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## Resetting Changed Block Tracking (CBT)

<https://campus.barracuda.com/doc/93198330/>

A VMware backup receives warnings similar to the following:

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```
Unable to use Changed Block Tracking (CBT) on _____. Attempting to disable and re-enabled CBT.
```

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```
Could not re-enable Changed Block Tracking (CBT) on _____. Any thin disks on this VM will be backed up as thick disks.
```

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### Explanation

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The Backup Agent uses VMware's Changed Block Tracking (CBT) driver to determine which parts of a virtual machine's virtual hard disks to back up. If the Backup Agent is unable to read the changed blocks from the driver, it will try to re-enabled the CBT driver to reset tracking. If this cannot be done, you will receive the error noted above and all virtual hard disks will be backed up as thick disks.

Intronis does not accept responsibility for any changes you make to your VMware environment. If following these steps does not resolve problems with CBT, we recommend you contact VMware support for assistance.

### Resolution

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#### Manually Resetting CBT

If the Backup Agent is unable to reset CBT during the backup, it will likely necessitate you reset CBT manually while the virtual machine is offline. The procedure for doing this is as follows (as adapted from [this VMware article](#)):

1. Open the vSphere client.
2. Right-click the virtual machine you want to reset CBT for and click **Power Off**.
3. Right-click the virtual machine again, go to **Snapshot** and click on **Snapshot Manager....** If you see any active snapshots, [consolidate them](#) before moving on to the next step.
4. Right-click the virtual machine and click on **Edit Settings...**
5. Click the **Options** tab, go to the **General** section, then click on the **Configuration Parameters** button.
6. Disable CBT for the virtual machine by setting the `ctkEnabled` value to `false`.
7. Disable CBT for individual virtual disks attached to the virtual machine by setting the `scsiox.x.ctkEnabled` value for each attached virtual disk to `false`. In `scsiox.x.ctkEnabled`, the first `x` represents the SCSI controller ID and the second `x` represents the SCSI device ID of each virtual disk.
8. Open the virtual machine's working directory using the Datastore Browser or ESXi shell. For help locating the working directory, [see this resource](#).
9. Make sure there are no snapshot files (`.delta.vmdk`) present in the virtual machine's working directory. If you see any, follow the [directions here](#) to remove them.
10. Delete any `-CTK.VMDK` files in the virtual machine's working directory.
11. Right-click the virtual machine and choose **Power On**.  
The Backup Agent tries to re-enable CBT the next time a backup runs. This process is usually successful after manually resetting CBT, but if you'd like to re-enable it yourself, you can do so with [these instructions](#).

### Resetting CBT With PowerCLI

These instructions are adapted from [this VMware article](#). The PowerCLI script for resetting CBT for a specific virtual machine is:

```
$vm="VM_Name"

$vmtest = Get-vm $vm | get-view
$vmConfigSpec = New-Object VMware.Vim.VirtualMachineConfigSpec

#disable ctk
$vmConfigSpec.changeTrackingEnabled = $false
$vmtest.reconfigVM($vmConfigSpec)
$snap=New-Snapshot $vm -Name "Disable CBT"
$snap | Remove-Snapshot -confirm:$false

# enable ctk
$vmConfigSpec.changeTrackingEnabled = $true
$vmtest.reconfigVM($vmConfigSpec)
$snap=New-Snapshot $vm -Name "Enable CBT"
$snap | Remove-Snapshot -confirm:$false
```

To reset CBT on multiple virtual machines, use the script and directions [found here](#).

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