



Migrating Red Hat Enterprise Virtualization Manager from version 2.2 to 3.0

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EXECUTIVE SUMMARY

This tech brief describes how to migrate a Red Hat Enterprise Virtualization Manager (RHEV-M) version 2.2 (on a Microsoft Windows system) to RHEV 3.0 (on a Red Hat Enterprise Linux 6.x system). This migration can be live, allowing the rest of your RHEV 2.2 environment (clusters, hosts, storage and VMs) to continue to work during the migration or off-line.

There are two basic migration paths you can take: migration without or with down time. Without down time, you can move the RHEV-M to RHEV 3.0, but other components continue to run in compatibility mode. If you can afford down time, you can more easily migrate your other components to RHEV 3.0. To do this, you can export your virtual machines, then create a complete RHEV 3.0 environment (including hosts and storage) in which you import and run the VMs.

IMPORTANT: If you are currently running RHEV 2.2, we strongly recommend you migrate to 3.0. Once RHEV 3.1 is released, you will still need to migrate from RHEV 2.2 to RHEV 3.0 (as described here) before you can upgrade to RHEV 3.1.

Migration Without Down Time

The `rhev-m-migration-tool` lets you migrate your RHEV-M to RHEV 3.0 while your RHEV hosts and virtual machines are still running. Only the RHEV-M is migrated to RHEV 3.0. The migration leaves other components as they are. After migration, components of your RHEV environment are in the following states:

- **RHEV-M:** The RHEV-M is running RHEV 3.0 on a Linux system.
- **Hypervisors:** All hypervisors continue as RHEL 5.x hosts, running in compatibility mode.
- **Data Centers:** Existing clusters remain in RHEV 2.2 compatibility mode. New data centers and clusters can be added into the RHEV-M in RHEV 3 mode (which will allow for RHEL6 hosts).
- **Storage domains:** Current storage domains continue to use version 1 (V1) meta data and run in compatibility mode.
- **Virtual machines:** Existing virtual machines can migrate between RHEL 5.x hosts without trouble. To migrate VMs between RHEL5 and RHEL6 hosts a certificate upgrade is required.

Before you begin this type of migration, you must complete the following prerequisites:

- Upgrade your RHEV-M (on Windows) to the latest RHEV 2.2.x version. (At least RHEV 2.2.5.)
- Upgrade all Windows 7 VMs and templates to include the latest virtio drivers and guest tools.

If RHEV 2.2 components are acceptable for you, you can use your 3.0 RHEV-M to manage those items without interruption.

See "Running a Live RHEV 3.0 Migration" to learn how to upgrade your RHEV-M with no down time.



Migration With Down Time

If you can afford some down time with your RHEV environment, you can export all your virtual machines, create a new RHEV 3.0 environment (RHEV-M, hosts, and storage), and import your virtual machines into that new environment. This brings your entire RHEV environment to RHEV 3.0. We recommend this approach if you can afford to take your RHEV environment offline during the migration.

RUNNING A LIVE RHEV 3.0 MIGRATION

This section describes how to migrate a RHEV-M from RHEV 2.2 (on Windows) to RHEV 3.0 (on Linux) while the rest of the RHEV environment continues to run without interruption. Here are your prerequisites:

- **Latest RHEV-M 2.2.x:** A RHEV-M for RHEV 2.x runs on Windows 2008 R2 or Windows 2003. Whether the RHEV-M is on RHEV 2.1 or 2.2, it must be upgraded to the latest version of RHEV 2.2.x before starting the ultimate upgrade to RHEV 3.0. Refer to the following article for details on how to get to the latest RHEV 2.2 version:

<https://access.redhat.com/knowledge/solutions/54356>

RHEV 2.1 certificates are incompatible with RHEV 3.0. If you are upgrading from RHEV 2.1, you need to also upgrade your certificates, as described here:

<https://access.redhat.com/knowledge/solutions/135653>

- **Upgrade VMs:** After you upgrade the RHEV-M to the latest 2.2, if any of your virtual machines are Windows 7 and you are using virtio drivers and guest tools, you need to upgrade those components as well. If you forget to do that before upgrading your RHEV-M to RHEV 3.0, your Windows 7 VMs might fail or perform poorly. See the Troubleshooting section for details on how to deal with this issue after migration.
- **Upgrade authentication (optional):** The migration tool doesn't support migrations from Microsoft Active Directory (AD) to Red Hat IPA. It does, however, support going from local Windows users to either AD or IPA. Even in those cases, the migration tool only takes care of updating the database with the new UUIDs. The migration of actual user data should be done before using the migration tool. Taking this into account what you will need to do is the following:
 1. Manually remove all users/permissions from RHEV-M.
 2. Migrate the user data, manually or using whatever tool you prefer.
 3. Manually re-add all users/permissions to RHEV-M.That said, the local Windows users limitation is kind of artificial and can be easily lifted.
- **Network between RHEV-M 2.2 and 3.0 systems:** Part of the upgrade process requires remote access from the new RHEV-M (3.0) to the old RHEV-M (2.2). For now, make sure the two systems will be able to communicate over a network. The procedure will describe how to make the necessary services available.
- **Synchronize time.** If possible, have all the systems involved in the migration synchronize their time to the same NTP server. If that is not possible, manually change the times so that the two RHEV-M systems are synchronized as closely as possible. If time of the two machines differs by more than five minutes, the migration will fail.



- **Remote Access to SQL server.** You need to allow remote access to the SQL server being used by the RHEV-M 2.2 system. This is needed to copy from a live SQL database to the live Postgres database running on the Linux RHEV-M 3.0 system. The SQL server cannot be loaded to Linux from a backup.
- **Active Directory server.** To migrate your Active Directory user accounts, you must be able to do forward and reverse DNS look-ups from both RHEV-M systems to the Active Directory server. On the new RHEV-M 3.0 system, you will use the `rhevmanage-domains` command to identify your Active Directory server.
- **Getting the Migration Tools.** The migration tools are stored in an RPM package called `rhevmmigration-tool`. We describe later how to get this package.
- **Re-running Migrations.** If migration doesn't work the first time, you can try again. We describe the steps for re-running the migration later.

Official documentation for installing Red Hat Enterprise Virtualization Manager 3.0 (which is part of this procedure) is provided by the Red Hat Enterprise Virtualization Installation Guide:

```
https://access.redhat.com/knowledge/docs/en-US/Red_Hat_Enterprise_Virtualization/3.0/html-single/Installation_Guide/index.html#chap-Installation_Guide-Installing_the_RHEV_Manager-Manager
```

Be sure to carefully follow the installation procedure in that guide, which includes adding the proper software channels and opening necessary firewall ports. We have noted where steps vary for this migration.

Getting Software for the Migration Procedure

To use the RHEV 2.2 to 3.0 migration procedure you need two components, both of which come in the `rhevmmigration-tool` RPM:

- **A Windows PowerShell Script:** On the Windows system, you need to run a PowerShell script called `rhevmmigration-windows.ps1` to prepare the Windows machine for the migration process.
- **A Linux Python Script:** On the Linux system, a Python script called `rhevmmigration` is executed to drive the part of the migration process that has to be done in the Linux machine.

Starting the Migration Procedure

You need to go back and forth between the RHEV-M 2.2 and 3.0 systems to complete this procedure.

Install the Red Hat Enterprise Linux system to use as the RHEV-M 3.0 system

1. Install Red Hat Enterprise Linux 6 server that you will use to hold the RHEV-M 3.0 as described in [Red Hat Enterprise Virtualization Installation Guide](http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Virtualization/3.0/html-single/Installation_Guide/index.html) (http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Virtualization/3.0/html-single/Installation_Guide/index.html). In particular: do the following:
 - ➔ Meet system requirements in Chapter 2 and install the Red Hat Enterprise Linux 6 server. Be sure to start with a clean install.
 - ➔ **Optional:** Set the hostname to the same fully-qualified domain name for the RHEV-M 3.0 that you did for the RHEV-M 2.2. While not strictly required, it will keep the certificate authority information consistent within the certificates used. If you do this, the procedure tells you when to

update your DNS server to point to the RHEV-M 3.0 system.

→ Run the **yum upgrade** and **yum install rhvm** described in section 3.1 of the Installation Guide, but don't run **rhvm-setup** yet!

2. Install the **rhvm-migration-tool** package:

```
# yum install rhvm-migration-tool
```

NOTE: If the **rhvm-migration-tool** RPM is not available from the Red Hat repository, contact your Red Hat representative for information about the location of the RPM.

3. With the **rhvm-migration-tool** installed, from the RHEV-M 3.0 (Linux) system copy the file **/usr/share/rhvm-migration-tool/rhvm-migration-windows.zip** over to an empty folder on the RHEV-M 2.2 (Windows) system (for example, **C:\migration**). To do this, you could:

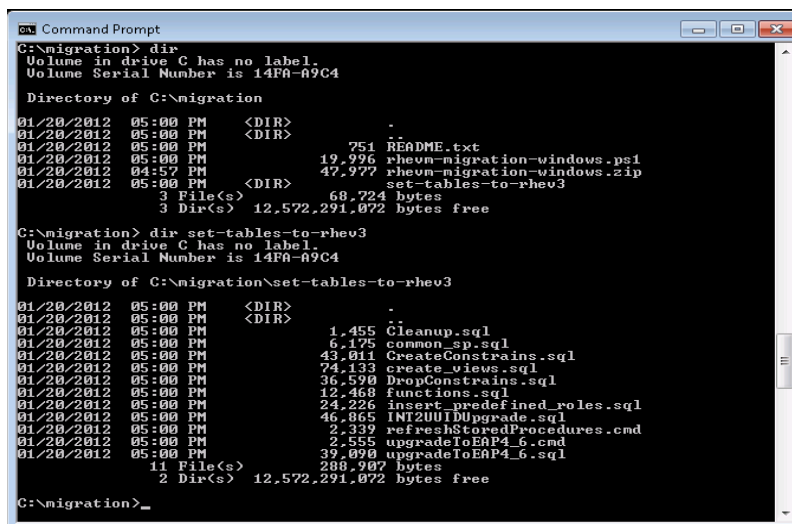
→ Copy the file to a USB drive and bring it over to your RHEV-M 2.2 system.

→ Upload the file from the RHEV-M 3.0 system to an accessible server, then download it from there to the RHEV-M 2.2 system.

→ Use any available secure file copying application you have available (such as **putty** or **winscp**) to copy the file to the RHEV-M 2.2 system.

Begin Migration from RHEV-M 2.2 on Microsoft Windows

4. Log into the RHEV-M 2.2 system and unzip the **/usr/share/rhvm-migration-tool/rhvm-migration-windows.zip** file. The **rhvm-migrate-windows.ps1** command is the only one you run directly. Figure 1 shows a directory listing of the unzipped file's contents from our example **C:\migration** directory:



```
Command Prompt
C:\migration> dir
Volume in drive C has no label.
Volume Serial Number is 14FA-A9C4

Directory of C:\migration
01/20/2012  05:00 PM    <DIR>          .
01/20/2012  05:00 PM    <DIR>          ..
01/20/2012  05:00 PM                751  README.txt
01/20/2012  05:00 PM          19,996  rhvm-migration-windows.ps1
01/20/2012  04:57 PM          47,977  rhvm-migration-windows.zip
01/20/2012  05:00 PM    <DIR>          set-tables-to-rhev3
                 3 File(s)    68,724 bytes
                 3 Dir(s)  12,572,291,072 bytes free

C:\migration> dir set-tables-to-rhev3
Volume in drive C has no label.
Volume Serial Number is 14FA-A9C4

Directory of C:\migration\set-tables-to-rhev3
01/20/2012  05:00 PM    <DIR>          .
01/20/2012  05:00 PM    <DIR>          ..
01/20/2012  05:00 PM          1,455  Cleanup.sql
01/20/2012  05:00 PM          6,175  common_sp.sql
01/20/2012  05:00 PM          43,011  CreateConstraints.sql
01/20/2012  05:00 PM          74,133  create_views.sql
01/20/2012  05:00 PM          36,590  DropConstraints.sql
01/20/2012  05:00 PM          12,468  Functions.sql
01/20/2012  05:00 PM          24,226  insert_predefined_roles.sql
01/20/2012  05:00 PM          46,865  INT2011Upgrade.sql
01/20/2012  05:00 PM          2,339  refreshStoredProcedures.cmd
01/20/2012  05:00 PM          2,555  upgradeToEAP4_6.cmd
01/20/2012  05:00 PM          39,090  upgradeToEAP4_6.sql
                 11 File(s)    288,907 bytes
                 2 Dir(s)  12,572,291,072 bytes free

C:\migration>
```

Figure 1: Listing of files used with **rhvm-migration-windows.ps1**

5. If you haven't already done so, start the PowerShell command prompt so that you can use the

RHEV-M PowerShell scripting library: *Start* → *All Programs* → *Red Hat* → *RHEV Manager* → *RHEV Manager Scripting Library*.

6. From the PowerShell window, change to the directory containing the unzipped scripts:

```
C:\> cd C:\migration
```

7. Run the **rhev-migrate-windows.ps1** script. The script interactively requests the information required to connect to the SQL Server database, connect to the PowerShell API and create the backup files. Here are a few things you should know about the script before you run it:
 - This script will make your existing RHEV-M 2.2 system non-operational.
 - Your hosts and VMs will continue to run, but you will not be able to manage them until you get the new RHEV-M 3.0 system running.
 - If there is a problem with the new RHEV-M, you can roll back to the RHEV-M 2.2 system, but that requires manually reenabling the services (as described later in this document).To run the script from C:\migration, type the following and answer the questions as prompted:

```
C:\migration> .\rhev-migration-windows.ps1
Database password: *****
Admin user [rhev]:
Admin password: *****
Install directory [C:\Program Files <x86>\Redhat\RHEVManager\]:
Web root [C:\inetpub\wwwroot]:
Backup directory: C:\migration\backup
Please review the settings...
Continue [no]: yes
Checking required files ...
```

This script makes a backup of the SQL Server database and copies other important files to the backup directory that you selected (**C:\migration\backup** for example). It will also stop and disable all the RHEV-M services.

8. Copy the contents of the backup directory created in Windows (**C:\migration\backup** in our example) to a directory on the RHEV-M 3.0 Linux machine (such as **/tmp/migration/backup**). You can zip the files and unzip them back on the RHEV-M 3.0 system, to make the transfer more convenient. As described earlier, use a USB drive or secure file transfer tools to copy the files. (Keep a secure copy of this backup, in case you need to refer to it later.)
9. Enable remote TCP access to the SQL Server. Essentially, this procedure locks down the SQL service to TCP port 1443 and opens the firewall for that port. Here is how to do it:
 - Select *Start* → *SQL Server Configuration Manager-Manager*. The SQL Server Configuration Manager window opens.
 - Enable the TCP/IP service for the SQL server by expanding the *SQL Server 2005 Network Configuration* heading, selecting *Protocols for SQLEXPRESS*, right-clicking on *TCP/IP* and selecting *Enable*. The result of this step is illustrated in Figure 2.
 - Right-click *TCP/IP* again and select *Properties*. The *TCP/IP Properties* window appears.

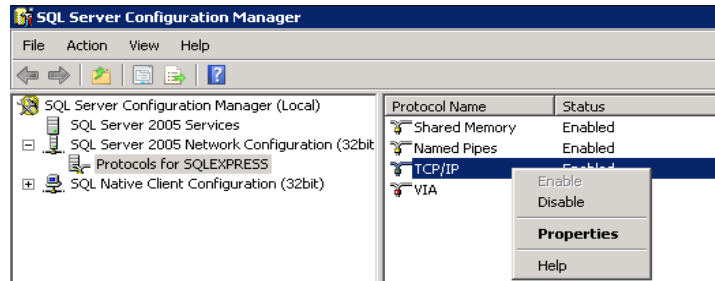


Figure 2: Enabling TCP/IP for the SQL Server

→ Select the IP Addresses tab from the TCP/IP Properties window and change these settings on the tab: Change "Active" to **Yes** under both IP headings (here IP5 and IP6), then under the IPAll heading, set TCP Dynamic Ports to **0** and set TCP Port to **1433** (the default SQL Server port). Use a different port number if some other server is using that port. Figure 3 shows an example:

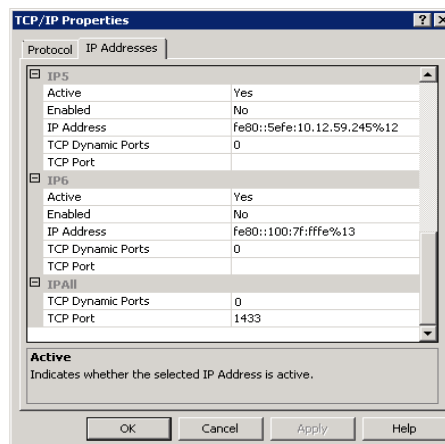


Figure 3: Activating TCP/IP and setting the port number

- Restart the SQL Server. To do this, select Start → Administrative Tools → Services and select the SQL Server service instance. Right-click the mouse on the service and select Restart.
- Open the SQL Server port (**1433** by default) in the Firewall. Here are examples for how to do that in Windows Server 2003 or 2008. **For Windows Server 2003**, open Windows Firewall from the Control Panel. From the Exceptions tab, click Add Port and add the name (SQL SERVER) and port number (1433) and click OK. **For Windows Server 2008**, open the Server Manager window under Administrative Tools. Select Configuration → Windows Firewall → Inbound Rules and select New Rule. Then add a rule that opens TCP port 1433.

Continue Migration from the RHEV-M 3.0 Linux system

10. **Optional:** If are using the old RHEV-M host name on the new RHEV-M 3.0 system, change your

DNS server now to point that name to the IP address of the new RHEV-M 3.0 system. (Having a different host name should work, but leaves inconsistent CA information in the certificates.)

11. On the RHEV-M 3.0 system, run the **rhevms-setup** command, as described in the [Red Hat Enterprise Virtualization 3.0 Installation Guide](#), with one important difference:

```
WARNING: When you run rhevms-setup, don't create an ISO domain. This causes a mismatch in the number of storage domains when you go to load the RHEV-M 2.2 data. For a deeper discussion of when this issue and other workarounds, refer to this article and bug report: https://access.redhat.com/knowledge/solutions/150913 https://bugzilla.redhat.com/show\_bug.cgi?id=876105
```

12. To configure the RHEV-M 3.0 system to use the same Active Directory server (or a different AD or new IPA server), run **rhevms-manage-domains**. In the following example, the AD server is **ad.example.com** and the user you authenticate against is **admin** (the jbossas server restarts automatically when the command completes):

```
# rhevms-manage-domains -action=add -domain='ad.example.com' -user='admin' -interactive  
Enter password: *****
```

13. Restart the application server:

```
# service jbossas restart
```

14. To check that the AD or IPA server was configured properly, you can validate it:

```
# rhevms-manage-domains -action=validate  
Domain ad.example.com is valid.  
Manage Domains completed successfully
```

15. Stop the application server:

```
# service jbossas stop
```

16. Before running the **rhevms-migration** command, make sure the files copied from the RHEV-M 2.2 system are in a local directory (for example, **/tmp/migration/backup**). You need this information about the RHEV-M 2.2 server: the fully-qualified host name and SQL server password. For the RHEV-M 3.0 server, you need the PostgreSQL database password. You can probably use defaults for the rest of the settings. With that information, run the following and step through the questions:

```
# rhevms-migration  
The log of the migration process is available in "/var/log/rhevms/rhevms-migration...  
...  
Windows files dir: /tmp/migration/backup  
SQL Server host: windows-rhevms.example.com  
SQL Server port [1433]:  
SQL Server database [rhevms_migration]:  
SQL Server user [sa]:  
SQL Server password [*****]: *****  
...  
  
PostgreSQL host [localhost]:  
PostgreSQL port [5432]:  
PostgreSQL database [rhevms]:
```

```
PostgreSQL user [postgres]:
PostgreSQL password [*****]: *****
Are you sure you want to proceed? [no]: yes
...
You can rollback to your previous installation manually enabling
and starting the services in the Windows machine.
```

17. If the process finishes successfully you should be able to start the application server:

```
# service jbossas start
```

18. From an Internet Explorer browser, connect to the RHEV-M Administrative Portal as described in section 3.4 of the RHEV Administration Guide (http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Virtualization/3.0/html-single/Installation_Guide/index.html). It should contain exactly the same data centers, hosts, clusters, VMs, templates, and so on. Don't make any changes to the new RHEV-M system until you have validated that it is working.
19. To validate the new RHEV-M system, run the **validation** script that comes in the zip file on the new RHEV-M 3.0 system. In this example, the new RHEV-M is at an IP address of **192.168.1.1**, the user is **rhevm@ad.example.com**, the password is **T0pSecreT** and the backup directory is **myBackup_dir_rhev2.2**:

```
# chmod 755 /tmp/migration/validation
# /usr/share/rhevm-migration-tool/rhevm-migration-validation.py \
-i 192.168.1.1 -u rhevm@ad.example.com \
-p T0pSecreT -v myBackup_dir_rhev2.2
```

The script reads some relevant metrics (number of data centers, number of clusters, number of hosts, etc) from **results.ini** file obtained from the backup directory and will check them using the REST API. If all went well, you can begin using the new RHEV 3.0 RHEV-M.

IMPORTANT: Up to this point, if you have not changed your RHEV configuration, you can still go back to the old RHEV-M 2.2 system and troubleshoot any problems. Refer to the 8 section for details on reverting to the RHEV-M 2.2 system and fixing problems that can occur.

20. If your new RHEV-M 3.0 is working, you can decommission your RHEV-M 2.2 Windows system.

As noted earlier, at this point you can:

- Troubleshoot problems that may occur with your new RHEV 3.0 RHEV-M as described in the next section.
- Continue to use RHEV 2.2 components (hosts, storage, virtual machines, and authentication) in compatibility mode with your RHEV-M in RHEV 3.0.
- Upgrade your RHEV 2.2 components to be compatible with RHEV 3.0, as described in the "Upgrading RHEV 2.2 Components to RHEV 3.0" section later in this document.

Troubleshooting RHEV 2.2 to 3.0 Migrations

If the migration to RHEV 3.0 doesn't work the first time, don't panic. The hypervisors and virtual machines can continue to work for some time without a working RHEV-M. You can make corrections and try the migration again. The next section describes how to retry the migration.

NOTE: If you want to rollback to the RHEV 2.2 RHEV-M, you can simply do the first three steps of the procedure below and continue to use your 2.2 RHEV-M system.

Retry the 2.2 to 3.0 migration

If the migration process failed for some reason, you can retry the migration procedure as follows:

1. **Stop the jbossas service.** On the RHEV-M 3.0 system, stop the jbossas service:

```
# service jbossas stop
```

2. **Restart RHEV-M 2.2 services.** On the RHEV-M 2.2 system, restart the RHEV-M service. To do this, select Start → Administrative Tools → Services. For each service that begins with RHEVM (RHEVManager, RHEVHistoryService, RHEVMNetConsole, and RHEVNotificationService), select the service, right-click Properties, change Startup Type to Automatic (to have the service start automatically on reboot), click Start (to restart the service now) and click Apply to apply the change.
3. **Make Corrections to RHEV-M 2.2.** Your RHEV-M 2.2 system should be operational again. So make any corrections you need to make (we'll suggest some possibilities later in this document).
4. **Run the Migration Again.** Once you are ready to try the migration again, repeat the entire migration procedure. You should not have to reinstall the RHEV-M 3.0 system. However, be sure to clean your RHEV-M 3.0 system by running the **rhev-cleanup** command and then running again **rhev-setup** and **rhev-manage-domains**.

Troubleshooting Specific 2.2 to 3.0 Migration Problems

If your migration failed, note the problems that occurred, return control to your RHEV-M 2.2 system, and try to correct the problems. Here are some problems that might occur:

- **Recheck Prerequisites.** Go through the Error: Reference source not foundError: Reference source not found section again and make sure everything listed there (host naming, time synchronizing, and so on) were all done properly.
- **Non-responsive hypervisor host.** There are many reasons why a hypervisor may show up as non-responsive when transitioning from RHEV 2.2 to 3.0 (time out of synchronization, firewall problems, etc.). Try to fix the problem and rerun the migration. Another possibility, if you don't mind bringing down your VMs for a bit, is to remove the host from the RHEV-M 3.0 system and add it again (hit the New button from the hosts tab).
- **RHEV-M fails to communicate with host.** Some tools run from the RHEV-M, such as **rhev-log-collector**, can fail after migration if SSH keys get out of sync between the RHEV-M and hosts. If this happens, the following knowledge article describes how to get those keys back in sync:
<https://access.redhat.com/knowledge/comment/369653>
- **Windows VMs fail.** If your Windows virtual machines experience either performance problems or blue screen of death after migration, it could be because you have not upgraded to the latest virtio drivers and guest tools (included with RHEV 2.2.5 or later). If you didn't do those things before upgrading your RHEV-M to RHEV 3.0, follow these steps after the fact to fix those Windows virtual machines:
 1. Obtain a custom action `vioDiskCache` and add this custom action to all effected virtual machines:

```
vioDiskCache="writethrough"
```

2. Start the virtual machine. The virtual machine will initiate, but with reduced performance.
3. Upgrade the driver and guest tools.
4. Stop the VM and remove the custom property.

- **Migrating Windows VM to RHEL 6 hosts.** In RHEV 2.2, the RHEV Guest Agent was available from a unique channel in Red Hat Network. For RHEL 6, RHEV hosts now have to use a virtio serial channel. As a result, the guest will lose its connection to the RHEV-M after upgrading the host to RHEL 6 that is running the virtual machine.

If you want to upgrade your RHEV hosts from RHEL 5 to RHEL 6, there are a few things you should do to your Windows virtual machines and Windows templates before upgrading hosts to RHEV 3.0. If the RHEV agent is installed on Windows guests, before upgrading do the following to RHEV 3.0:

1. Make sure the RHEV APT tool is installed on all Windows guests and templates that have RHEV tools installed.
2. Make sure you have the tools CD provided with RHEV 3.0 in the ISO domain. As soon as the VM is started on the new host, it will initiate the update. If you did not follow these instructions, simply install the new tools to upgrade the guest agent.

To avoid such problems in the future, be sure to keep all tools and drivers constantly up to date.

- **Duplicate users.** It is possible to add the same user name more than once on the RHEV-M 2.2. If that occurs, the migration procedure to RHEV-M 3.0 will fail when it tries to load the second user of the same name into the new database. You can correct the problem by removing multiple users of the same name from the RHEV-M 2.2 and restarting the migration process.

Upgrading RHEV 2.2 Components to RHEV 3.0

After the RHEV-M 3.0 migration is complete, you can run all the other components of your RHEV environment (hosts, storage, etc.) in compatibility mode. However, if you want to upgrade your hosts, storage, authentication, and virtual machines after migration, here's how to do that:

Upgrading Hosts (RHEL 5.x to 6.x)

If you want to consider upgrading your host systems from RHEL 5.x to RHEL 6.x, there are a couple of documents you can refer to. See "How do I migrate my RHEV hypervisors from RHEL 5 to RHEL 6?":

```
https://access.redhat.com/knowledge/node/70489
```

and the Hypervisor Deployment Guide, Chapter 6:

```
https://access.redhat.com/knowledge/docs/en-US/Red\_Hat\_Enterprise\_Linux/6/html-single/Hypervisor\_Deployment\_Guide/index.html#chap-Deployment\_Guide-Upgrading\_Red\_Hat\_Enterprise\_Virtualization\_Hypervisors
```

Upgrading Storage (version 1 to 2)

We don't recommend upgrading from version 1 to version 2 storage when you upgrade your RHEV-M to RHEV 3.0. If you feel you need to upgrade your storage, we suggest the following:

- You can export your storage, create new version 2 storage in RHEV 3.0, then import to the new version 2 storage.
- If you can wait until RHEV 3.1 comes out, there will be an easy way to upgrade your version 1 or version 2 storage to version 3.

Upgrading VMs (get the latest drivers and guest tools)

No special steps need to be taken to upgrade Red Hat Enterprise Linux virtual machines. However, upgrading from RHEV 2.x to RHEV 3.0 can have some impact on Windows 7 virtual machines. See the Windows VMs tips in the Troubleshooting section earlier in this document.

Upgrading Authentication (from AD to IPA)

If you want to use IPA instead of Microsoft Active Directory authentication, it would be best to start that process before doing the migration (as described in the beginning of the migration procedure).

SUMMARY

The procedure to migrate a RHEV-M 2.2 system to RHEV-M 3.0 should be done by carefully following the steps in this document for either live or off-line migrations. Please contact Red Hat Support if you have questions or problems related to this procedure.