

Veeam and Pure Storage

Integrated Deployment Guide

1 + 1 = 3 Pure Storage + Veeam Better Together

© 2018 Veeam Software. All rights reserved. All trademarks are the property of their respective owners

Contents

Introduction
Veeam summary2
Pure Storage summary
Veeam's Pure Storage integration (vSphere only)2
Veeam Backup & Replication pre-installation considerations
Install Veeam Backup & Replication 9.5
Veeam Backup & Replication configuration
Adding the Infrastructure
Adding additional backup repositories
Configuration backups
Adding Veeam proxy access to Pure Storage Array
Adding the SAN Infrastructure
Creating and deleting Pure Storage snapshots
Performing backup from Pure Storage snapshots
Backup from Storage Snapshots: Backup job creation25
Snapshot orchestration job configuration
Restoring VM data from Pure Storage snapshots
Configuring Veeam DataLabs For Storage Snapshots
Summary
About the Author
About Veeam Software

Introduction

In this deployment guide, we guide you through the installation of the Veeam[®] and Pure Storage integrated solution. Starting with Veeam Backup & Replication[™] 9.5 update 3, new integrated features are available for Pure Storage systems by installing the Pure Storage Plugin. The integration features are:

- Backup from Storage Snapshots
- Veeam Explorer[™] for Storage Snapshots
- Veeam DataLabs™ for Storage Snapshots

This streamlined guide will help with your installation, for more detailed installation instructions, leverage the following guide:

Veeam Backup & Replication User Guide for VMware vSphere

Veeam summary

Veeam Availability Suite[™] combines the industry-leading backup, restore and replication capabilities of <u>Veeam Backup &</u> <u>Replication</u> with the advanced monitoring, reporting and capacity-planning functionality of <u>Veeam ONE</u>[™]. Veeam Availability Suite delivers everything you need to reliably ensure and manage your **VMware vSphere environment**. The Veeam agentless design provides multiple backup options. Features such as source-side deduplication and compression, change block tracking, parallel processing and automatic load balancing provide the fastest, most efficient backups possible.

Pure Storage summary

Pure Storage helps companies push the boundaries of what's possible. Pure's end-to-end data platform — including FlashArray, FlashBlade and a converged offering with Cisco, FlashStack — is powered by innovative software that's cloud-connected for management from anywhere on a mobile device and supported by the Evergreen business model. The company's all-flash-based technology, combined with its customer-friendly business model, drives business and IT transformation with solutions that are effortless, efficient and evergreen. With Pure's industry-leading Satmetrix-certified NPS (net provider score) of 83.7, Pure customers are some of the happiest in the world, and include organizations of all sizes, across an ever-expanding range of industries.

Veeam's Pure Storage integration (vSphere only)

Create fast backups from storage snapshots for quick and efficient item-level recovery; leverage Pure Storage snapshots and replicated snapshots to create a robust, enterprise-level data protection solution. Veeam Backup & Replication lets you leverage Pure Storage snapshots as a part of a comprehensive backup and recovery strategy, where snapshots and image-level backups complement each other. With Veeam Backup & Replication, you can:

- Perform backups from Pure Storage snapshots
- Restore data directly from Pure Storage snapshots

Veeam Backup & Replication pre-installation considerations

The following requirements are necessary for the installation of Veeam:

- Veeam Availability Suite 9.5 Enterprise Plus License Key
- Veeam Availability Suite 9.5 Installation ISO
- Pure Storage Plugin
- Available Windows server with the following:
- 1. 64-bit OS
- 2. X86-64-processor with 4 cores minimum
- 3. Recommended 12 GB RAM plus 2 GB RAM, per concurrent task
- 4. 2 GB of available disk space for installation
- Available HBA for direct storage fabric connection (10 Gb e/FC) and network connectivity
- Purity, version 4.8 or higher

Install Veeam Backup & Replication 9.5

To install Veeam Backup & Replication 9.5, follow these steps:

- 1. Log into the available Windows 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.
- After you mount or insert the disk with Veeam Backup & Replication setup, Autorun will open a splash screen with installation options. 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.



Figure 1: Veeam Backup & Replication installation splash screen

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

🗃 Veeam Backup & Replication Setup 🦳 🗌	\times
License Agreement Please read the following license agreement carefully.	闾
Veeam Software ("Veeam") End User Software License Agreement ("EULA")	^
IMPORTANT - READ CAREFULLY This EULA is a legally binding agreement between licensee end user ("End User") and Veeam setting forth the terms and conditions governing the use and operation of Veeam's proprietary computer software products (the "Software") and the written technical specifications for the use and operation of the Software (the "Documentation"). Where the sense and context permit, references in this EULA to the Software include the Documentation. By downloading and installing, copying or otherwise using the Software, and/or otherwise accepting this EULA, End User agrees to be bound by the terms and	~
 I accept the terms in the license agreement I do not accept the terms in the license agreement 	
< Back Next > Cance	el

Figure 2: Veeam EULA

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



Figure 3: Veeam License File Selection

- 8. Select the components you want to install. The Veeam Backup & Replication setup includes the following components:
- Veeam Backup & Replication
- Veeam Backup Catalog responsible for indexing VM guest OS files
- Veeam Backup & Replication Console

📴 Veeam Backup & Replication Setup	– 🗆 X
Program features Select the program features you want to be installed.	闿
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 4: Setup options

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 to install missing software automatically.

部	Veeam Backup & Replication Setup —	· 🗆)	X
\$ P	System Configuration Check lease wait while setup is checking your system for potential installation problems.		
	Requirement	Status]
	Microsoft System CLR Types for SQL Server 2014	😮 Failed	
	Microsoft SQL Server 2014 Management Objects	🙆 Failed	
	Microsoft PowerShell v2.0	Passed	
	Your computer does not meet minimum requirements. Click the "Install" button to deploy missing features.	Re-run	
	< Back Next >	Cancel]

Figure 5: Pre-installation system configuration check

10. Choose to accept the recommended default settings or check the box Let me specify different settings. Checking the box to specify your own settings will enable you to customize your Veeam installation. If you go with the default settings, click **Install** and proceed to the next section. If you chose to specify your own settings, you can check the box to customize the configuration.

Configuration settings:		
Installation folder:	C:\Program Files\Veeam\Backup and Replication\	^
vPower cache folder:	C:\ProgramData\Veeam\Backup\NfsDatastore\	
Guest catalog folder:	D:\VBRCatalog	
Catalog service port:	9393	
Service account:	LOCAL SYSTEM	
Service port:	9392	
Secure connections port:	9401	
SQL Server:	AUCSC3260\VEEAMSQL2012	

Figure 6: Default configuration

- 11. You can go back, review and modify previous steps using the **Back** button. If you are sure that all settings are configured correctly, click **Install** to begin the installation. When the installation completes, click **Finish** to exit the setup wizard. You can now start Veeam Backup & Replication.
- 12. Install the Pure Plugin. Run the .exe and click **Next** to begin installation.

🖟 Pure Storage Plug-In for Vee	am Backup & Replication X
AVAILABILITY for the Always-On Enterprise	Welcome to the InstallShield Wizard for Pure Storage Plug-In for Veeam Backup & Replication The InstallShield(R) Wizard will install Pure Storage Plug-In for Veeam Backup & Replication on your computer. To continue, click Next.
veeam	WARNING: This program is protected by copyright law and international treaties.
	< Back Next > Cancel

Figure 7: Plugin install wizard

13. Accept the **Terms of Usage** and click **Next** to continue.

🖟 Pure Storage Plug-In for Veeam Back	kup & Replicatio	on	×
Terms of Usage Please read the following terms careful	ly.		C
Storage Plug-Ins fo	or Veeam Back erms of Usage	up & Replication	
IMPORTANT - READ CAREFULLY This plug-in is offered by the indicated plug-in is with you and your storage ve provide warranty of any kind for this plu support the use of this plug-in only to i functionality that the plug-in enables. I the plug-in code, its functionality, or ex your storage arrays or any other produ vendor directly.	d third-party ven endor. By distrib ug-in, either exp the extent of sto f you have any (periencing any uction systems,	dor. The entire rish puting the plug-in, o pressed or implied yrage snapshot int questions or conce issues with this p you must contact	c of using this /eeam does not I. Veeam will egration erns regarding lug-in impacting the third-party
I accept these terms O I do not accept these terms InstallShield			
	< <u>B</u> ack	<u>N</u> ext >	Cancel

Figure 8: Accept terms

14. Click **Install** to begin the installation process.

🕼 Pure Storage Plug-In for Veeam Backup & Replication	×
Ready to Install the Program The wizard is ready to begin installation.	C
This plug-in enables Veeam Backup & Replication to perform backup and restore of VMware vSphere VMs directly from storage snapshots of Pure Storage arrays. This software is developed by Pure Storage Inc.	
Click Install to begin the installation, or Cancel to exit the wizard.	
InstallShield	ancel

Figure 9: Ready to Install

15. Once the installation complete, click **Finish** and continue to the next section.



Figure 10: Installation complete

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
- Install Pure Storage Plugin
- SAN Infrastructure to allow for integration with the Pure Storage system

Adding the Infrastructure

- 1. For building your backup infrastructure in a VMware vSphere environment, Veeam Backup & Replication supports the following types of servers:
- VMware Server
- 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).

Server Type	Source Host	Target Host	Backup Proxy	Backup Repository
VMware vSphere Server (standalone ESX(i) host or vCenter Server)	٠	٠	0	0
VMware vCloud Director	۲	0	0	0
Microsoft Windows server	0	0	۲	۲
Linux server	0	0	0	٠

Figure 11: Server types

2. To add a VM ware server, open the Backup Infrastructure view and launch the Add Server wizard.

ADD SERVER		×
Select the typ can be found	e of server you want to register with backup infrastructure. All registered servers under the Managed servers node on the Infrastructure tab.	
■ vm	VMWARE VSPHERE Adds vCenter Server (recommended), or standalone vSphere Hypervisor (ESX/ESX).	
	VMWARE VCLOUD DIRECTOR Adds VMware vCloud Director 5.5 or later server.	
	MICROSOFT <u>HYPER-V</u> Adds SCVMM server, Hyper-V cluster, or standalone host (2008 R2 or later).	
	MICROSOFT SMB3 Adds SMB3 server cluster, or standalone SMB3 server.	
	MICROSOFT WINDOWS Adds Microsoft Windows server (Windows 2008 or later).	
	LINUX Adds Linux server (must have SSH and Perl).	
	Cancel	

Figure 12: Add Server Wizard

3. Once the Add Server wizard is launched, select the first option for VMware vSphere.

4. Enter the DNS name or IP address of the VMware Server. A description can be entered for future reference. The default description will include information about the user who added the server, as well as the date and time when the server is added. When done, click **Next**.

Edit VMware Server		×
Specify DNS name	or IP address of VMware server.	
Name	DNS name or IP address:	
Credentials	ative01	
Summary	Description:	
Commony	Created by GA\shawn at 11/16/2016 9:45 AM.	
	< Previous Next > Finish Cance	ł

Figure 13: New VMware Server

5. The Credentials are next. On this screen, click Add to input new credentials. It is recommended that vCenter Admin be used if adding a vCenter Server, and root credentials for standalone ESX(i) hosts. NOTE: The username of the account should be provided in the DOMAIN\USERNAME format. Click Next to proceed.

Edit VMware Server		×
Credentials Select server administrat	tor's credentials. If required, specify additional connection settings including web-service port numbe	r.
Name Credentials Summary	Select an account with local administrator privileges on the server you are adding. Use DOMAIN/USER format for domain accounts, or HOST/USER for local accounts. Credentials: Credentials: Credentials: Credential	
	Default VMware web services port is 443. If connection cannot be established, check for possible port customization in the vCenter Server or ESX(i) server settings. Port: 443	
	< Previous Next > Finish Cancel	

Figure 14: Credentials

- 6. On the Summary screen, review the configuration information and click Finish to exit the wizard.
- 7. You can repeat these steps for any additional VMware servers, Windows servers, Linux servers, or vCloud Director servers you add. **NOTE:** The steps for servers other than VMware are not identical, but they are very similar. At this point, add any Windows or Linux servers you wish to use as a backup repository (backup repositories are the locations where you wish to house your backup files).

Adding additional backup repositories

By default, Veeam automatically creates a local backup repository on the C:\ drive of the Veeam Backup & Replication server. This is not always the best location for your backup files. You can create additional repositories using the steps below.

- 1. Open the **Backup Infrastructure** view, click on the **Backup Repositories** node in the inventory pane and click **Add Repository** on the ribbon.
- 2. Specify a name for the repository and provide a description for future reference. By default, the description contains information about the user who created the backup repository, as well as the date and time when the repository was created.
- 3. Next, choose the type of repository you would like to add, the four options are **Microsoft Windows server**, **Linux server**, **Shared folder** and **Deduplicating storage appliance**.

New Backup Repository	×
Choose type of bac	kup repository you want to create.
Name Type Server Repository Mount Server Review Apply	 Microsoft Windows server Microsoft Windows server with internal or directly attached storage. Data mover process running directly on the server allows for improved backup efficiency, especially over slow links. Linux server Unux server with internal, directly attached, or mounted NFS storage. Data mover process running directly on the server allows for more efficient backups, especially over slow links. Shared folder CIFS (SMB) share. When backing up over slow links, we recommend that you specify a gateway server located in the same site with the shared folder. Deduplicating storage appliance Advanced integration with EMC Data Domain, ExaGrid and HPE StoreOnce. For basic integration, use the Shared folder option above.
	< Previous Next > Rinish Cancel

Figure 15: Backup repository types

4. This step depends on the type of backup repository selected. If **Microsoft Windows** server or **Linux server** are selected, follow step 5. If a **Shared folder** is selected, skip to step 6.

5. From the **Repository server** list, select the Windows or Linux server to be used as a backup repository. The **Repository server** list contains only servers that have been added to the **backup infrastructure** beforehand. If a server needs to be added at this point, **Add New** can be selected. Click **Populate** to see a list of the volumes connected to the selected server, their capacity and free space. Click **Next** once the selections are made and skip to step 7.

New Backup Repository					×
Server Choose server ba	cking your repository. You can s	elect server from the list of ma	naged servers a	dded to the cons	ole.
Name	Repository server:				
Turne	AUCSC3260.alliances.loca	al (Backup server)		~	Add New
туре	Path	^	Capacity	Free	Populate
Server	C:\		445.6 GB	365.5 GB	
Repository	• D:\		120.1 TB	118.2 TB	
Mount Server					
Review					
Apply					
		< Previous	Next >	Finish	Cancel

Figure 16: Repository server selection

6. In the Shared folder field, specify the UNC path to the shared folder. Select credentials of an account with administrative privileges on the share. Click the Manage accounts link at the bottom of the list or click Add on the right to add the necessary credentials. Next, specify the way in which VM data should be written to the shared folder, Directly from the backup server or Through the following Gateway server. NOTE: A Gateway server is highly recommended if this repository is off site. Click Next when finished.

New Backup Repository	×
Share Type in UNC path to s write data to this shar	share (mapped drives are not supported), specify share access credentials and how backup jobs should e.
Name Type	Shared folder: Image:
Share Repository Mount Server	Inis share requires access createntials: Credentials: Add Manage accounts
Review Apply	Gateway server: Automatic selection The following server: AUCSC3260.alliances.local (Backup server) Use this option to improve performance and reliability of backup to a NAS located in a remote site.
	< Previous Next > Finish Cancel

Figure 17: Shared folder configuration

7. In the **Location section**, specify the path to the folder where back-up files should be stored. Click Populate to see the capacity and available free space on the selected partition. In the Load control section, set the necessary values to limit the number of concurrent jobs for the repository. You can also limit the data ingestion rate to restrict the total speed of writing data to the repository disk.

New Backup Repository		×
Repository Type in path to the f	older where backup files should be stored, and set repository load control options.	
Name Type	Location Path to folder:	
Server Repository	Capacity: Popula	ie
Mount Server Review Apply	Load control Running too many concurrent tasks against the same repository may reduce overall performanc and cause I/O operations to timeout. Control storage device saturation with the following setting Unit maximum concurrent tasks to: Limit read and write data rates to: MB/s	e, js:
	Click Advanced to customize repository settings Advance	d
	< Previous Next > Finish Cance	.

Figure 18: Location and load control configuration

- 8. If a deduplicating storage appliance or rotated drives will be used, click **Advanced...** to configure additional repository settings. This menu also contains the option to select **Use per-VM backup files**. If these settings are not needed, click **Next** to proceed and skip to step 11.**NOTE:** Follow the <u>Veeam best practices guide</u> for your specific deduplication appliance.
- 9. For storage systems using a fixed block size, select the **Align backup file data blocks** check box. Veeam will align VM data saved to a backup file to a 4 KB block boundary. This option provides better deduplication across backup files, but can result in a greater amount of unused space on the storage device and a higher level of fragmentation.
- 10. When compression is enabled for a backup job, VM data is compressed at the source side. However, compressing data prior to writing it to a deduplication storage appliance results in poor deduplication ratios as the number of matching blocks decrease. To overcome this situation, select the **Decompress backup data blocks before storing** check box. If you are using rotating drives for this repository, select **This repository is backed by rotated hard drives**. After your selections are made, click **OK** to accept these settings and then click **Next** to proceed.

Storage Compatibility Settings	×	
Align backup file data blocks		
Allows to achieve better deduplication ratio on deduplicating devices leveraging constant block size deduplication. Increa backup size when backing up to raw disk storage.	g storage ases the	
Decompress backup data blocks before storing		
VM data is compressed by backup proxy according to the bi compression settings to minimize LAN traffic. Uncompressing before storing allows for achieving better deduplication ratio deduplicating storage appliances at the cost of backup perfi	ackup job g the data on most omance.	
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 benefiting from multiple I/O streams. This is the recommende when backing up to deduplicating storage appliances.	devices ed setting	
ОК	Cancel	

Figure 19:Deduplicating storage compatibility settings

11. Select the **Enable vPower NFS server on the mount server (recommended)** check box to make the repository accessible by the vPower NFS service. You can select any Windows server from the list or choose the **Add Server** option to assign this role to a Windows server not currently added to the console. In the **Folder** field, browse and specify the folder where the instant VM recovery write cache will be stored. This volume should have at least 10 GB of free disk space.

Edit Backup Repository	×
Mount Server Specify a server to m backup files, enablin	nount backups to for file-level restores. vPower NFS service allows for running virtual machines directly from g advanced functionality such as Instant VM Recovery, SureBackup and On-Demand Sandbox.
Name	Mount server: AUCSC3260.alliances.local (Backup server)
Server	Enable vPower NFS service on the mount server (recommended) Specify vPower NFS write cache location on the mount server. Make sure the selected volume has results for disk server available to show showed disk blacks of instantly conversed 10 for
Repository Mount Server	Folder: C:\ProgramData\Veeam\Backup\NfsDatastore Browse
Review Apply	
	Click Ports to change NFS server and backup mount listener ports Ports
	< Previous Next > Finish Cancel

Figure 20: Mount server and vPower NFS configuration

12. To change the default port setting for the vPower NFS and other related components, there are two options listed the bottom right of the screen. Click Manage to open the Network Settings window and customize network ports for individual components. Click Ports to open the Ports Settings window and customize the ports for the vPower NFS service. When completed, click Next to proceed.

Ports Settings		×
Mount Port:	1063 🜲	
Mount acceptors port of detected port is 1063.	vPower NFS service. Default value is 1058,	
vPower NFS Port:	2049 🚔	
NFS acceptors port of v detected port is 2049.	Power NFS service. Default value is 2049,	
	OK Cancel	

Figure 21: vPower NFS port settings

13. After the wizard checks for existing components, you can review the repository properties and installed components. Click Previous to change any of the properties or click **Next** to proceed and apply these properties.

Edit Backup Repository			:
Please review the	settings, and click Apply to	continue.	
Name Type Server Repository Mount Server Review	Repository type: Mount host: Account: Backup folder: Write throughput: Max parallel tasks:	Windows AUCSC3260.alliances.local Not set D:\Backups Not limited Not limited	
Apply	The following compo Component name Transport vPower NFS Mount Server	nents will be processed on server AUCSC3260.alliances ckups automatically ile system index	local: Status already exists already exists already exists
		< Previous Apply	Finish Cancel

Figure 22: Review repository properties

14. Real time processing results will be displayed in the log. Wait for the required operations to be performed. When the wizard finishes adding the backup repository, you can review the log information. Click **Finish** to exit the wizard.

Configuration backups

Veeam Configuration Backups export the configuration data from the Veeam Backup SQL database and saves the data in a backup file on a repository. If the Veeam backup server fails for some reason, you can re-install the Veeam backup server and then quickly restore its configuration from the backup file. Alternatively, you can apply the configuration of one Veeam backup server to any other Veeam backup server in your backup infrastructure. It is recommended that your regularly create a configuration backup for every Veeam backup server in your backup infrastructure. Periodic configuration backups will reduce the possibility of data loss and minimize administrative overhead if any problem with the backup server(s) occur.

When a configuration backup is performed, Veeam retrieves configuration data for the Veeam backup server from the SQL database. It then writes this data into a set of **.xml files** and archives these **.xml** files to a **.BCO** file.

By default, Veeam is configured to create a configuration backup daily and store it to the default backup repository: the C:\backup\VeeamConfigBackup\%BackupServer% folder on the Veeam backup server. However, for security's sake, it is recommended that you store configuration backups on a backup repository *other* than the default repository. In this case, the Veeam backup server configuration data will be available for recovery even if the Veeam backup server fails. The following steps outline the scheduling of configuration backups:

- 1. From the main menu of Veeam Backup & Replication, choose Configuration Backup.
- 2. Make sure that the **Enable configuration backup to the following repository**: check box is selected in the **Export Configuration** window.
- 3. From the **Backup repository** list, choose the repository to which the configuration backup should be written to. **NOTE:** It is highly recommended that the selected repository NOT reside on the Veeam Backup Server.
- 4. In the **Schedule** section, click **Configure** and specify the time schedule per when the configuration backup should be created.
- 5. In the **Retention policy** section, specify the number of configuration backups to keep on the disk.
- 6. **Encrypt configuration backup** can be also be enabled by checking the box and providing a password to unencrypt the backup.

Configuration Backup Settings X			
Backup			
Enable configuration backup to the following repository:			
Backup repository:			
Default Backup Repository (Created by Veeam Backup)	\sim		
34.6 GB free of 49.5 GB			
Restore points to keep: 10			
Perform backup on: Daily at 10:00 AM	Schedule		
Last successful backup: <u>11/29/2016 10:00 AM</u>	Backup now		
Encrypt configuration backup			
Password:			
\sim	Add		
Loss protection enabled Manage passwords			
1 User accounts are not included in the configuration b	ackup		
Restore			
Restore the configuration backup to this server:	Restore		
OK Cancel	Apply		

Figure 23: Configuration backup settings

Adding Veeam proxy access to Pure Storage Array

- 1. For iSCSI, **make sure that the iSCSI service is running on the Veeam Proxy Server**. Once you add the Pure FlashArray(s) into the Veeam Console, Veeam will automatically create the necessary connections. The iSCSI service must be running before you add the FlashArray(s) within the Veeam console.
- 2. For FC, it is necessary to create these connections manually.
- 3. Log into the Pure Storage dashboard, select Storage -> Hosts



Figure 24: New FC host configuration

4. For an FC host, type the name in the **Name** field and click Create. If more than one host is needed, click the Create **Multiple**... button.

Crea	te Host		×
Name:	VeeamFCproxy		
Creat	e Multiple	Cancel	Create

Figure 25: Create host(s)

5. Under the **Host Ports (O)** tab, click the drop-down button below the tab and to the right and select the option: **Configure Fibre Channel WWNs**.

Vecom-Pure-ALP1 Pure X P	acy error X EMC Unisphere X	θ - α
C A Not secure htt	x//12.0.1.44/storage	
PURESTORAGE		Help Terms Welcome pureaser logged in as array_admin to Vesam-F
SHBOARD STORAGE	PROTECTION ANALYSIS SYSTEM MESSAGES	Search Hosts and Volumes
Hosts +	VeeamFCproxy Provisioned Total Reduction	Data Reduction
ATLESXI09 ATLESXI10	Volumes Snapshots	
ATLESXI1 ATLESXI12	Connected Volumes (0) Host Ports (0) Protection (0) Details (0)	
ATLESXI13		
ATLESXI14		0.00
E\$3006	No host ports have been configured.	Configure Fibre Channel
ES/007		Configure ISCSI IQNs
E30001		
ES/03		
VBRserver		
VEEAM-StorageHost-AUCS		
VeeamFCproxy		
Volumes +		
FlashArray_Vol1		
Veeam-Pure-ALP01		

Figure 26: Configure FC WWNs

6. Select Enter WWNs Manually.

Configure Fibre Channel WWNs for Host 👓 VeeamFCproxy		
Existing WWNs	Enter WWNs Manually	Selected WWNs
No available WWNs have been discovered.		None selected
		Cancel Confirm

Figure 27: Enter WWNs Manually

7. In the pop-up box, enter the WWN of the proxy server that needs access in the Port **WWNs** field and click **Add**.

Enter WWNs Manually	ж
Type or paste one or more WWN strings separated by white space or commas. Port WWNs:	
Cancel Ad	d

Figure 28: Add WWN

- 8. Select Connected Volumes and click on the menu in the upper right corner.
- 9. Select the **Connect Volumes** tab.

Veeam-Pure-ALP1 Pure X Priv	acy error X 🔚 EMC Unisphere X	Θ - Θ
C A Not secure https	//12.0.1.44/storage	†
PURESTORAGE		Help Terms Log Welcome pureuser logged in as array_admin to Vesam-Pure-AU
ASHBOARD STORAGE	PROTECTION ANALYSIS SYSTEM MESSAGES	Search Hosts and Volumes
Hosts +	VeeamFCproxy Provisioned Total Reduction O	Data Reduction
		Use
ATLESXI09 ATLESXI10	Volumes Snapshots 0	Ç 0
= ATLESXI11	Connected Volumes (m. Host Ports (t) Protection (m. Details (m.	
= ATLESXI12	Competer Remits (a) Trace of (b) Trace of (c) Decima (a)	
= ATLESXI14		010 0
= ESX06	No volumes have been connected.	Connect Volumes
= ESXI07		Disconnect Selected Volum
= ESxi01		Download CSV
= ESxI02		
= ESxi03		
= VBRserver		
VEEAM-StorageHost-AUCS		
Volumes		
volumes +		
FlashArray_Vol1		
Veeam-Pure-ALP01		

Figure 29: Connect volumes

- 10. Select from the existing volumes and click Confirm when complete.
- 11. Repeat all steps above for other Pure Storage arrays in the environment. It is important that Veeam Proxy Servers have access to leverage storage snapshots for backup, restore and sandbox functions.

Connect Volumes to Host 📼 VeeamFCproxy		×
Existing Volumes	Create New Volume	Selected Volumes
	< 1-2 of 2 >	None selected
FlashArray_Vol1		
Seeam-Pure-ALP01	∞≕ x 14 7 T	
		Cancel

Figure 30:

Adding the SAN Infrastructure

Veeam Backup & Replication lets you leverage Pure Storage snapshots as a part of a comprehensive backup and recovery strategy, where Pure Storage snapshots and image-level backups complement each other. With Veeam Backup & Replication, you can:

- Perform backups from Pure Storage snapshots
- Restore data directly from Pure Storage snapshots
- Perform snapshots-only backups (Snapshot Orchestration)

Before working with Pure Storage snapshots in Veeam Backup & Replication, the backup infrastructure must be properly configured:

1. The Veeam backup server's proxy component is used for re-scanning VMFS on Pure Storage volumes and for performing backup from Pure Storage snapshots. For the proxy component to perform these functions, it must meet the following requirements:

iSCSI protocol

The backup proxy must have a Microsoft iSCSI Software initiator enabled. Backup from storage snapshots requires the Microsoft iSCSI initiator. iSCSI traffic between the backup proxy and storage system must be allowed.

Fiber Channel protocol

The proxy server must have a fiber channel adapter installed and configured, have access to the Pure Storage array through the fiber channel fabric and be zoned to the fiber channel switch. The backup proxy must be registered with a WWN on the Pure Storage array.

2. To start using storage snapshots for backup and restore, the Pure Storage system must be added to Veeam. To do so, open the **SAN Infrastructure** view, click **Add Storage**.

ADD STORAGE
Veeam Backup & Replication integrates with the leading primary storage arrays to enable backup and restore of individual VMs, guest files and application items from storage snapshots of VMware VMFS and NFS volumes. In addition to built-in integrations. Veeam provides the Universal Storage API that allows gualified storage vendors to create fully supported custom.
of high the second s
To start using this functionality, register your storage by clicking this text. If you don't see your storage in the list, please install the corresponding plug-in first.

Figure 31: Adding storage

3. From the storage vendors list, select Pure Storage.



Figure 32: Pure Storage

4. In the **Name** step of the wizard, specify the name and description for the Pure Storage system in the **DNS name** or **IP address**: field.

New Pure Storage Storage		×
Name Register Pure Storage	e storage by specifying its DNS name or IP address.	
Name	DNS name or IP address:	
Credentials	Description:	
Access Options	Created by GA\shawn at 4/9/2018 2:54 PM.	
Summary		
	< Previous Next > Finish	Cancel

Figure 33: DNS or IP

5. In the Description field, provide a description for future reference. The default description contains information about the user who added the Pure Storage system and the date and time when the storage system was added. Once the description is complete, click **Next**.

New Pure Storage Storage		\times
Credentials Type in storage adm	inistrator credentials.	
Name Credentials	Select credentials with Local Administrator privileges on the server you are adding	
Access Options	Credentials: Y pureuser (pureuser, last edited: less than a day ago) Add <u>Manage accounts</u>	
Summary	Port: 443	
	< Previous Next > Finish Cancel	

Figure 34: Pure Storage access credentials

6. Next, from the **Credentials** list, select the credentials for the user account to connect to the Pure Storage system. If the necessary credentials are not set up beforehand, click the **Add** button to the right or the **Manage accounts** link below to add the necessary credentials. **NOTE:** The account selected must have administrative privileges on the Pure Storage system.

New Pure Storage Storage		×
Access Options Specify how this stor	age can be accessed by Veeam.	
Name Credentials Access Options Summary	Protocol to use: ✓ Fibre Channel (FC) ✓ iSCSI NFS Volumes to scan: Automatic detection (all VMFS volumes found with the initial scan) Backup proxies to use: Automatic selection	Choose
	< Previous Next > Finish	Cancel

Figure 35: Access options

7. From the **Protocol to use** list, check the type of protocol over which Veeam will back up data from the Pure Storage system.

Choose Volumes	×	
Choose storage volumes which should be scanned periodically to detect and catalog newly added VMs. Limiting the amount of volumes to scan reduces storage load.		
All volumes except:		
Name	Add	
	Remove	
O Only these volumes:		
Name	Add	
	Remove	
ОК	Cancel	

Figure 36: Choose volumes

8. The **Volumes to scan** option allows for customization of the volumes Veeam will scan for VMs and existing snapshots. It is highly recommended this selection be made if you have volumes that contain non-VM data.

Backup Proxy	×
Choose backup proxies servers for this job. For redundancy, we rec select at least two proxies. When multiple proxies are available, sele performed on per-VM basis, taking into account proxy connectivity load.	commended to ection will be y and current
Automatic selection	
The job will automatically select the most suitable backup proxy available backup proxy servers.	r server from all
 Use the selected backup proxy servers only 	
The job will automatically select the most suitable backup proxy following list of proxy servers.	r server from the
Name	Select All
VMware Backup Proxy	Clear All
ОК	Cancel

Figure 37: Backup proxy selection

- 9. The **Backup Proxy** selection can also be important if you have multiple locations and multiple Pure Storage arrays to manage. Proxies can be assigned to specific Pure Storage arrays to keep volume rescans and other management operations local to the storage.
- 10. Review the summary information and click **Finish**. After you click **Finish**, Veeam will perform the Pure Storage discovery operation; it will rescan the storage LUNs and locate VM files on them.

New Pure Storage Storage	X
Summary You can copy the c	onfiguration information below for future reference.
Name Credentials Access Options Summary	Summary: Storage 'Veeam-Pure-ALP1' was successfully created. OS: 4.8.4. Connection options: User: pureuser After you click Finish, all LUNs of storage Veeam-Pure-ALP1 will be searched for VM files. To view the progress, open the corresponding session log.
	< Previous Next > Finish Cancel

Figure 38: New Pure Storage

- 11. The details of the rescan process are displayed in the **System** window. This window can be closed and a review of the rescan details can be accessed later in the **History** view of Veeam Backup & Replication. Click **Close** once the discovery is completed.
- 12. Storage rescans will be performed automatically. Veeam will discover new volumes and snapshots or remove deleted volumes and snapshots from the storage system hierarchy. If necessary, a storage rescan can also be initiated manually.
- 13. To perform a manual, rescan of the storage system, follow these 4 steps:
- a. Open the SAN Infrastructure view.
- b. In the inventory pane, expand a tree of the storage system to rescan.
- c. Select the necessary node in the storage system hierarchy: storage system, volume and so on.

d. Click Rescan on the ribbon. Alternatively, you can right-click the necessary node in the hierarchy and select Rescan.

Creating and deleting Pure Storage snapshots

Creating and deleting storage snapshots can be performed from the Veeam Backup & Replication interface. Create/ delete snapshot operations do not differ from create/delete snapshot operations performed via the Pure Storage dashboard, and any snapshots created manually will be crash-consistent.

Creating a volume snapshot:

- 1. Open the SAN Infrastructure view.
- 2. In the inventory pane, expand a tree of the necessary storage system.
- 3. Right-click the necessary volume and select Create Snapshot.
- 4. In the New SAN Snapshot window, specify a name for the created snapshot and provide a snapshot description.

Deleting a volume snapshot:

- 1. Open the SAN Infrastructure view.
- 2. In the inventory pane, expand a tree of the necessary storage system.
- 3. Right-click the necessary snapshot and select Delete Snapshot.

New Storage Snapshot		×
Volume name: Snapshot name:	FlashArray_Vol1 FlashArray_Vol1_SS	
Snapshot description:		
		OK Cancel

Figure 39: Manual snapshot creation

Performing backup from Pure Storage snapshots

Backup jobs can be configured to use Veeam Backup from Storage Snapshot technology, which leverages Pure Storage system snapshots for backup operations. Instead of reading data from VMware VM snapshots, Veeam reads data from storage snapshots, which speeds up backup operations and improves recovery point objectives (RPOs). Veeam is also able to orchestrate snapshots between Pure Storage arrays without taking a backup. Combining snapshot orchestration along with backups can offer more aggressive RPOs.

Backup from Storage Snapshots: Backup job creation

- 1. To create a backup from storage snapshots job, select **Backup & Replication** under the **Home** tab. Click on the **Backup Job** button to begin.
- 2. The **New Backup Job** wizard will pop up. Start by giving the job a Name. Below the job name is the Description box. By default, this box will be populated with the user who created the job along with a date and time stamp. Optionally, additional text can be added. Click Next to move on.

New Backup Job	×
Name Type in a name and	description for this backup job.
Name	Name:
Virtual Machines	Backup Job
Storage	Created by ALLIANCES\shawn at 4/27/2018 8:36 AM.
Guest Processing	
Schedule	
Summary	
	< Previous Next > Finish Cancel

Figure 40: New backup job wizard

3. The next step is to add virtual machines to the job. Start by clicking **Add**. The **Add Objects** window will open. There are multiple options for adding virtual machines into the backup job. Virtual machines can be selected individually or an entire container can be selected. Some of the options are entire hosts, clusters, datastores, folders and VM tags. Since this job will be leveraging volume snapshots on the Pure Storage array, a recommendation is based on the datastore. Click **Add** to add the virtual machines and then **Next** to move on.

Select objects:	🖸 🛱 🔓 🛢 🛷
✓ IIII Marietta	^
> 🧧 Do_Not_Use	
> 📑 FlashArray_DS01	
> 🧮 Host1_Local	
> 🧧 Host2_Local	
> 🧧 Host3_Local	
> 📑 Host4_Local	
	*
★- Type in an object name to search for	Q
	Add Cancel

Figure 41: Add virtual machines

4. Storage options will allow you to select a specific proxy to leverage for the backup, but by default the Backup proxy will be selected automatically. Backup repository can be selected by clicking on the drop-down button for the location where the newly created backup files will be stored. Retention policy will allow for specifying the desired number of restore points to retain. There is also an option to Configure secondary destinations for this job, if this option is selected, a new menu will be available for selecting the secondary destination. Secondary destinations can include a backup copy job, tape job or a secondary Pure Storage array (for replicated snapshots). Click the Advanced button in the lower right-hand corner to see where the integration settings for the job are located. Keep in mind that if you wish to perform backups from snapshots located on the secondary array, the Configure secondary destinations for this job box needs to be checked and the Backup repository should be located local to the secondary array. Click Next to continue.

New Backup Job	×
Storage Specify processing p job and customize a	roxy server to be used for source data retrieval, backup repository to store the backup files produced by this dvanced job settings if required.
Name	Backup proxy:
	Automatic selection Choose
Virtual Machines	Backup repository:
Storage	Pure Storage Snapshot (Primary storage snapshot only) \sim
Guest Processing Schedule Summary	Retention policy Restore points to keep on disk: 14 Configure secondary destinations for this job Copy backups produced by this job to another backup repository, or to tape. Best practices recommend maintaining at least 2 backups of production data, with one of them being off-site.
	Advanced job settings include backup mode, compression and deduplication, block size, notification settings, automated post-job activity and other settings.
	< Previous Next > Finish Cancel

Figure 42: Storage Menu Options

5. Click on the **Integration** tab once the **Advanced** setting window is available. On the **Integration** tab, the **Enable backup from storage snapshots** box should already be checked by default. If it is not checked, check it. Other options include being able to limit the number of process VMs per storage snapshot and failover options for the job. There are many other tabs available that change different aspects of the backup job. For this guide, the other tabs will not be covered. Please refer to the Veeam user guide for details on other tabs. Click **OK** and click **Next** back at the Storage menu to proceed.

Advanced Settings						×
Backup Maintenance	Storage	Notifications	vSphere	Integration	Scripts	
Primary storage integra	ation					
Enable backup from the second seco	om storag	e snapshots				
Use storage snap: job. Using storage from VM snapsho	shots (inst e snapsho ot commit	ead of VM sna ts reduces imp	pshots) as act on the	the data sour production e	ce for this nvironment	t
Limit process	ed VM cou	unt per storage	snapshot	to	10	A. Y
By default, the datastore from	e job will j n a single	process all inclu storage snapsh	uded VMs not.	located on th	e same	
Failover to sta	ndard ba	:kup				
Perform stand snapshot fails	lard backı	up from VM sn	apshot if b	ackup from s	torage	
Save As Default				ОК	Cance	al

Figure 43: Integrations tab

6. If the secondary target option was checked, the next step includes the Secondary Target options. Click Add on the right side of the window and a selection box will open. Here, you have the option to retain the storage snapshot and apply a specified retention policy. Jobs will allow you to add a backup copy job or tape job. Pure Storage Snapshot will allow you to set retention for the snapshot on the primary Pure Storage array. By default, once Veeam completes the backup, it will remove the storage snapshot. This option needs to be selected if Pure Storage snapshot retention is desired on the primary array. Click OK and then click Next to continue.

Edit Backup Job [BfSS]					×
Secondary Target Use the backups pr backups and replic	oduced by this job to s as over WAN.	atisfy backup requirem	ent by archiving backups	to tape, or efficiently	creating remote
Name	Secondary destina	tion jobs:			
Virtual Machines	Name	Туре	Free		Add
Virtual Machines	Pure Storage Snapsh	ot	×		Edit
Storage	Maintains additiona	I backup copy by prese	erving array snapshots		Remove
Secondary Target	produced by this jol	o on the primary storag	e.		
Guest Processing	Number of snapsho	t copies to retain: 14	-		
		ОК	Cancel		
Schedule					
Summary					
			< Previous Next >	Finish	Cancel

Figure 44: Secondary target selection

7. Guest Processing is the next step in the backup job wizard. This is a very important step if application consistency is desired for both the snapshot and backup files. To enable this, check the Enable application-aware image processing box. This option will require Guest OS credentials. Click Add next to the Guest OS credentials to add a new set of credentials or choose credentials from the drop-down box. There is also an Applications button. The enable application-aware processing button opens a new window where you can select a VM or object you are backing up and Edit the way it is processed. Editing a VM or object will open the Processing settings window with multiple tabs. These tabs include General, SQL, Oracle, File Exclusions and Scripts. If you would like more detail on these options, please refer to the Veeam user guide. Under Guest Processing, there is also an option to Enable guest file system indexing. Enabling this option will allow Veeam to create a searchable catalog of the guest files. It will also enable features such as 1-click restores. To leverage the catalog, the optional Veeam Backup Enterprise Manager should be installed. File system indexing will also require Guest OS credentials. There is also an Indexing button next to the setting that allows for customization of the indexing Veeam will perform. The last setting in this section is the Guest interaction proxy. By default, Veeam will select an appropriate proxy to perform this interaction, but you can explicitly select the desired proxy or number of proxies. There is also a Test Now button near the bottom, which allows you to test the settings prior to running the back-up job. Testing the settings prior to running the job can help prevent job failures due to incorrect or insufficient credentials. When finished with these settings, click Next to proceed.

New Backup Job		×
Guest Processing Choose guest OS p	rocessing options available for running VMs.	
Name	Enable application-aware processing	
Virtual Machines	Detects and prepares applications for consistent backup, performs transaction logs configures the OS to perform required application restore steps upon first boot.	processing, and
Storage	Customize application handling options for individual items and applications	Applications
Cuart December 1	Enable guest file system indexing	
Guest Processing	Creates catalog of guest files to enable browsing, searching and 1-click restores of Indexing is optional, and is not required to perform instant file level recoveries.	individual files.
Schedule	Customize advanced guest file system indexing options for individual items	Indexing
Summary	Guest OS credentials	
	V	Add
	Manage accounts	
	Customize guest OS credentials for individual items and operating systems	
	Guest interaction proxy:	
	Automatic selection	Choose
		Test Now
	< Previous Next > Finish	Cancel

Figure 45: Guest processing and indexing options

- 8. Next up is the **Schedule**, which is where you can specify when and how often the newly created backup job will run. There are many options to accommodate your business needs. **Automatic retry** allows for setting the number of times to retry a failed attempt to backup a VM and how long Veeam should wait in between retry attempts. **Backup window** is optional and will allow for termination of a job if it runs outside of a specified window. Click **Next** when complete.
- 9. The final screen on the backup job wizard will display a **Summary** of all the job settings configured throughout the wizard. If these settings are all acceptable, click **Finish** to exit the wizard.

Snapshot orchestration job configuration

- 1. The snapshot orchestration job is the exact same Backup Job wizard leveraged above. This section will only identify the differences when creating the backup job to perform snapshot orchestration. Please refer to the section above if more information is needed on specific parts of the back-up job creation.
- 2. Leveraging the Backup Job wizard to perform snapshot orchestration on Pure Storage arrays can be done within a single job. To accomplish this, create a new backup job, add VMs or objects into the job and once you get to the Storage options, it will differ slightly. Since the Pure Storage is already added into the Veeam storage infrastructure, Veeam will automatically create a repository called Pure Storage Snapshot. To let Veeam know that this is a snapshot orchestration job, select the Pure Storage Snapshot (Primary storage snapshot only) option from the Backup repository drop down. Set the desired Retention and click Next to continue.

New Backup Job	×
Storage Specify processing p job and customize ad	roxy server to be used for source data retrieval, backup repository to store the backup files produced by this dvanced job settings if required.
Name	Backup proxy:
	Automatic selection Choose
Virtual Machines	Backup repository:
Storage	Pure Storage Snapshot (Primary storage snapshot only) $\qquad \qquad \lor$
Guest Processing	Retention policy
Schedule	Restore points to keep on disk:
Summary	Configure secondary destinations for this job
	Copy backups produced by this job to another backup repository, or to tape. Best practices recommend maintaining at least 2 backups of production data, with one of them being off-site.
	Advanced job settings include backup mode, compression and deduplication, block size, notification settings, automated post-job activity and other settings.
	< Previous Next > Finish Cancel

Figure 46: Pure Storage Snapshot Repository

- 3. **Guest Processing** is identical to the standard backup job, minus the guest file indexing option. Veeam only offers guest file indexing for backups. Enable **application-aware image processing** if an application consistent snapshot is desired. If not, Veeam will simply orchestrate crash-consistent snapshots.
- 4. Scheduling options are identical to the standard backup job. Once the schedule is set, click Finish.

Restoring VM data from Pure Storage snapshots

VM data can be restored directly from Pure Storage snapshots if important data is accidently lost or corrupted. The restore process is like a restore from image-level backups of VMs. Veeam Backup & Replication offers the following restore options for Pure Storage snapshots:

- Instant VM Recovery[®]
- Restoring VM guest OS files (Windows, Linux and others)
- Restoring application items (Exchange, Active Directory, SQL, SharePoint and Oracle)

Q Type in an object name to sear	rch for 🗙		
NAME 🕇	HOST	STATE	SIZE
PureServer01	aesxi03.alliances.local	Application-consistent snapshot	22.4 GB
PureServer02	aesxi instant VM recovery Restore guest files	ation-consistent snapshot	44.1 GB
	Restore application item:	 Microsoft Active Direct Microsoft Exchange mi Microsoft SharePoint c Microsoft SQL Server d Oracle databases 	tory objects ailbox items ontent latabases

Figure 47: Veeam Explorer for Storage Snapshots

Note: Snapshots created by Pure protection groups are not visible to Veeam. Therefore, the Veeam Explorer for Storage Snapshots will not be able to restore VM data from protection group snapshots.

Prior to performing restoration, the following requirements must be met:

For Pure Storage systems working over iSCSI, make sure that the ESX(i) host selected for storage snapshot mounting has the following:

- Access to the Pure Storage system over an iSCSI connection.
- The host is added to the list of servers having access to storage snapshots from which VM data is to be restored. An
 initiator group must be created on the Pure Storage system. The initiator group must contain an IQN of the ESX(i)
 host to which the storage snapshot will be mounted.

For Pure Storage systems working over Fiber Channel, make sure that the ESX(i) host selected for storage snapshot mounting has the following:

- Access to the Pure Storage system over a Fiber Channel connection.
- The host is added to the list of servers having access to storage snapshots from which VM data is to be restored. An
 initiator group must be created on the Pure Storage system. The initiator group must contain a WWN of the ESX(i)
 host to which the storage snapshot will be mounted.

Configuring Veeam DataLabs For Storage Snapshots

Veeam DataLabs is a great way to leverage snapshots for testing. Veeam DataLabs consist of three different components: **Application Group, Virtual Lab and SureBackup Job**.

1. To begin, let's start with the Application Group. From the lower left pane, select **Backup Infrastructure**. Under **Backup Infrastructure**, select **SureBackup**.





2. From here, you can select **Add App Group** from the top menu or **Add Application Group** from the right window. This will launch the **New Application Group** wizard. Begin by giving the group a **Name**, the Description box will be automatically populated with the creator, date and time. Additional text can be added as needed. Click **Next** to continue.

New Application Group		Х
Name Type in a name and	description for this application group.	
Name Virtual Machines Summary	Name: Application Group 1 Description: Created by ALLIANCES\shawn at 4/27/2018 8:54 AM.	
	< Previous Next > Finish Cancel	

Figure 49: New application group wizard

3. The next step is to add VMs that you would like to bring online in the Veeam DataLabs. Click Add VM and select From storage snapshots.

New Application Group						×
Application group def Typically, any applicat	ines virtual machines ru ion group should conta	inning production in at least domain	applications w controller, DN	hich other virtua 5 server and DHC	I machines are P server.	dependent on.
Name	Application group VM	s:				
Virtual Machiner	VM	Role	Memory	Source		Add VM
Summary						From backups From replicas From storage snapshots
						Move Up Move Down
			< Previous	Next >	Finish	Cancel

Figure 50: Adding VMs to an application group

4. A new window will pop up to allow you to select VMs available on storage snapshots. Keep in mind that you can make multiple selections by holding Ctrl while making your selections. Click Add once your selections are made. Keep in mind that VMs listed under the Application group VMs will power on one at a time in the order they appear on the list. As this is a completely isolated environment, please make sure that any necessary dependencies are met. VMs can be rearranged on the list by clicking the Move Up or Move Down button as needed. Once the list is complete, click Next to get to the Summary, and then click Finish.

La at MAA				
HECT VIVI				
elect virtual machine:				
Job name	Last restore point	VM count	Restore points count	
FlashArray Vol1 (Fl	4/16/2018 9:56:46 AM	2		
PureServer01	less than a day ago (8	-	7	
PureServer02	less than a day ago (8		7	
- Type in an object name	to search for			C
			Add Can	cel

Figure 51: Selecting application group VMs

5. Back at the Veeam console, click **Add Virtual Lab** at either the top menu or right window. This guide will cover a basic configuration for the virtual lab. For more details on how the virtual lab works and advanced configurations, refer to the Veeam user guide. At the **New Virtual Lab** wizard, fill in the **Name** for the virtual lab. The **Description** box will be automatically populated with the creator, date and time. Additional text can be added as needed. Click **Next** to continue.

New Virtual Lab		×
Name Type in a name and c	escription for this virtual lab.	
Name Host Datastore Proxy Networking Ready to Apply Applying Configuration	Name: Virtual Lab 1 Description: Created by ALLIANCES\shawn at 4/27/2018 8:56 AM.	
	< Previous Next > Finish Cancel	

Figure 52: New virtual lab wizard

6. On the Host menu, select a host to run the virtual lab on by click Choose. While the VMs will be running off storage snapshots, they will require compute and memory resources from the host to run. Keep this in mind when making a host selection. Click on the host where you'd like the virtual lab to run and click OK. The Folder and Resource pool will be populated with the virtual lab name provided previously. You can change this by clicking Configure. Once complete, click Next.

New Virtual Lab		×
Host Specify host to run t	his virtual lab on. The host can be both standalone, and a part of cluster.	
Name	Host:	
Hort	aesxi03.alliances.local	Choose
Datastore	Statistics VMs: 7 total 7 running	
Networking	Folder: Virtual Lab 1 Resource pool: Virtual Lab 1	Configure
Ready to Apply		
	< Previous Next > Finish	Cancel

Figure 53: Host selection

7. Next select a Datastore to store redo logs on by clicking the Choose button. After selecting, click OK and then click Next.

New Virtual Lab	×
Datastore Choose datastore to s machines are running	store redo logs on. Redo logs are temporary files where virtual disk changes are accumulated while virtual from read-only backup files.
Name	Datastore:
Uppt	FlashArray_DS01 Choose
nosi	Datastore info
Datastore	Capacity: 1023.8 GB
Proxy	Free space: 955.8 GB
Networking	
Ready to Apply	
Applying Configuration	
	Concel
	<pre>< Previous INEXL > Printsh Cancer</pre>

Figure 54: Datastore selection

8. The proxy appliance is an important component of the virtual lab. It acts as a gateway that provides access from the backup server to the VMs in the virtual lab. It is recommended to select the Use proxy appliance in this virtual lab check box. Click Configure to edit the name of the Proxy appliance, if desired. Production network connection is where you will select an appropriate production network in which the proxy appliance will be created. Click Configure to select the Production network and configure the IP address and DNS server. The Production network selected should be reachable by the backup server.

9. By default, VMs in the virtual lab work in this isolated environment and do not have access to the Internet. If you want to let VMs in the virtual lab access the Internet, select the **Allow proxy appliance to act as internet proxy for virtual machines in this lab** check box. In the **Port** field, specify a port for HTTP traffic. By default, port 8080 is used. In the **Production proxy** field, you can optionally specify an IP address or a fully qualified domain name of an Internet-facing proxy server that VMs must use to access the Internet. Click **Next** to proceed.

New Virtual Lab			×					
Configure proxy app recovery verification	liance to be used for this virti and universal application ite	ual lab. Proxy appliance is required to enable functionality suc m restore (U-AIR).	h as automated					
Name Host	The proxy appliance provi isolated virtual lab. Withor be performed manually, th Use proxy appliance in	The proxy appliance provides Veeam Backup server with access to virtual machines running in the isolated virtual lab. Without proxy appliance, recovery verification and item restore operations can only be performed manually, through the VM console.						
Datastore	Proxy appliance VM set	tings						
Proxy	Name:	Virtual_Lab_1	Configure					
Networking	Production network co	nnection						
Ready to Apply	Production network:	VM Network	Configure					
Applying Configuration	DNS server:	Obtain automatically						
	Allow proxy appliance	to act as internet proxy for virtual machines in this lab						
	HTTP port:	8080						
	Production proxy:		(optional)					
		< Previous Next > Finish	Cancel					

Figure 55: Proxy appliance configuration

10. The next selection will be **Networking**. While there are three options, for the purposes of this guide, the **Advanced single-host (manual configuration)** will be covered. Please read the descriptions under each option and if one of the other options is desired, you may refer to the Veeam user guide for more details. Select A**dvanced single-host (manual configuration)** and click **Next** to continue.

New Virtual Lab	×
Networking Specify whether the	virtual machines to be run in this virtual lab are connected to a single, or multiple production networks.
Name Host Datastore	Basic single-host (automatic configuration) Automatic configuration of virtual lab networking. Isolated network is created using parameters of network that the Veeam Backup server is located in, which is assumed to be production network. Recommended option for configurations with a single production network.
Ргоху	Advanced single-host (manual configuration)
Networking	Manual configuration of virtual lab networking. Recommended for advanced scenarios, when some production virtual machines have dependencies on virtual machines located in different networks. This option also enables access to additional networking configuration settings.
Isolated Networks	, , , , , , , , , , , , , , , , , , , ,
Network Settings	○ Advanced multi-host (manual configuration)
Static Mapping	Manual configuration of virtual lab networking that enables creation of virtual labs spanning multiple hosts, enabling for virtual labs for replicas located on different hosts with non-shared storage. This option leverages Distributed Virtual Switch (DVS) available in Enterprise Plus edition of
Ready to Apply	VMware vSphere.
Applying Configuration	
	Distributed virtual switch: none Choose
	< Previous Next > Finish Cancel

Figure 56: Networking selection

 In the **Isolated Networks** step, configure isolated networks that the VM from the application group will be connected, Map these networks to production networks where the original VMs are located. The suggested **Network Mapping** should be correct based on the previous selection in step 10. You may **Edit** if necessary. Several production networks can be mapped to isolated networks by clicking **Add**. Click **Next** once verified.

New Virtual Lab					×
Isolated Network Specify isolated ne	s etworks to be created in this v	rirtual lab, and how the	ey map on productio	n networks.	
Name	Network mapping:				
Host	Production network VM Network	Isolated network Virtual Lab 1 VM	VLAN ID 17		Add
Datastore					Parraya
Proxy					Remove
Networking					
Isolated Networks					
Network Settings					
Static Mapping					
Ready to Apply					
Applying Configuration					
		< Pr	revious Next >	Finish	Cancel

Figure 57: Isolated networks mapping

12. The next step of the wizard will have a virtual NIC already created. Select the **vNIC** by clicking on it, and then click **Edit**. Verify the **vNIC Connection Settings** in the new window, ensuring that the IP address listed is the gateway IP in the corresponding production network. Also, check the masquerade IP address to ensure that it does not match any network within your production environment. DHCP is optional and can be enabled. When complete, click **OK**. If more than one production network was mapped in the previous step, click **Add** to create a vNIC for that network as well. If more than one vNIC is created, the check box **Route network traffic between vNICs** is available. Check the box if desired and click **Next** to proceed.

New Virtual Lab						:
Specify how isolate	d networks sho	ould be connected t	o proxy appliance	VM.		
Name	Connect e a router. N	ach isolated networ letwork masqueradi	k to proxy applian ng will allow acce	ce VM, as you wo ss to virtual lab VI	uld connect your Ms from productio	physical networks to on environment.
Host	Proxy appl	iance connectivity:				
Datastore	VNIC	Isolated network	Masquerade IP	Appliance IP	DHCP	Add
Proxy		Virtual Lab 1 V	172.31.x.x	172.18.116.1	Yes	Edit
Networking						Remove
Isolated Networks						_
Network Settings						
Static Mapping						
Ready to Apply						
Applying Configuration						
	Route	network traffic betw	veen vNICs			
	Ensure corresp	that appliance IP a conding production	ddress in the isolat network.	ed network matc	hes the gateway IF	address in the
			< Prev	rious Next	> Finish	Cancel

Figure 58: vNIC configuration

13. **Static Mapping** is an optional step that allows you to specify static IP address mapping rules to make VMs in the virtual lab accessible from any machine in the production network. Click **Next**.

New Virtual Lab					×
Static Mapping Define IP address ma DNS updates, this will	pping between produc Il provide convenient ac	tion and isolated ne ccess to specific virt	tworks for specific IP addresses ual lab VMs for scenarios such	. Coupled with th as user directed r	ne corresponding ecovery.
Name Host	Static IP address map production environn universal application Define static IP a	oping makes corresp nent. This enables in i item restore (U-AIR ddress mapping	oonding virtual lab VMs access nplementation of unique capa), developer access to previous	ible from any cor bilities such as us s copy of databas	nputer in the er directed e, and other.
Datastore	Isolated IP	Access IP	Notes		Add
Proxy					Edit
Networking					Remove
Isolated Networks					
Network Settings					
Static Mapping					
Ready to Apply					
Applying Configuration					
		[< Previous Next >	Finish	Cancel

Figure 59: Static IP mapping

- 14. The **Ready to Apply** step of the wizard shows a summary screen with all the virtual lab parameters configured throughout the wizard. Once the settings have been verified and are satisfactory, click **Next** to begin the creation.
- 15. Veeam will begin deploying the virtual lab to the designated host. Once it is completed, click Finish to exit the wizard.
- 16. Now that the **Application Group** and **Virtual Lab** has been completed, the final component is the **SureBackup Job**. Click Add **SureBackup Job** from the right window to launch the wizard.
- 17. The first step of the wizard allows you to specify a **Name** for the job, the Description box will be automatically populated with the creator, date and time. Additional text can be added as needed. Click **Next** to continue.

New SureBackup Job	×	(
Name Type in a name and o	Jescription for this SureBackup job.	
Name	Name:	
N	SureBackup Job 1	
Virtual Lab	Description:	
Application Group	Created by ALLIANCES\shawn at 4/27/2018 9:09 AM.	
Linked Jobs		
Settings		
Schedule		
Summary		
	< Previous Next > Finish Cancel	

Figure 60: New SureBackup Job wizard

18. The **Virtual Lab** step of the wizard allows you to select the virtual lab you wish to associate to the job. Select the appropriate virtual lab from the dropdown list. Click **Next.**

New SureBackup Job Virtual Lab Choose the virtual la	b to run this job in.				×
Name Virtual Lab Application Group	Virtual lab: Virtual Lab 1 Created by ALLIA	✓ NCES\shawn at 4/27/2018 8:56 AM.			
Linked Jobs Settings Schedule Summary	Virtual lab info Host: Total VMs: Running VMs:	aesxi03.alliances.local 8 total 7 running	Datastore: Capacity: Free space:	FlashArray_DS01 1023.8 GB 955.8 GB	
		< Previous	Next >	Finish	Cancel

Figure 61: Virtual Lab selection

19. The **Application Group** step will have a drop-down list as well, allowing you to select an application group to associate with the job. Since this job will be leveraged as **Veeam DataLab**s, make sure to check the box **Keep the application group running after the job completes**. Click **Next** to continue.

New SureBackup Job					×
Application Gro Choose the app	oup Ilication group for this job	and verify that all requi	red backups are available.		
Name	Application group				
Minture Line In	Application Group	51	\sim		
Virtual Lab	Created by ALLIAN	ICES\shawn at 4/27/201	8 8:54 AM.		
Application Group	Application group	info:			
Linked Jobs	VM	Role	Source	Source Status	
Settings	PureServer01	<not specified=""></not>	Storage snapshot	OK (less tha	
Schedule					
Summary					
	Keep the applie	ation group running af	ter the job completes		
	This option enable recovery for virtua	s performing additiona machines in this appli	I manual verification, or us cation group.	ser-directed application	item
			< Previous Next >	Finish	Cancel

Figure 62: Application group selection

20. The **Linked Jobs** step of the wizard is intended for recovery verification of backups, since we are leveraging this job for Veeam DataLabs, we will skip this step. Click **Next** to proceed.

21. Settings will allow you to configure SNMP traps and email notifications for the job. The backup file integrity check is intended to enhance recovery verification for backups so we can skip this option. Click **Next**.

New SureBackup Job	×
Settings Choose DR verificatio	n job settings.
Name Virtual Lab Application Group Linked Jobs	Job results Job session results are saved in SureBackup job session history. In addition, you can configure e-mail and SNMP notifications. Send SNMP trap Send e-mail notifications to the following recipients:
Settings	
Schedule Summary	Backup file integrity check Validate entire virtual disk contents (detects silent data corruption) Skip validation for application group VMs
	< Previous Next > Finish Cancel

Figure 63:Settings

22. At the **Schedule** settings, you can specify a schedule for the job. Alternatively, you can execute the job manually as needed in the future. Specify a schedule if desired, Click **Save** when complete.

New SureBackup Job					×
Specify scheduling s	ettings if you want this SureBack	up job to run peri	odically in an auto	mated fashion.	
Name	🗹 Run the job automatically	r			
Virtual Lab	Daily at this time:	10:00 PM	Everyday		✓ Days
Application Group	O Monthly at this time:	10:00 PM	Fourth \sim	Saturday	✓ Months
Linked Jobs	 After this job: 	veeamreadytest	(Created by ALLIA	NCES\stefan at 4/1	10/2018 10:41 AN $ \smallsetminus $
Settings					
Schedule	Wait for backup jobs	obs are still runnin	g wait for up to:	180 🚔 minutes	
Summary			g, marcron ap con	• minutes	
		< Pre	vious App	ly Finish	Cancel

Figure 64: Scheduling

- 23. The SureBackup Job will be created, and the final step will give you a confirmation. In this step, you can also check the box **Run the job when I click Finish** if you wish to test Veeam DataLabs. Click Finish to exit the wizard.
- 24. That completes Veeam DataLabs creation. You can execute the SureBackup job at any time by right-clicking on the job name and selecting **Start**.

Summary

Now that Veeam and Pure Storage are both configured, the integrated capabilities will allow for a comprehensive data protection solution. Leverage the power of storage snapshots along with Veeam backups to improve RPOs. And with the recovery capabilities direct from a snapshot or backup, enhance recovery time objectives (RTOs). There are many more capabilities are available and additional options, which are not covered in this guide. Please refer to the guides listed in the **Introduction** to take full advantage of solution.

About the Author



Shawn Lieu

Shawn is a virtualization and data protection IT professional with over 17 years of industry related experience. He is a Solutions Architect that works with the Global Alliances Team. Shawn is also the co-host of Whiteboard Fridays, a live tech and virtualization show. Shawn lives in Atlanta, Georgia USA.

Twitter: @shawnlieu

About Veeam Software

Veeam[®] recognizes the new challenges companies across the globe face in enabling the Always-On Business[™], a business that must operate 24.7.365. To address this, Veeam has pioneered a new market of Availability for the Always-On Enterprise[™] by helping organizations meet recovery time and point objectives (RTPO[™]) of < 15 minutes for all applications and data, through a fundamentally new kind of solution that delivers high-speed recovery, data loss avoidance, verified protection, leveraged data and complete visibility. <u>Veeam Availability Suite[™]</u>, which includes <u>Veeam</u> <u>Backup & Replication</u>[™], leverages virtualization, storage, and cloud technologies that enable the modern data center to help organizations save time, mitigate risks, and dramatically reduce capital and operational costs.

Founded in 2006, Veeam currently has 55,000 ProPartners and more than 294,000 customers worldwide. Veeam's global headquarters are located in Baar, Switzerland, and the company has offices throughout the world. To learn more, visit http://www.veeam.com.

AVAILABILITY for the Always-On Enterprise VEEAM



makes ELOI Available. 24.7.365

To enable its **Digital Transformation**, 70% of the Fortune 500 rely on Veeam to ensure Availability of all data and applications. 24.7.365