

July, 30, 2012
Jeremy Li

Credit: Batman Premiere at LA Live with Nimble Storage, VMware, Softchoice and Veeam - Super Powers in the Datacenter, July 27, 2012

Veeam - www.veeam.com

Veeam Version: 6.1.0.181 Setup:

I. Download a trial version by clicking on the link below:

<http://www.veeam.com/vm-backup-recovery-replication-software.html?ad=home> and follow the on screen instruction, as shown in some screenshots below:

Download

By downloading Veeam Backup & Replication for VMware and Hyper-V you agree with the [Veeam End User Software License Agreement](#).

Veeam Backup & Replication for VMware and Hyper-V

PRODUCT	TRIAL KEY	RELEASE NOTES	DOWNLOAD
Veeam Backup & Replication 6.1 for VMware	Expiration date: August 29, 2012 Send via email License sent	Release Notes June 4, 2012	Version: 6.1.0.181 Download 32 bit Download 64 bit Size: 456.86 MB Alt. download Size: 512.04 MB Alt. download
Veeam Backup & Replication 6.1 for Hyper-V	FREE 30-day trial key	Release Notes June 4, 2012	

Veeam Backup & Replication

Service Settings

Specify Veeam Backup & Replication service settings.

Enter the user name in the DOMAIN\USERNAME format. The supplied user account must have database owner rights to the Veeam Backup & Replication database on the VEEAM SQL Server instance, and Full Control NTFS permissions on the catalog folder.

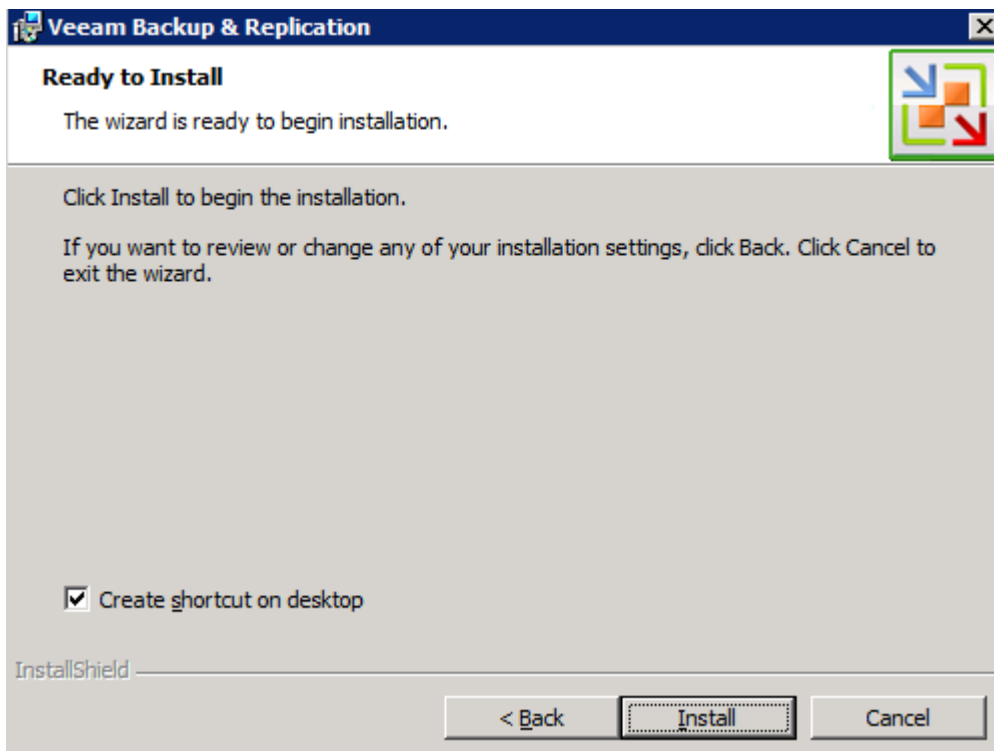
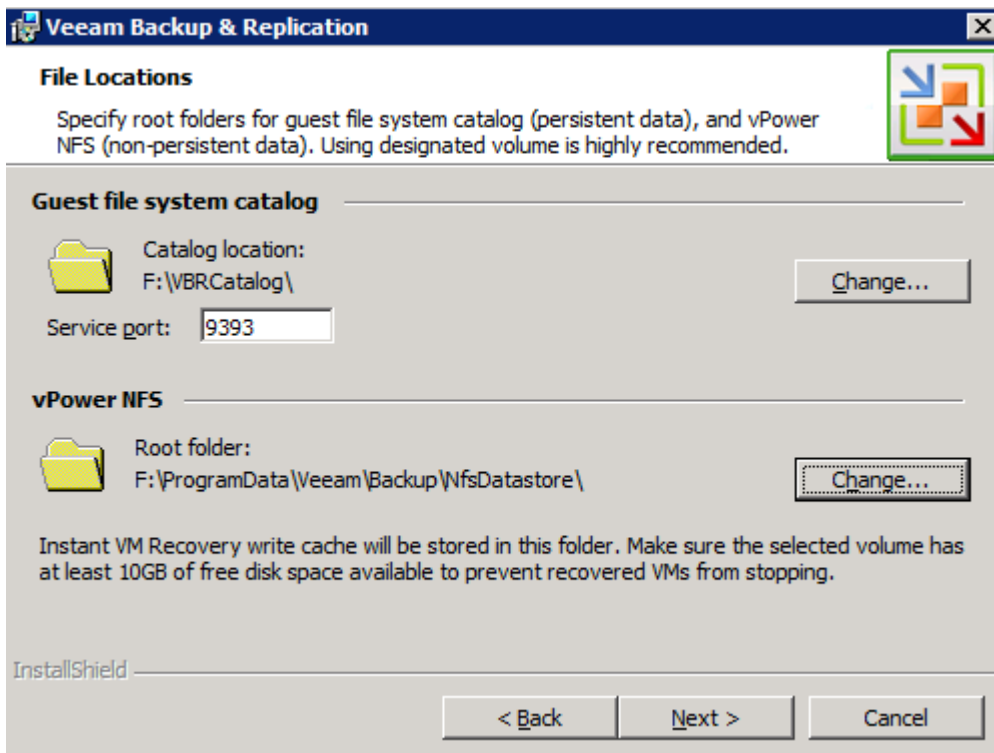
User name: [Yellowed Out] Browse...

Password: [Masked]

Port: 9392

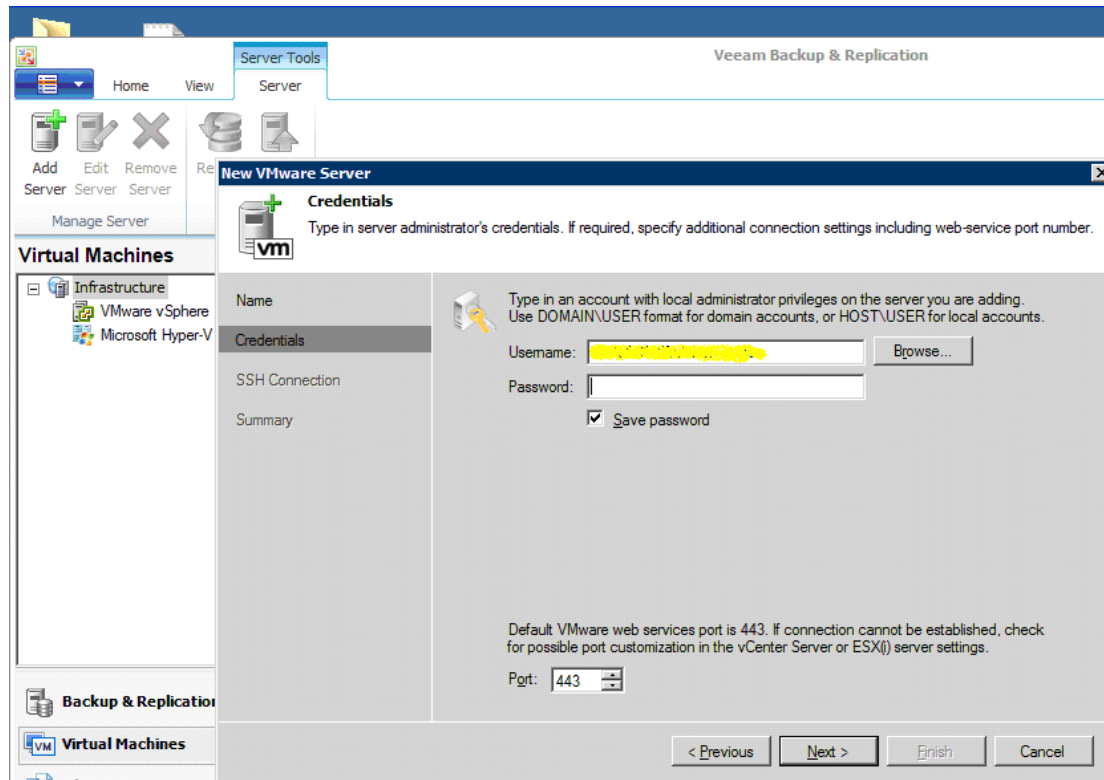
InstallShield

< Back Next > Cancel



Click **"Install"** button to start the installation.
The end of the installation – Success!

Add a new VM server:



Note: Using account “Root” as a username since the VMware Host is not a part of the domain.

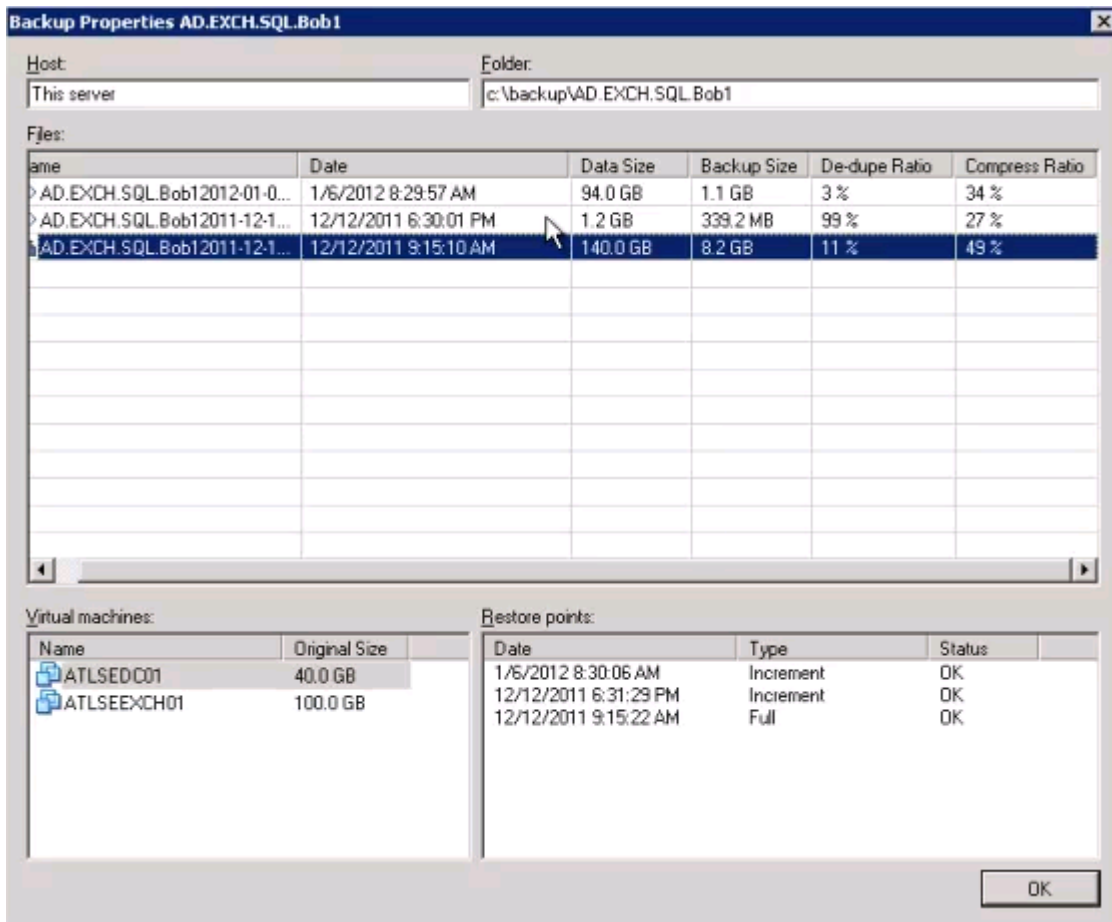
Veeam recommends:

- Join a VMware host into a domain so that many servers will not be required for an additional authentication
- If two VMware hosts are installed, the v-Center should be installed because the v-Center can continue to manage failed-over VMs.

That's the end of downloading and installation, including adding a new VM into the Veeam Server for a protection!

Additional Reading:

The following notes taken from watching a Full VMware Demo - <http://dl.dropbox.com/u/61607552/Full%20Demo.mp4>



One DC + One Exchange in single backup set

- At 9:15:10AM backup: With full backup of both DC and Email server and with De-dupe ratio at 11%, 89% of white space (000...000...000) with 124.6GB size ($89\% \times 140\text{GB}$) has been removed since it does not make any sense to backup all zeros, 8.2GB backup size was created.
- At 6:30.01 PM backup, 1.2GB worth of changed data was backed up. Since one DC has no change, most data came from new emails. Therefore, there is almost no duplicated info to be removed. As a result, only 1% duplicated info is removed, but 27% compress occurs on this changed backup. The backup size is only **339.2MB**, which is a huge disk space savings.

Note: The original 140GB data is reduced to 8.2GB as back up file size. This will greatly reduce the WAN replication bandwidth.

Edit Backup Job

Guest Processing
Choose additional processing options available for Microsoft Windows guests.

Name

Virtual Machines

Storage

Guest Processing

Schedule

Summary

☐ **Enable application-aware image processing**
Quiesces applications using Microsoft VSS to ensure transactional consistency, performs transaction logs processing, and prepares application-specific VSS restore procedure.

☒ **Enable guest file system indexing**
Creates catalog of guest files to enable browsing, searching and 1-click restores of individual files. Indexing is optional, and is not required to perform instant file level recoveries.

Guest OS credentials
Specify the account with local administrator privileges on all VMs included in this job. Username must be supplied in the DOMAIN\USERNAME format.

Username:

Password:

Click Advanced to customize guest processing options for individual VMs.

Edit Backup Job

Storage
Specify processing proxy server to be used for source data retrieval, backup repository to store the backup files produced by this job and customize advanced job settings if required.

Name

Virtual Machines

Storage

Guest Processing

Schedule

Summary

Backup proxy:

Backup repository:

Capacity: 100.0 GB

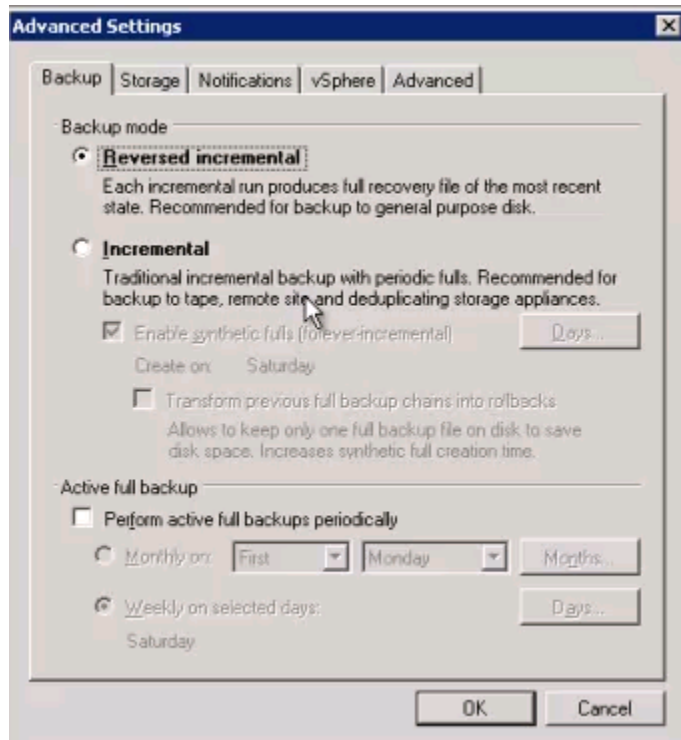
Free space: 46.1 GB

Retention policy
Restore points to keep on disk:

Advanced job settings include backup mode, compression and deduplication, block size, notification settings, automated post-job activity and other options.

Restore points are the frequency how often I want to run a backup job **multiply** by retention period. For example, 30 times a month, 420 points will be created

(30*14 days). For every hour backup for 30 days, $24 * 30 * 14 = 10080$ restore points will be created.



Reversed incremental:

Create one full backup, then, forever incremental backups. For example, if it is configured on August 1, 2012 for one month backup, the full backup occurs on Aug. 1, 2012, then, daily backups will be created as incremental until Sept. 1, 2012 - one full backup will be created again.

The advantage of the reversed incremental is to save disk space due to single full backup being used monthly.

Incremental:

Best scenario is for off-site backup. For example, on Monday, one full backup is created and an incremental backup is created from Tuesday to Friday. A Saturday Full backup is created by incorporating with all incremental backups from M-F to create a new full synthetic backup for an off-site archiving purpose.

The disadvantage of the **Incremental backup** is to consume large disk space due to multiple full backups being used weekly.

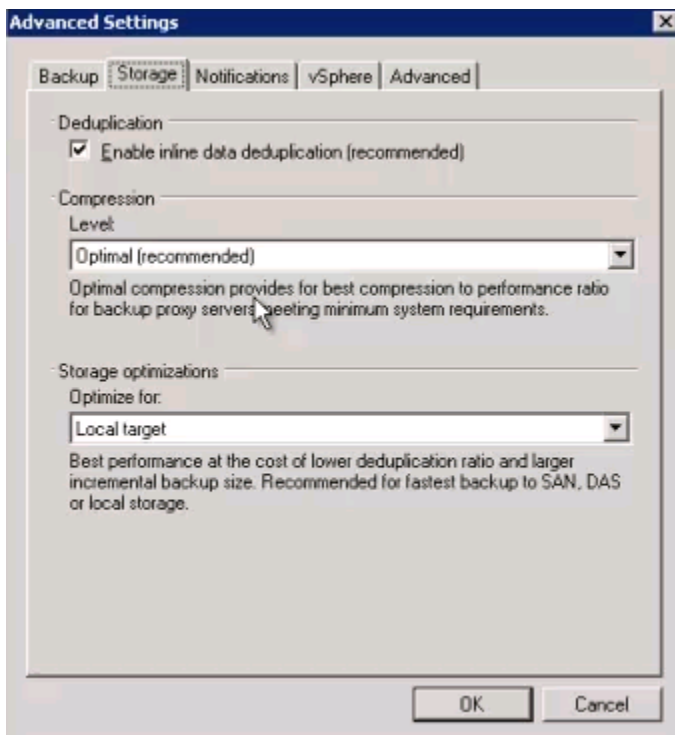
In order to reduce the disk space consumption, check the box, as shown below to keep single copy of full backup on the network or backup server:

- ☒ Transform previous full backup chains into rollbacks
Allows to keep only one full backup file on disk to save disk space. Increases synthetic full creation time.

Active full backup:

If an agency requires a weekly active full backup due to an existing policy, the option can be chosen.

Advanced Settings:



Compression ratio:

None:	if a de-dupe appliance is being used
Optimal:	5:1
Low:	2:1
Best:	10:1

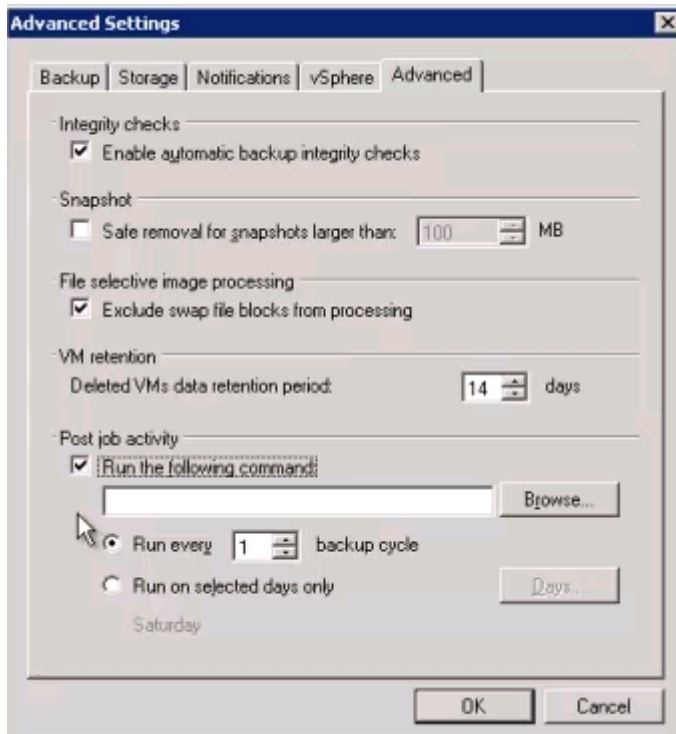


If you have a third party SNMP program listening to those notifications after the job completion, check the box of “Enable SNMP notification for this job”.

Changed block tracking:



This feature comes from VMware. However, by default, it is turned off. If you have version 7 or later, turn on this feature to speed up the backup perform by up to 10 times.

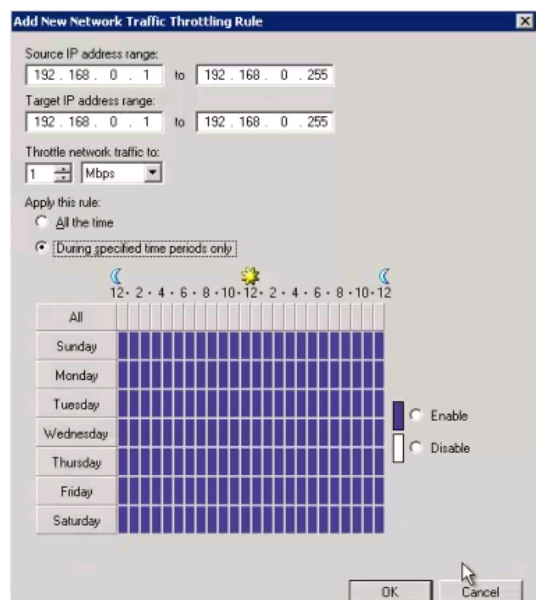


The end of the setup!

Backup:

a. Network Throttling

Click “Tool” and “Traffic Throttling”



to control the network traffic.

b. Re-IP Table

Primary and DR sites' IP addresses are different.

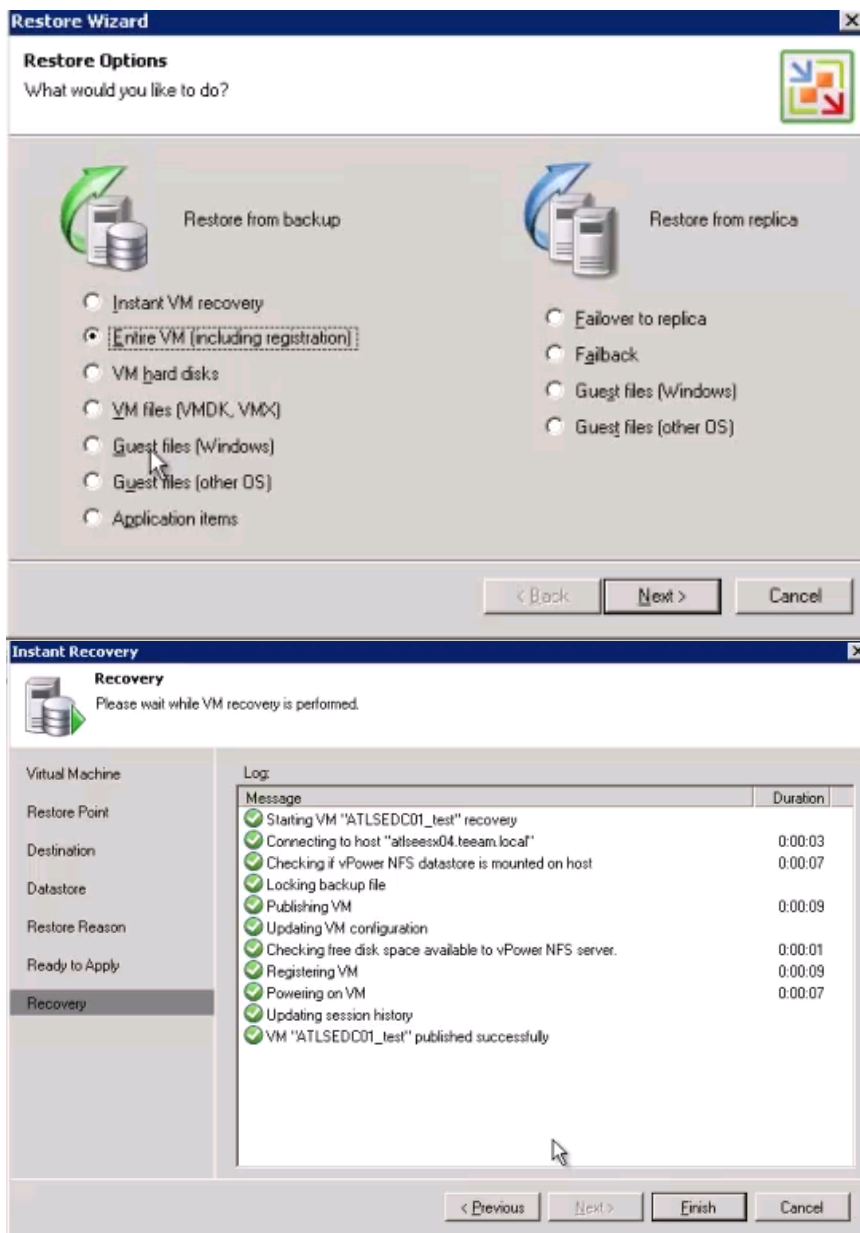
(<http://www.veeam.com/KB1522>)

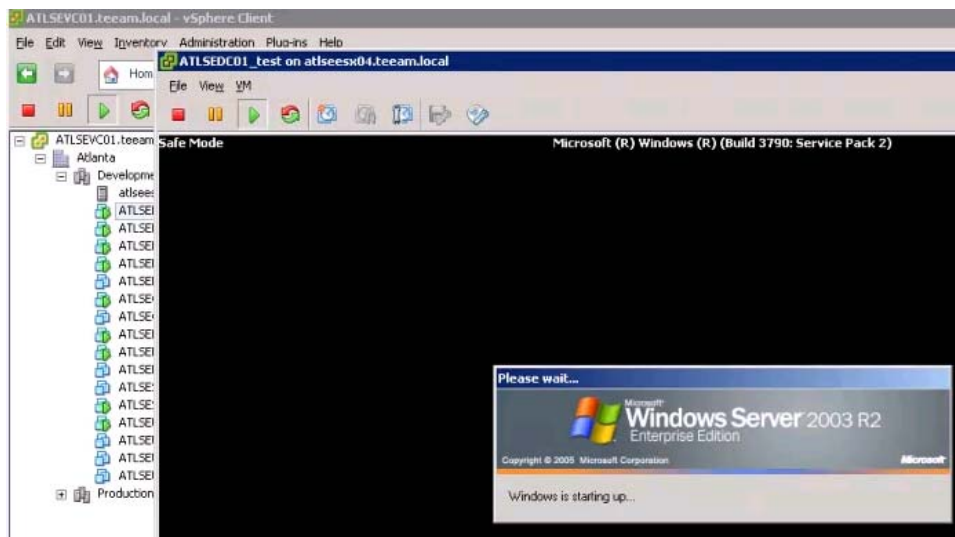
Watch Replication video for details:

<http://dl.dropbox.com/u/61607552/Replication.mp4>

c. More other features – to be continued...

Restore:



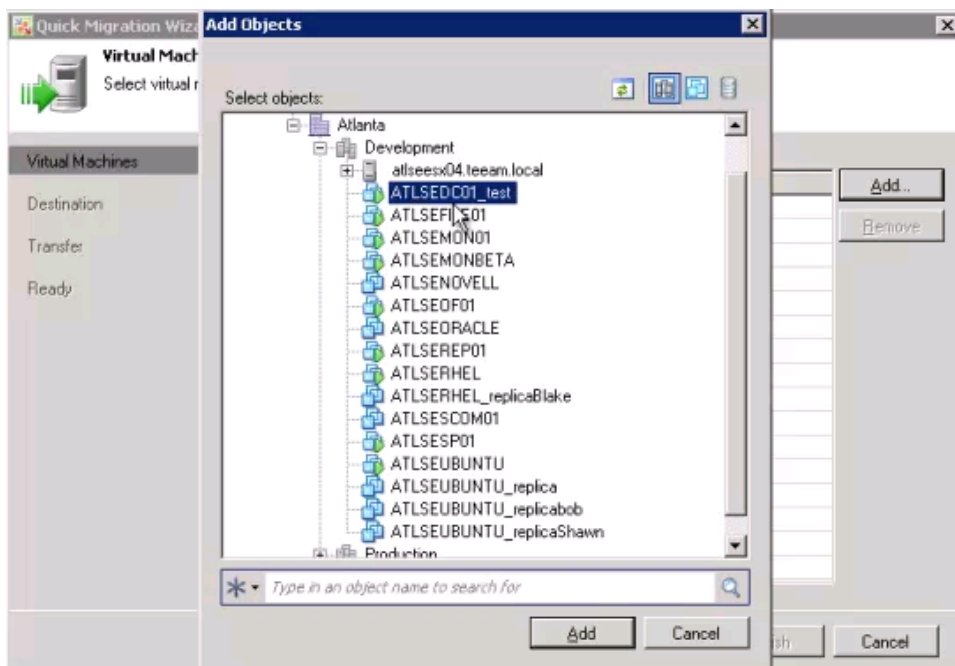


Due to a Domain Controller (DC), it will start with a safe mode first, then, shut down and restart.

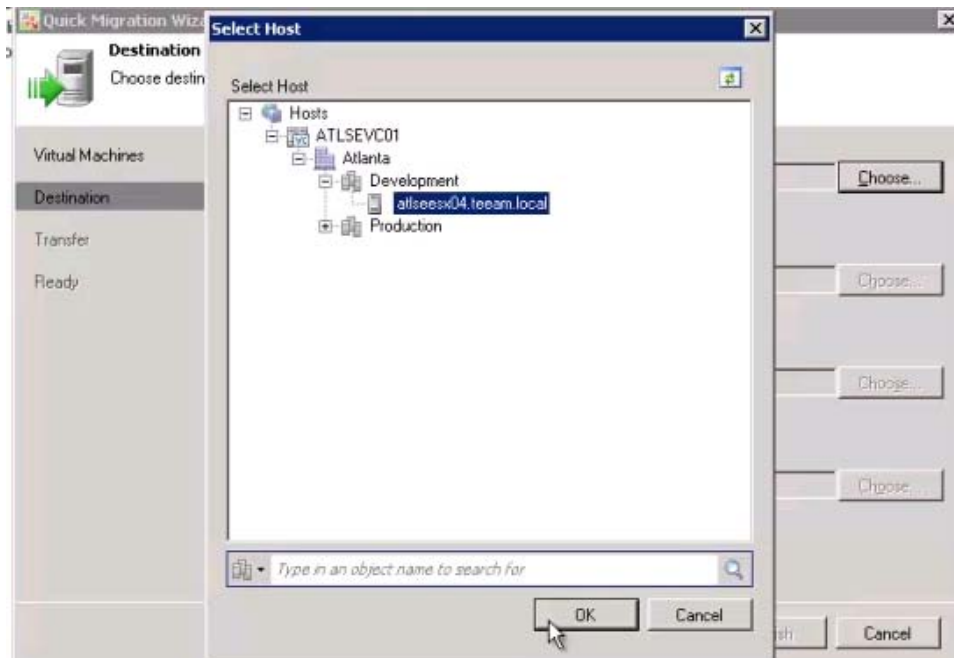
Due to this DC running from a backed up file from a restored device with compressed and de-dupe turned on as a temp solution – as instant VM, the performance will be slower. It is acting like a spare tire for the time being. It gets business running and achieves “BCP” purpose.

Migration (New feature in Version 6)

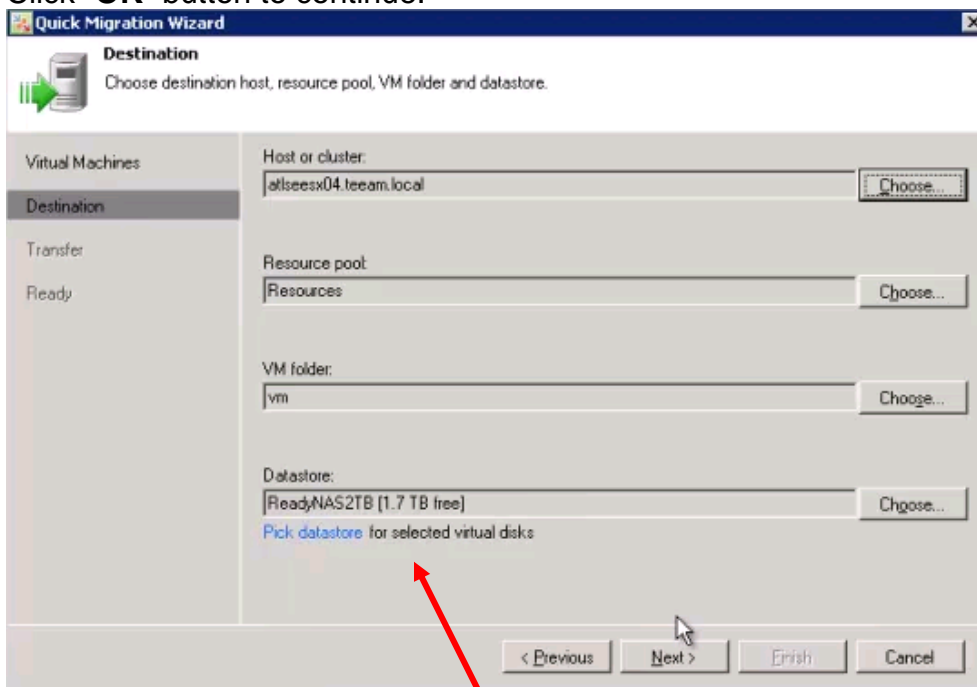
1. Add the instant VM to a production DC by clicking “**Add**” button:



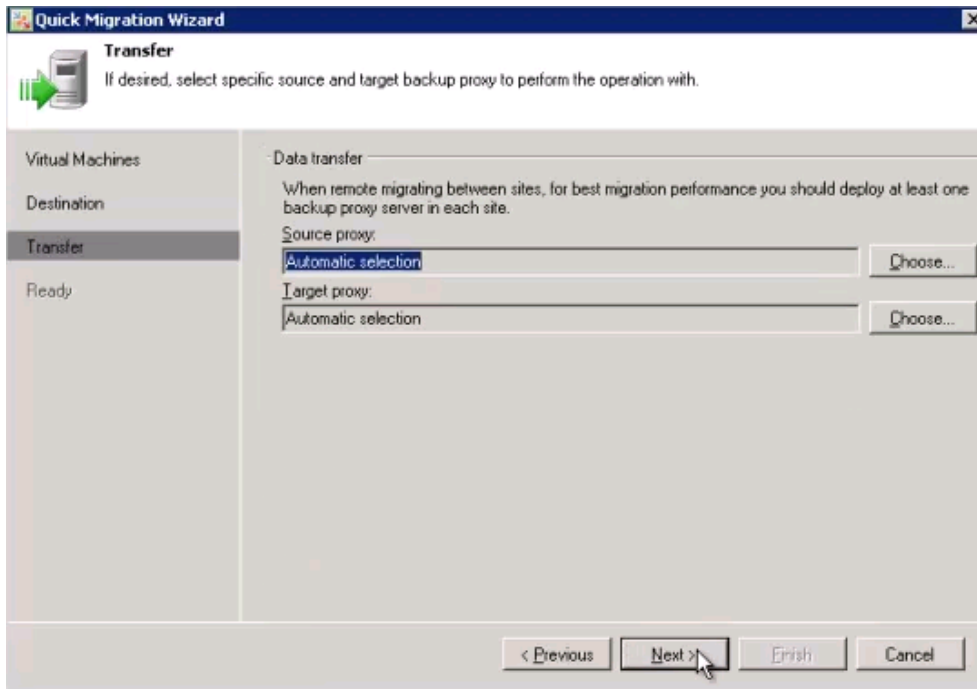
Then, move it to the production by clicking “**Browse**” button, as shown below:



Click “**OK**” button to continue.



Choose where is the production Datastore

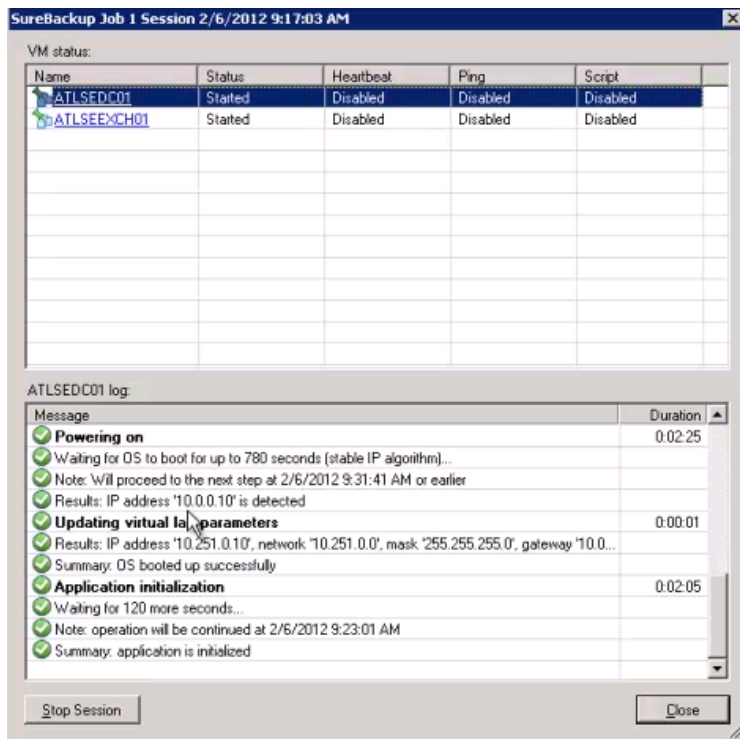
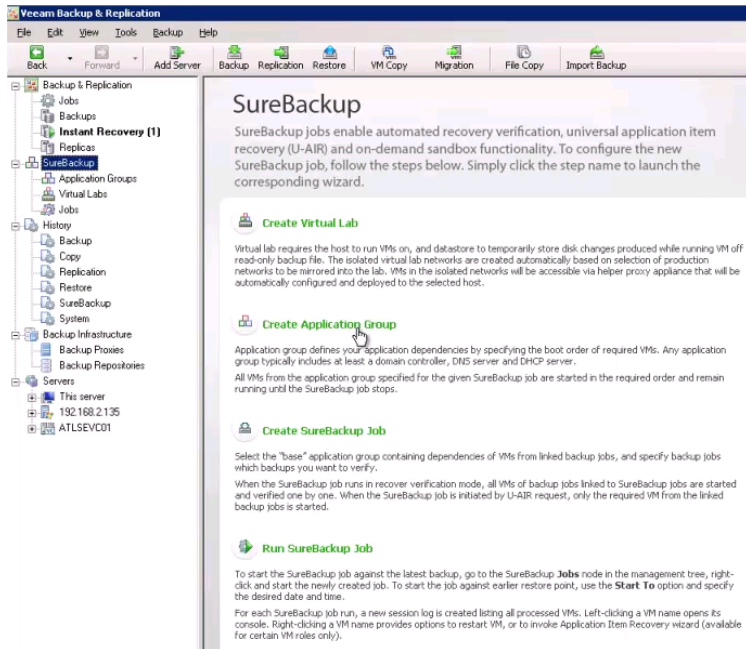


Click **"Next"** button to move the instant VM into a production VM (DC).

Note: While the instant VM is running, the production VM will extract this instant VM from the backup file into the production VM and merge all changes stored in the cache file located on the backup server into the production VM without touching the original backed up file serving as an instant VM for the time being. When the instant VM is turned off, the changed files will also be deleted without affecting the original backed up file.

Additional features:

1. SureBackup



The DC IP Address 10.0.0.10 and a masqueraded IP address 10.251.0.10 are separate by a proxy (firewall).

The big advantages for testing something inside of a virtual lab:

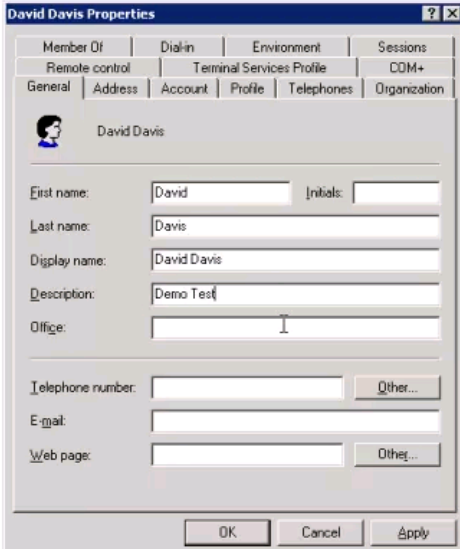
- Testing the old backup (in this case, a DC)
- Testing for the updates and the patches
- Testing for a new installed application

Don't risk a production VM. Testing, testing and testing.

2. Application Item (Active Directory Item Recovery)

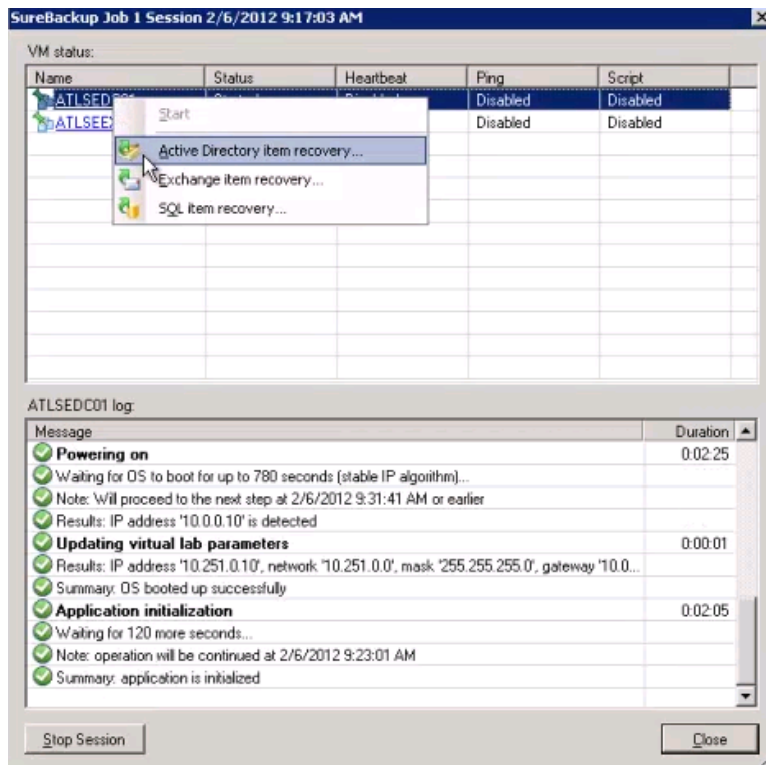
- a. A user David Davis has a description (attribute) as Trainer extortionate in the old backup.
- b. Now, change it to "Demo test".

Name	Type	Description
Carol Reddaway	User	One Day At A Time
David Davis	User	Trainer extraordinaire
David Hasselhoff	User	The Hoff
George Costanza	User	Desk napper
Jackie Chiles	User	Hey now!
Jerry Seinfeld	User	
Laura Aldo	User	Artist formerly known as S...

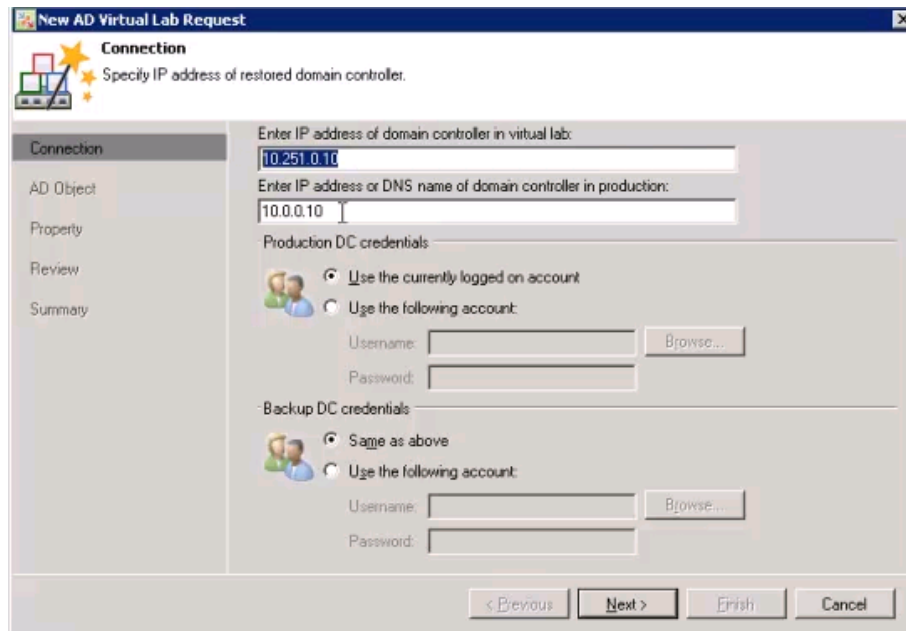


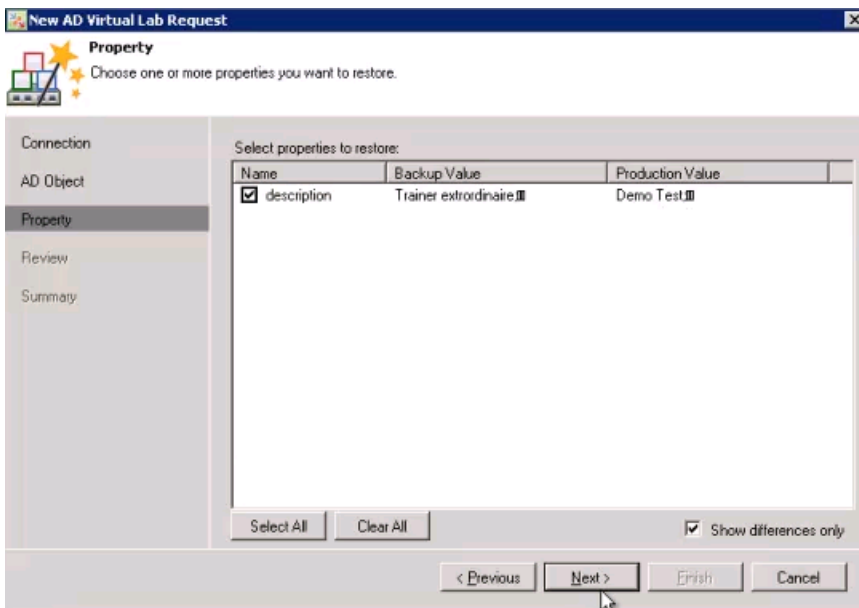
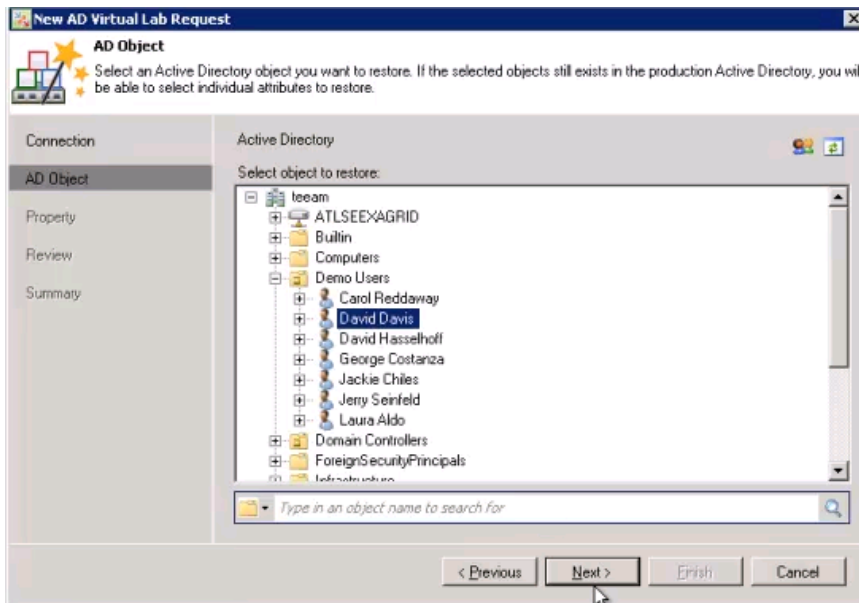
The screenshot shows the 'David Davis Properties' dialog box with the 'General' tab selected. The 'Description' field is highlighted, showing the text 'Demo Test'. The 'First name' field contains 'David' and the 'Last name' field contains 'Davis'. The 'Display name' field contains 'David Davis'. The 'Office' field is empty. The 'Telephone number' field is empty, and the 'E-mail' field is empty. The 'Web page' field is empty. The 'OK', 'Cancel', and 'Apply' buttons are at the bottom.

- c. Go to "Job", select "DC" and choose "Active Directory item recovery..." as shown in the screenshot below:



d. Now, follow the on screen instructions:



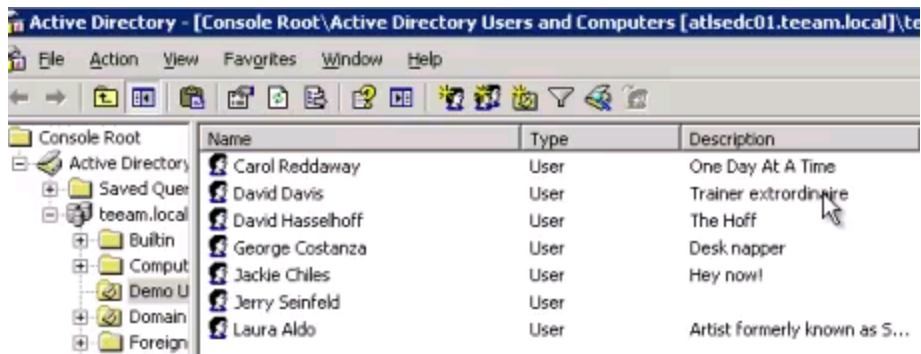


As you can see, the description from the old backup and in production is different.

e. Restore the old description into the production.

Click “Next” button, as shown in above screenshot, and “Finish” button to end of the restoration!

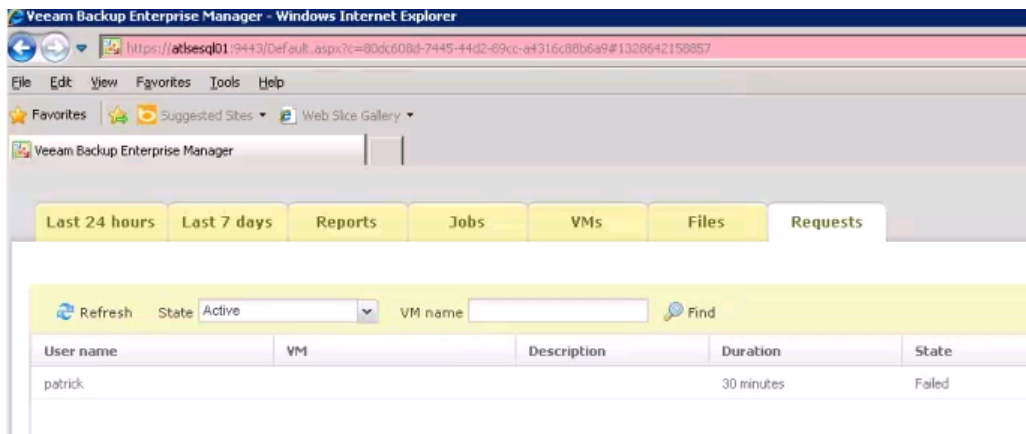
f. Now, go back to check the restored value via AD snap-in, as shown below:



The old description was restored successfully

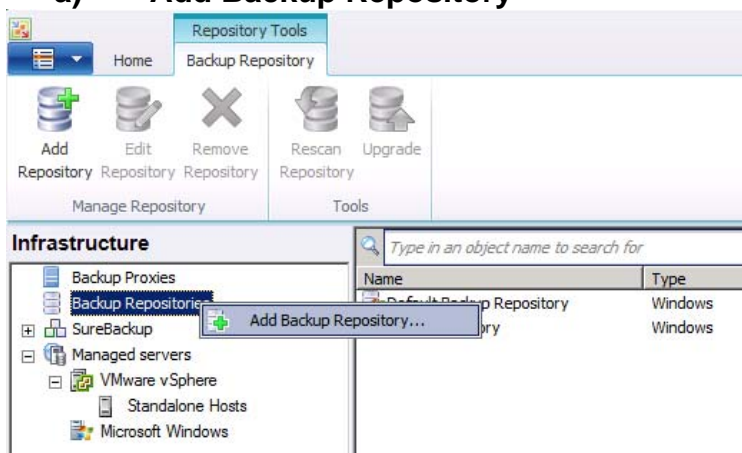
Note: The Application Item can restore user, group, objects and individual attribute.

3. Veeam Backup & Replication (At a testing environment)



Note: The following screenshots came from a real lab environment and verified by the author.

a) Add Backup Repository



Follow on-screen instructions listed below:

The screenshot shows the 'New Backup Repository' wizard in the 'Review' step. On the left is a navigation pane with 'Infrastructure' selected, containing 'Backup Proxies', 'Backup Repositories', 'SureBackup', 'Managed servers', 'VMware vSphere', 'Standalone Hosts', and 'Microsoft Windows'. Below this are 'Backup & Replication', 'Virtual Machines', 'Files', and 'Infrastructure'. The main area is titled 'Review' and contains a list of properties: Name, Type, Server, Repository, vPower NFS, and Review. The 'Review' section shows the following backup repository properties: Repository type: Windows Server, Mount host: This server, Account: Not set, Backup folder: F:\VeeamBackup, Write throughput: Not limited, Max parallel jobs: 4. Below this, it states 'The following components will be processed on server This server' and lists 'Installer' as 'already exists' and 'vPower NFS' as 'already exists'. There are checkboxes for 'Import existing backups automatically' and 'Import guest file system index'. At the bottom are buttons for '< Previous', 'Next >', 'Finish', and 'Cancel'.

Click “Next button” to continue

The screenshot shows the 'New Backup Repository' wizard in the 'Apply' step. The main area is titled 'Apply' and contains the text 'Please wait while backup repository is created and saved in configuration. This may take a few minutes...'. Below this is a 'Log' section with a table showing the progress of the installation. The table has two columns: 'Message' and 'Duration'. The messages are: 'Registering client [redacted] 5 for package vPower NFS', 'All required packages have been successfully installed', 'Discovering installed packages', 'Detecting server configuration', 'Reconfiguring vPower NFS service' (with a duration of 0:00:01), 'Creating configuration database records for installed packages', 'Creating database records for repository', and 'Backup repository has been added successfully'. At the bottom are buttons for '< Previous', 'Next >', 'Finish', and 'Cancel'.

Message	Duration
✓ Registering client [redacted] 5 for package vPower NFS	
✓ All required packages have been successfully installed	
✓ Discovering installed packages	
✓ Detecting server configuration	
✓ Reconfiguring vPower NFS service	0:00:01
✓ Creating configuration database records for installed packages	
✓ Creating database records for repository	
✓ Backup repository has been added successfully	

b) Create a new backup job:

Enter any name under the Name box:

New Backup Job

Name
Type in a name and description for this backup job.

Name:
Backup W2K8[R2]

Description:
Created by DISASTER\vacadmin at 7/31/2012 12:24:43 PM.

< Previous Next > Finish Cancel

Add servers as a group (e.g., separate all Windows servers with Linux servers for a better de-dupe ratio).

New Backup Job

Virtual Machines
Select virtual machines to process via container, or granularly. Container provides dynamic selection that automatically changes as you add new VM into container.

Virtual machines to backup:

Name	Type	Size
Windows 2008 X64	Virtual Mach...	56.6 GB
Windows Server R2 (32-bit)	Virtual Mach...	56.8 GB

Add...
Remove
Exclusions...
Up
Down
Recalculate

Total size:
113.4 GB

< Previous Next > Finish Cancel

New Backup Job

Storage

Specify processing proxy server to be used for source data retrieval, backup repository to store the backup files produced by this job and customize advanced job settings if required.

Name

Virtual Machines

Storage

Guest Processing

Schedule

Summary

Backup proxy: Automatic selection [Choose...](#)

Backup repository: Local Repository (Created by D:\[redacted] at 7/31/2012 12:15:23 PM.) [Map backup](#)

Capacity: 481.8 GB

Free space: 306.6 GB

Retention policy

Restore points to keep on disk: 5 [Info](#)

Advanced job settings include backup mode, compression and deduplication, block size, notification settings, automated post-job activity and other options. [Advanced](#)

< Previous Next > Finish Cancel

Note: Domain\Account is masked out for security reason.

Advanced Settings

Backup Storage Notifications vSphere Advanced

Backup mode

☒ **Reversed incremental**

Each incremental run produces full recovery file of the most recent state. Recommended for backup to general purpose disk.

☐ **Incremental**

Traditional incremental backup with periodic fulls. Recommended for backup to tape, remote site and deduplicating storage appliances.

☒ Enable synthetic fulls (forever-incremental) [Days...](#)

Create on: Saturday

☐ Transform previous full backup chains into rollbacks

Allows to keep only one full backup file on disk to save disk space. Increases synthetic full creation time.

Active full backup

☐ Perform active full backups periodically

☐ Monthly on: First Monday [Months...](#)

☒ Weekly on selected days: [Days...](#)

Saturday

OK Cancel

Advanced Settings [X]

Backup | **Storage** | Notifications | vSphere | Advanced

Deduplication

☒ Enable inline data deduplication (recommended)

Compression

Level:

Optimal (recommended) ▼

Optimal compression provides for best compression to performance ratio for backup proxy servers meeting minimum system requirements.

Storage optimizations

Optimize for:

Local target ▼

Best performance at the cost of lower deduplication ratio and larger incremental backup size. Recommended for fastest backup to SAN, DAS or local storage.

OK Cancel

Advanced Settings [X]

Backup | Storage | Notifications | **vSphere** | Advanced


Guest quiescence

☐ Enable VMware Tools quiescence

Changed block tracking

☒ Use changed block tracking data (recommended)

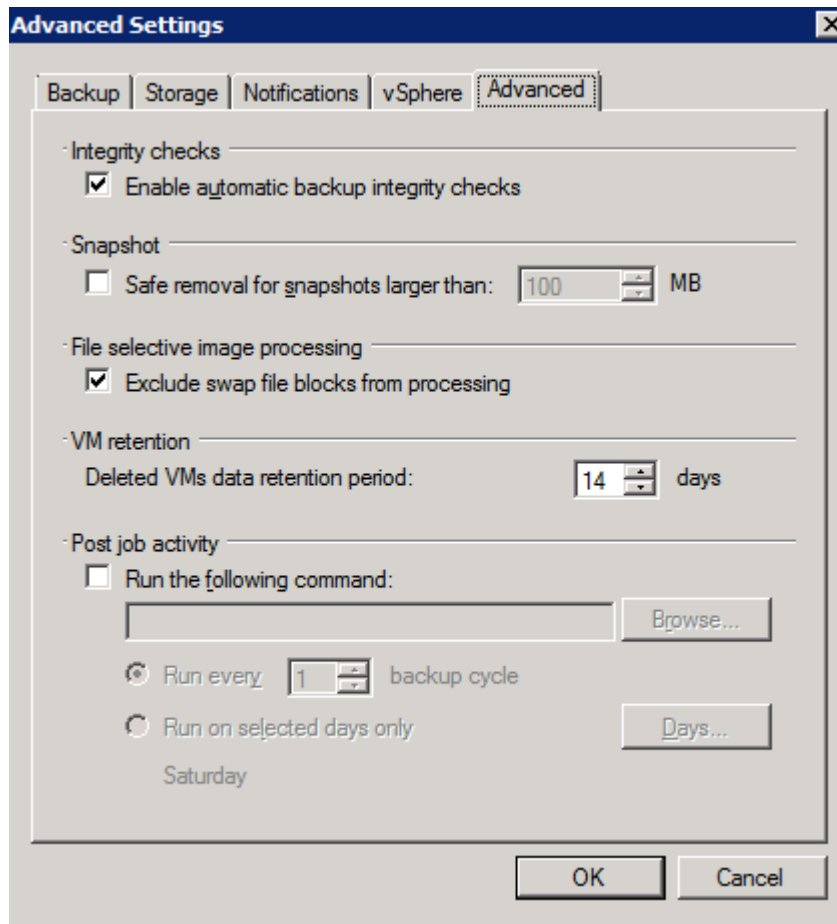
☒ Enable changed block tracking for all processed VMs

 Changed block tracking data allows for faster incremental backup or replication cycles for jobs in the vStorage API processing mode. Change tracking can only be enabled for VMs with virtual hardware version 7 or later.


OK Cancel

For Linux server, check the box of **"Guest quiescence"**; for Windows, use Microsoft VSS for better performance.

The changed block tracking (CBT) was created by VMware. Veeam just relies on the CBT to perform the changed backup. That's the reason the backup performance is much faster when the feature CBT is turned on.



New Backup Job


Guest Processing

Choose additional processing options available for Microsoft Windows guests.

Name	<div> <input checked="" type="checkbox"/> Enable application-aware image processing Quiesces applications using Microsoft VSS to ensure transactional consistency, performs transaction logs processing, and prepares application-specific VSS restore procedure. </div> <div> <input checked="" type="checkbox"/> Enable guest file system indexing Creates catalog of guest files to enable browsing, searching and 1-click restores of individual files. Indexing is optional, and is not required to perform instant file level recoveries. </div> <div> Guest OS credentials Specify the account with local administrator privileges on all VMs included in this job. Username must be supplied in the DOMAIN\USERNAME format. Username: <input type="text" value="Administrator"/> <input type="button" value="Browse..."/> Password: <input type="password" value="••••••"/> </div> <div> Click Advanced to customize guest processing options for individual VMs. <input type="button" value="Advanced..."/> </div>
Virtual Machines	
Storage	
Guest Processing	
Schedule	
Summary	

Note: Use a regular backup service account here.

Click **"Next"** and **"Finish"** button to complete the task.