

Veeam Availability on Cisco UCS Deployment Guide

Shawn Lieu

Veeam Senior Solutions Architect

Contents

The challenge	
The solution	
Deployment recommendations	4
CIMC Virtual Drive configuration via web interface	5
Creating a new volume in Windows	9
Veeam Backup & Replication installation process	12
Veeam Backup & Replication configuration	15
Adding the virtual infrastructure	
Creating a new Veeam Backup Repository	
Veeam backup proxies	20
S3260 Performance	
About Veeam Software	

The challenge

With data growing at astounding rates, IT managers are depending more and more on reliable backup and recoverability of their data. High-growth businesses require a complete data protection solution that is reliable, flexible and easy to use. Virtualizing an environment provides increased levels of data availability, but the need to meet aggressive RPOs and RTOs becomes increasingly difficult.

Traditional backup tools were not created for virtualized environments. That makes it hard for many organizations to take full advantage of their virtualized environment, and many IT managers struggle with:

- Unreliable backups
- Recovery that takes too long
- · High costs associated with managing backup data and secondary storage
- · Inability to provide reliable and true backups for compliance purposes
- · Lost productivity due to management complexity
- · The need to scale backup operations for growth

IT managers can meet the challenges of ever-shrinking RPOs and the aggressive RTOs associated with virtualized environments.

The solution

Veeam[®] is the leader in backup solutions that deliver Cloud Data Management[™]. Veeam provides a single platform for modernizing backup, accelerating hybrid cloud and securing your data. Our solutions are simple to install and run, flexible enough to fit into any environment and always reliable.

By combining Cisco UCS and Veeam[®] solutions, customers eliminate data loss and deliver fast data recovery, helping them minimize risk, decrease downtime and easily adapt to business changes to meet the most stringent SLA's.

Veeam[®] Backup & Replication[™] is the one solution for simple, reliable and flexible protection of ALL of your cloud, virtual and physical workloads. Take the stress out of managing your data protection, ransomware prevention and compliance challenges. With key features that allow you to completely manage your entire backup data lifecycle, Veeam saves you time and money, simplifying administration and minimizing costly downtime. Now you can focus on driving your business objectives forward with confidence.



Figure 1

The Cisco UCS S3260 Rack Server (Figure 1) is a modular, high-density server ideal for modern data protection. The Cisco UCS S3260 addresses the need for highly scalable computing with high-capacity local storage. Designed for a new class of applications, it is simple to deploy and excellent for backup repositories. Together, Veeam and Cisco UCS S3260 create the perfect staging area for backups – reducing backup ingest bottlenecks and providing faster backups using parallel processing. In addition, Veeam Backup & Replication provides:

- Granular recovery of VMs and files, including Microsoft Exchange and SharePoint application items.
- The ability to automatically verify every backup, every VM and every replica every time.
- Self-service recovery of VMs and guest files without direct network connection to the VM, user permissions
 or the need to deploy costly agents.
- Instant VM Recovery[®] to recover a failed VM in less than two minutes.
- A choice to back up and recover what you need, where you need it and when you need it whether it's on site, on tape or in the cloud. Veeam and Cisco offer the right solution for performance, flexibility and reliability - providing an impressive, modern disaster recovery (DR) solution for your VMware vSphere or Hyper-V environment.

Deployment recommendations



Figure 2

Simplified deployment helps streamline your data protection strategy. With the UCS S3260's combination of compute, memory and high-capacity storage, deployment of Veeam can be accomplished on a single UCS S3260 server, as show in Figure 2.

UCS S3260 recommended specifications:

- two times Intel Xeon processors
- 384GB RAM
- two times SSD's for OS (RAID 1)
- Dual RAID with $2 \times 4GB$ cache
- 64-bit Windows OS (Server 2016 or later required for ReFS)

There are a number of different ways to install the Windows OS onto the S3260's SSD, please refer to the S3260 installation guide for details. We recommend you use two SSDs in a RAID1 configuration for the Windows OS. Once Windows is installed, several drivers will need to be installed as well. Drivers can be downloaded here: https://software.cisco.com/download/navigator.html

For environments with existing fabric interconnects, UCS Manager can be leveraged. For environments that already have UCS Manager in place, server configuration, network connectivity and storage can all be configured here. In this guide, we will cover CIMC (Cisco Integrated Management Controller). Create a UCS S3260 volume for a Veeam backup repository using CIMC. CIMC can be accessed via the web interface or via SSH. Before proceeding with volume creation, determine with recommended RAID selection works best for your environment. There are two recommended RAID options, RAID6 & RAID60 depending on number of drives. See the table (Figure 3) below for additional information on the recommended configurations.

Disk count	RAID layout
1/	one times RAID6 (1x 11+2 Disks)
14	1 Global Hot Spare
20	one times RAID60 (2x 11+2 Disks)
20	2 Global Hot Spares
50	one times RAID60 (4x 11+2 Disks)
56	4 Global Hot Spares

CIMC Virtual Drive configuration via web interface



Figure 4

Open a web browser and enter the IP for the CIMC. You will be directed to the login screen where you can enter your credentials for access, see Figure 4.

😕 🖞 Cisco Integrated Manag	gement Controller			🜲 🕑 0 admin@10 29 149 93 - S3260-FOX2037G55E 🛱
↑ / / (Server 1) UCS S3260 Dual	Raid Controller based on Broa	dcom 3316 ROC (SBMezz1) / Contro	ller Info \pm	Refresh Host Power Launch KVM Ping Reboot 🚽 Locator LED 🔮 🚯
Controller Info Physical Drive Info Virt	tual Drive Info Battery Backup Unit	Storage Log		
Create Virtual Drive from Unused Physical Drives C	raate Virtual Drive from an Existing Virtual Driv	a Group I. Import Foreign Config. I. Clear Foreign Config.		
Clear Boot Drive Get Storage Firmware Log Enal	ble Drive Security Disable Drive Security C	Sear Cache Clear all Configuration Set Factory Defaul	ts	
Switch to Remote Key Management Switch to Loca	I Key Management			
- Health/Status		- Cottings		
• Health Status		• settings	202	
Composite realth:	College	Predictive Fail Poil Interval:	300 sec	
RAID Chin Temperature:	Optimal 77	Patrol Read Rate:	30 %	
Storage Firmware Log Status:	Not Downloaded	Consistency Check Rate:	30 %	
ourage i minare con eranor	Hot Dominouded	Reconstruction Rate:	30 %	*
 Firmware Versions 		Cache Flush Interval:	4 sec	
Product Name:	UCS S3260 Dual Raid Controller based	Max Drives To Spin Up At Once:	60	
Product PID:	UCS-S3260-DRAID	Delay Among Spinup Groups:	8 sec	
Serial Number:	FCH213873JU	Physical Drive Coercion Mode:	1 GB	
Firmware Package Build:	29.00.1-0358	Cluster Mode:	false	
✓ PCI Info		Battery Warning:	true	
PCI Slot	CDMoral	ECC Bucket Leak Rate:	1440 min	
Vendor ID:	1000	Expose Enclosure Devices:	true	
Device ID:	C8	Maintain PD Fail History:	false	
Sub Vendor ID:	1137	Enable Copyback on SMART:	true	
SubDevice ID:	20c	Enable Copyback to SSD on SMART Error:	true	
		Native Command Queuing:	enabled	
 Manufacturing Data 		JBOD:	true	
Manufactured Date:	2017-10-28	Enable Spin Down of Unconfigured Drives:	true	
Revision:	A0	Enable SSD Patrol Read:	false	
 Boot Drive 		Autoennanceoimport:	inne.	
Boot Drive:	1	 Capabilities 		Activate Windows
Boot Drive is PD:	false	HW Configuration		so to Settings to activate Wind
				· · · · · · · · · · · · · · · · · · ·

Figure 5

Once logged in, click on the menu options in the top left-hand corner, see Figure 5. Expand the **Storage** menu from the left side pane and select the controller.

er 1) UC	55 532	60 Dual Raid Co	introller based on Broadcon	n 3316 ROC (SBMe	zz1) / Physica	al Drive Info 🔺		Refresh	Host Power Launch H	CVM Ping Reboo	ot • Loc
Physic	al Drive I	nfo Virtual Drive	Info Battery Backup Unit St	orage Log							
es î	Phys	ical Drives								SI	elected 0 /
	M	ake Global Hot Spare	Make Dedicated Hot Spare	emove From Hot Spare Pool	Prepare For	Removal Undo Pr	epare For Removal	Enable JBOD	Set as Boot Drive	Enable Secure Driv	9
		Controller	Physical Drive Number	Status	State	Health	Boot Drive	Drive Firmware	Coerced Size	Model	Туре
		SBMezz1	1	Online	online	Good	false	A07G	13351406 MB	WDC	HDD
		SBMezz1	2	Online	online	Good	false	A07G	13351406 MB	WDC	HDD
		SBMezz1	3	Online	online	Good	false	A07G	13351406 MB	WDC	HDC
		SBMezz1	4	Online	online	Good	false	A07G	13351406 MB	WDC	HDD
		SBMezz1	5	Online	online	Good	false	A07G	13351406 MB	WDC	HDC
		SBMezz1	6	Online	online	Good	false	A07G	13351406 MB	WDC	HDD
		SBMezz1	7	Online	online	Good	false	A07G	13351406 MB	WDC	HDO
		SBMezz1	8	Online	online	Good	false	A07G	13351406 MB	WDC	HDO
		SBMezz1	9	Online	online	Good	false	A07G	13351406 MB	WDC	HD
		SBMezz1	10	Online	online	Good	false	A07G	13351406 MB	WDC	HDO
		SBMezz1	11	Online	online	Good	false	A07G	13351406 MB	WDC	HD
		SBMezz1	12	Online	online	Good	false	A07G	13351406 MB	WDC	HD
		SBMezz1	13	Online	online	Good	false	A07G	13351406 MB	WDC	HD
		SBMezz1	14	Online	online	Good	false	A07G	13351406 MB	WDC	HD
		SBMezz1	15	Online	online	Good	false	A07G	13351406 MB	WDC	HD
		SBMezz1	16	Online	online	Good	false	A07G	13351406 MB	WDC	HD
		SBMezz1	17	Online	online	Good	false	A07G	13351406 MB	WDC	HD
		SBMezz1	18	Online	online	Good	false	A07G	13351406 MB	WDC	HDO
		SBMezz1	19	Online	online	Good	false	A07G	13351406 MB	WDC	HDD
		SBMezz1	20	Online	online	Good	false	A07G	13351406 MB	WDC	HDD
		SBMezz1	21	Online	online	Good	false	A07G	13351406 MB	WDC	HDD
		SBMezz1	22	Online	online	Good	false	A07G	13351406 MB	WDC	HDD
*	1.000									ctivate Windo	WS

Figure 6

Under the **Physical Drive Info** tab (Figure 6), select each drive individually and click **Set State as Unconfigured Good**. Repeat this for all physical drives available, then click on the **Controller Info** tab.

69			
: Level:	RAID 60		
al Drive	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,	12, 13, 15	
) Space	0 MB		
Group			Total 1
Name		Size	
RAID60_2	26	125884682 MB	

Figure 7

Click **Create Virtual Drive from Unused Physical Drives** and a configuration box will pop up (Figure 7). The selections made here will result in a new virtual drive that will be used as a Veeam backup repository.

Let's begin with the following recommended settings (Figure 7) for a Veeam repository:

- RAID level: 60
- Refer to the table (Figure 3) for drive group recommendations
- Virtual drive name: any name you'd like, up to 15 characters
- Access policy: read write
- Read policy: always read ahead
- Cache policy: direct IO
- Disk cache policy: enabled
- Write policy: write back good BBU
- Strip size: 128k
- Size: specify the desired virtual drive size in MB, GB or TB

Once the recommended settings have been entered, click **Create Virtual Drive**. This will take a few moments. Once complete, you can click on the **Virtual Drive Info** tab to verify. Select the **Virtual Drive Info** from the right side pane to verify the newly created virtual drive, see Figure 8.

(Server 1) l	JCS S3260 Dual Raid Co	ntroller b	ased on Broadcon	1 3316 ROC (SBMe	ezz1) / Virt	ual Drive	e Info 🔺	Refresh Host Power Launch KVM Ping Reboot 🚽 Locator L
er Info Phy	sical Drive Info Virtual Drive In	nfo Bat	ttery Backup Unit Ste	orage Log				
tual Drives								
VD-0		Name: F	AID60 56drives	Consistenc	y Check Operat	ion Status:	Not Active	
VD-1	St	rip Size: 1	28 KB	Requ	ested Write Ca	che Policy:	Write Back Good BBU	
	Drives P	er Span: 1	4	c	urrent Write Ca	che Policy:	Write Back	
	Spa	Depth: 4			Disk Ca	che Policy:	Enable	
	Acces	Policy: P	Read-Write		Allow Backs	round Init:	true	
	Cache	Policy:	Direct		1	Boot Drive:	false	
	Read Ahead	Policy: A	Always		Secur	ity Enable:	No	
	Security (apable: N	lo					
	 Operation Status 							
	0	oration: h	lo operation in pregrase					•
	Progre	ss in %: f	to operation in progress					
	Estimated Seconds Rer	naining: (
	Flapsed Time	(secs):		Refresh				
	Physical Drives					Tota	156 🔅 v	
	Physical Drive Number	Span	Starting Block	Number Of Blocks	State	Status		
	1	0	0	3417959936	online	Online	A	
	2	0	0	3417959936	online	Online		
	3	0	0	3417959936	online	Online		
	4	0	0	3417959936	online	Online		
	5	0	0	3417959936	online	Online		
	6	0	0	3417959936	online	Online		
	7	0	0	3417959936	online	Online		
	-				-	~ "		Go to Settings to activate Windo

Figure 8

Now that the virtual drive is verified, it's time to mount the volume in Windows. Return to the S3260 Windows OS to create the new volume.

Before you create the volume in Windows, you will need to make sure that all necessary vnics are created. Number of vnics required will depend on your environment and what type of backup mode you wish to leverage within Veeam. For best performance, direct storage access is the preferred backup mode. To leverage direct storage access, the Veeam server will need management network as well as storage network access. The vnics required can also be created within CIMC. There are other transport modes and other deployment scenarios not covered within this guide, please refer to the Veeam User Guide (link located on page 21).

Creating a new volume in Windows

Once the virtual drive has been created, a new volume and drive letter can be assigned in Windows. You will encounter a pop-up asking if the new disk will be MBR or GPT, select GPT. The newly created virtual drive will appear in the offline state. As part of the process, bring the drive online, format it and give it a drive letter. This configuration can be completed via the disk management interface within Windows (Figure 9).



Figure 9

Right click on the new disk and select **Online**. Once online, right click in the space that currently says **Unallocated** (Figure 10). A menu will appear with multiple options, but for this example, **New Simple Volume** will be selected.

			Disk M	anagement		- 6
e Action View	v Help		0.000	and generative and a second		
🔶 📅 🔽 1	T 🕅 🗳 📾					
		File Surtem	Statur Canacity	Free Spa 9% Free		
(C:)	Simple Basic	NTFS	Healthy (B., 446.79 GB	434.04 GB 97 %		
DROM (F:)	Simple Basic	CDFS	Healthy (P 1.56 GB	0 MB 0 %		
ystem Reserved	Simple Basic	NTFS	Healthy (S 350 MB	89 MB 25 %		
Disk 0 sic 5 7.13 GB 3 line 1	System Reserved 350 MB NTFS Healthy (System, Active,	New Spanned V New Spanned V New Striped Vo New Mirrored V	lume /olume /olume	ump, Primary Partition)		
Disk 0 sic 7.13 GB line	System Reserved 350 MB NTFS Healthy (System, Active,	New Spanned V New Spanned V New Striped Vo New Mirrored V New RAID-5 Vo	lume /olume /olume /ume	imp, Primary Partition)		
■Disk 0 asic 17.13 GB nline ■Disk 1 asic	System Reserved 850 MB NTFS Healthy (System, Active,	New Single Vol New Spanned V New Striped Vo New Mirrored V New RAID-5 Vo Properties	lume /olume /olume /olume	ump, Primary Partition)		
Disk 0 asic 4 asic 17.13 GB 3 nline H 3 Disk 1 asic 5 S527.49 GB 3 3	System Reserved 150 MB NTFS Healthy (System, Active, 33527.49 GB	New Sinnele Vol New Spanned V New Striped Vo New Mirrored V New RAID-5 Vo Properties Help	lume /olume /olume lume	Imp, Primary Partition)		
Disk 0 ssic 4 17.13 GB 3 1 Inline 1 1 1 Disk 1 ssic 1 1 1527.49 GB 1 1 1	System Reserved 550 MB NTFS Healthy (System, Active, 33527.49 GB Jnallocated	New Simple Vol New Spanned V New Striped Vo New Mirrored V New RAID-5 Vo Properties Help	lume Jolume Iume Iume Iume Iume Iume	Imp, Primary Partition)		
Disk 0 ssic asic 47.13 GB inline 1 Disk 1 ssic 3527.49 GB 1 Disk 13 emovable (D:) Io Media	5ystem Reserved 50 MB NTF5 Healthy (System, Active, 33527.49 GB Jnallocated	New Single Vol New Spanned V New Striped Vo New Mirrored V New RAID-5 Vo Properties Help	lume /olume /olume lume	ump, Primary Partition)	Activate V Go to System	Windows n in Control Panel to
Disk 0 Sic sic Sic 7.13 GB Sic Sic Sic 527.49 GB I Disk 13 Image: Sic Poisk 13 Image: Sic Constant Image: Sic Sic Sic Unallocated P	System Reserved SOM BYTS Healthy (System, Active, 23527.49 GB	New Single Vol New Spanned V New Striped Vo New Mirrored V New RAID-5 Vo Properties Help	lume Jolume Jolume	ump, Primany Partition)	Activate V Go to System activate Win	Mindows n in Control Panel to dows.
Disk 0 Sic sic Sic 7.13 GB Sic Sic Sic 527.49 GB It Disk 13 It emovable (D:) o Media Unallocated	System Reserved 50 MB NTFS tealthy (System, Active, 33527.49 GB Inaliocated	New Single Vol New Spanned V New Stiped Vo New Mirrored V New RAID-5 Vo Properties Help	lume /olume lume	ump, Primany Partition)	Activate V Go to System activate Win	Windows n in Control Panel to dows.
Disk 0 sic xic xic xic	System Reserved 50 MB NTFS tealthy (System, Active, 33527.49 GB Inallocated	New Single OI New Sprined V New Striped Vo New Mirrored V New RAD-5 Vo Properties Help	lume Jolume Jolume	ump, Primary Partition)	Activate V Go to System activate Win	Vindows n in Control Panel to dows.
Disk 0 Sic sic Sic 1/13 GB Sic Siz Sic Siz Sic Siz Siz	System Reserved 550 MB NTFS fealthy (System, Active, 33327.49 GB 33327.49 GB 3	New Single Vol New Spanned V New Mirrored V New RAID-5 Vo Properties Help	lume ilume rash Dr lume	ump, Primary Partition)	Activate V Go to System activate Win 10.0.0.45 adm	Mindows n in Control Panel to dows.

Making this selection will launch the New Simple Volume Wizard (Figure 11). Continue by click Next.



Figure 11

On the next step of the wizard, specify the volume size. Based on the maximum disk space in MB, the new simple volume size in MB should be prepopulated with the same value. Click **Next** to accept the maximum size and continue (Figure 12).

New Simp	le Volume Wizard
Specify Volume Size Choose a volume size that is between	the maximum and minimum sizes.
Maximum disk space in MB:	34332143
Minimum disk space in MB:	8
<u>S</u> imple volume size in MB:	34332143
	< <u>B</u> ack <u>N</u> ext > Cancel
	Figure 12

Next, assign a drive letter to the new volume. Once the selection has been made, click **Next** to continue (Figure 13).

New Simple Volume Wizard	x
Assign Drive Letter or Path For easier access, you can assign a drive letter or drive path to your partition.	
 Assign the following drive letter: Mount in the following empty NTFS folder: Browse Do not assign a drive letter or drive path 	
< Back Next	Cancel

Figure 13

The next screen will have the format and file system options. Select the desired file system (ReFS is recommended), allocation unit size of 64K is recommended, and enter in a volume label. Click **Next** to continue (Figure 14).

New Simple Volume Wizard		×					
Format Partition To store data on this partition, you must format it first.							
Choose whether you want to format t	this volume, and if so, what settings you want to use.						
O Do not format this volume							
 Format this volume with the following 	llowing settings:						
File system:	ReFS ~						
Allocation unit size:	64К 🗸						
Volume label:	New Volume						
Perform a quick format							
Enable file and folder compression							
	< Back Next > Cancel						

Figure 14

On the final screen, verify the settings are correct and click **Finish** (Figure 15). After a few moments, the new volume will be ready for use.

New Simple Volume Wizard		\times
a selle sur	Completing the New Simple Volume Wizard	
	You have successfully completed the New Simple Volume Wizard.	
	You selected the following settings: Volume type: Simple Volume Disk selected: Disk 3 Volume size: 5721901 MB Drive letter or path: E: File system: ReFS Allocation unit size: 65536 Volume label: New Volume Onlink fromat: Yes To close this wizard, click Finish.	
	< Back Finish Cance	4

Figure 15

Once the volume has been created and assigned a drive letter, repeat the steps above for the second volume if your system has 56 disks. Once completed for all volumes needed, close the **Disk Management** window. The next step is to install Veeam Backup & Replication.

Veeam Backup & Replication installation process

To install Veeam Backup & Replication, follow these steps:

- 1. Log into the S3260 server as a user with local administrator privileges.
- 2. Mount the installation image using disk image emulation software, or burn the ISO image to a blank CD/DVD.
- 3. After you mount or insert the disk with Veeam Backup & Replication setup, Autorun will open a screen with installation options (Figure 16). If Autorun is not available or disabled, run the Setup.exe file from the CD/ DVD disk. Alternatively, you can right-click the new disk in My Computer and select Execute Veeam Backup & Replication Autorun, or simply double-click the new disk to launch the splash screen.





- 4. Click the Install link in the Veeam Backup & Replication section of the splash screen.
- 5. On the Welcome step of the wizard, click Next to start the installation.
- 6. To begin the installation, you must accept the license agreement (Figure 17). Read the license agreement, select the I accept the terms in the license agreement option and click Next.

📴 Veeam Backup & Replicatio	on Setup 📃 🗖 🗙
License Agreement Please read the following license agreement carefully.	習
END USER SOFTWARE LICENSE AGREEMENT ("EULA") IMPORTANT, PLEASE READ CAREFULLY: THIS END USEI IS A LEGAL AGREEMENT BETWEEN YOU (AS AN INDIVIDU "CUSTOMER") AND VEEAM SOFTWARE GROUP GMBH ("V SERVICES, WHICH MAY INCLUDE COMPUTER SOFTWAR DOCUMENTATION ("SOFTWARE"). BY INSTALLING OR O' SOFTWARE OR RECEIVING THE SERVICES, YOU AGREE OF THIS EULA. IF YOU DO NOT AGREE WITH THE TERMS THE SOFTWARE OR SERVICES.	R LICENSE AGREEMENT "EULA" JAL OR ENTITY, "YOU" THE "EEAM"), FOR PRODUCTS AND E AND ASSOCIATED THERWISE USING THE TO BE BOUND BY THE TERMS S OF THIS EULA, DO NOT USE
I accept the terms of the Veeam license agreement ✓ I accept the terms of the 3rd party components license agreement <	its View ack Next > Cancel

Figure 17

7. You can install Veeam Backup & Replication with a trial license that was sent to you after registration or a purchased full license. To install a license, click **Browse** and select a valid license file for Veeam Backup & Replication (Figure 18).



Figure 18

- 8. Select the components you want to install (Figure 19). The Veeam Backup & Replication setup includes the following components:
- Veeam Backup & Replication
- Veeam Backup catalog
- Veeam Backup & Replication console

迥	Veeam Backup & Replication Set	up 💶 🗖 🗙
Prograi Select the	n features program features you want to be installed.	
	 Veeam Backup & Replication Veeam Backup Catalog Veeam Backup & Replication Console 	Component description Veeam Backup & Replication is enterprise-ready solution that combines backup and replication in a single product for fast recovery of your VMware vSphere and Microsoft Hyper-V environments.
Install to:	C:\Program Files\Veeam\Backup and Replication\	Browse
	< Back	Next > Cancel

Figure 19

9. Before proceeding with the installation, the setup wizard will perform a system configuration check to determine if all prerequisite software is available on the machine. If some of the required software components are missing, the wizard will offer you to install missing software automatically (Figure 20).

認	Veeam Backup & Replication Setup	_ 🗆 X
Sy: Plea	stem Configuration Check se wait while setup is checking your system for potential installation problems.	
R	equirement	Status
м	icrosoft System CLR Types for SQL Server 2014	Passed
м	icrosoft SQL Server 2014 Management Objects	Passed
м	icrosoft Report Viewer Redistributable 2015	Passed
м	icrosoft PowerShell ∨2.0	Passed
м	icrosoft Universal C Runtime	Passed
		Re-check
	< Back Next >	Cancel
	Figure 20	

10. At this step, Veeam will list all predefined defaults for installation. If you wish to change any of the default directories or port numbers, check the **Let me specify different settings** box (Figure 21).

Ì	<u>图</u>	Veeam Backup & Replication Setup	x
	Default Configurat Click Install to deploy Veear the check box below to cus	tion m Backup & Replication with the default configuration settings, or select stomize them on the following wizard steps.	闾
Γ	Configuration settings:		
	Installation folder:	C:\Program Files\Veeam\Backup and Replication\	^
	Write cache folder:	C:\ProgramData\Veeam\Backup\IRCache	
	Guest catalog folder:	C:\VBRCatalog	
	Catalog service port:	9393	=
	Service account:	LOCAL SYSTEM	
	Service port:	9392	
	Secure connections port:	9401	
	SQL Server:	SRV25\VEEAMSQL2016	~
	Let me specify differen	t settings	
		< Back Next ≻ Can	cel

Figure 21

11. When the installation completes, click **Finish** to exit the setup wizard. You can now start Veeam Backup & Replication.

Veeam Backup & Replication configuration

Now that Veeam Backup & Replication is installed, launch the application directly from the desktop icon. Once launched, the following configurations are required:

- Backup infrastructure including vSphere infrastructure, backup repositories and configuration backups
- SAN infrastructure to allow for integration with the various storage systems

Adding the virtual infrastructure

- 1. For building your backup infrastructure in a VMware vSphere environment, Veeam Backup & Replication supports the following types of servers:
- VMware server
- Microsoft Windows server
- Linux server
- vCloud Director

Veeam Backup & Replication allows you to connect both vCenter servers and standalone ESX(i) hosts. If possible, avoid adding ESX(i) hosts which are part of the vCenter server hierarchy. Add the corresponding vCenter server instead. Adding the vCenter server facilitates management of the backup infrastructure and can be a recommended condition for certain types of operations (such as Quick Migration). Note: Free ESXi is not supported. For a list of currently supported Virtualization Servers and Hosts, refer here: <u>https://helpcenter.veeam.com/</u> <u>docs/backup/vsphere/setup_add_server.html?ver=100</u>

For building your backup infrastructure in a Microsoft Hyper-V environment, refer to the following link for platform support guidance: <u>https://helpcenter.veeam.com/docs/backup/hyperv/platform_support.</u> <u>html?ver=100</u>

Creating a new Veeam Backup Repository

By default, Veeam automatically creates a local backup repository (usually on the C:\ drive) of the Veeam Backup & Replication server. We will create a new backup repository so that we are storing backups on our newly created volume. The following steps will outline how to create the backup repository.

- 1. Select Backup Infrastructure from the lower left pane.
- 2. Right click on Backup Repositories and select Add Backup Repository (Figure 22).

Add B Select the	x ackup Repository to add.	
	Direct attached storage Microsoft Windows or Linux server with internal or direct attached storage. This configuration enables data movers to run directly on the server, allowing for fastest performance.	
	Network attached storage Network share on a file server or a NAS device. When backing up to a remote share, we recommend that you select a gateway server located in the same site with the share.	
.	Deduplicating storage appliance Dell EMC Data Domain, ExaGrid, HPE StoreOnce or Quantum DXi. If you are unable to meet the requirements of advanced integration via native appliance API, use the network attached storage option instead.	
*	Object storage On-prem object storage system or a cloud object storage provider. Object storage can only be used as a Capacity Tier of scale-out backup repositories, backing up directly to object storage is not currently supported.	
	Cancel	

Figure 22

3. Select the **Direct attached storage** option and select **Microsoft Windows**. The New Backup Repository wizard will launch, the first screen is **Name** (Figure 23). Give the new backup repository a name. The description will be prepopulated, but you can optionally edit this field. Click **Next** to move on to **Type**.

New Backup Repository Name Type in a name and of	lescription for this backup repository.
Name Server Repository Mount Server Review Apply Summary	Name: Backup Repository 1 Description: Created by ALLIANCES\shawn at 8/26/2020 10:36 AM.
	< Previous Next > Finish Cancel

Figure 23

4. Moving on to the **Server** screen, click the **Populate** button for Veeam to detect all volumes on this server. Select the newly created volume and click **Next** to continue to the **Repository** screen (Figure 24).

ew Backup Repository Server Choose repo	ository server. You can select s	erver from the list of managed ser	vers added to the co	onsole.	
Name	Repository server:				
	AUCSC3260.allian	ces.local (Backup server)		~	Add New
server	Path	^	Capacity	Free	Populate
Repository	👄 C:\		445.6 GB	304.4 GB	
Mount Server	🗰 D:\		120.1 TB	109.8 TB	
leview					
pply					
ummary					
				_	

Figure 24

5. The **Repository** (Figure 25) screen is the most important screen in repository creation. First, specify a path on the new volume for which to store backups. Below **Location**, you will find the **Load control** settings. There are two options for load control, you can limit the maximum number of concurrent tasks or you may limit the combined data rate. Once the settings have been made, click **Advanced** to open up additional options.

New Backup Repository Repository Type in path to the for	lder where backup files should be stored, and set repository load control options.	×
Name Server	Location — Path to folder: D:\Backups	Browse
Repository Mount Server Review	Capacity: Free space: Load control Running too many concurrent tasks against the repository may reduce overall perfor cause I/O imeouts. Control storage device saturation with the following settings:	Populate mance, and
Apply Summary	Limit maximum concurrent tasks to: 4 € Limit read and write data rate to: 1 €	
	Click Advanced to customize repository settings	Advanced
	< Previous Next > Finish	Cancel

Figure 25

6. Click on the Advanced button in the lower right to make additional recommended settings.

Storage Compatibility Settings	×
Align backup file data blocks	
Allows to achieve better deduplication ratio on deduplicating storage devices leveraging constant block size deduplication. Increases the backup size when backing up to raw disk storage.	
Decompress backup data blocks before storing	
VM data is compressed by backup proxy according to the backup job compression settings to minimize LAN traffic. Uncompressing the data before storing allows for achieving better deduplication ratio on most deduplicating storage appliances at the cost of backup performance.	
This repository is backed by rotated hard drives	
Backup jobs pointing to this repository will tolerate the disappearance of previous backup files by creating new full backup, clean up backup files no longer under retention on the newly inserted hard drives, and track backup repository location across unintended drive letter changes.	
Use per-VM backup files	
Per-VM backup files may improve performance with storage devices benefiting from multiple I/O streams. This is the recommended setting when backing up deduplicating storage appliances. OK Cancel) to

Figure 26

7. Check the Use per-VM backup files box, this recommended setting allows Veeam to create a backup file for each VM being backed up (Figure 26).

8. The next screen (Figure 27) is vPower NFS, and no changes need to be made here based on the configuration on the S3260. Click **Next** to proceed to the **Review** screen.

New Backup Repository		>
Mount Server Specify a serve Instant recover	er er to mount backups to when performing advanced restores (file, application item and instant VM r rries require a write cache folder to store changed disk blocks in.	ecoveries).
Name	Mount server:	
· · · · ·	AUCSC3260,alliances.local (Backup server) ~	Add New
Server	Instant recovery write cache folder:	
Repository	D:\Dustin\ProgramData\Veeam\Backup\IRCache\	Browse
Mount Server	Ensure that the selected volume has sufficient free disk space to store changed disk block recovered VMs. We recommend placing write cache on an SSD drive.	s of instantly
Review	Enable vPower NFS service on the mount server (recommended)	Ports
Apply	Unlocks instant recovery of any backup (physical, virtual or cloud) to a VMware vSphe vPower NFS service is not used for instant recovery to a Microsoft Hyper-V VM.	re VM.
Summary		
	C Previour Next > Finish	Consul

Figure 27

9. On the Review screen, verify the desired settings are accurate and click Apply to continue (Figure 28).

New Backup Repository		×
Review Please review th	e settings, and click Apply to continue.	
Name	The following components will be processed on server	AUCSC3260.alliances.local:
	Component name	Status
Server	Transport	already exists
Repository	vPower NFS	already exists
	Mount Server	already exists
Mount Server		
Review		
Apply		
Summary		
	Search the repository for existing backups and impo Import guest file system index data to the catalo	ort them automatically
	< Previous	Apply Finish Cancel

Figure 28

10. Veeam will now apply all the settings and create the new repository, click **Next** to view the summary page and then click **Finish** to exit the wizard (Figure 29).

Please wait while backup repository is created and saved in configuration Name Server Repository Mount Server Review Apply Summary Control Con	Annh			
Name Message Server Starting infrastructure item update process Discovering installed packages Package VeeamDeploymentSvc.exe has been update process Vount Server Review Apply Summary Summary Construction Reconfiguring vPower NFS service Configuration database records for in Configuration database records for in	Please wait w	hile backup repository is created and saved in configuration, this may take a few mir	nutes.	
Interver Starting infrastructure item update process Discovering installed packages Discovering installed packages Package VeeamDeploymentSvc.exe has been update Package VeeamDeploymentDII.dll has been update Package VeeamDeploymentDII.dll has been update Registering client AUCSC3260 for package VP Registering client AUCSC3260 for package M Poly Unummary Detecting server configuration Reconfiguring vPower NFS service Creating database records for repository	lame	Message	Duration	
Obscovering installed packages Opscovering installed packages Opscovering installed packages Opackage VeeamDeploymentSvc.exe has been Opackage VeeamDeploymentDII.dll has been u ORegistering client AUCSC3260 for package Tr Registering client AUCSC3260 for package Tr Registering client AUCSC3260 for package M Opscovering installed packages OAll required packages All required packages Oreating vPower NFS service Ocleting backup repository Collecting backup repository	enver	Starting infrastructure item update process	0:00:03	
epository Iount Server eview pply ummary O Package VeeamDeploymentSvc.exe has been O Package VeeamDeploymentDII.dll has been u O Registering client AUCSC3260 for package VF O Registering client AUCSC3260 for package VP O Registering client AUCSC3260 for package M O Discovering installed packages O All required packages have been successfully O Detecting server configuration O Reconfiguring vPower NFS service O Creating configuration database records for repository O Collecting backup repository info O Creating database records for repository O Creating Configuration O Creating Configuration Creating Configuration O	cive:	Oiscovering installed packages		
Iount Server Package VeeamDeploymentDII.dll has been u eview Registering client AUCSC3260 for package VP pply Registering client AUCSC3260 for package VP o Discovering installed packages Discovering installed packages o All required packages All required packages o Detecting server configuration Reconfigurition database records for i o Collecting backup repository info Collecting backup repository info	epository	Package VeeamDeploymentSvc.exe has been uploaded		
Mount Server Registering client AUCSC3260 for package Tr. Registering client AUCSC3260 for package VP Reconf		Package VeeamDeploymentDII.dll has been uploaded		
eview eview Pply wmmary C Registering client AUCSC3260 for package vP Registering client AUCSC3260 for package VP Discovering installed packages All required packages All required packages All required packages C Creating server configuration C Collecting backup repository info C Creating database records for repository C Creating Configuration C Content of database records for repository C Creating Configuration C Creating Configuration C Content of Database records for repository C Creating Configuration C Content of Database records for repository C Creating Configuration C Content of Database records for repository C Creating Configuration C Content of Database records for repository C Creating Configuration C Content of Database records for repository C Creating Configuration C Content of Database records for repository C Content of Database records for repos	fount Server	Registering client AUCSC3260 for package Transport		
Pypy C Registering client AUCSC3260 for package M Discovering installed packages All required packages have been successfully Detecting server configuration Reconfiguring vPower NFS service Creating configuration database records for repository Collecting database records for repository Creating database records for repository		Registering client AUCSC3260 for package vPower NFS		
pply O Discovering installed packages O All required packages have been successfully ummary Detecting server configuration O Reconfiguring vPower NFS service O Creating configuration database records for i O Collecting database records for repository	eview	Registering client AUCSC3260 for package Mount Server		
All required packages have been successfully Detecting server configuration Reconfiguring vPower NFS service Creating configuration database records for i Collecting backup repository info Creating database records for repository	vlag	Discovering installed packages		
ummary C Detecting server configuration C Reconfiguring vPower NFS service C Creating configuration database records for i C Collecting backup repository info C creating database records for repository	FFV	All required packages have been successfully installed		
Reconfiguring vPower NFS service Creating configuration database records for i Collecting backup repository info Creating database records for repository	ummary	Oetecting server configuration		
Creating configuration database records for i COLlecting backup repository info Collecting database records for repository		Reconfiguring vPower NFS service		
Collecting backup repository info		Creating configuration database records for installed packages		
Creating database records for repository		Collecting backup repository info		
		Creating database records for repository		
Sackup repository has been added successfu		Backup repository has been added successfully		
				_
		< Previous Next >	Finish Ca	ncel

Figure 29

Veeam backup proxies

For VMware vSphere:

By default, for VMware there is already a VMware backup proxy present. This is the current server running Veeam Backup & Replication. Verify the VMware backup proxy settings by selecting **Backup Infrastructure**– **>Backup Proxies** and then right-clicking on the existing backup proxy and selecting **Properties** (Figure 30).

跑	PROXY TOOLS			
E- HOME	BACKUP PROXY			
Add Edit Dis Proxy ~ Proxy Pro Manage P	able Remove proxy roxy Upgrade Proxy Upgrade			
BACKUP INFRASTRI	UCTURE	Q Type in an	object name to search for	
Backup Pro	xies	NAME	TYPE	
 Backup Rep External Rep External Rep Scale-out R Scale-out R FlashBla StorRedu WAN Accel Service Prov SureBackup Applicat 	iositories positories epositories DBR de uce SOBR erators <i>r</i> iders o ion Groups	File Backup	Disable proxy Upgrade Remove	re
 Managed S Microsof Microsof Linux 	aos ervers vSphere ft Windows			



The Edit VMware Proxy settings will pop up (Figure 31). Ensure that the maximum concurrent tasks are as expected. Referencing the example we used earlier with the backup repositories, the server has two physical processors with 18 physical cores each. This results in a maximum of 36 concurrent tasks. For this guide, we will leave a little room for overhead and set the maximum number of concurrent tasks to 34. Once the max concurrent tasks have been set, select Finish to complete and exit proxy settings.

Edit VMware Proxy		×			
Server Choose a server for VI Managed Servers whi	Mware backup proxy. You can choose between any Microsoft Windows or Linux servers add ch are not assigned a VMware backup proxy role already.	ed to the			
Server	Choose server:				
	AUCSC3260.alliances.local (Backup server)	Add New			
Traffic Rules	Proxy description:				
Apply	Created by Veeam Backup & Replication				
Summary	Transport mode:	Channel			
	Automatic selection	Choose			
	Connected datastores:				
	Automatic detection (recommended)	Choose			
	Max concurrent tasks:				
	< Previous Next > Finish	Cancel			

Figure 31

Additional Veeam backup proxies can be added to scale the Veeam backup infrastructure for any size environment. Additional S3260s can be used as Veeam backup proxies / backup repositories by installing a 64-bit Windows operating system (see pre-requisites on page 3). By adding additional S3260s to the backup infrastructure you can scale the backup solution linearly. Each unit provides not only additional backup storage space, but also compute and memory resources. Each S3260 can have up to 60 NL-SAS HDDs for additional backup storage. Backup proxies can be added, as needed, to scale the backup infrastructure to suite any size environment. To add additional Veeam backup proxies, perform the steps below:

Now that Veeam Backup & Replication is configured, backup jobs and many other jobs may be configured to use the newly available volume. Additional S326O's configured as a Veeam Backup Proxy / Backup Repository can deployed off site for additional protection or archival of your backups. Veeam backup copy jobs can be leveraged to move backup data to these off-site locations. If further installation or operational detail is needed, refer to the Veeam Backup & Replication user guides for more detail. You can find the Veeam user's guide below:

User Guide for VMware vSphere

User Guide for Microsoft Hyper-V

S3260 Performance

Expected performance will vary depending on many different factors. Ensuring that the S3260 has direct access to the primary storage array and can leverage backup from storage snapshots (if available). You will also want to make sure that there is enough bandwidth to accomplish your performance expectations. Refer to the table below for expected performance based on available bandwidth.

Server connection	Physical interface speed Field		Field experie	nce	Backup speed	ł
Ethernet 1Gb	1	Gb/s	90	MB/s	0.32	TB/h
Ethernet 10Gb	10	Gb/s	0.9	GB/s	3.2	TB/h
Ethernet 40Gb	40	Gb/s	3.6	GB/s	12.9	TB/h
Ethernet 100Gb	100	Gb/s	9.0	GB/s	32.4	TB/h
FC 8Gb Dual Port	16	Gb/s	1.6	GB/s	5.7	TB/h
FC 16Gb Dual Port	32	Gb/s	3.2	GB/s	11.5	TB/h
FC 32Gb Dual Port	64	Gb/s	6.4	GB/s	23	TB/h

Assuming the bandwidth is available, the S3260 is capable of great performance. As you can see from the figure below, we are able to achieve sustained 3.6GB/s processing rate.

Job progress:	rogress: 100%		
CUB 48 4 A DV		D174	
SUMMARY		DATA	
Duration:	04:49:44	Processed: 81.3 TB (100%)	
Processing rate:	3.6 GB/s	Read: 60.3 TB	
Bottleneck:	Proxy	Transferred: 60.5 TB (1x)	
THROUGHPUT (ALL TIM	E)		Speed: 4.7 GB/s
NAME	STATUS 🕹 🔷	ACTION	DURATION
2-largeVM3	Success	Queued for processing at 9/3/2020 2:55:17 AM	
2-largeVM11	Success	Required backup infrastructure resources have been assigned	02:19:34
2-largeVM12	Success	VM processing started at 9/3/2020 5:14:53 AM	
2-largeVM13	Success	VM size: 5.1 TB	
2-largeVM14	Success	Storage initialized	00:07
2-largeVM16	Success	Resetting CBT per job settings for active fulls	00:29
2-largeVM15	Success	Getting VM info from vSphere	00:40
2-largeVM17	Success	Creating HyperFlex snapshot	00:23
2-largeVM1	Success	Saving [HXAFFDS1] 2-largeVM3/2-largeVM3.vmx	00:00
2-largeVM9	Success	Saving [HXAFFDS1] 2-largeVM3/2-largeVM3.nvram	00:00
2-largeVM20	Success	Susing backup proxy VMware Backup Proxy for disk Hard disk 1 [nfs]	00:00
2-largeVM2	Success	Using backup proxy VMware Backup Proxy for disk Hard disk 2 [nfs]	00:00
2-largeVM4	Success	Hard disk 1 (400 GB) 60.8 GB read at 158 MB/s [CBT]	06:49
2-largeVM6	Success	Hard disk 2 (1.2 TB) 950.3 GB read at 164 MB/s [CBT]	01:38:50
2-largeVM7	Success	Using backup proxy VMware Backup Proxy for disk Hard disk 3 [nfs]	00:00
- 2-largeVM8	Success Y	Hard disk 3 (1.2 TB) 950.3 GB read at 156 MB/s [CBT]	01:43:58
<	>		×
Hide Details			ОК

The performance shown above is achieved with no data reduction as this was a test to demonstrate the S3260 write performance. In most Veeam environments, our customers will see a minimum of two times data reduction and often higher data reduction rates. If data reduction is taken into account, the S3260 would be capable of processing at least 7.2GB/s (25.9 TB/hr) of backup data. For more performance information, check out our ESG whitepaper here.

About Veeam Software

Veeam Cloud Data Management Platform is the most complete solution to help our customers evolve the way they manage data, making it smarter and more self-governing while ensuring its availability across any application or cloud infrastructure.

It's a single platform for cloud, virtual and physical to meet all your needs. It helps customers on the journey to modernizing their Backup practice, accelerating hybrid cloud, and adhering to data security standards and regulations.



Cloud Data

Backup for what's next

5 Stages of Cloud Data Management — start your journey today!

Learn more: veeam.com