SOP-AZ-004_Azure_Tenant_to_Tenant_VM_Migration_v1.0

Standard Operating Procedure: Azure Tenant-to-Tenant VM Migration

Document ID:	SOP-AZ-004
Title:	Azure Tenant-to-Tenant VM Migration
Category:	Azure/Cloud
Version:	1.0
Status:	Draft
Author:	OberaConnect
Creation Date:	2026-01-12
Approval Date:	Pending

1.0 Purpose

This procedure documents the complete workflow for migrating virtual machines between Azure tenants, including OS disk migration via VHD export/import and data migration via robocopy. This is commonly used for tenant consolidation, vendor handoff, or infrastructure reorganization.

2.0 Scope

This SOP applies to: - Windows Server VM migrations between Azure tenants - Domain Controller migrations requiring AD preservation - File server migrations with NTFS permissions - OberaConnect technicians performing Azure infrastructure work

3.0 Definitions

Term	Definition
Source Tenant	Original Azure tenant containing the VM to be migrated
Destination Tenant	Target Azure tenant where VM will be rebuilt
VHD	Virtual Hard Disk - Azure disk format
Managed Disk	Azure-managed storage disk attached to VMs
SAS Token	Shared Access Signature for secure blob access
AzCopy	Microsoft command-line utility for Azure storage operations
Robocopy	Robust File Copy - Windows tool for large data transfers

4.0 Roles & Responsibilities

Role	Responsibility
Destination Tenant Admin	Prepare infrastructure, receive VHDs, build new VM
Source Tenant Admin	Export OS VHD, provide access for data sync
Network Admin	Ensure connectivity between tenants for data transfer
Project Manager	Coordinate cutover timing, communicate with stakeholders

5.0 Prerequisites

5.1 Source Tenant Requirements

- ☐ Admin access to source Azure portal (or vendor coordination)
- ☐ Remote access to source VM (NinjaOne, RDP, or similar)
- ☐ Source VM in stopped/deallocated state for VHD export
- ☐ Network connectivity from source to destination for robocopy

5.2 Destination Tenant Requirements

- ☐ Azure subscription with sufficient quota
- ☐ Azure CLI or PowerShell Az module installed
- ☐ Storage account for VHD import
- ☐ VNet and subnet planned for new VM
- ☐ File server or staging location for data sync (if applicable)

5.3 Information Required

- ☐ Source VM size and configuration
- ☐ Source OS disk size
- ☐ Source data disk(s) size and content
- ☐ Domain information (if Domain Controller)
- ☐ Network configuration (IP, DNS, gateway)
- ☐ Admin credentials for source VM

6.0 Procedure

Phase 1: Data Sync via Robocopy

Run this phase BEFORE OS VHD export to minimize downtime

6.1 Prepare Staging Location in Destination Tenant On destination file server or VM:

```
# Create staging folder
New-Item -Path "F:\Backup" -ItemType Directory -Force

# Verify available space
Get-PSDrive F | Select-Object Used, Free
```

6.2 Connect to Source VM Via NinjaOne, RDP, or Azure Bastion: 1. Open remote session to source VM 2. Open CMD or PowerShell as Administrator

6.3 Map Network Drive to Destination

On source VM:

```
# Map drive to destination file server
net use Y: \\<DESTINATION_SERVER>\F$ /user:<DOMAIN>\Administrator <PASSWORD>

# Or via IP if DNS not configured
net use Y: \\<DEST_IP>\F$ /user:<DOMAIN>\Administrator <PASSWORD>

# Verify mapping
dir Y:\
```

6.4 Run Initial Robocopy Sync

```
robocopy E:\ Y:\Backup /MIR /COPYALL /DCOPY:T /MT:32 /R:3 /W:5 /B /XD "System Volume Information" "$REC
```

Parameters: | Switch | Purpose | |———|———| | `/MIR` | Mirror directories (full sync with deletions) | | `/COPYALL` | Copy all file attributes including ACLs | | `/DCOPY:T` | Copy directory timestamps | | `/MT:32` | Multi-threaded (32 threads) | | `/R:3` | Retry 3 times on failure | | `/W:5` | Wait 5 seconds between retries | | `/B` | Backup mode (bypass file security) | | `/XD` | Exclude directories | | `/LOG` | Write log file | | `/TEE` | Output to console and log | | `/NP` | No progress percentage |

Estimated time: 6-12 hours for ~400GB depending on network speed

6.5 Monitor Progress

On source VM:

```
type C:\Logs\robocopy_initial.log | more
```

On destination:

```
# Monitor data arrival
Get-ChildItem F:\Backup -Recurse | Measure-Object -Property Length -Sum

# Count files
(Get-ChildItem F:\Backup -Recurse -File).Count
```

Phase 2: Prepare Destination Infrastructure

Run while data sync is in progress

6.6 Create Resource Group

```
az group create \
  --name RG-Migration-<CUSTOMER> \
  --location eastus
```

6.7 Create Virtual Network

```
az network vnet create \
  --resource-group RG-Migration-<CUSTOMER> \
  --name VNet-<CUSTOMER> \
  --address-prefix 10.0.0.0/16 \
  --subnet-name VM-Subnet \
  --subnet-prefix 10.0.1.0/24
```

6.8 Create Network Security Group

```
# Create NSG
az network nsg create \
  --resource-group RG-Migration-<CUSTOMER> \
  --name NSG-VM

# Add RDP rule
az network nsg rule create \
  --resource-group RG-Migration-<CUSTOMER> \
  --nsg-name NSG-VM \
  --name AllowRDP \
  --priority 100 \
  --destination-port-ranges 3389 \
  --protocol Tcp \
  --access Allow

# Add additional rules as needed (DNS, LDAP, SMB for DCs)
```

6.9 Create Storage Account for VHD Import

```
# Create storage account
az storage account create \
  --name <CUSTOMER>migration \
  --resource-group RG-Migration-<CUSTOMER> \
  --location eastus \
  --sku Standard_LRS

# Create container
az storage container create \
  --account-name <CUSTOMER>migration \
  --name vhd-import \
  --auth-mode login

# Generate SAS token for source tenant to upload
az storage container generate-sas \
  --account-name <CUSTOMER>migration \
  --name vhd-import \
  --permissions racwdl \
  --expiry $(date -u -d "7 days" '+%Y-%m-%dT%H:%MZ') \
  --auth-mode login \
  --as-user \
  --output tsv
```

Save the SAS token to provide to source tenant admin!

Phase 3: Export and Transfer OS VHD

Coordinate with source tenant admin

6.10 Source Tenant Actions (Vendor/Partner) Source tenant admin will: 1. Stop/deallocate source VM 2. Create snapshot of OS disk 3. Export snapshot to VHD 4. Transfer VHD to destination storage using AzCopy

```
# Example command source admin runs
azcopy copy \
  "https://source-storage.blob.core.windows.net/snapshots/os-disk.vhd?<SOURCE_SAS>" \
  "https://<CUSTOMER>migration.blob.core.windows.net/vhd-import/os-disk.vhd?<DEST_SAS>"
```

6.11 Verify VHD Upload

```
az storage blob list \
  --account-name <CUSTOMER>migration \
  --container-name vhd-import \
  --output table \
  --auth-mode login
```

6.12 Create Managed Disk from OS VHD

```
# Get VHD URL
VHD_URL=$(az storage blob url \
  --account-name <CUSTOMER>migration \
  --container-name vhd-import \
  --name os-disk.vhd \
  --auth-mode login \
  --output tsv)

# Create OS managed disk
az disk create \
  --resource-group RG-Migration-<CUSTOMER> \
  --name <CUSTOMER>-OS-Disk \
  --location eastus \
  --sku Premium_LRS \
  --source "$VHD_URL" \
  --os-type Windows
```

Wait 10-20 minutes for disk creation.

Phase 4: Create Data Disk

Only after robocopy sync is complete

6.13 Verify Robocopy Completion On source VM, check robocopy log shows completion summary:

```
               Total    Copied   Skipped  Mismatch    FAILED    Extras
    Dirs :      XXXX      XXXX         0         0         0         0
   Files :     XXXXX     XXXXX         0         0         0         0
```

6.14 Option A: Create VHD from Synced Data On destination file server:

```
# Calculate required size
$dataSize = (Get-ChildItem F:\Backup -Recurse | Measure-Object -Property Length -Sum).Sum
$vhdSizeGB = [Math]::Ceiling($dataSize / 1GB) + 100
Write-Host "Creating VHD of size: $vhdSizeGB GB"

# Create VHD
New-VHD -Path "C:\Temp\data-disk.vhdx" -SizeBytes ($vhdSizeGB * 1GB) -Dynamic
```

```powershell
# Mount and format
$vhd = Mount-VHD -Path "C:\Temp\data-disk.vhdx" -Passthru
$disk = Initialize-Disk -Number $vhd.Number -PartitionStyle GPT -PassThru
$partition = New-Partition -DiskNumber $disk.Number -UseMaximumSize -AssignDriveLetter
Format-Volume -DriveLetter $partition.DriveLetter -FileSystem NTFS -NewFileSystemLabel "Data"

# Copy data
$driveLetter = $partition.DriveLetter
robocopy F:\Backup "${driveLetter}:\" /E /COPYALL /DCOPY:T /MT:16 /LOG:C:\Logs\vhd-copy.log

# Dismount
Dismount-VHD -Path "C:\Temp\data-disk.vhdx"
```

6.15 Upload Data VHD to Azure

```
azcopy copy \
  "C:\Temp\data-disk.vhdx" \
  "https://<CUSTOMER>migration.blob.core.windows.net/vhd-import/data-disk.vhd" \
  --blob-type PageBlob
```

6.16 Create Data Managed Disk

```
DATA_VHD_URL=$(az storage blob url \
  --account-name <CUSTOMER>migration \
  --container-name vhd-import \
  --name data-disk.vhd \
  --auth-mode login \
  --output tsv)

az disk create \
  --resource-group RG-Migration-<CUSTOMER> \
  --name <CUSTOMER>-Data-Disk \
  --location eastus \
  --sku Standard_LRS \
  --source "$DATA_VHD_URL"
```

6.17 Option B: Create Empty Disk (Copy Data Later)

```
az disk create \
  --resource-group RG-Migration-<CUSTOMER> \
  --name <CUSTOMER>-Data-Disk \
  --location eastus \
  --sku Standard_LRS \
  --size-gb 500
```

Phase 5: Build New VM

6.18 Create Network Interface

```
# Create public IP
az network public-ip create \
  --resource-group RG-Migration-<CUSTOMER> \
  --name <CUSTOMER>-PIP \
  --allocation-method Static \
```

```
  --sku Standard

# Create NIC
az network nic create \
  --resource-group RG-Migration-<CUSTOMER> \
  --name <CUSTOMER>-NIC \
  --vnet-name VNet-<CUSTOMER> \
  --subnet VM-Subnet \
  --network-security-group NSG-VM \
  --public-ip-address <CUSTOMER>-PIP \
  --private-ip-address 10.0.1.4
```

6.19 Create VM from Managed Disks PowerShell Method (Recommended):

```
$resourceGroup = "RG-Migration-<CUSTOMER>"
$location = "eastus"
$vmName = "<CUSTOMER>-VM"
$vmSize = "Standard_D2s_v3"

$osDisk = Get-AzDisk -ResourceGroupName $resourceGroup -DiskName "<CUSTOMER>-OS-Disk"
$dataDisk = Get-AzDisk -ResourceGroupName $resourceGroup -DiskName "<CUSTOMER>-Data-Disk"
$nic = Get-AzNetworkInterface -Name "<CUSTOMER>-NIC" -ResourceGroupName $resourceGroup

$vmConfig = New-AzVMConfig -VMName $vmName -VMSize $vmSize
$vmConfig = Set-AzVMOSDisk -VM $vmConfig -ManagedDiskId $osDisk.Id -CreateOption Attach -Windows
$vmConfig = Add-AzVMDataDisk -VM $vmConfig -ManagedDiskId $dataDisk.Id -Lun 0 -CreateOption Attach
$vmConfig = Add-AzVMNetworkInterface -VM $vmConfig -Id $nic.Id -Primary

New-AzVM -ResourceGroupName $resourceGroup -Location $location -VM $vmConfig
```

Azure CLI Method:

```
OS_DISK_ID=$(az disk show -g RG-Migration-<CUSTOMER> -n <CUSTOMER>-OS-Disk --query id -o tsv)
DATA_DISK_ID=$(az disk show -g RG-Migration-<CUSTOMER> -n <CUSTOMER>-Data-Disk --query id -o tsv)
NIC_ID=$(az network nic show -g RG-Migration-<CUSTOMER> -n <CUSTOMER>-NIC --query id -o tsv)

az vm create \
  --resource-group RG-Migration-<CUSTOMER> \
  --name <CUSTOMER>-VM \
  --attach-os-disk $OS_DISK_ID \
  --attach-data-disks $DATA_DISK_ID \
  --nics $NIC_ID \
  --os-type Windows \
  --size Standard_D2s_v3
```

6.20 Start VM and Get Connection Info

```
az vm start -g RG-Migration-<CUSTOMER> -n <CUSTOMER>-VM

# Get public IP
az network public-ip show -g RG-Migration-<CUSTOMER> -n <CUSTOMER>-PIP --query ipAddress -o tsv
```

Phase 6: Post-Migration Configuration

6.21 Initial Connection

```
mstsc /v:<PUBLIC_IP>
```

Login with original domain or local admin credentials.

6.22 Verify Disks

```
Get-Disk
Get-Volume

# Bring data disk online if needed
Set-Disk -Number 1 -IsOffline $false

# Assign drive letter if needed
Get-Partition -DiskNumber 1 | Set-Partition -NewDriveLetter F
```

6.23 Verify Services (Domain Controller)

```
# Check AD services
Get-Service NTDS, DNS, Netlogon, W32Time | Format-Table Name, Status

# Verify domain
Get-ADDomain

# Check FSMO roles
netdom query fsmo

# Run DC diagnostics
dcdiag /v
```

6.24 Configure DNS

```
$adapter = Get-NetAdapter | Where-Object {$_.Status -eq "Up"}
Set-DnsClientServerAddress -InterfaceIndex $adapter.InterfaceIndex -ServerAddresses ("127.0.0.1", "8.8.8
ipconfig /registerdns
```

6.25 Final Delta Sync (If Needed) If time elapsed since initial sync, run final robocopy:

```
robocopy \\<SOURCE>\E$ F:\ /MIR /COPYALL /DCOPY:T /MT:32 /R:1 /W:1 /LOG:C:\Logs\final_sync.log /TEE
```

7.0 Verification & Quality Checks

- ☐ VM boots successfully
- ☐ Can RDP to VM via public IP
- ☐ OS disk accessible (C:)
- ☐ Data disk accessible (F: or assigned letter)
- ☐ All data present and accessible
- ☐ Services running (AD, DNS if applicable)
- ☐ Network connectivity working
- ☐ DNS resolution working
- ☐ File shares accessible (if file server)
- ☐ Users can authenticate (if DC)
- ☐ Backup configured for new VM

8.0 Troubleshooting

Issue	Resolution
VHD upload fails	Check SAS token expiry, verify blob type is PageBlob
Disk creation fails	Ensure VHD is in same region as target disk
VM won't boot	Check boot diagnostics, may need to run startup repair
Data disk offline	Run `Set-Disk -Number X -IsOffline $false`
Can't RDP	Check NSG rules allow 3389, verify public IP assigned
AD services won't start	Check DNS configuration, run `dcdiag /fix`
File permissions lost	Re-run permission scripts, verify robocopy used /COPYALL

9.0 Related Documents

Document	Description
SOP-AZ-001	Azure VM Administration
SOP-AZ-005	Azure VHD Export and Import
SOP-AD-003	Azure VM Domain Join/Unjoin

10.0 Revision History

Version	Date	Author	Change Description
1.0	2026-01-12	OberaConnect	Initial document creation

11.0 Approval

Name	Role	Signature	Date
	Technical Lead Operations Manager		