm show --name <vm-name> --resource-group <rg-name> --query "storageProfile"
```

3.2 NVMe Disk Controller Required

- **v6 VMs require NVMe disk controller** (not SCSI).
- You must use a [supported OS image tagged for NVMe](#).
- SCSI-based VMs cannot be directly resized to NVMe-only v6 sizes. Use the [SCSI to NVMe migration script](#).

Check Current Disk Controller Type:

```
# PowerShell
$vm = Get-AzVM -Name <vm-name> -ResourceGroupName <rg-name>
$vm.StorageProfile.DiskControllerType

# Azure CLI
az vm show --name <vm-name> --resource-group <rg-name> --query
"storageProfile.diskControllerType"
```

3.3 MANA (Microsoft Azure Network Adapter) Required

- **v6 VMs require MANA** for accelerated networking.
- Your OS must have MANA drivers installed.

3.4 Azure Disk Encryption (ADE) Limitations

- **Azure Disk Encryption (ADE) is NOT supported on v6 VMs with temporary/local disks:**
 - Affected sizes: Ddsv6, Dldsv6, Edsv6, Dadsv6, Dalldsv6, Eadsv6, Dpdsv6, Dpldsv6, Epdsv6, Endsv6
 - v6 VMs **without** local disks (Dsv6, Dasv6, Esv6, Easv6, etc.) may still support ADE — verify before migration.
- **ADE is retiring on September 15, 2028.** Microsoft recommends migrating to [Encryption at Host](#).
- **Alternatives:**
 - [Encryption at Host](#) — encrypts data on the VM host.
 - [Server-Side Encryption \(SSE\) with Customer-Managed Keys \(CMK\)](#) — Azure encrypts disks at rest using your keys.
 - Platform-Managed Keys (PMK) — default Azure encryption (always on).
- If migrating to a v6 size with local disks, you must migrate away from ADE **before** migration.

4. Supported Operating Systems

4.1 NVMe-Supported Linux Images

Distribution	Supported Versions
Ubuntu	18.04, 20.04, 22.04
RHEL	7.9, 8.6+, 9.0+

Distribution	Supported Versions
SLES	15 SP4+
Debian	11, 12
Oracle Linux	7.9, 8.5+, 9.0+
AlmaLinux	8.x, 9.x

Important: For Linux VMs using NVMe, set the kernel parameter `nvme_core.io_timeout=240` to ensure Azure's host-level timeout takes precedence.

4.2 NVMe-Supported Windows Images

OS Version
Windows Server 2019*
Windows Server 2022
Windows Server 2025
Windows 10
Windows 11

*Shared Disks on NVMe are not compatible with Windows Server 2019.

4.3 MANA-Supported Operating Systems

Linux:

- Ubuntu 22.04 LTS (linux-azure kernel >= 6.8.0-1033), 24.04 LTS
- SUSE Linux Enterprise Server 15 SP5+
- Debian 12, 13
- Oracle Linux 9.0 UEK R8
- RHEL 8.8, 8.10, 9.2, 9.4

Windows:

- Windows Server 2019, 2022, 2025

5. Pre-Migration Prerequisites Checklist

5.1 Azure Subscription & Quota

- ☐ Azure subscription is active.
- ☐ Verify sufficient quota for v6 VM sizes in target region:

```
az vm list-skus --location <region> --size Standard_D --output table
az vm list-skus --location <region> --size Standard_E --output table
```

- ☐ Request quota increase if needed via [Azure portal](#).

5.2 VM Configuration

- ☐ VM is Generation 2 (upgrade if Gen1).
- ☐ Disk controller type is NVMe (or plan for SCSI-to-NVMe migration).
- ☐ OS image is tagged as NVMe-supported.
- ☐ MANA drivers are present (for accelerated networking).
- ☐ No local temp disk mismatch (v6 may have different temp disk support).
- ☐ **If using Azure Disk Encryption (ADE):** If migrating to v6 with local disk (Ddsv6, Edsv6, etc.), plan migration to Encryption at Host or SSE with CMK. ADE is also retiring Sept 2028.

5.3 Backup & Recovery

- ☐ Full backup or snapshot of all VMs and disks before migration.
- ☐ Document current VM configurations (size, disks, NICs, extensions).

5.4 Networking

- ☐ Virtual Network (VNet) and Subnet configured.
- ☐ NSGs, UDRs, and firewalls reviewed for compatibility.
- ☐ Accelerated Networking enabled on NICs (required for v6).

5.5 Extensions & Agents

- ☐ Azure VM Agent (Linux/Windows) is latest version.
- ☐ Remove or update deprecated VM extensions.

5.6 Reserved Instances (if applicable)

- ☐ Review current RIs in [Azure Reservation Management](#).
- ☐ Exchange or trade-in RIs for v6 series if needed.

6. OS-Specific Preparation

6.1 Linux VMs

1. Check kernel version:

```
uname -r
```

- Kernel 5.15+ required for NVMe; 6.2+ recommended for full MANA/RDMA support.

2. Verify NVMe driver is present:

```
grep /mana*.ko /lib/modules/$(uname -r)/modules.builtin || find
/lib/modules/$(uname -r)/kernel -name mana*.ko*
```

3. **Ensure `/etc/fstab` uses UUIDs or device symlinks** (not `/dev/sdX` names, which change with NVMe).

4. **Set NVMe timeout parameter in GRUB:**

```
# Add to GRUB_CMDLINE_LINUX in /etc/default/grub:
nvme_core.io_timeout=240
# Then update GRUB
sudo update-grub # Debian/Ubuntu
sudo grub2-mkconfig -o /boot/grub2/grub.cfg # RHEL/CentOS
```

5. **Update Azure Linux Agent:**

```
waagent --version
sudo apt-get update && sudo apt-get install walinuxagent # Debian/Ubuntu
sudo yum update WALinuxAgent # RHEL/CentOS
```

6. **Ensure SSH access is functional and no pending reboots.**

6.2 Windows VMs

1. **Verify VM is Generation 2.**
2. **Apply all Windows Updates.**
3. **Verify Azure VM Agent is latest version.**
4. **Ensure RDP access is functional and no pending reboots.**
5. **If using Azure Disk Encryption (ADE/BitLocker):**
 - ADE is **not supported** on v6 VMs with local/temporary disks (Ddsv6, Edsv6, etc.).
 - ADE is retiring September 2028. Consider migrating to [Encryption at Host](#) or SSE with CMK.

7. Migration Execution Steps

Step 1: Identify Target VM Size

- Use the mapping table above and [Azure VM size documentation](#).

Step 2: Check Regional Availability

```
az vm list-skus --location <region> --size <target-size> --output table
```

Step 3: Stop (Deallocate) the VM

```
az vm deallocate --name <vm-name> --resource-group <rg-name>
```

Step 4: (If needed) Convert SCSI to NVMe

- Use the [Azure-NVMe-Conversion.ps1](#) script:

```
.\Azure-NVMe-Conversion.ps1 -ResourceGroupName <rg> -VMName <vm> -  
NewControllerType NVMe -VMSize <target-size> -StartVM -  
FixOperatingSystemSettings
```

- You can revert to SCSI if needed:

```
.\Azure-NVMe-Conversion.ps1 -ResourceGroupName <rg> -VMName <vm> -  
NewControllerType SCSI -VMSize <original-size> -StartVM
```

Step 5: Resize the VM

```
az vm resize --name <vm-name> --resource-group <rg-name> --size <target-size>
```

Or via Azure Portal: VM > Size > Select v6 size > Resize.

Step 6: Start the VM

```
az vm start --name <vm-name> --resource-group <rg-name>
```

Step 7: Validate

- Confirm new size in Azure Portal.
- Verify OS boots correctly.
- Check disk controller type is NVMe:

```
# Linux  
nvme list  
ls /dev/disk/azure/
```

```
# Windows  
wmic diskdrive get model,scsilogicalunit
```

8. Limitations & Considerations

Limitation	Details
Azure Disk Encryption (ADE)	ADE is not supported on v6 VMs with local/temporary disks (Ddsv6, Edsv6, Dadsv6, Eadsv6, etc.). ADE is also retiring Sept 2028 — consider Encryption at Host.
Local temp disk mismatch	Cannot resize from a VM with local temp disk to one without (or vice versa) directly. Use snapshot/restore workaround.
SCSI to NVMe	Cannot directly resize SCSI-based VM to NVMe-only v6 size. Use migration script.
Trusted Launch VMs	VMs with Trusted Launch cannot move from SCSI to NVMe.

9. Post-Migration Validation Checklist

- ☐ VM size is correct (v6 series).
- ☐ Disk controller type is NVMe.
- ☐ OS boots and applications run correctly.
- ☐ Network connectivity is functional.
- ☐ Accelerated Networking is enabled.
- ☐ Backup/snapshot policy re-enabled.
- ☐ Monitoring and alerts configured.

10. Outlook: v7 Series (Preview)

Azure v7 series VMs are currently in **public preview** and represent the next generation after v6.

What's New in v7

Aspect	v7 (Preview)	v6 (GA)
Processor	AMD EPYC 9005 "Turin" (5th Gen)	AMD EPYC 9004 "Genoa" (4th Gen)
Max vCPUs	Up to 160 vCPUs	Up to 96–128 vCPUs
Max Memory	Up to 1280 GiB (E-series)	Up to 768–1024 GiB
Max Boost Frequency	Up to 4.5 GHz	~3.7 GHz

v7 Prerequisites — Same as v6

The migration prerequisites for v7 are **identical to v6**:

- ☒ **Generation 2 VMs only** (Gen1 not supported)
- ☒ **NVMe disk controller required**
- ☒ **MANA network adapter required**
- ☒ **ADE restrictions apply to VMs with local/temp disks** (same pattern as v6)

v7 Limitations (Preview-Specific)

- ⚠ **No SLA** — Preview features are not covered by production SLAs.
- ⚠ **Limited regional availability** — Check [Azure Products by Region](#).
- ⚠ **On-demand capacity reservations** — v7 not yet supported.
- ⚠ **Subject to change** — Features and specifications may change before GA.

Recommendation

- Plan your migration path to **v6 first** (GA, fully supported).
- Monitor v7 GA announcements if you need higher vCPU counts (>128) or want the latest AMD Turin performance.
- When v7 reaches GA, migration from v6 → v7 should be straightforward (same prerequisites).

11. References

- [General Purpose Sizes Migration Guide](#)
- [Azure VM Sizes](#)
- [NVMe Overview](#)
- [NVMe FAQ](#)
- [Supported OS Images for NVMe](#)
- [SCSI to NVMe Migration \(Linux\)](#)
- [MANA Overview](#)
- [Generation 2 VMs](#)
- [Resize a VM](#)
- [Azure Reservation Management](#)
- [Azure Disk Encryption Restrictions \(Windows\)](#)
- [Azure Disk Encryption Restrictions \(Linux\)](#)
- [Encryption at Host](#)

Disclaimer: Always test the migration process in a non-production environment before executing in production. Review all official Microsoft Learn documentation for the latest guidance.