

PHASE 11: Disaster Recovery (DR) & Backup Strategy

Implementation

Build and test a complete disaster recovery (DR) and backup solution just like a real-world enterprise. Ensure your core infrastructure (AD, M365, VMs, BitLocker, Intune, etc.) can be restored quickly and securely in case of failure.

This phase includes:

- Tier-based backup planning
 - VM image backups using Veeam
 - Microsoft 365 and Intune export strategies
 - BitLocker recovery key testing
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I. Backup Planning – Real-World Structure

Define Backup Tiers:

Tier	Asset Scope	Examples
Tier 1	Core Infra	DC01 (AD), CA01 (CA), FS01, VPN-Server, JumpBox
Tier 2	Cloud Apps	Microsoft 365 – Exchange Online, SharePoint, Intune configs
Tier 3	Endpoints	BitLocker keys, device configs, Jamf, Snipe-IT
Tier 4	Docs	Diagrams, PowerShell scripts, configuration notes

Frequency Plan

Tier	Frequency
Tier 1	Daily snapshots + weekly full Veeam backups
Tier 2	Weekly config export + mailbox/SharePoint download
Tier 3	Monthly device export + BitLocker CSV dump

Tier 4 After every project phase completion

Storage Plan

Primary: D:\Backups on local Hyper-V/Windows external disk

Secondary: Azure Blob Storage (Free tier)

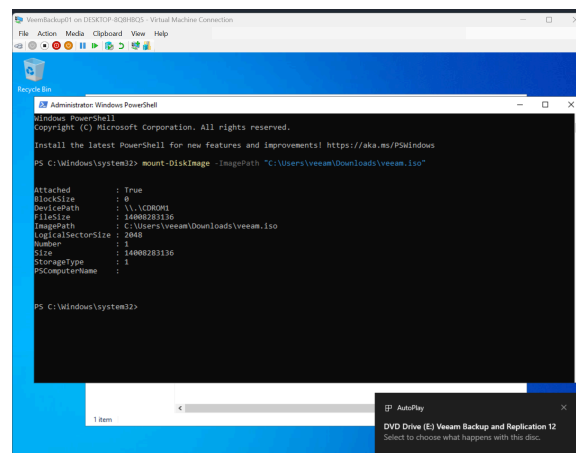
Tertiary: Encrypted .zip files stored in OneDrive

II. On-Prem VM Backup – Veeam Community Edition

Actions Completed:

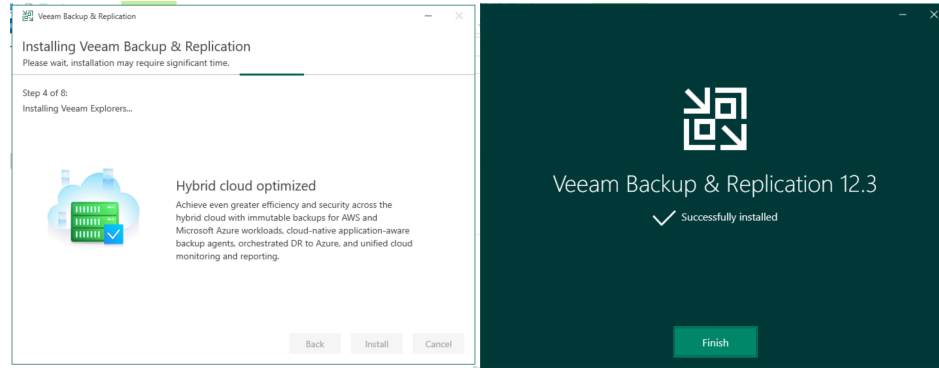
- Install & Configure Veeam
 - VM/PC: Use Windows 11 or Windows Server 2022 VM named VeemBackup01
 - Download: <https://www.veeam.com/virtual-machine-backup-solution-free.html>
 - Mount via PowerShell
 - Open PowerShell as Administrator.
 - Run the following command to mount the ISO:

Mount-DiskImage -ImagePath "C:\path\to\your\veeam.iso"



- Opened the mount drive and install the Veeam.

- Select components (Veeam Backup & Replication) and Install.



- Open Veeam Console
 - IP address: 192.168.68.95(VM IP) and Default Port: 9392
 - Use Domain Administrator Credential

🔴 Error: "No connection could be made because the target machine actively refused it 192.168.68.93."

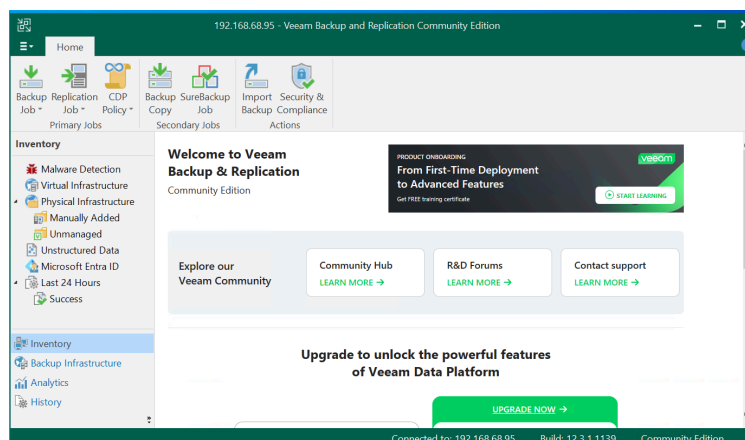
✅ Resolution: Verify Veeam Services After Installation

After installation, open Services ([services.msc](#)) again on VeeamBackup01 and check if the following Veeam Backup services appear:

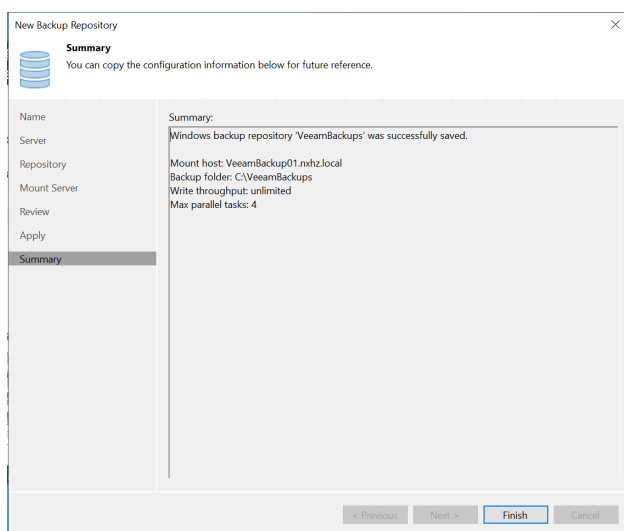
- Veeam Backup Service
- Veeam Backup Catalog Service
- Veeam Backup Manager

If the services are present, right-click on each one and select Start to ensure they are running properly.

And then, tried again connecting.



- Add Backup Repository
 - Select Backup Infrastructure > Add Repository > Direct Attached Storage > Microsoft Windows
 - Name: VeeamBackups
 - Server: VeeamBackup01.nxhz.local (BackupSever)
 - Create folder: C:\VeeamBackups
 - Remaining Default Settings



● Error:

"No connection could be made because the target machine actively refused it" while using PowerShell.

✓ Resolution:

Run PowerShell on your physical device:

```
Set-VMProcessor -VMName VeeamBackup01 -ExposeVirtualizationExtensions $true
```

And then try again adding Hyper-V from Add Roles and Features.

- Add Hyper-V Host
 - Connect your Hyper-V Server from Veeam Console

- Select VMs to back up:
 - DC01 (AD Domain Controller)
 - CA01 (Certificate Authority)
 - FS01 (File Server)
 - JumpBox
 - VPN-Server
- Create Backup Job
 - Daily @ 8PM
 - Retention: 7 Days
 - Backup Type: Forward Incremental

New Backup Job

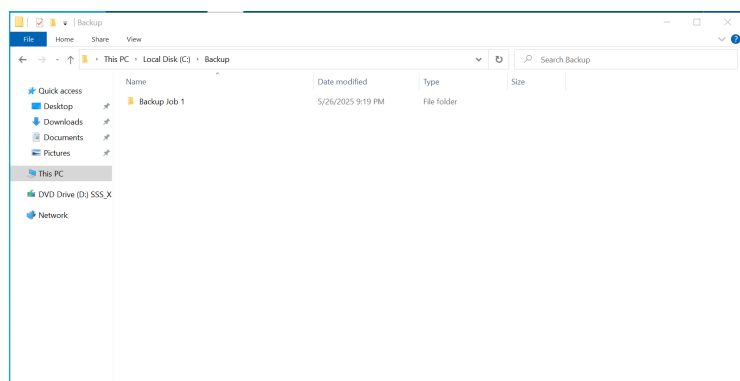
Summary
You have successfully created the new backup job.

Name	Summary:
Virtual Machines	Configuration has been successfully saved. Name: Backup Job 1 Target Path: C:\Backup
Storage	Type: Hyper-V Backup Source items: 192.168.68.195 (192.168.68.195)
Guest Processing	Target repository: Default Backup Repository Target repository host: VeeamBackup01.nahz.local
Schedule	Target repository path: C:\Backup
Summary	PowerShell cmdlet for starting the job: Get-VBRJob -Name "Backup Job 1" Start-VBRJob

☐ Run the job when I click Finish

< Previous Next > Finish Cancel

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III. Microsoft 365 Tenant Backup

Actions Completed:

- Exchange Online Mailbox Export
 - Use Outlook (user1@dipeshcorp.onmicrosoft.com) → File → Import & Export → Export to file → .PST
 - Optional: Use PowerShell:

`Search-MailboxAuditLog -StartDate (Get-Date).AddDays(-30) -ResultSize 1000`
 - SharePoint / OneDrive Backup
 - Sync company SharePoint library using OneDrive desktop sync tool
 - Zip and copy libraries manually every week to backup drive
 - Intune Configuration Export
 - Use Microsoft Graph Explorer or PowerShell SDK

`Get-IntuneDeviceConfigurationPolicy | Export-Clixml .\IntunePolicies.xml`
 - Entra ID Config Backup
 - Use Entra Exporter:

`entra-exporter export --directory ./entra-export --tenant-id dipeshcorp.onmicrosoft.com`
 - SaaS Backup Tools (Trial)
 - Veeam for M365 → install on same VeeamBackup01 for cloud mailbox testing
 - Can restore to .PST or inject mailbox to new user
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IV. BitLocker Recovery Key Protection

Actions Completed:

Validate Escrow to AD (GPO Method)

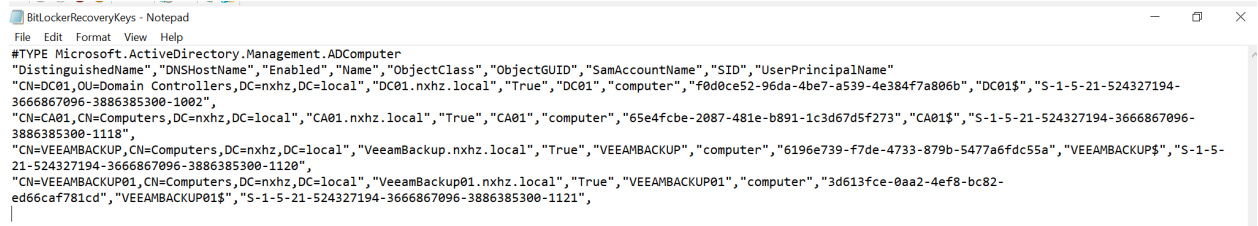
1. On workstation: Open Active Directory Users & Computers
2. Right-click PC → Properties → BitLocker Recovery → View Key

Manual Export

- Use PowerShell:

`Get-ADComputer -Filter * -Properties 'msFVE-RecoveryPassword' | Export-Csv .\BitLockerRecoveryKeys.csv`

- Store securely on encrypted USB and OneDrive Vault



```
BitLockerRecoveryKeys - Notepad
File Edit Format View Help
#TYPE Microsoft.ActiveDirectory.Management.ADComputer
"DistinguishedName","DNSHostName","Enabled","Name","ObjectClass","ObjectGUID","SamAccountName","SID","UserPrincipalName"
"CN=DC01,OU=Domain Controllers,DC=nxhz,DC=local","DC01.nxhz.local","True","DC01","computer","f8d0ce52-96da-4be7-a539-4e384f7a806b","DC01$","S-1-5-21-524327194-3666867096-3886385300-1002",
"CN=CA01,CN=Computers,DC=nxhz,DC=local","CA01.nxhz.local","True","CA01","computer","65e4fcbe-2087-481e-b891-1c3d67d5f273","CA01$","S-1-5-21-524327194-3666867096-3886385300-1118",
"CN=VEEAMBACKUP,CN=Computers,DC=nxhz,DC=local","VeeamBackup.nxhz.local","True","VEEAMBACKUP","computer","6196e739-f7de-4733-879b-5477a6fdc55a","VEEAMBACKUP$","S-1-5-21-524327194-3666867096-3886385300-1120",
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