



**Protecting
HPE Morpheus VM
Essentials Software
with Commvault
image-based
backups**



Executive summary

Many businesses are reevaluating their virtualization strategy in response to software packaging updates, new technologies, and the demands of AI workloads. HPE Morpheus VM Essentials Software is a new virtualization platform that reduces cost and complexity. The integration with Commvault data protection makes it a solid solution for production-ready workloads.

By providing a single interface for Kernel-based Virtual Machine (KVM) and VMware® environments, HPE Morpheus VM Essentials Software enables management of both VM Essentials and VMware vSphere® environments and provisioning of workloads on demand without any vendor lock-in. This way, customers can manage existing virtualized workloads using the HVM hypervisor and experience a simple VM-vending experience across both stacks, thus reducing cost and complexity.

Commvault Cloud Backup and Recovery software is a comprehensive data protection solution that provides complete data protection across any cloud or on-premises environment. It now includes the capability to protect virtual machines (VMs) in HPE Morpheus VM Essentials Software using an image-based backup.

Due to the shared nature of underlying hardware, a VM that is compromised can possibly affect all VMs on the same host or network. Protecting VMs is just as crucial as protecting physical servers to guard against data loss and cyber threats, and to provide business continuity when the unexpected happens.

This technical brief provides an overview of how VMs in HPE Morpheus VM Essentials Software are protected by image-based backups using Commvault Cloud Backup and Recovery software where the underlying storage is HPE Alletra Storage MP B10000. This image-based backup capability is also available with HPE SimpliVity as the underlying storage beginning with the following minimum software versions: Commvault v11.40.30, HPE VM Essentials v8.0.11, and HPE SimpliVity v6.2.

HPE Morpheus VM Essentials Software

HPE Morpheus VM Essentials Software is a virtualization software solution that allows customers to provision and manage KVM and VMware-based VMs from a single intuitive interface. The KVM stack is ideal for those exploring alternatives to VMware, starting with non-mission-critical workloads including those used for test and development. With the solution's ability to support VMware vSphere, it provides a unified VM provisioning and management experience for HVM hypervisor and VMware vSphere VMs. This provides ease of use, agility, and a unified VM-vending experience for HPE Morpheus VM Essentials Software and VMware

clusters. Integration with IP address management (IPAM), DNS, and automation tools enables tedious provisioning steps to be automated to simplify the provisioning of VMs in VM Essentials and VMware.

For an overview of HPE Morpheus VM Essentials Software, [read the HPE Morpheus VM Essentials Software solution brief](#) or [watch a video introduction to VM Essentials on our YouTube™ channel](#).

Figure 1 shows the dashboard of the VM Essentials manager web-based interface.

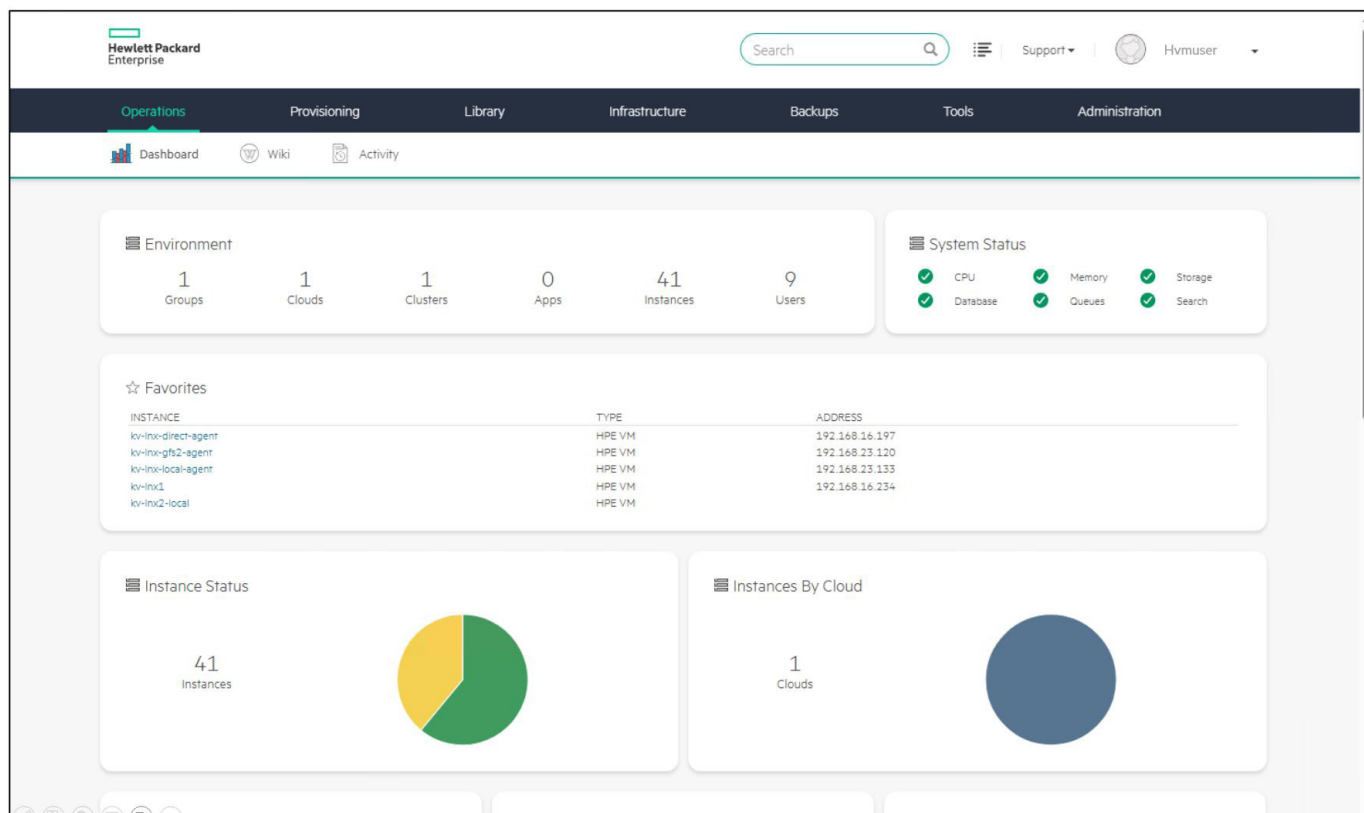


Figure 1. HPE Morpheus VM Essentials Software web-based interface

In VM Essentials, virtual machines are provisioned by creating a resource or service, which may include several VMs. New VMs are provisioned by clicking the **Add** button to launch the **Create Instance** wizard

from the **Provisioning** → **Instances** page of the VM Essentials user interface. Figure 2 shows an example of this page, displaying the **Add** button, along with several virtual machines and their status.

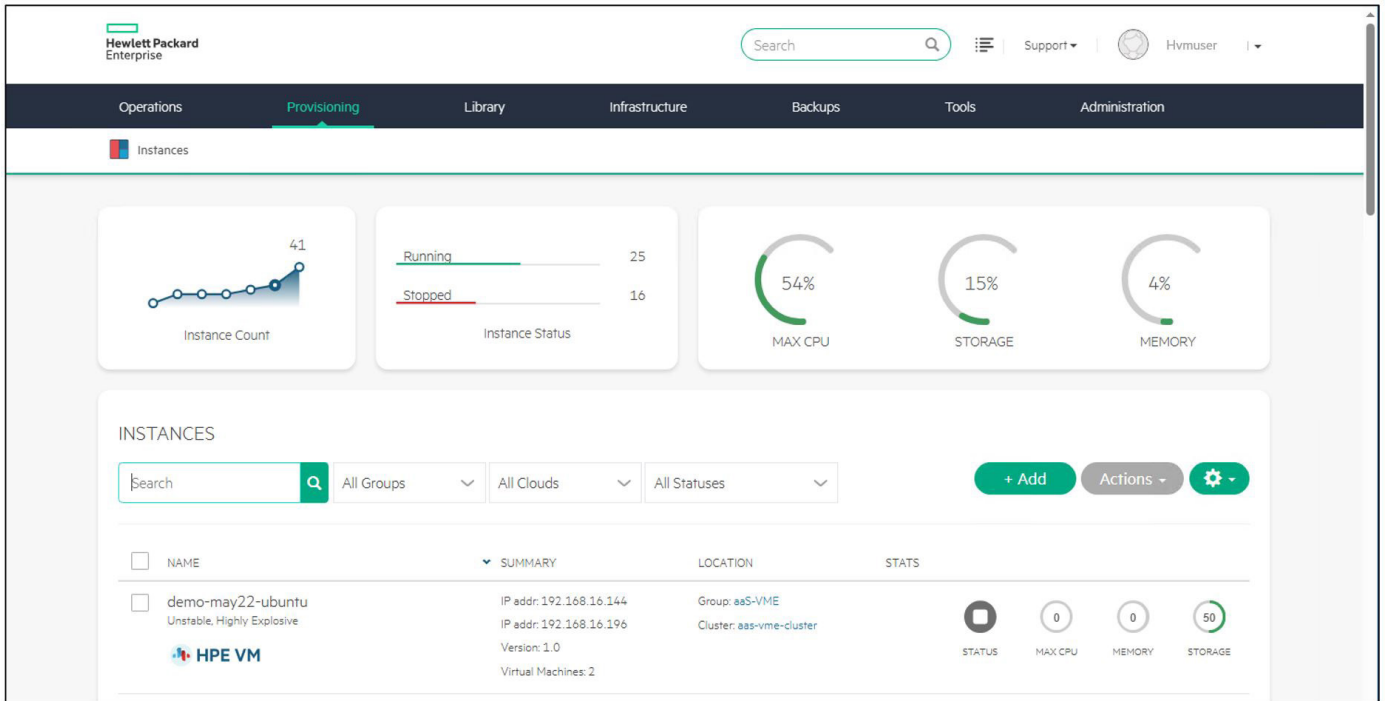


Figure 2. VM Essentials Instances page

Commvault Cloud Backup and Recovery

Beginning with Commvault version 11.40, Commvault provides image-based backup and recovery for VMs in HPE Morpheus VM Essentials Software. With image-based backups, backup and recovery of the entire VM is done through the hypervisor host, and there is no need to install or maintain an agent on every VM to be protected. Image-based backups capture the entire VM, including the OS, applications, settings, and data. Because the complete VM is backed up, full system restores can quickly recover the VM in place or spin up a new VM from the image, either locally or elsewhere in the hybrid or public cloud. This can drastically reduce recovery time objectives (RTOs), which is especially important in disaster recovery scenarios. The backup image can also be used to do granular file-level restores if only selected files need to be recovered.

This image-based capability is currently available for VMs with storage based on NFS clustered file system shares and Global File System 2 (GFS2) disks. Image-level backups of VMs are supported with full, incremental, and synthetic full backups. Incremental and synthetic full backups are implemented using cyclic redundancy check (CRC) scans to determine changes since the last backup.

In addition to this image-based backup capability, Commvault also supports agent-based backup of VMs in VM Essentials. Agent-based backups require the installation of the Commvault File System Agent on each VM to be protected and are especially useful when only specific files or directories need to be backed up and restored. For example, this capability is needed for log-only backups and restores in cases where there are databases running inside a VM Essentials VM.

For this testing, the Commvault management server (CommServe) and data mover (MediaAgent) were installed on the same physical server in the test environment. The Commvault Virtual Server Agent was installed on each node in the HVM cluster. This agent enables Commvault to make image-based backups of the VMs running on each cluster node. The Commvault Virtual Server Agent is installed only on the cluster nodes; for the image-based backup functionality, it is not necessary to install an agent on any of the VMs to be backed up.

The installation of the Virtual Server Agent requires at least 100 GB of free space on each HVM cluster

node. Install the Commvault Virtual Server Agent package on the HPE VM Essential cluster nodes and then register each node to the CommServe server through the installation wizard.

Backups are managed using Commvault's user interface, the Command Center. Create a backup plan using the normal process for protecting other servers in Commvault. Using the navigation menu, navigate to **Manage** → **Plans** and click **Create plan**. Select the storage policy and recovery point objective (schedule) required for the VM Essentials VMs. Figure 3 shows the last screen of the **Create Backup Plan** wizard in the Command Center interface.

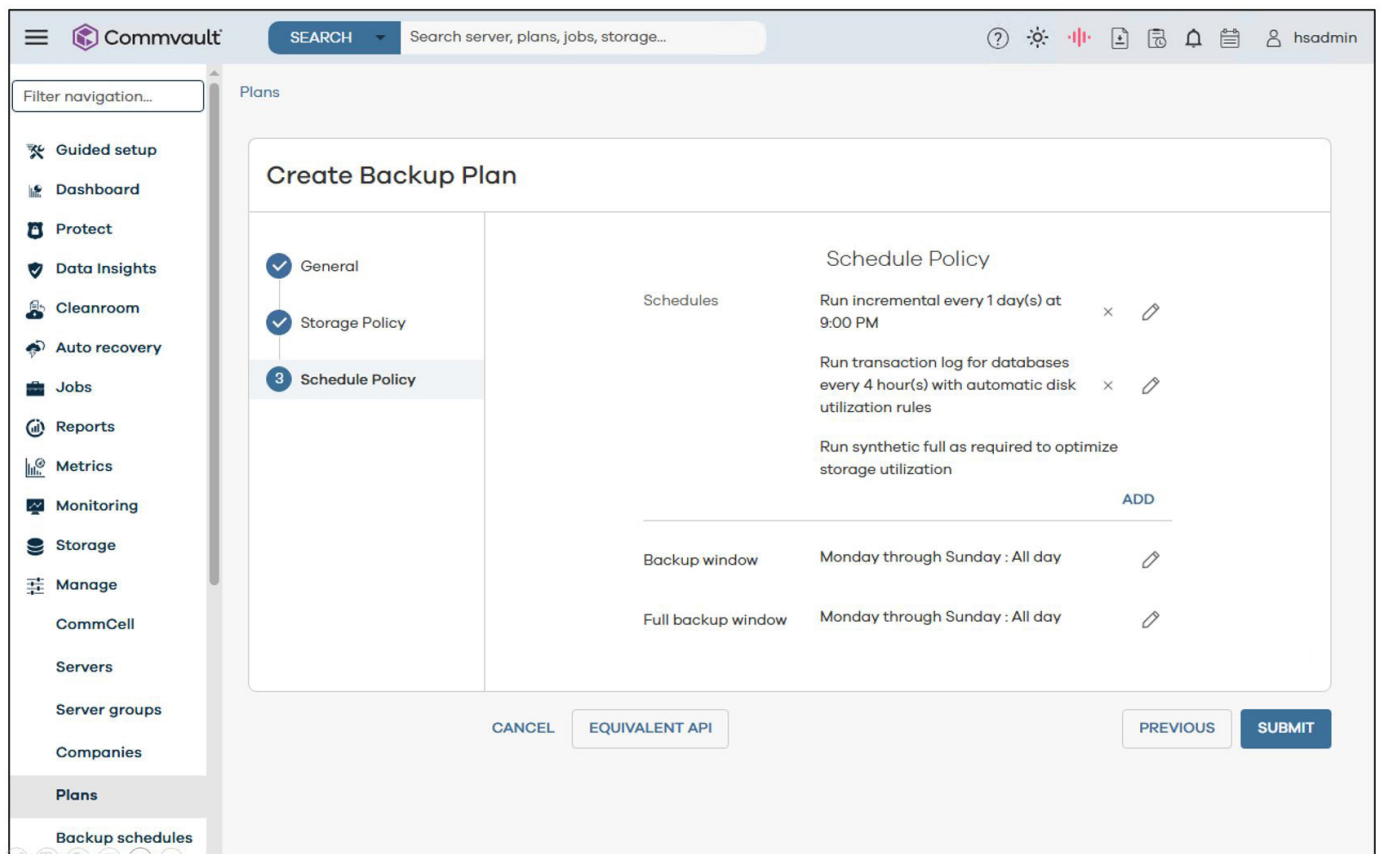


Figure 3. Commvault Create Backup Plan wizard

After the backup plan has been created to specify the storage, retention, and backup schedule to be used, VMs or VM groups in VM Essentials can be assigned to the backup plan in the same way as any server, VM, or VM group is assigned to another backup plan. In the Command Center, select the VM or VM group to be protected. Then, under **Backup configuration**, enable the **Use backup plan** option and select the plan to be used from the **Plan** list. Click **Save** to save the backup settings for the VM or VM group.

Backup and restore operations are configured and managed using the familiar Commvault Command Center user interface. At this time, Commvault cannot be added as a backup provider using the **Backups** → **Integrations** page in the VM Essentials user interface.

Full VM recovery can be performed by selecting the VM group and the VM to be restored and specifying the destination. A VM can be restored **in**

place or **out of place**, depending on user selection at the time the restore operation is initiated. An **in place** restore simply recovers the existing VM in its original location, such as for recovery of a VM that has become corrupted or compromised. An **out of place** restore can restore the image as a new VM in the same cluster as the original machine (under a new name) or in a different cluster if more than one has been configured and are managed by the same instance of VM Essentials.

To accomplish a full restore of a VM, use the Commvault Command Center interface to select the VM group and specific VM to be restored. Specify the options for the restore as necessary, and after reviewing the selections in the summary page of the wizard, click **SUBMIT** to initiate the restore operation. An example of a successful **out of place** restore operation is shown in Figure 4.

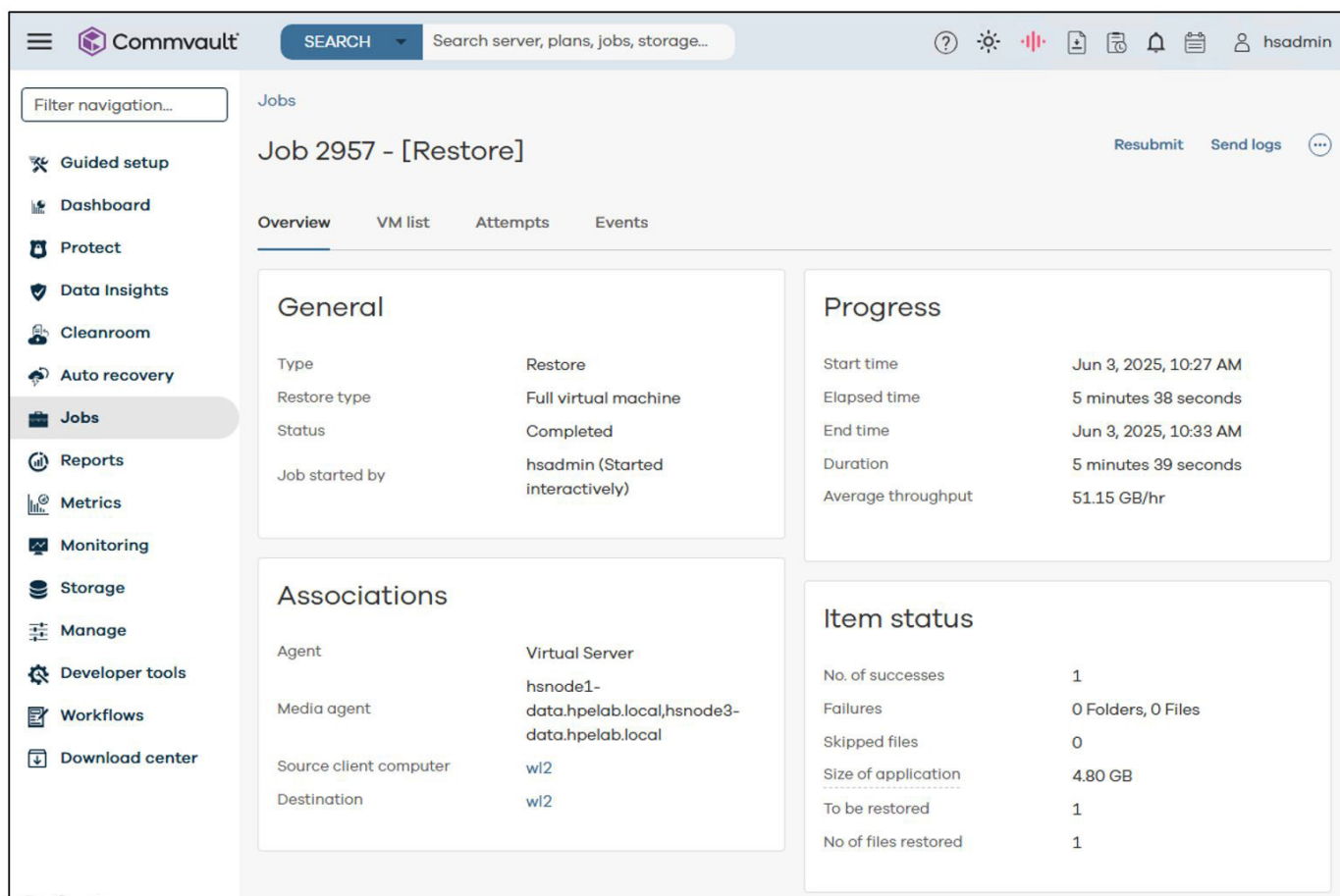


Figure 4. Job summary for a completed full VM restore

Note: Commvault does not support Live recovery (instant recovery) of full VMs in VM Essentials.

Conclusion

The functional test of Commvault's backup and restore strategies in an HPE Morpheus VM Essentials Software environment was completed successfully. Image-based backups and restores in Commvault Cloud Backup and Recovery can be used effectively to protect VMs in VM Essentials. With the ability to do image-based backups and full system restores, RTOs can be significantly reduced. This helps make your organization more resilient and keeps your valuable data protected.

Learn more at

HPE.com/us/en/Morpheus-VM-Essentials-Software.html

HPE.com/us/en/alliance/Commvault.html

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