Setting Up the Supermicro® General Purpose Storage Series on Veeam

SUPERMICRO

Supermicro is a global leader in high performance, green computing server technology and innovation. We provide our global customers with application-optimized servers and workstations customized with blade, storage, and GPU solutions. Our products offer proven reliability, superior design, and one of the industry's broadest array of product configurations, to fit all computational need.

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Executive Summary

The following guide provides users who seek information on setting up and configuring Supermicro, SuperStorage General Purpose Server model, 'SSG-6049P-E1CR36H' as a backup target server with Veeam® Backup and Replication™ software.

For additional information, please reference the Supermicro Superstorage Series documentation and whitepapers. For full product reference, please visit:

https://www.supermicro.com/en/products/storage/

1 Server-Based Repository

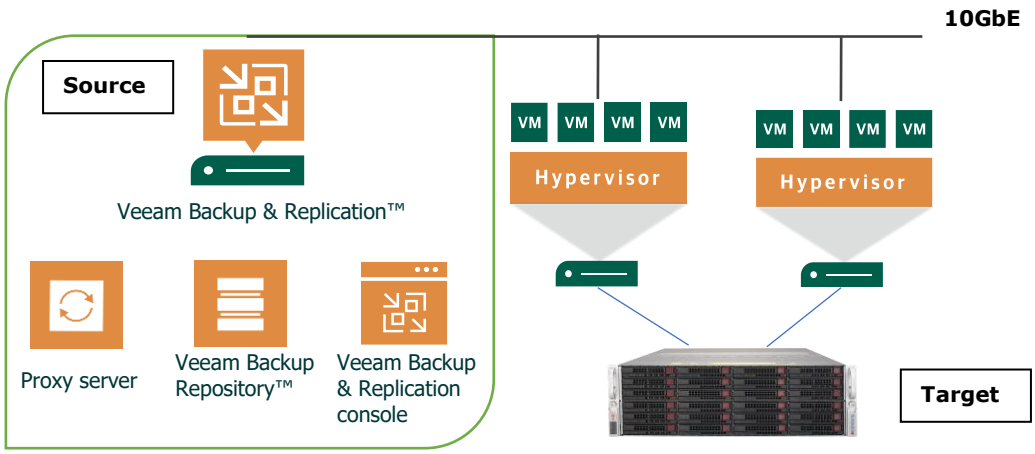
Supemicro Storage Servers with Veeam in a Direct-Attach Storage (DAS) configuration offers a fast and low-cost approach to storage backup and restores, providing backups from a one cluster system or a scale-out backup repository. For RAID 6 & 60 or 10, HDDs are the supported configurations where per the design requirements, a RAID controller with an onboard battery cache is mandatory. For SuperStorage Supersevers utilizing NVMe, or SSDs RAID 1 is the preferred configuration.

One of the many benefits of having a DAS repository is its capability to be fully dedicated to a backup operation by offering good performance for lower cost and excellent read and write performance. Also, random I/O performance will be optimal when using I/O intensive backup modes.

2 Key Consideration when planning your Server-Based Repository

- Capacity – Data to be stored
- Scalability – Data growth over the next 5 years
- Reliability – How critical is your data? Can you survive downtime?
- Backup and Recovery – What is the schedule of your file backups
- Performance – Data you will be backup up and restoring
- Budget – How much to spend?
- IT staff – Is a dedicated staff person managing backups

3 Supermicro Direct-Attach-Storage Configuration



Target software ESXi version 7.0

Source software Microsoft Window Enterprise Server version 2019+ Veeam version 10

4 System Hardware Requirements

4.1 Storage Server

- Server - SSG - 6049P-E1CRR36H - Storage Server 4U, 36-bay (1)
- CPU's - P4x-CLX5218R-SRG27 – CLX-SP 5218R 20C/40T 2.1G (2)
- Memory – MEM-DR432L-HL01-ER29 – 32FB DDR4 1.2V 2933 ECC REG (12)
- HDS-I2T0-SSDSC2KB240GB – Intel D3-S4510 240GB, SATA 6gb/s (2)
- HDD-A14T-ST14000NM0048 – Seagate 3.5", 14TB 7.2K RPM SAS3, 12GB/s (36)
- AOC-STGN-I2S – 2-port SFP+ 10GbE Standard LP with SFP+ Connectors (2)
- CBL-NTWK-0456 – 2M 10GbE SFP+ to SFP+ Passive, Push Type (4)
- CBL-PWCD-0579 – 6FT Power Cord Type IEC (C14 to C13) (14AWG) 15A, 250V (2)
- Firmware Version = 01.71.11

5 Total Solution Offerings

Supermicro Storage Server & Veeam Solution Offerings

- **All-Flash NVMe**
  - EDSFF E1.s
  - EDSFF E1.L
  - U2
- **Top Loading Storage**
  - Top Loading
  - Simply-Double
  - High Density Storage Servers
- **General Purpose Storage**
  - Double Sided SuperStorage
  - Storage Bridge Bay
  - Front Loading

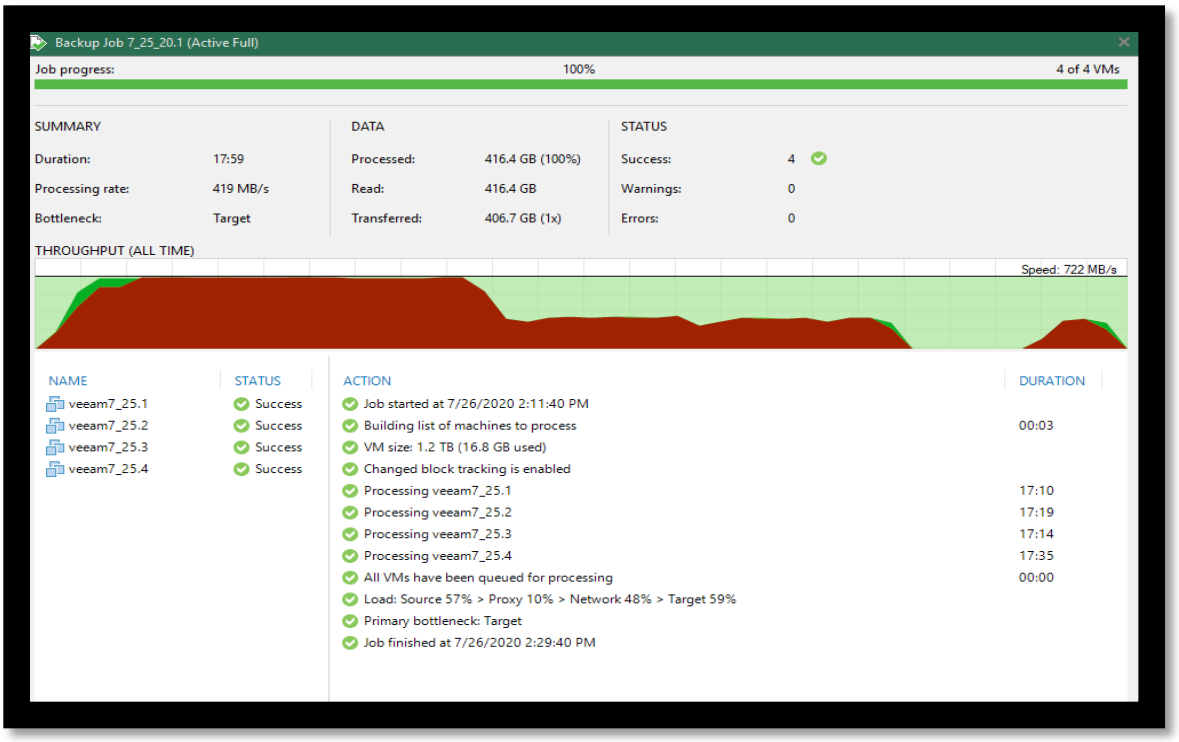
To view all Supermicro Storage Server Solutions visit:

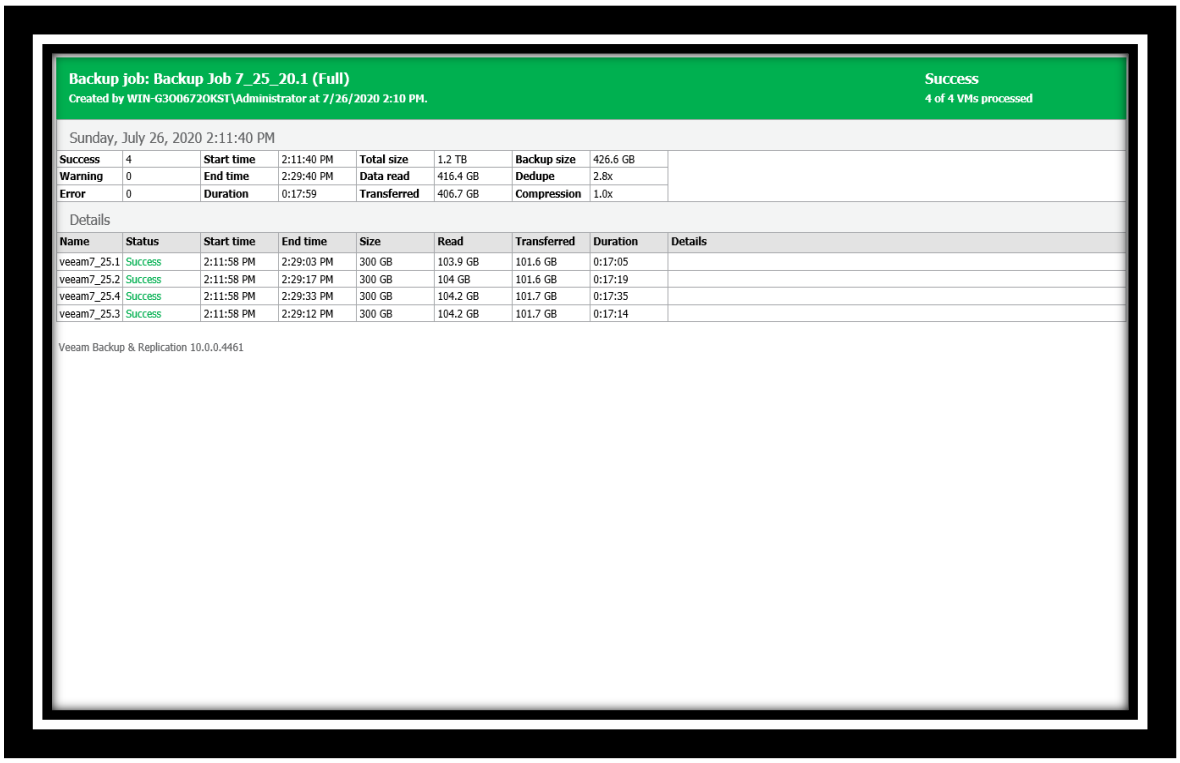
https://www.supermicro.com/en/products/storage/

6 Veeam Ready Backup and Restore Data

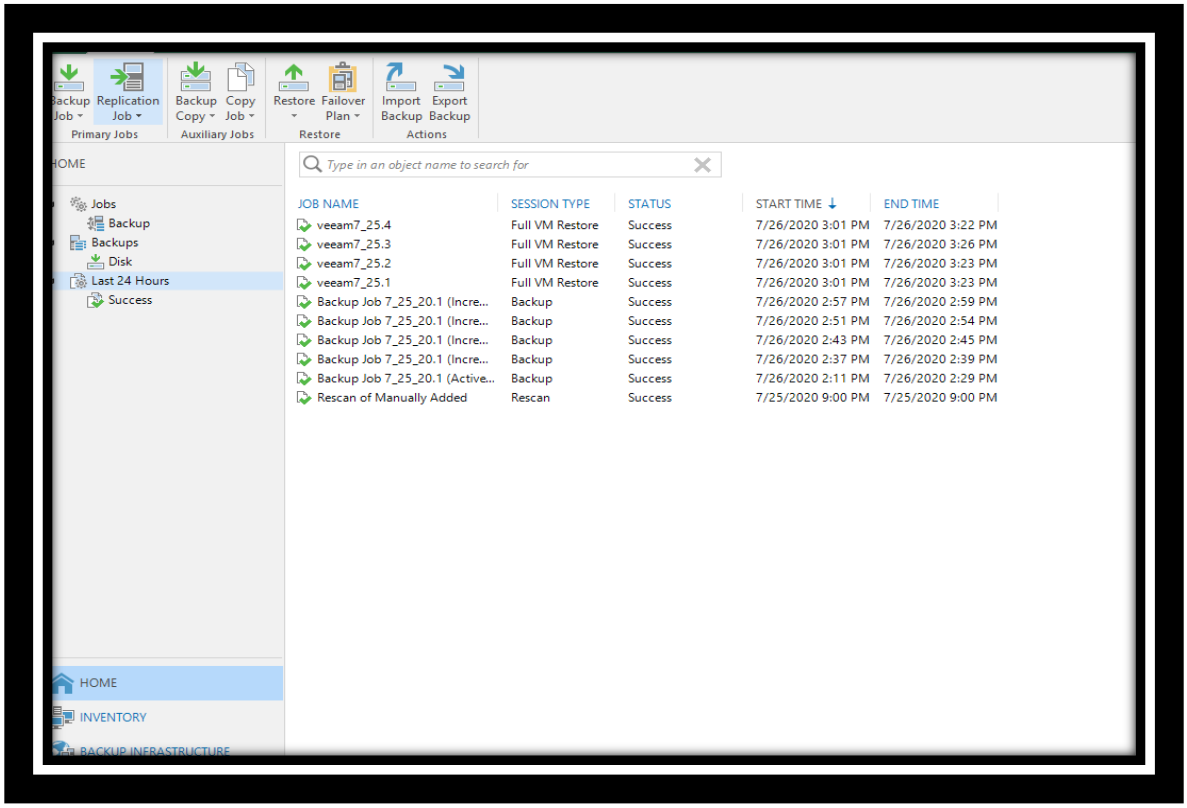
Storage Family = SuperStorage
Storage Model = SSG-6049P-E1CR36H
Firmware Version = 01.71.11
Category = RAID Storage Array
Drive Type = 2xSSD Model INTEL SSDSC2KB480GB 480 GB – 24xHD Model SEAGATE ST16000NM002G SCSI Disk Device, 14TB, Total Available space for Veeam repository 119TB
Drive Configuration = 2xSSD for RAID 1 for OS, 24xHD for RAID 60 with Windows ReFS
Network Speed = 10GB
Jumbo Frames Used = 9000
Array Deduplciation = No
Array Compression = No
Stripe Size = 256K
Windows File System = ReFS

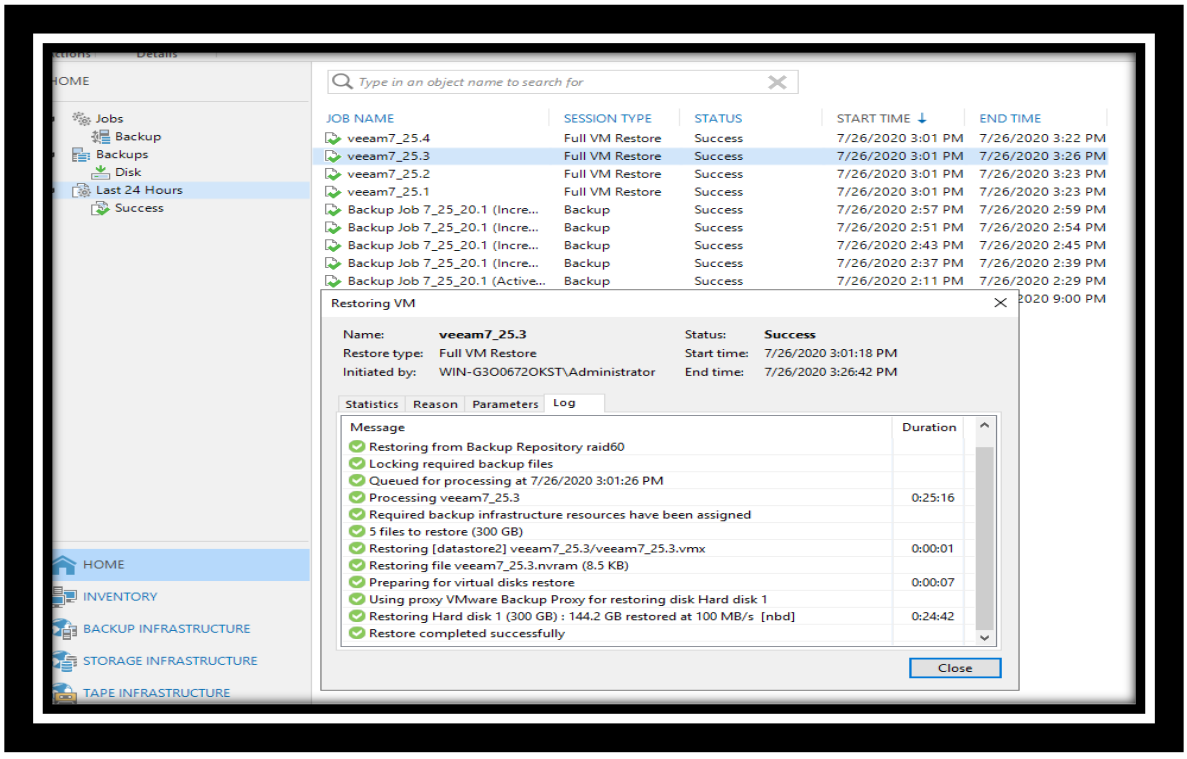
6.1 Veeam Full VM backup time (Avg. Performance Summary)





6.2 Veeam Full VM Restore time (Avg. Performance Summary)





7 Installation and Configuration of SuperStorage General Purpose

7.1 Step One

1. Rack the Supermicro SuperStorage Unit.

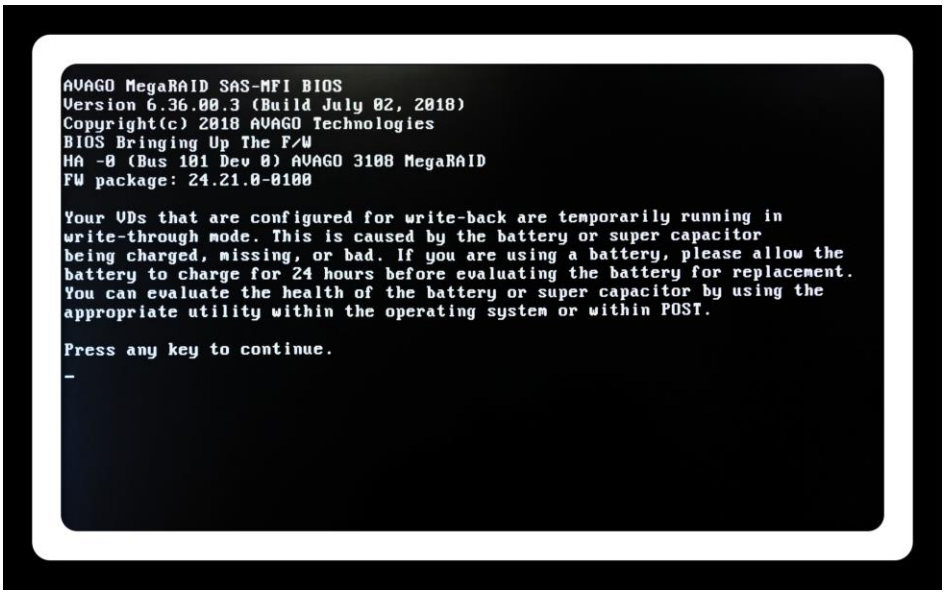
2. Cable the SuperStorage Unit to the Server and Console.

3. Power on the Unit.

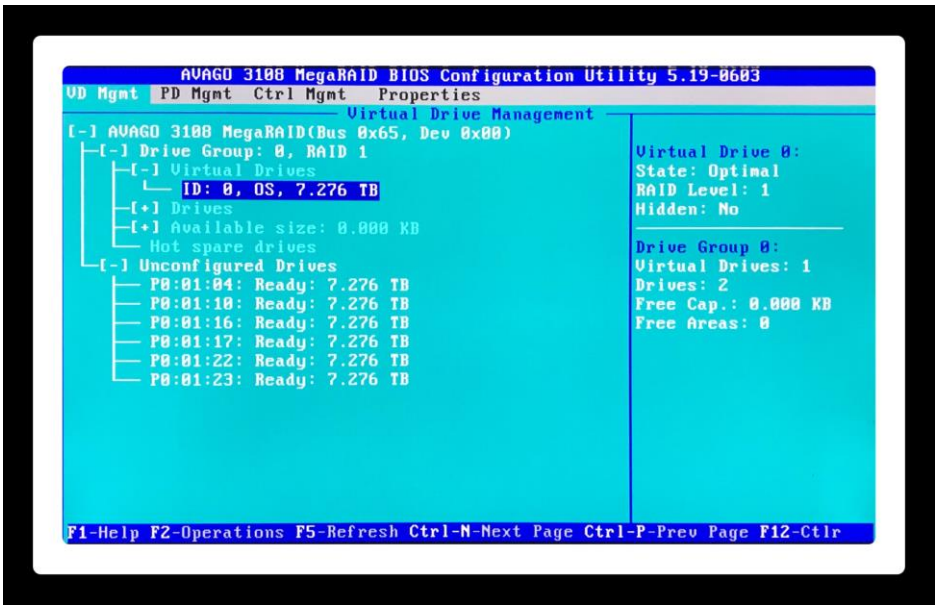
4. The SuperStorage Unit will begin its Initialization Process.

5. Firmware Initialization of Devices will begin.

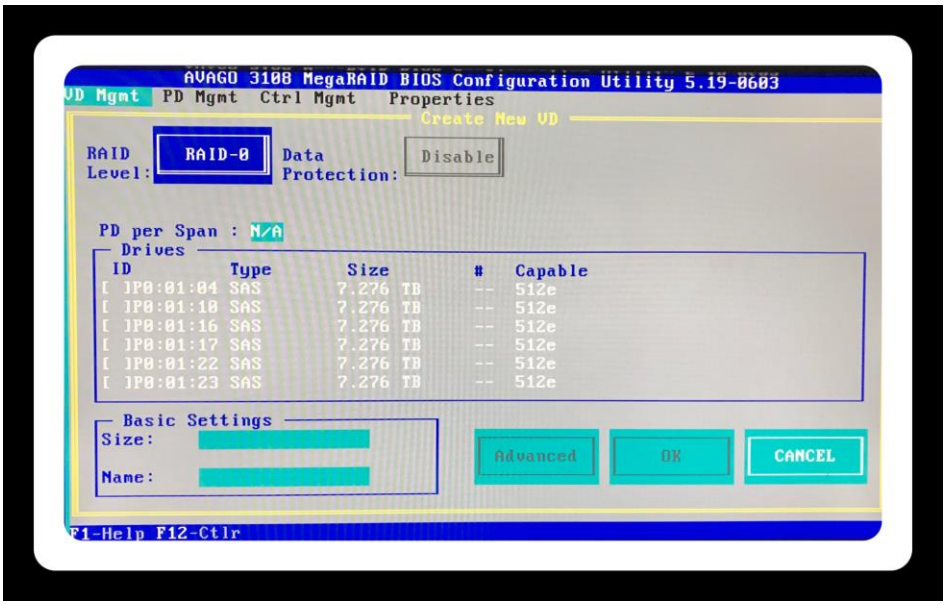
6. Hit “Ctrl-R” to get into the BIOS Setup which will bring you to the Virtual Drive Group.



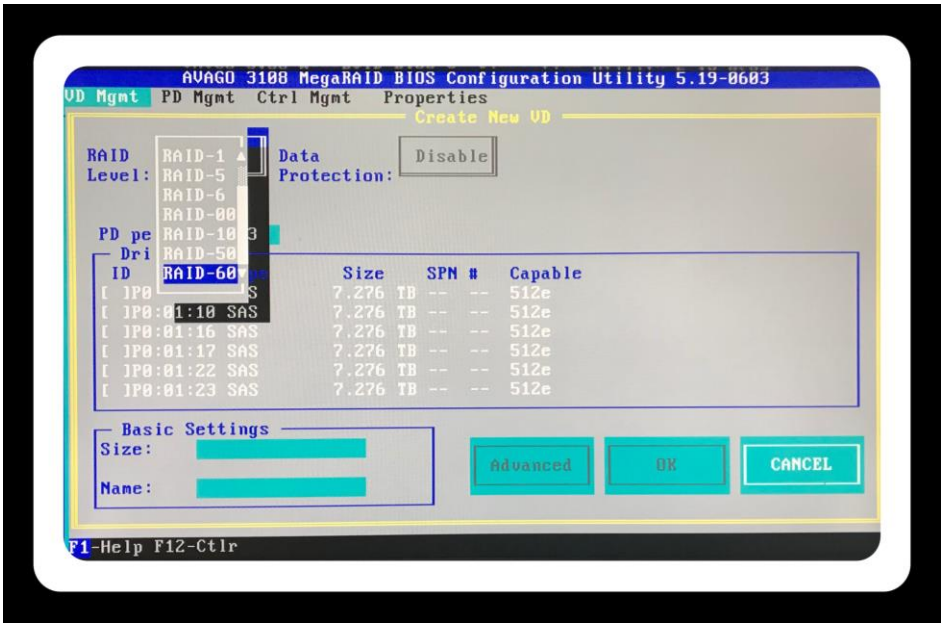
7. Hit the “Arrow UP” key 3 times which will bring you to the “Avago 3018 MegaRAID” card setup and then press the Enter Key to proceed.



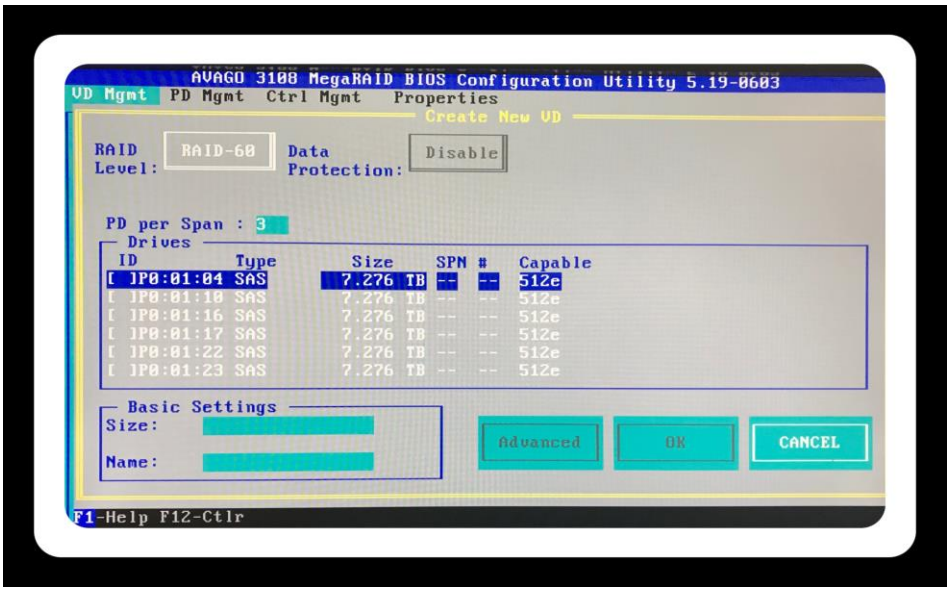
8. You will now be brought to the VD Mgmt menu where you will select the appropriate RAID level. Press the Enter Key to access to the RAID menu.



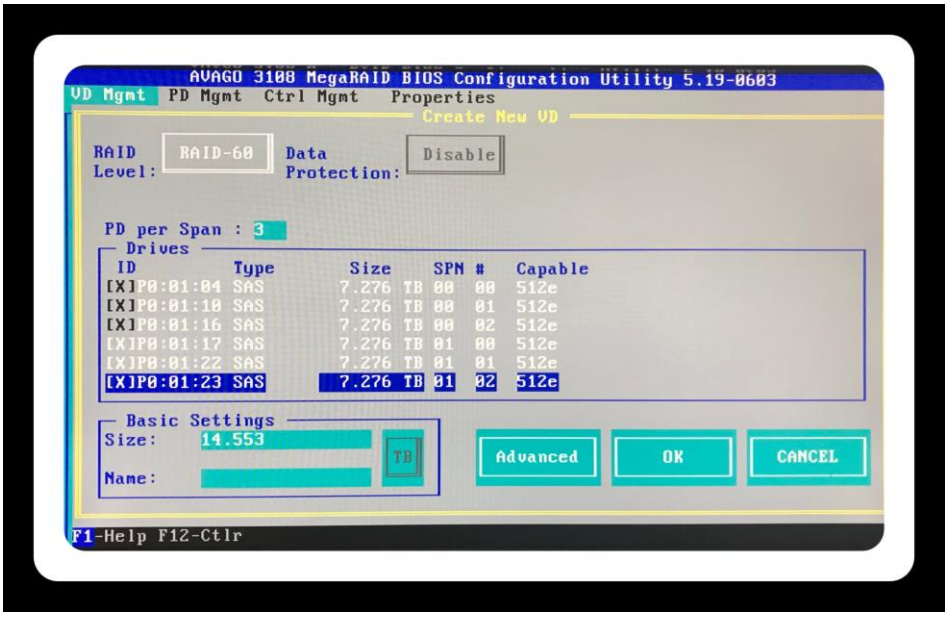
9. Hit the “Down Arrow” key until you scroll to the “RAID-60”option where you will then hit the Enter Key.



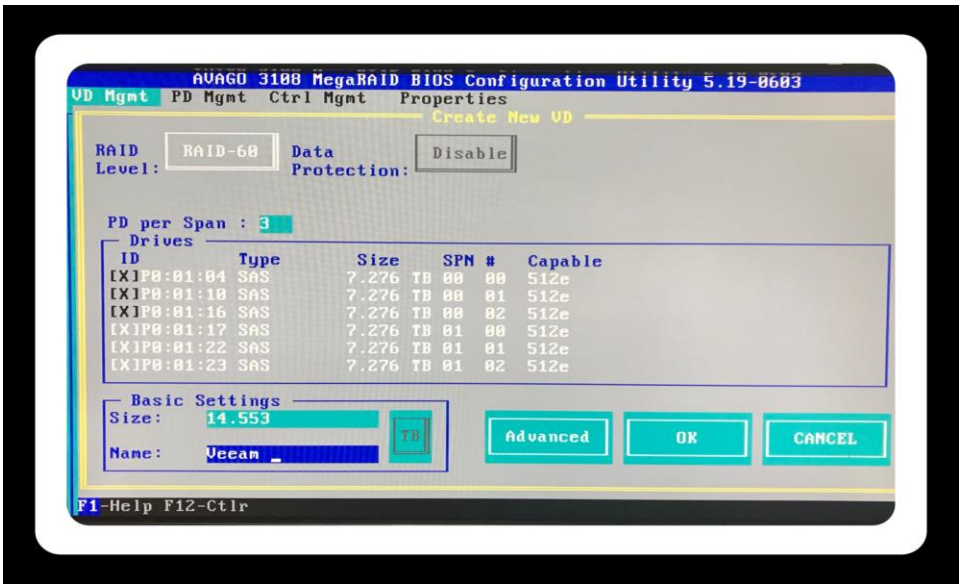
10. Hit the “Arrow Down” key to Select ID and Type Drive. Hit the Enter Key which will select with an “X” in the ID Field for each drive that you’d like to bring into your RAID group.



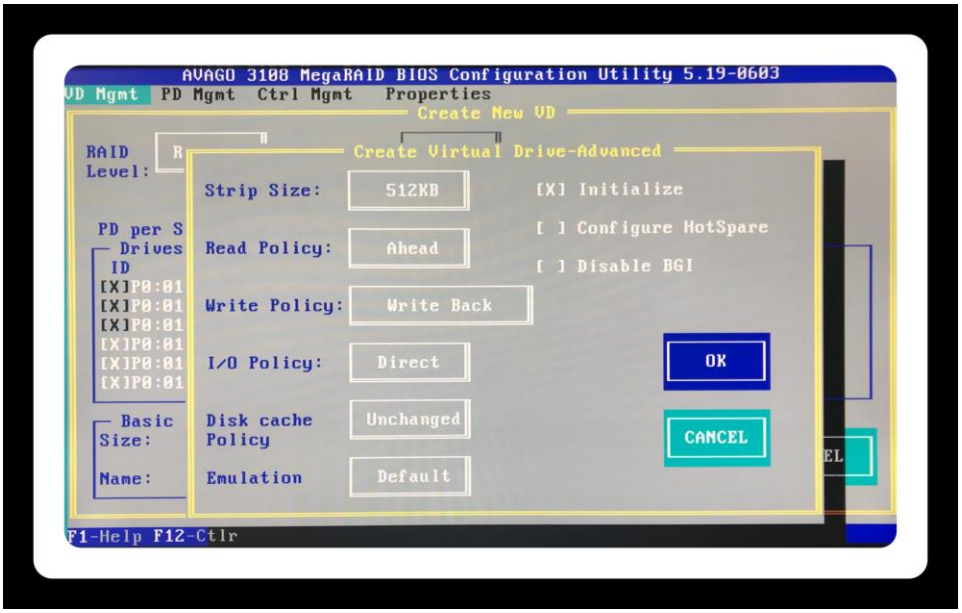
11. Hit the “Down Arrow” key which takes you to the Basic Settings Size selection. Hit the “Down Arrow” key to the size setting where you can select RAID output for KB, MB, GB or TB. Hit the Enter Key to make your selection.



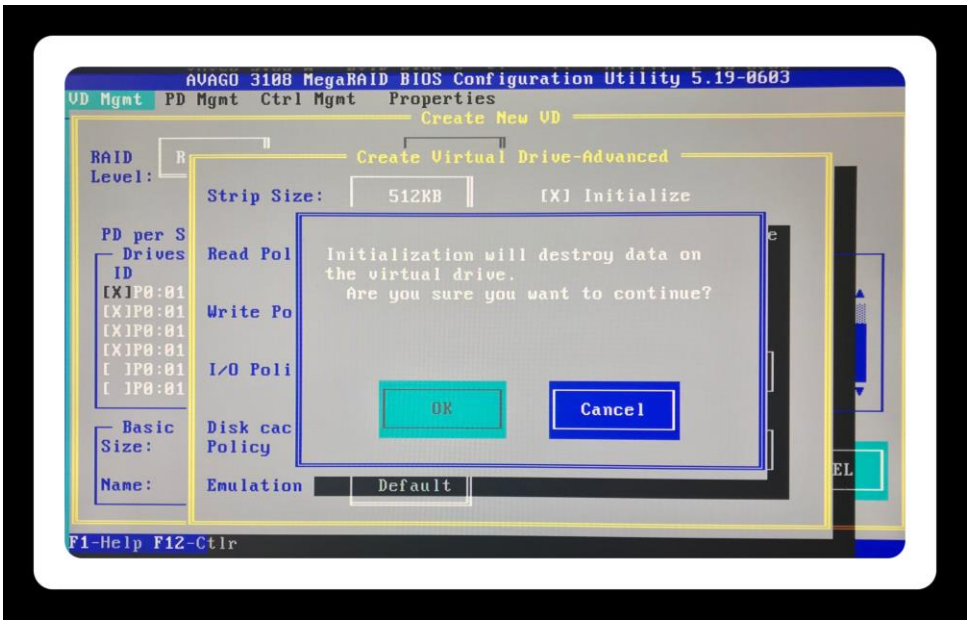
12. Hit the “Arrow Down” key to move to the Name Field. Enter the chosen name you’ve selected. Then hit “Arrow Down” to move to the “Advanced” button. Hit the Enter Key to move to the next field.



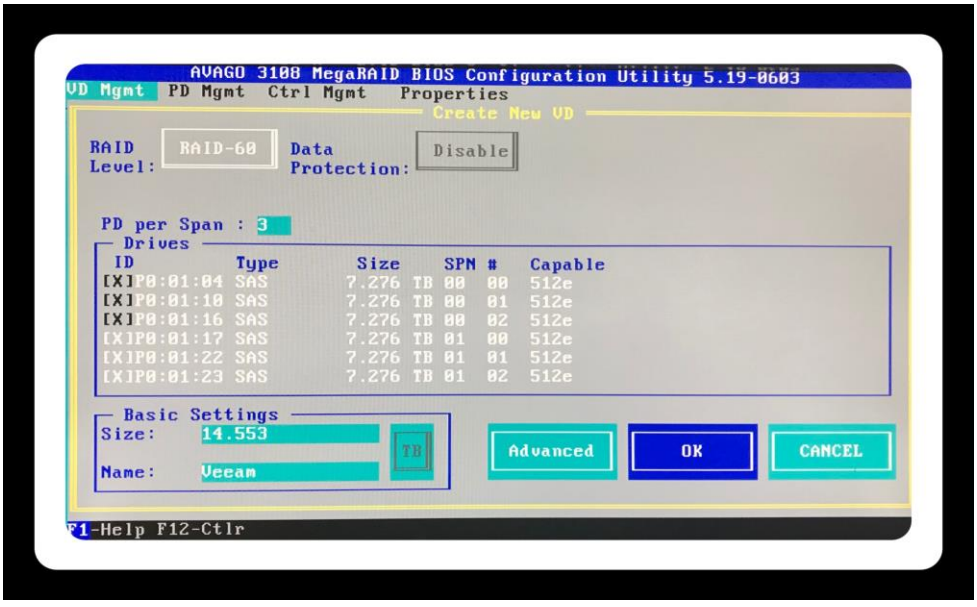
13. Hit the Enter Key to select the strip size. Use the “Arrow Down” key and select 512KB and then hit the Enter Key. Hit the “Arrow Down” key until you have selected the “Initialize” menu option, then hit the Enter Key.



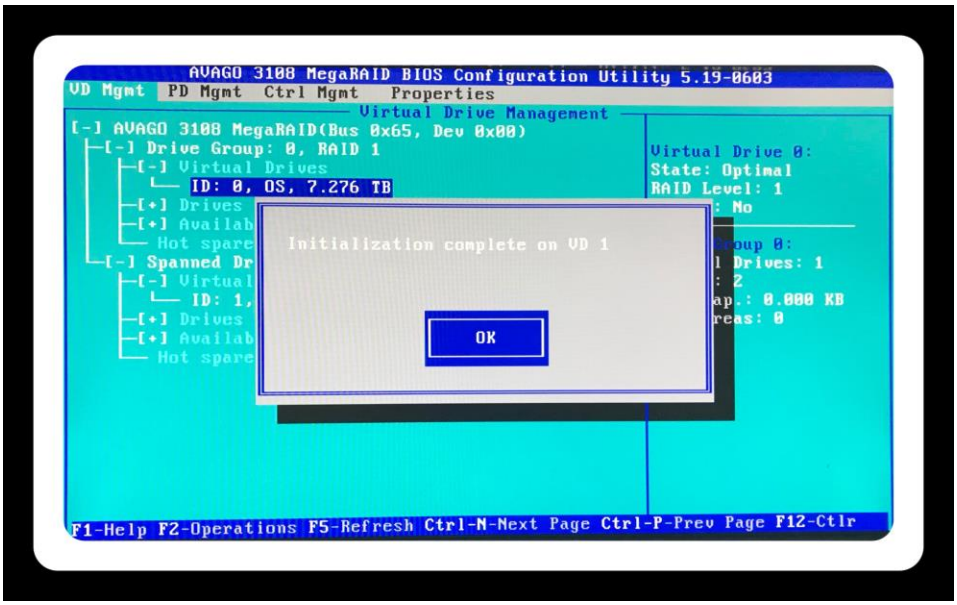
14. Hit the “Arrow Up” key to bring you to the OK button then select the Enter Key to create your new VD.



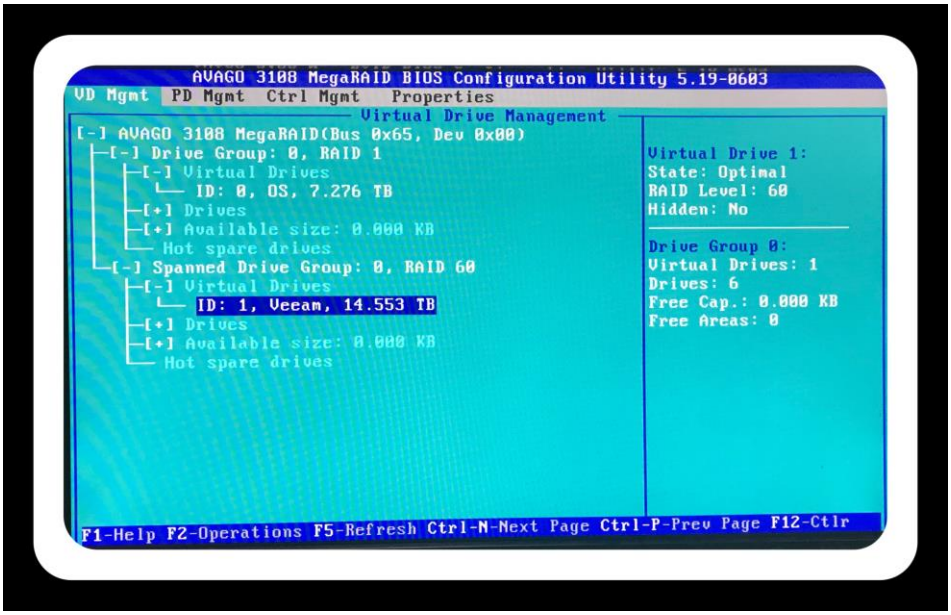
15. To create the New VD press the Enter Key.



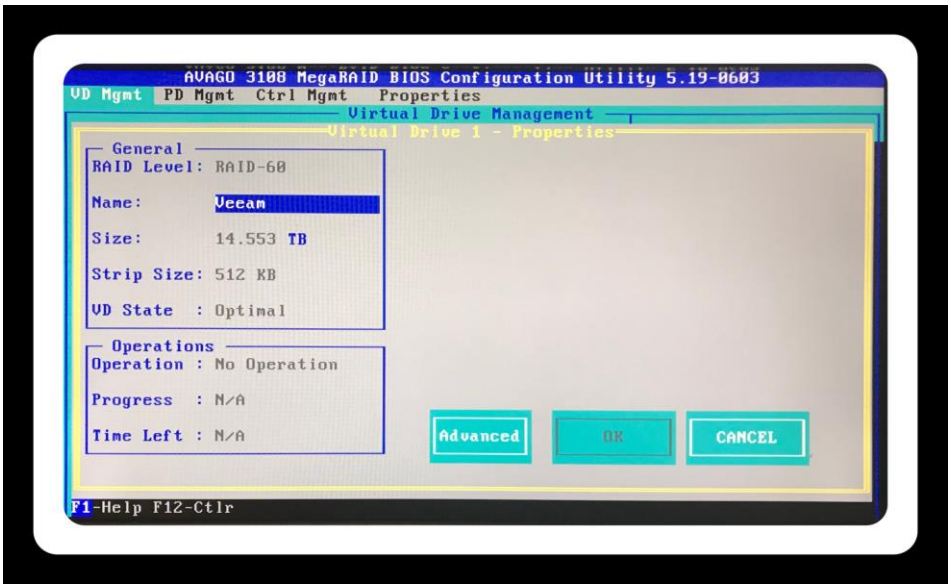
16. RAID creation will need to complete its RAID 60 initialization. When you receive confirmation of VD completion hit the Enter to bring you to the next menu.



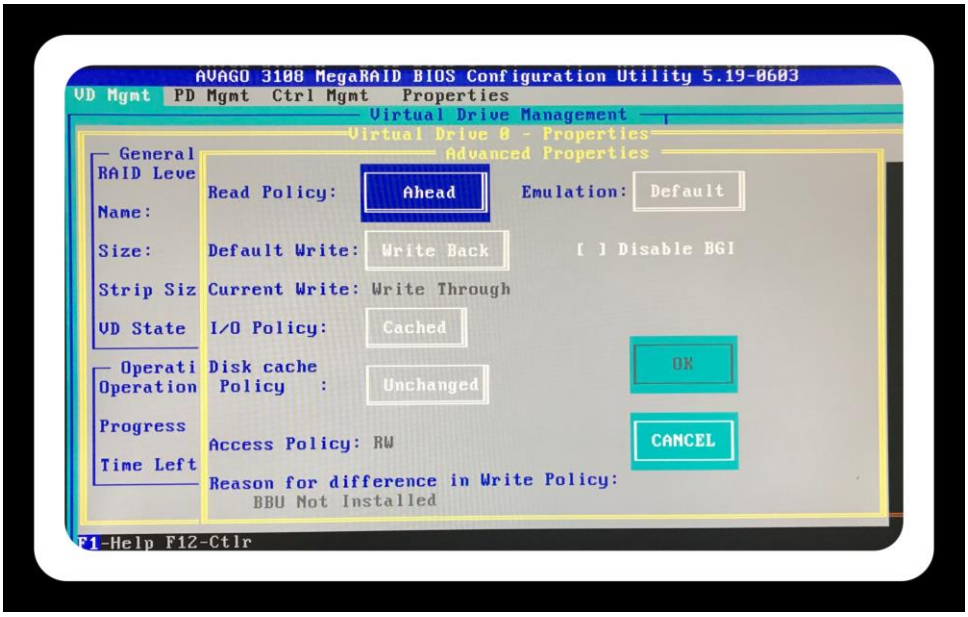
17. Select the “Arrow Down” key until you get to the Virtual Drives RAID configuration. Select the Enter Key.



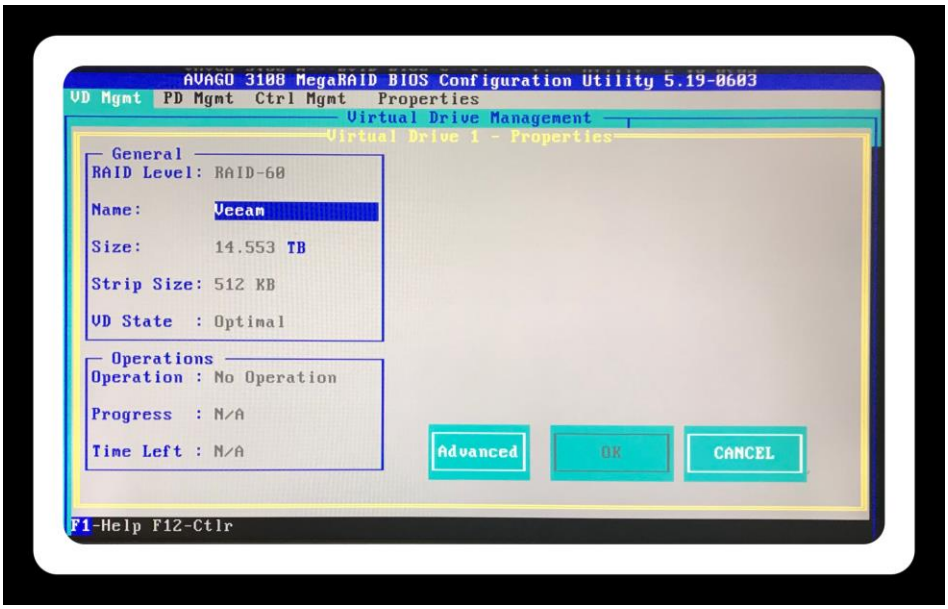
18. Here you will be able to confirm your RAID-60 configuration. Hit “Arrow Down” key to bring you back to the Advanced button.



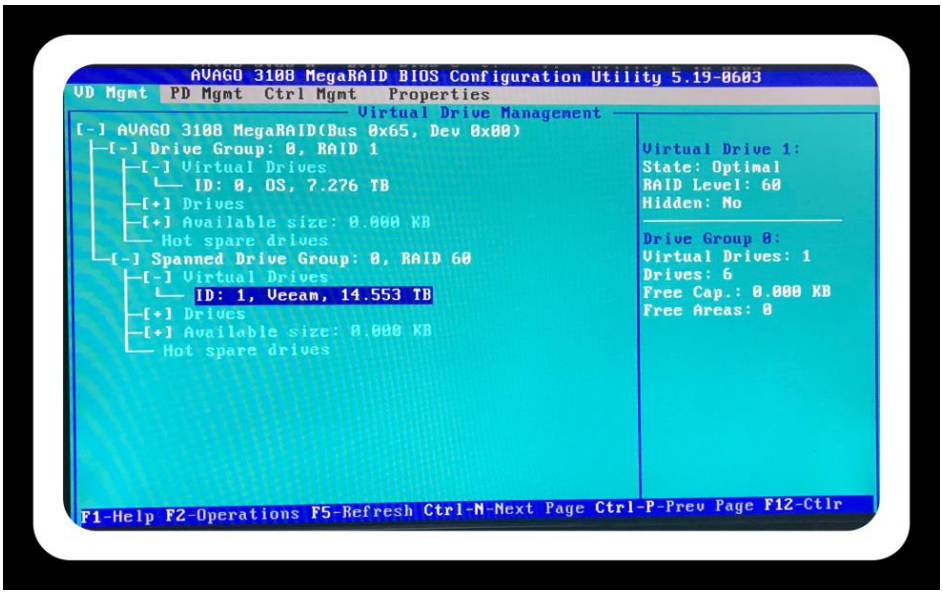
19. If you decide to make a property change hit the Enter Key and make your selection. Hit the “Arrow Down” until you come to the OK prompt, then hit the Enter Key. If no property change is selected use the “Arrow Down” key to take you to the Cancel button then hit the Enter key.



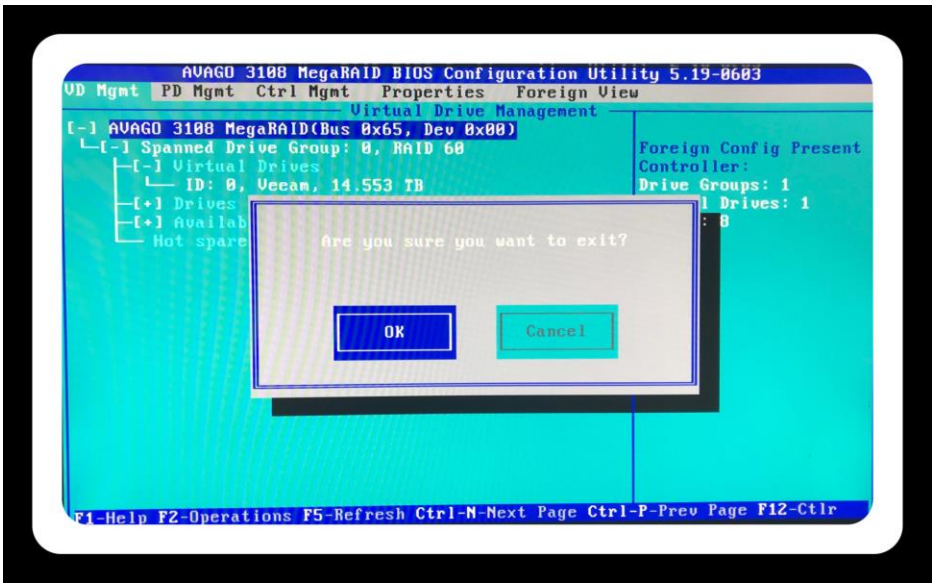
20. Use the “Arrow Down” key to the Cancel button and then press the Enter key.



21. Hit the “Arrow Up” until you get to the Avago 3018 controller and hit the Enter Key.



22. Hit the Enter key at the OK prompt to exit BIOS.



23. CTRL + ALT + DEL to reboot the Storage Server.

8 Microsoft Installation on Supermicro Superstorage

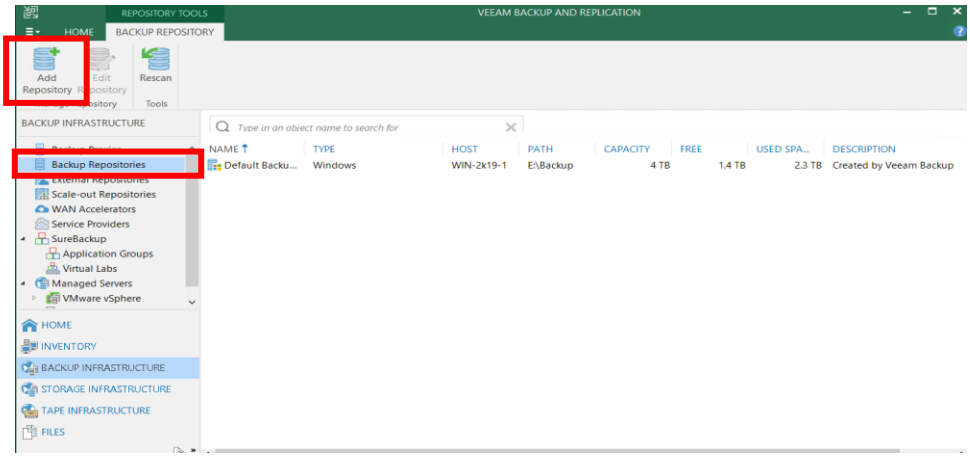
Installation instructions can be found at the following location:

https://www.microsoft.com/en-us/windows-server

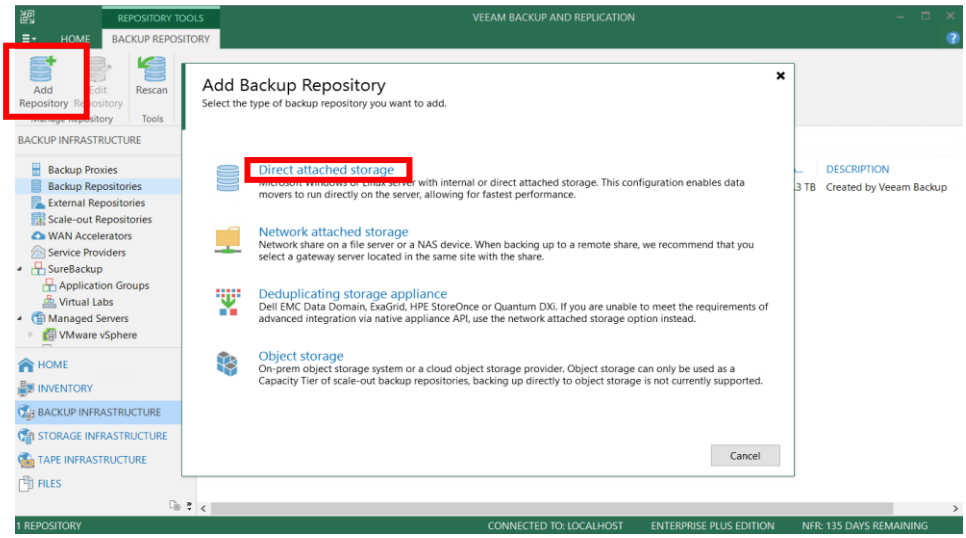
9 Veeam Installation and Setup

1. This step requires you to open your **Veeam Backup and Replication** Console.

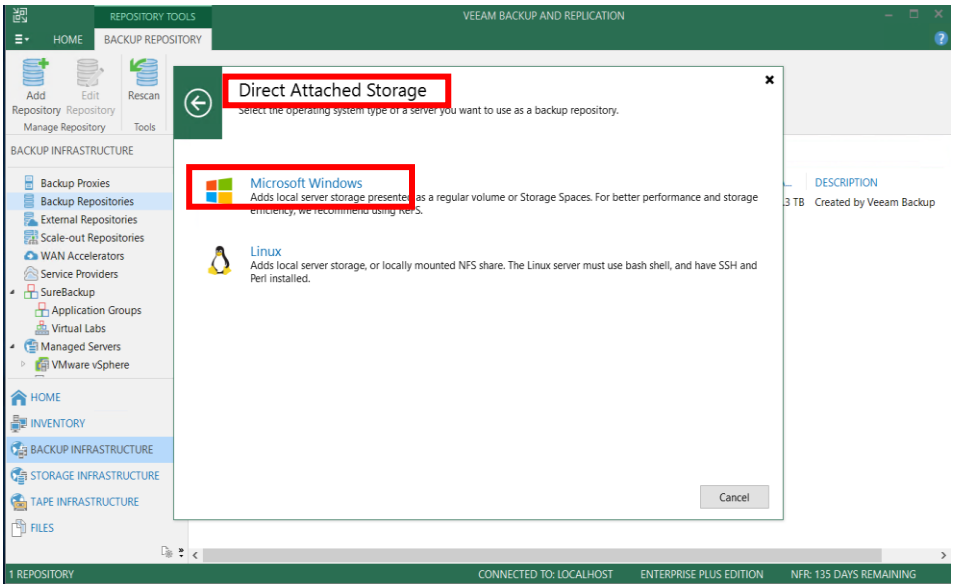
2. You will then be in the **Backup Infrastructure** section where you will right-click the **Backup Repositories** and select **Add Backup Repository** in the upper left corner of your screen.



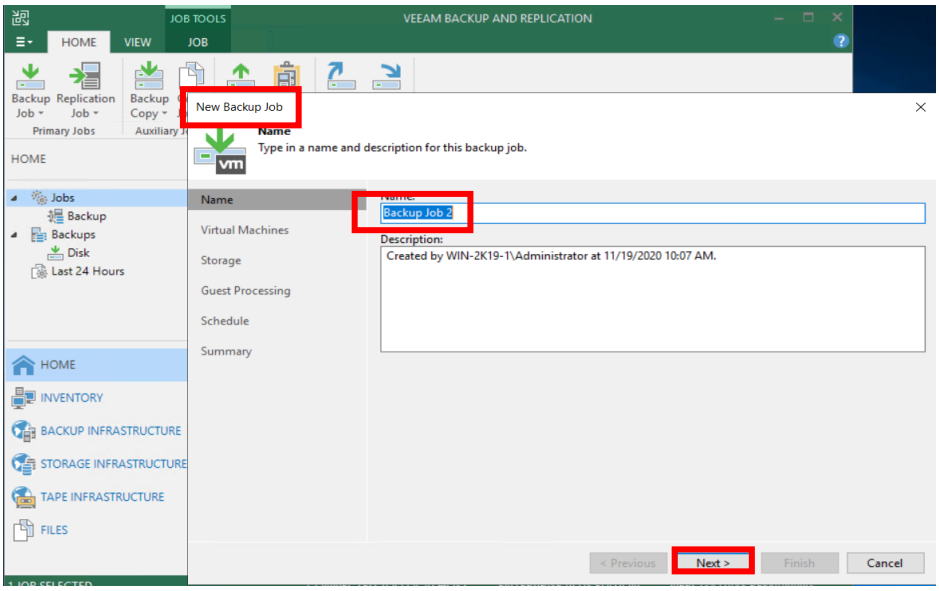
3. After clicking **Add Backup Repository** you will then be taken to the menu where you will click **Direct Attach Storage.**



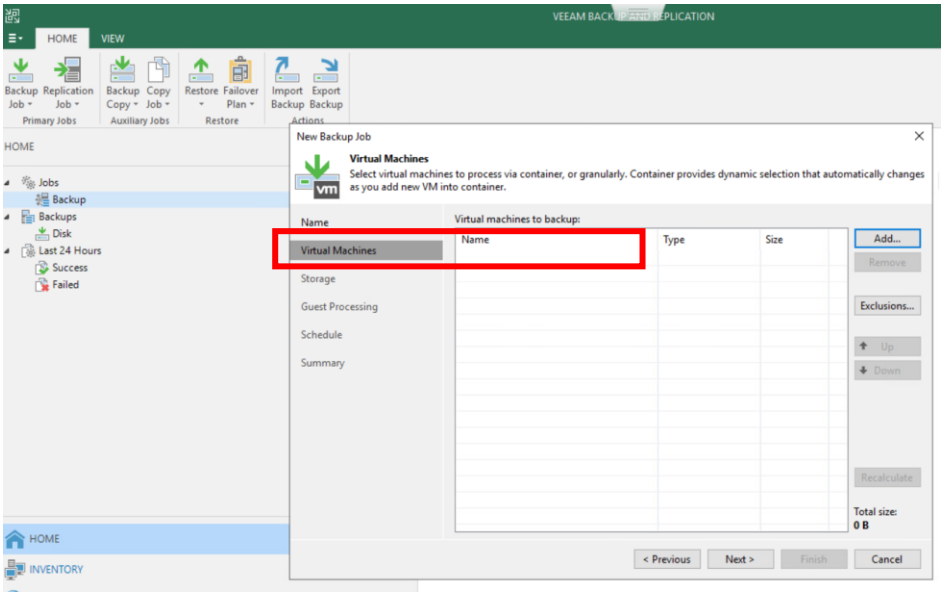
4. You will then be directed to the **Direct Attach Storage** Menu where you will select the operating system **Microsoft Windows.**



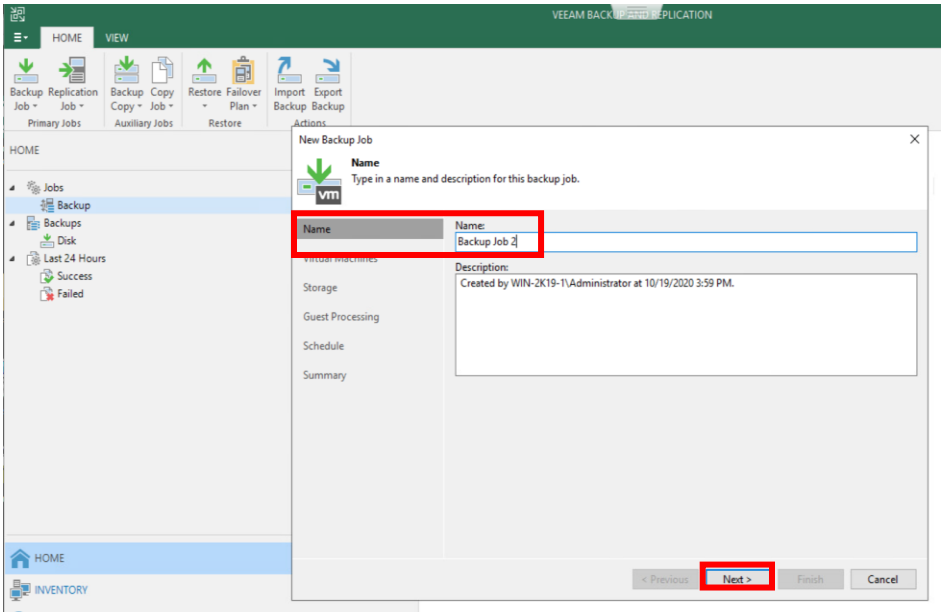
5. You will then be directed to the **New Backup Repository** Menu where you provide a name of the Backup Repository in this case we've named it **Backup Job 2**. You can choose the name that best fits your backup naming convention.



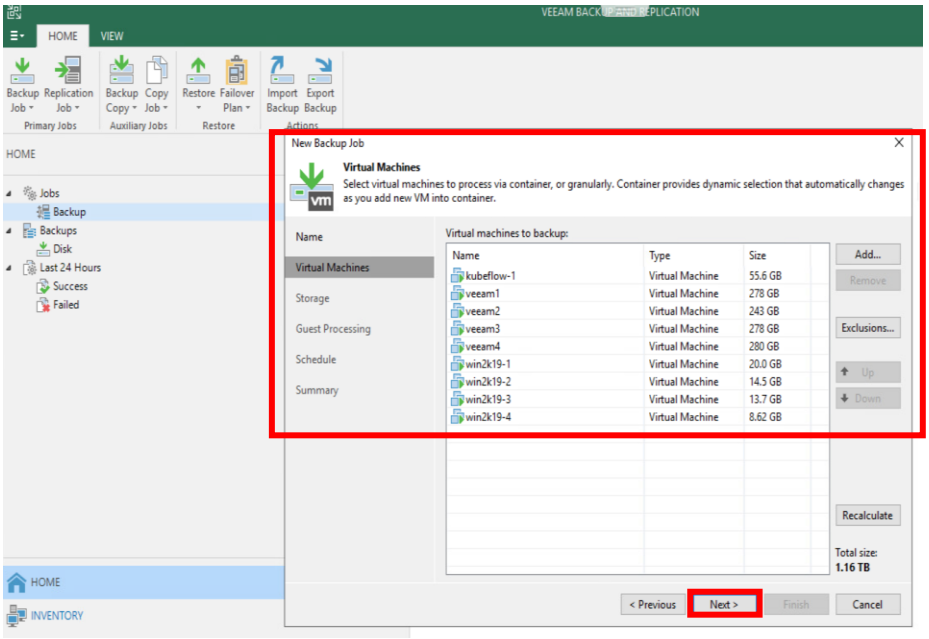
6. Veeam Backup and Restore will ask you to enter a Virtual Machine or part of the name to search field for possible matches. If the VM is not listed, click **Show more** to browse.



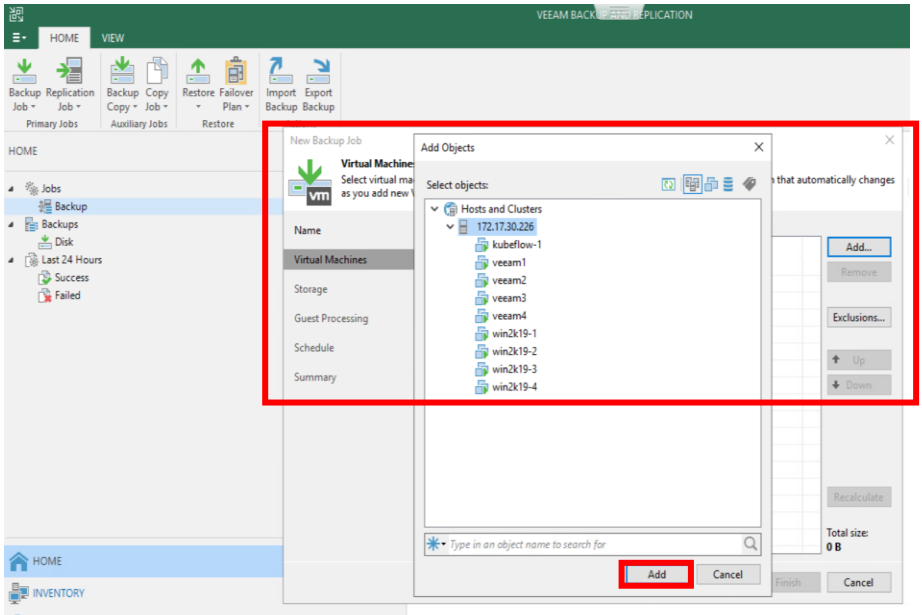
7. This step requires you to **create** the name of the **backup job in the Name Field**. Once again, you choose the name that best fits your backup naming convention.



8. Select a VM in the list and click **Host** where to apply changes in bulk, select several VMs' in the list and **click Host.**

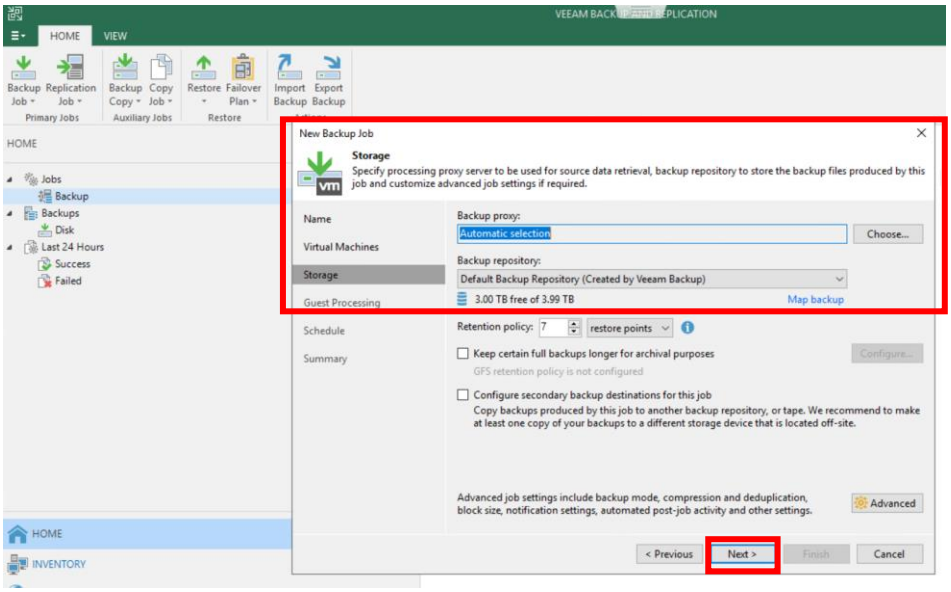


9. Select a VM in the list and click **Host** where to apply changes in bulk, select one or several VMs' in the list and **click Host.**

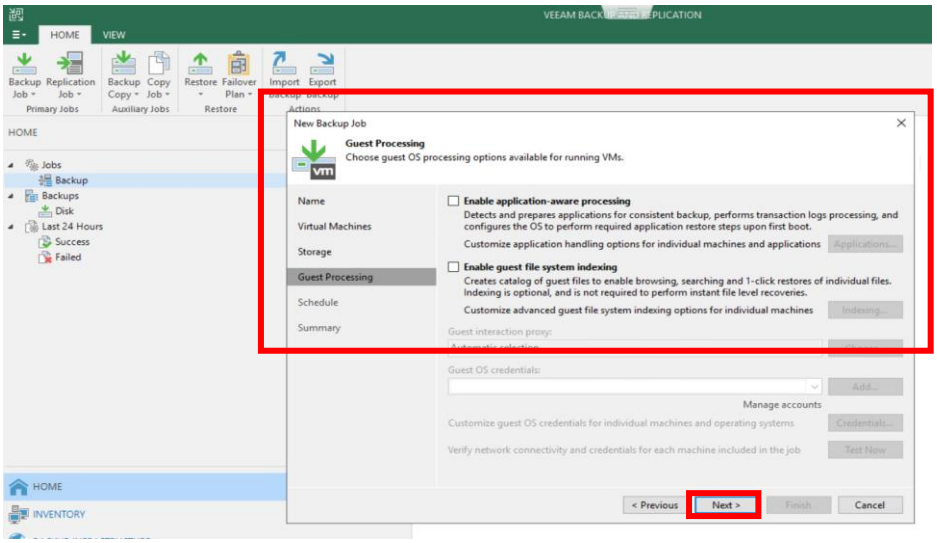


10. Click next to **Backup proxy** where if you choose **Automatic selection,** Veeam Backup and Replication will detect backup proxies that have access to the source datastore and will automatically assign an optimal backup proxy to process VM's in the job.

If you choose **Use the selected backup proxy servers specified**, you can select backup proxies that the job must use. It is recommended that you select at least two backup proxies to ensure that the backup job starts if one of the proxies fails or loses its connectivity to the source datastore.



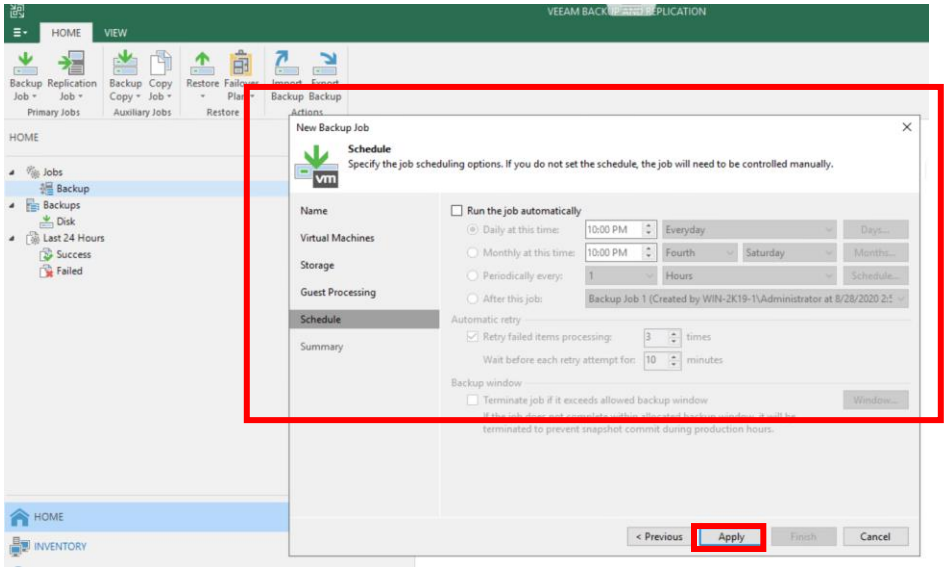
11. This step requires that you specify a user account that will be used to connect to the VM guest OS and deploy the runtime process. From the **Guest OS credentials** list, select a user account that has enough permissions. By default, Veeam Backup and Replication uses the **Log on as a batch job** policy to connect to guest OS. If the connection fails, Veeam Backup and Replication switches to **Interactive Logon**.



12. At the **Schedule** step of the wizard, select to run the backup job manually or schedule the job to run on a regular basis. Select the **Run the job automatically** check box. If the check box is not selected, you will have to start the job manually to create the VM backup.

To define schedule for jobs you'll want to define either **Daily at this time** or **Monthly at this time.** To run the job specific time daily, on defined weeks days or with specific periodicity, select **Daily at this time.** Use the fields on the right to configure the necessary schedule.

To run the job once a month on specific days, select **Monthly at this time.** Use the fields on the right to configure the necessary schedule.

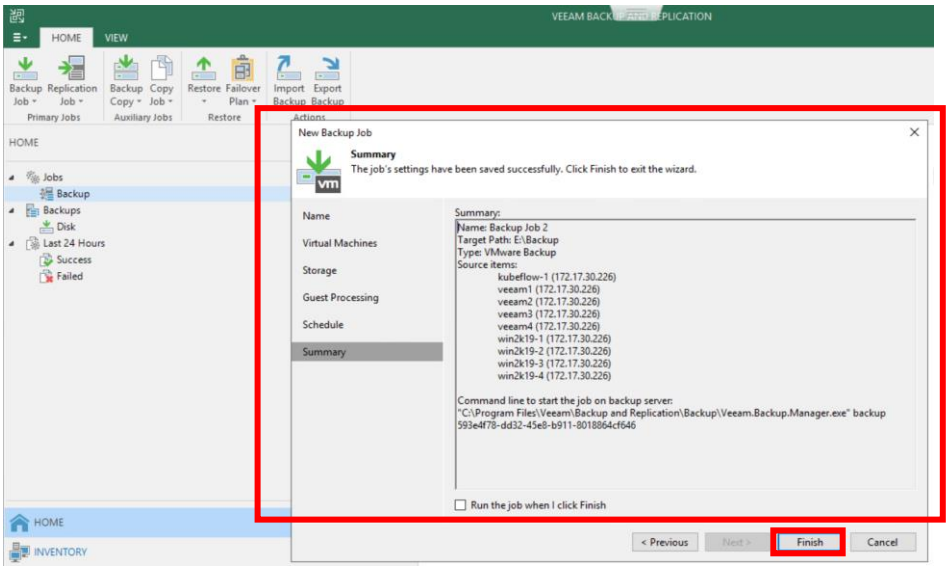


13. Finishing the working wizard at the **Summary** step of the wizard, complete the procedure of backup job configuration.

1. Review the details of the backup job.

2. Select the **Run the job when I click Finish** check box if you want to start the job right after you finish working with the wizard.

3. Click **Finish** to close the wizard.



14. The configuration steps for **Veeam Backup Restore** are now **Completed.**