

Datto Endpoint Backup

# Domain Controller Backup & Recovery Guide

Using Windows Server Backup (wbadmin) + Datto EPBv2

Applicable to: Windows Server 2016, 2019, 2022

## Overview

Datto Endpoint Backup v2 (EPBv2) provides reliable, cloud-based backup for Windows and Mac endpoints. However, due to the current lack of support for **symbolic links**, Active Directory Domain Controllers cannot be fully restored using the EPBv2 agent alone. This guide explains a two-part strategy that combines **Windows Server Backup (wbadmin)** for system-state and bare-metal recovery with **EPBv2** for file-level backup and offsite cloud retention of the resulting backup files.

### Important: Current Limitation

EPBv2 does not currently support symbolic links. Domain Controllers rely heavily on symlinked paths within the SYSVOL and NTDS directory structures, which means EPBv2 cannot be used as the sole recovery mechanism for a DC. This guide provides a supported workaround until native DC restore support is available.

## Solution Architecture

The recommended approach uses two complementary tools:

- 1. Windows Server Backup (wbadmin)** — Creates a system state or full bare-metal backup of the Domain Controller to a local or network path. This captures Active Directory, SYSVOL, registry, and boot files in a format Windows recognizes for authoritative and non-authoritative restores.
- 2. Datto EPBv2** — Backs up the wbadmin output folder (the .vhd/.vhdx backup set) to the Datto Cloud. This provides offsite retention, versioning, and the ability to recover the wbadmin backup files even after local storage loss.

Property	Value
Backup method	Windows Server Backup (wbadmin)

<b>Backup output</b>	Local path or network share (.vhd / .vhdx)
<b>Cloud retention</b>	Datto EPBv2 backs up the wadmin output folder
<b>Recovery type</b>	System State (AD-only) or Bare Metal Recovery (BMR)
<b>Supported OS</b>	Windows Server 2016, 2019, 2022
<b>Frequency</b>	Daily recommended; align with EPBv2 backup schedule

## Prerequisites

- Windows Server Backup feature installed on the Domain Controller
- A dedicated local folder or network share with sufficient storage for backup sets (minimum 2x the size of the NTDS database + SYSVOL)
- Datto EPBv2 agent installed and registered on the Domain Controller
- EPBv2 backup policy configured and active
- Administrator privileges on the Domain Controller
- PowerShell execution policy allows running scripts (optional, for automation)

### Storage Sizing Tip

wadmin system state backups typically range from 10-30 GB. Full bare-metal backups include the OS volume and will be significantly larger. Retain at least 3 backup versions locally to allow rollback. EPBv2 will retain additional versions in the Datto Cloud per your policy settings.

## Part 1: Back Up the Domain Controller with wadmin

### Step 1 — Install Windows Server Backup

If not already installed, add the Windows Server Backup feature from PowerShell (run as Administrator):

<code>Install-WindowsFeature Windows-Server-Backup</code>
<code># Verify installation</code>
<code>Get-WindowsFeature Windows-Server-Backup</code>

### Step 2 — Create a Backup Destination Folder

Create a dedicated folder to store wadmin backup files. This folder will later be included in the EPBv2 backup policy.

<code># Example: Create the backup target directory</code>
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<code>New-Item -ItemType Directory -Path 'D:\DCBackups\wbadmin'</code>
<code># If using a network share, ensure the account running wbadmin has write access</code>
<code># net use \\fileserv\DCBackups /user:DOMAIN\BackupSvcAcct P@ssw0rd</code>

### Step 3 — Run a System State Backup

A **System State backup** captures Active Directory, SYSVOL, the registry, and the COM+ Class Registration database — everything required to restore a DC without reinstalling Windows. Run the following from an elevated command prompt:

<code>wbadmin start systemstatebackup -backupTarget:D:\DCBackups\wbadmin -quiet</code>
--

To run a Full Server (Bare Metal Recovery) backup instead — which includes the OS, boot partition, and all volumes — use:

<code>wbadmin start backup ^</code>
<code>-backupTarget:D:\DCBackups\wbadmin ^</code>
<code>-systemState ^</code>

#### System State vs. Bare Metal

**System State:** Faster, smaller backup. Restores AD/SYSVOL without reinstalling the OS. Requires a running Windows installation.

**Bare Metal Recovery (BMR):** Full disk image. Allows restore to bare hardware or a new VM. Recommended for disaster recovery scenarios.

### Step 4 — Schedule Automated Backups

Use the Windows Task Scheduler to run wbadmin on a regular schedule. The example below creates a daily task at 11:00 PM:

<code># Create a scheduled task for daily system state backup</code>
<code>\$action = New-ScheduledTaskAction -Execute 'wbadmin.exe' `</code>
<code>-Argument 'start systemstatebackup -backupTarget:D:\DCBackups\wbadmin</code>
<code>-quiet'</code>
<code>\$trigger = New-ScheduledTaskTrigger -Daily -At '11:00PM'</code>
<code>\$principal = New-ScheduledTaskPrincipal -UserId 'SYSTEM' -LogonType ServiceAccount</code>
<code>-RunLevel Highest</code>
<code>Register-ScheduledTask -TaskName 'DC-SystemStateBackup' `</code>

<code>-Action \$action -Trigger \$trigger -Principal \$principal `</code>
<code>-Description 'Daily Domain Controller System State Backup via wbadmin'</code>

### Timing Recommendation

Schedule the wbadmin backup to complete before the EPBv2 backup window begins. This ensures EPBv2 always captures the latest wbadmin output. For example: wbadmin at 11:00 PM, EPBv2 at 1:00 AM.

## Step 5 — Verify the Backup

After each backup, verify it completed successfully:

<code># List all available system state backups</code>
<code>wbadmin get versions</code>
<code># Check the Windows Server Backup event log</code>
<code>Get-WinEvent -LogName 'Microsoft-Windows-Backup'   Select-Object -First 20   Format-List</code>

You should see a version entry with a recent date and "Backup target: D:\DCBackups\wbadmin". Confirm the .vhd or .vhdx files are present in the target directory:

<code>Get-ChildItem 'D:\DCBackups\wbadmin' -Recurse -Include *.vhd,*.vhdx  </code>
<code>Sort-Object LastWriteTime -Descending   Select-Object -First 10</code>

## Part 2: Include the Backup Set in Datto EPBv2

Once wbadmin is writing backups to a local folder, make sure that EPBv2 has no exclusions for that the path of the folder, and it will be automatically included in the next backup.

### Note on Backup Size

wbadmin backup sets can be large (10 GB+ for system state, 60 GB+ for full server). Ensure your EPBv2 policy retention and storage quota account for this. Consider setting a dedicated EPBv2 retention policy for this device if needed.

## Step 3 — Verify EPBv2 Is Capturing the Folder

1. After previous steps and EPBv2 has backed up the folder, navigate to the **EPBv2 dashboard** for the asset, and view the restore point.

2. Browse the backup tree and confirm the **DCBackups\wbadmin** folder is visible and the .vhd / .vhdx files are present.

## Part 3: Restoring a Domain Controller

There are two restore scenarios, depending on the extent of the failure.

### Scenario A — OS is intact; restore Active Directory only (Non-Authoritative)

Use this when the OS is running but Active Directory is corrupt or an accidental object deletion has occurred.

3. **Boot into Directory Services Restore Mode (DSRM)**. Restart the DC, press F8 at boot, and select **Directory Services Restore Mode**.
4. Log in with the DSRM administrator account.
5. Open an elevated Command Prompt and run:

# List available backup versions
wbadmin get versions -backupTarget:D:\DCBackups\wbadmin
# Restore using the version identifier from the output above
wbadmin start systemstaterecovery ^
-version:<MM/DD/YYYY-HH:MM> ^
-backupTarget:D:\DCBackups\wbadmin ^
-authSysvol

6. When prompted, type **YES** to confirm the restore.
7. After completion, **restart the Domain Controller normally**. Active Directory will replicate with other DCs in the domain.

### Scenario B — Full hardware or OS failure (Bare Metal Recovery)

Use this when the Domain Controller's OS disk has failed or the server needs to be rebuilt on new hardware.

8. **Recover the wbadmin backup files from EPBv2**. Log in to the **EPBv2 portal**, locate the last known-good snapshot of the DC, and restore the **DCBackups\wbadmin** folder to a recovery location (local disk or network share).
9. Boot the target server from **Windows Server Installation Media**.

10. At the install screen, select **Repair your computer > Troubleshoot > System Image Recovery**.
11. When prompted, point to the recovered backup path (the folder restored from EPBv2 in step 1).
12. Follow the Windows Server Backup recovery wizard to complete the bare metal restore.
13. After the restore completes, boot normally and **verify Active Directory replication** with:

<code>repadmin /replsummary</code>
<code>repadmin /showrepl</code>
<code>dcdiag /test:replications</code>

### Important: Authoritative vs. Non-Authoritative Restore

Non-Authoritative (default): The DC restores from backup and then replicates in changes from other DCs. Use this when other DCs are healthy.

Authoritative: Use when ALL DCs need to be rolled back (e.g., domain-wide AD corruption). Add the `-authSysvol` flag and, if needed, run `ntdsutil` to mark objects as authoritative before rebooting. Consult Microsoft documentation for this advanced scenario.

## Troubleshooting

Issue	Resolution
<b>wbadmin reports error 0x80780166</b>	The backup target disk is too small or is the same disk as the source. Use a separate volume or network share.
<b>wbadmin backup hangs or times out</b>	Check VSS writer status: <code>vssadmin list writers</code> . Restart any writers in a failed state. Restart the Volume Shadow Copy service if needed.
<b>EPBv2 backup of the DC folder is very slow</b>	Large VHD files are expected. Consider adjusting EPBv2 bandwidth throttling settings or scheduling during off-hours.
<b>Restore fails: 'No backup found at location'</b>	Verify the path passed to <code>wbadmin</code> matches the folder restored from EPBv2. The <code>WindowsImageBackup</code> subfolder must be present.
<b>Active Directory not replicating after restore</b>	Run <code>dcdiag</code> and <code>repadmin /replsummary</code> . Ensure DNS is resolving correctly. If replication is blocked, check firewall rules between DCs.

## Best Practices & Recommendations

- **Test your restore regularly.** Run a full restore drill to a test VM at least once per quarter. Verifying recovery before an incident is the single most valuable investment you can make.
- **Keep at least 3 local wbadmin versions.** This provides rollback options if the most recent backup is corrupt.

- **Monitor backup job status.** Configure Windows Event Log alerts or a monitoring tool to alert on wbadmin failures (Event ID 4 in the Microsoft-Windows-Backup log).
- **Align schedules.** Always complete the wbadmin job before the EPBv2 backup window opens.
- **Document the DSRM password.** Store it securely in your password manager. It is required for DSRM logins during recovery and does not sync with normal AD credentials.
- **Use a dedicated backup volume.** Do not back up to the OS drive. Use a separate disk, partition, or network share.
- **Watch for EPBv2 symbolic link support.** Once EPBv2 adds native symbolic link support, a direct agent-based DC restore will become possible. Monitor Datto release notes for this capability.

## Appendix: Quick Reference Commands

### Run a system state backup

```
wbadmin start systemstatebackup -backupTarget:D:\DCBackups\wbadmin -quiet
```

### Run a full (bare metal) backup

```
wbadmin start backup -backupTarget:D:\DCBackups\wbadmin -include:C: -allCritical -systemState -vssFull -quiet
```

### List available backup versions

```
wbadmin get versions -backupTarget:D:\DCBackups\wbadmin
```

### Restore system state (non-authoritative)

```
wbadmin start systemstaterecovery -version:<MM/DD/YYYY-HH:MM> -backupTarget:D:\DCBackups\wbadmin
```

### Restore system state (authoritative SYSVOL)

```
wbadmin start systemstaterecovery -version:<MM/DD/YYYY-HH:MM> -backupTarget:D:\DCBackups\wbadmin -authSysvol
```

### Check AD replication health post-restore

```
repadmin /replsummary  
repadmin /showrepl  
dcdiag /test:replications
```

### Check VSS writer status

```
vssadmin list writers
```

**Document Information**

Product: Datto Endpoint Backup v2 (EPBv2)

Scope: Domain Controller Backup & Recovery

Audience: MSP Technicians, IT Administrators

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*Note: This workaround is required until EPBv2 adds native symbolic link support for DC restores.*