



Migration Toolkit for Virtualization 2.10

Release notes

Release notes for the Migration Toolkit for Virtualization 2.10 release

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Red Hat Modernization and Migration Documentation Team

ccs-mms-docs@redhat.com

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Abstract

Review new features, known issues, and resolved issues for Migration Toolkit for Virtualization 2.10.

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CHAPTER 1. MIGRATION TOOLKIT FOR VIRTUALIZATION 2.10

The release notes describe technical changes, new features and enhancements, known issues, and resolved issues.

1.1. TECHNICAL CHANGES

Migration Toolkit for Virtualization (MTV) has the following technical changes.

MTV 2.10.1 rebased to RHEL 10

MTV 2.10.1 was rebased to Red Hat Enterprise Linux (RHEL) 10.

1.2. NEW FEATURES AND ENHANCEMENTS

Migration Toolkit for Virtualization (MTV) 2.10 introduces the following features and enhancements:

- In MTV 2.10.6, you can control nested virtualization behavior during migration with the new **enableNestedVirtualization** option. This option accepts three values:
 - Not set (default): Nested virtualization is automatically detected from the source VM and preserved on the target.
 - **true**: Force enables nested virtualization on the target VM, regardless of source settings.
 - **false**: Force disables nested virtualization on the target VM, regardless of source settings. This option gives you the flexibility to mitigate performance issues stemming from Virtualization Based Security (VBS) activation.

By disabling VBS on target VMs during the migration of Windows VMs that do not need nested virtualization, you can avoid potential performance degradation, resulting in a more streamlined and efficient migration process.



NOTE

After you migrate your VMs to OpenShift Virtualization, you can re-enable VBS by running the following YAML:

```
apiVersion: kubevirt.io/v1
kind: VirtualMachine
metadata:
  name: <vm_name>
spec:
  template:
    spec:
      domain:
        cpu:
          features:
            - name: vmx
              policy: optional
            - name: svm
              policy: optional
```

(MTV-4698)

- In MTV 2.10.1, you can migrate VMs that are running on B-tree file systems (Btrfs) to OpenShift Virtualization with support for operating system conversion.
([MTV-2260](#))
- MTV 2.10.1 standardizes the API for **ForkliftController** global settings, now accepting only string values for feature flags, for example "true" and "false". This standard ensures consistency, clarity, and improved error handling, preventing errors caused by using boolean values instead of string values only for feature flags.
([MTV-3566](#))
- In the MTV 2.10.0 UI, the Virtual Machines tab on the Plan Details page provides improved visibility of migration progress with a clearer page title label and a display of key events in logical order. You can also hide migration resources for a cleaner UI to assess the progress of your migration.
- In MTV 2.10.0, you can optimize the asynchronous input/output (AIO) buffer configuration for the VMware disk development kit (VDDK) directly in the MTV UI for cold migrations. AIO buffer configuration is deactivated by default, but you can activate the feature and customize the configuration in YAML to improve storage I/O operations and reduce latency when working with VDDK.
([MTV-2188](#))
- In MTV 2.10.0, you can create network maps directly in the MTV UI by adding a source and target network on the Create network map page instead of writing a YAML file.
- In the MTV 2.10.0 UI, the Virtual Machines table in the Create migration plan wizard is enhanced to simplify navigation and provide a clearer view of selected VMs. With this update, you can bulk select VMs from the Virtual Machines table toolbar, switch between views of selected and unselected VMs, filter VMs by location, and manage columns.
([MTV-3058](#))
- In MTV 2.10.0, you can find the status of cutover dates for warm migrations in the MTV UI. The cutover button is an icon in the UI for your migration plan that changes state when you set the date for a cutover so that you can easily identify if a cutover date is set.
- In MTV 2.10.0, the Migrations section on the Plan Details page is relabelled as Migration history. The Migration history section contains tooltips to provide contextual information and make the section more useful for migration monitoring and troubleshooting.
- MTV 2.10.0 introduces a formatting feature for VMware system serial numbers. System administrators can use the formatting feature for consistent and error-free system serial numbers and easier system identification during migrations and configurations.
- In MTV 2.10.0, you can customize the **nodeSelector** field and options for importer pods in the MTV UI, enhancing resource allocation, scheduling, and application performance. You can customize pod scheduling policies for importer pods to ensure that importer pods are scheduled on specific nodes for enhanced resource management and stability.
- MTV 2.10.0 supports the migration of Linux Unified Key Setup (LUKS) encrypted VMs by using Network Bound Disk Encryption (NBDE) with Clevis. With this update, you can migrate LUKS-encrypted VMs without rebooting the VMs to obtain a decryption key from the Clevis server. The Clevis server must be accessible from OpenShift.
([MTV-3395](#))
- In MTV 2.10.0, the **insecureSkipVerify** flag is set by default for ESXi hosts in the MTV UI, simplifying migrations in environments with self-signed certificates. With this setting, the

migration process bypasses SSL certificate validation, reducing potential errors caused by certificates while maintaining security.

- In MTV 2.10.0, you can configure VM scheduling preferences for migration plans in the MTV UI or the **Plan** Custom Resource (CR). You can add custom labels to migrated VMs, apply VM scheduling to specific nodes based on node labels, and implement affinity or anti-affinity rules for VMs against workloads or nodes. With this update, you can use the **TargetLabels**, **TargetNodeSelector**, and **TargetAffinity** fields to manage VM placement during migrations, improving resource utilization and operational compliance. [\(MTV-2768\)](#)
- In MTV 2.10.0, a **PreFlightInspection** during warm migration enables early detection of issues during guest conversion. If an issue is detected, the warm migration fails before VM shutdown, and users can adjust VM settings or skip guest conversion. Potential errors during the **PreFlightInspection** include the following:
 - Missing LUKS passwords
 - Unsupported operating system
 - Unsupported file system [\(MTV-2427\)](#)
- **Technology Preview:** In MTV 2.10.0, you can import Open Virtual Appliances (OVAs) directly from local machines to OpenShift Virtualization by uploading the OVAs to NFS through the web browser in the MTV UI. [\(MTV-3371\)](#)
- In MTV 2.10.0, you can set **useCompatibilityMode** to **true** or **false** in the Raw Copy Mode settings in the MTV UI. With this update, you can use compatibility devices when migrating source VMs, such as SATA bus, E1000E NICs, or USB, or you can use pre-installed VirtIO devices on source VMs. [\(MTV-3006\)](#)
- In MTV 2.10.0, you can migrate VMs to existing user-defined networks (UDNs). With this update, you can create UDNs and map a VM's source network to the UDN, and you can preserve the static IP addresses of source VMs that have assigned IPs. [\(MTV-2856\)](#)
- **Technology Preview:** In MTV 2.10.0, you can live migrate VMs from one Red Hat OpenShift cluster to another, minimizing downtime with the continuous availability of VMs during the migration process. With this update, MTV creates and maps resources from the source to the destination cluster and triggers the live migration, and OpenShift Virtualization CNV migrates the running VM. [\(MTV-2040\)](#)
- In MTV 2.10.0, the Storage Offload Copy feature is **Developer Preview** for warm migrations and **Technology Preview** for cold migrations. Storage Offload Copy accelerates disk transfer in the storage array by bypassing the network. With this update, you can create a snapshot and then copy the base disk while the VM is running. You can copy delta changes from a snapshot over the network after the base disk storage offload copy, minimizing the requirement for VM shutdowns. [\(MTV-2637\)](#)
- In the MTV 2.10.0 UI, you can automate the creation of VMware Virtual Disk Development Kit (VDDK) images from provided **s/tat.gz/tar.gz/** files to accelerate the transfer of virtual disks. [\(MTV-1616\)](#)

1.3. RESOLVED ISSUES

Migration Toolkit for Virtualization (MTV) 2.10 has the following resolved issues:

1.3.1. Resolved issues 2.10.6

Review the resolved issues in this release of MTV.

XFSv4 migrations failed

MTV 2.10.1 was rebased to Red Hat Enterprise Linux (RHEL) 10, which does not support XFS version 4 (XFSv4). As a result, XFSv4 migrations failed for MTV 2.10.1-2.10.5. With this release, a new **spec.xfsCompatibility** option is available on the migration plan. When set to **false**, the default setting, the plan uses the standard conversion image. When set to **true**, the plan uses the XFS-compatible conversion image instead of the standard conversion image.



WARNING

If you enable XFS support for a migration plan, then the plan cannot support Btrfs migration.

[MTV-4685](#) and [MTV-4709](#)

Migrations with shared disk migration disabled failed

In MTV, migration of shared disks is done by running two migration plans, one with the **migrateSharedDisk** option set to **true** and one with the option set to **false**. Before this update, the migration plan with the option set to **false** failed because an unnecessary **populator** pod was created. With this release, the unnecessary pod is not created, and migration of shared disks works as expected.

[MTV-4555](#)

1.3.2. Resolved issues 2.10.5

Review the resolved issues in this release of MTV.

A fatal error occurred when migrating win-virtio VMs

Before this update, migrations of **win-virtio** VMs failed due to a **MEMORY MANAGEMENT** fatal error. With this release, the error no longer occurs and migrations of **win-virtio** VMs work as expected.

[MTV-4534](#)

Warm migrations of VMs with multiple VirtIO disks failed

Before this update, warm migrations of VMs with multiple VirtIO disks failed due to a **virt-v2v** issue. The failure prevented MTV from identifying the disks. With this release, **virt-v2v** works as expected, allowing MTV to identify multiple VirtIO disks correctly and to migrate the VMs as expected.

[MTV-4130](#)

1.3.3. Resolved issues 2.10.4

Review the resolved issues in this release of MTV.

NPE caused conversion type NatApp Shift migrations to fail

Before this update, during NetApp Shift migrations with **migration** type set to **conversion**, a null pointer exception (NPE) in the SSH readiness validation function caused validation to break. As a consequence, the controller stalled during validation, breaking the migration flow. With this release, the controller no longer stalls during validation in conversion mode, and conversion type migrations work as expected.

[MTV-4358](#)

Migrations of Red Hat Virtualization VMs with a direct LUN disk failed

Before this update, migrations of Red Hat Virtualization VMs with a direct logical unit number (LUN) disk failed with the following error: **Disk has an invalid capacity of 0 bytes**. With this release, MTV validates the LUN size, instead of the disk size. As a result, migrations of Red Hat Virtualization VMs with direct LUN disks work as expected.

[MTV-4180](#)

Missing IP address warning displayed even when addresses were stored in inventory

Before this update, the warning for missing IP addresses was shown even when static IP addresses were stored in the MTV inventory. As a consequence, end users saw unnecessary warnings. With this release, the warning for missing IP addresses only appears when a static IP address is not stored, preventing incorrect warning messages.

[MTV-4407](#)

1.3.4. Resolved issues 2.10.3

Review the resolved issues in this release of MTV.

FC based migrations with Dell PowerStore storage fail during host registration

Before this update, virtual machine (VM) migrations that used Fibre Channel (FC) with Dell PowerStore storage could fail during storage offload. MTV attempted to register FC initiators by using the adapter ID format instead of the World Wide Port Name (WWPN), which caused host registration to fail and prevented persistent volume mapping. With this release, MTV correctly extracts and uses the WWPN for FC initiators, allowing migrations that use Dell PowerStore storage to complete successfully.

Warm migrations from VMware with storage offload fail due to incorrect secret usage

Before this update, warm migrations from VMware that used storage offload could fail with errors indicating missing access keys. MTV did not correctly use per disk credentials during the warm migration process, which caused storage offload operations to fail. With this release, MTV correctly uses per disk secrets for storage offload, allowing warm migrations from VMware to complete successfully.

[MTV-4062](#)

Windows VM migrations fail due to missing temporary directory during conversion

Before this update, migrating Windows VMs could fail during the conversion phase with an error indicating that a temporary directory under **C:\Windows\Temp** could not be created. This issue occurred because the **virt-v2v** package used during migration did not correctly handle temporary

directory creation for certain Windows configurations, including UEFI and Secure Boot setups. With this release, MTV includes an updated **virt-v2v** package that resolves this issue, allowing Windows VM migrations to complete successfully.

[MTV-3949](#)

Warm migrations from VMware get stuck at cutover

Before this update, warm migrations from VMware could become stuck during the cutover phase, preventing the migration from completing. With this issue, some **DataVolume** objects remained in the **Paused** phase and the migration did not progress. With this release, MTV improves handling of the cutover workflow so warm migrations can proceed and complete successfully.

[MTV-3606](#)

Windows Server 2016 VM in-place upgrades can fail after migration from VMware

Before this update, Windows Server 2016 VMs migrated from VMware could fail an in-place upgrade to a later version, such as Windows Server 2019 or 2022, with error code **0x80004005**. This occurred due to a corrupted Windows driver store after conversion, which caused the **pnputil /enum-drivers** command to fail and blocked the upgrade. With this release, MTV includes an updated **virt-v2v** package that resolves this issue, allowing in-place upgrades of migrated Windows Server 2016 VMs to complete successfully.

[MTV-2256](#)

1.3.5. Resolved issues 2.10.2

Review the resolved issues in this release of MTV.

XCOPY usage detection during volume population

Before this update, there was no indication of whether Extended Copy (XCOPY) was used during volume population. When copying with **vmkfstools** falls back to host copy because of storage array configuration errors or network issues, users were unaware if XCOPY was in use or not. With this release, XCOPY usage detection is implemented in the **vmkfstools-wrapper** tool. As a result, users can now monitor whether XCOPY was used during volume population through the new **vsphere_xcopy_volume_populator_xcopy_used** metric.

[MTV-3090](#)

Improved data transfer efficiency with FC prioritization

Before this update, host mapping prioritized iSCSI over FC when both were present. As a result, users experienced data transfer fallback to network copy when both FC and iSCSI adapters were online. With this release, FC adapters are checked before iSCSI for volume mapping. FC is prioritized over iSCSI for ESXi adapters, reducing potential network copy fallbacks and improving data transfer efficiency.

[MTV-3966](#)

Resolved inspection pod failures during large-scale warm migrations

Before this update, inspection pod failures occurred during large-scale warm migrations because the parent backing of disks was missing. This update introduces a retry limit for obtaining the parent backing of disks during inspection. As a result, large-scale warm migrations complete successfully, reducing the occurrence of inspection pod failures and stalled pods during the **PreflightInspection** step.

[MTV-4059](#)

Resolved certificate validation errors for VM migrations with pre-migration hooks

Before this update, the OpenShift Virtualization migration of VMs with pre-migration hooks caused migration plan failure in the Initialize phase because of certificate validation issues. With this update, certificate validation errors are resolved for migration of VMs with pre-migration hooks.

[MTV-2894](#)

1.3.6. Resolved issues 2.10.1

Review the resolved issues in this release of MTV.

Migrations stalled when conversion pod and forklift-controller pod were on different networks

Before this update, migrations stalled when the conversion pod was on a different network than the **forklift-controller** pod. With this update, the network issue is resolved, and the **forklift-controller** can access the conversion pod to perform the migration.

[MTV-1324](#)

Bundle creation includes relatedImages field

Before this update, the **relatedImages** field was missing from the generated CSV during the bundle creation for MTV 2.10.0. As a result, users could not use MTV in disconnected environments. With this update, bundle creation includes the *relatedImages* field in the generated CSV, and you can use MTV in disconnected environments without manually adding the **relatedImages** field to the CSV.

[MTV-3558](#)

1.3.7. Resolved issues 2.10.0

Review the resolved issues in this release of MTV.

User could not rename virtual machines to address naming conflicts before migration

In previous versions of MTV, you could not rename virtual machines (VMs) from the source provider to address naming conflicts before the VMs were migrated to Red Hat OpenShift Virtualization. In this release of MTV, you can modify non-compliant VM names in the MTV UI during the migration process to address naming conflicts and ensure compatibility with OpenShift Virtualization naming conventions. ([MTV-2919](#))

User experience was interrupted when adding a new target project to a migration plan

In previous versions of MTV, you had to close the Create migration plan wizard in the MTV UI to add a new target project to your migration plan. In this release of MTV, the option to create a new project as a target for VMs in your migration plan is available in the Target project dropdown list on the General page of the Create migration plan wizard.

Power state of source VMs was preserved post-migration

In previous versions of MTV, the power state of a source VM was preserved post-migration. In this release of MTV, you can set the power state of a migrated VM to **on**, **off**, or **auto**. For example, if you are migrating a VM that is running in the source environment, you can ensure that the VM is powered off post-migration to preserve startup dependencies between VMs. With this update, you can set the power state for the target VM in the MTV UI or by using the **powerState** field in the **spec.vms** section of the **Plan** Custom Resource (CR). The **auto** setting preserves the power state of the source VM. ([MTV-1312](#))

1.4. KNOWN ISSUES

Migration Toolkit for Virtualization (MTV) 2.10 has the following known issues:

Raw Device Mapping files prevent **copyoffload** migration of NFS-based VMs

If you try to migrate an NFS-based VM by using the **copyoffload** method, the **vmkfstools** command-line utility attempts to use the fallback method because NFS is file-based. However, NFS datastores do not support Raw Device Mapping (RDM) pointer files, and **vmkfstools** creates RDM files as cloning targets.

Workaround: You can use one of the following migration methods to address the limitation:

- Migrate the NFS-based VM to an iSCSI or FC datastore, and then use the **copyoffload** method to migrate the VM to OpenShift Virtualization.
- Migrate the VM to a local ESXi disk datastore, and then use the **copyoffload** fallback method to migrate the VM to OpenShift Virtualization.
- Use either the HTTP or VDDK method to migrate the VM to OpenShift Virtualization.

Inaccurate **ConnectionTestFailed** error messages when creating an OVA provider

When you create an Open Virtual Appliance (OVA) provider in the MTV UI, **ConnectionTestFailed** error messages are displayed before the provider status changes to **Ready**. The error messages are misleading and do not accurately reflect the in-progress status of the connection.

[\(MTV-3613\)](#)

VDDK image in **openshift-mtv** namespace

When you upload a VMware Virtual Disk Development Kit (VDDK) init image, the image URL is located in the **openshift-mtv** namespace. If you create a provider in a different namespace, there is an error when pulling the image.

[\(MTV-3673\)](#)

Leftover PVCs consume resources in OVA migrations

During Open Virtual Appliance (OVA) migrations to OpenShift Virtualization, leftover **ova-store-pvc-*** Persistent Volume Claims (PVCs) are bound to the target cluster, consuming excess resources.

Workaround: Manually delete the leftover **ova-store-pvc-*** PVCs after migration by using the **oc delete pvc <pvc_name>** command. This action removes the excess resources, but data loss might occur.

[\(MTV-3659\)](#)

VM migration from OVA to OpenShift Virtualization cluster causes loss of interface settings in VM YAML file

The migration of VMs with DHCP settings from an Open Virtual Appliance (OVA) provider to a OpenShift Virtualization cluster results in the loss of interface settings in the VM YAML file post-migration.

Workaround: Manually configure interfaces on the VM after migration.

[\(MTV-3654\)](#)

Missing check for write permissions on OVA files for upload

When uploading an Open Virtual Appliance (OVA) file, the script does not check the write permissions for the destination directory before the upload, which can result in a permission denied error at the end of the upload process.

Workaround: Check the write permissions of the OVA file before initiating the upload. The write permissions allow MTV to complete the upload process without permissions errors.

[\(MTV-3634\)](#)

1.5. SECURITY FIXES

Migration Toolkit for Virtualization (MTV) 2.10 has the following security fixes:

1.5.1. Security fixes 2.10.3

Review the security fixes in this release of MTV.

- [CVE-2025-66031](#)
- [CVE-2025-12816](#)