SUSE Linux Enterprise Server 12 SP5

Xen to KVM Migration Guide

SUSE Linux Enterprise Server 12 SP5

As the KVM virtualization solution is becoming more and more popular among server administrators, many of them need a path to migrate their existing Xen based environments to KVM. As of now, there are no mature tools to automatically convert Xen VMs to KVM. There is, however, a technical solution that helps convert Xen virtual machines to KVM. The following information and procedures help you to perform such a migration.

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Contents

Important: Migration Procedure Not Supported

The migration procedure described in this document is not fully supported by SUSE. We provide it as a guidance only.

1 Migration to KVM Using `virt-v2v`

This section contains information to help you import virtual machines from foreign hypervisors (such as Xen) to KVM managed by `libvirt`.

Tip: Microsoft Windows Guests

This section is focused on converting Linux guests. Converting Microsoft Windows guests using `virt-v2v` is the same as converting Linux guests, except in regards to handling the Virtual Machine Driver Pack (VMDP). Additional details on converting Windows guests with the VMDP can be found in the separate Virtual Machine Driver Pack documentation at https://documentation.suse.com/sle-vmdp/.

1.1 Introduction to `virt-v2v`

`virt-v2v` is a command line tool to convert VM Guests from a foreign hypervisor to run on KVM managed by `libvirt`. It enables paravirtualized virtio drivers in the converted virtual machine if possible. A list of supported operating systems and hypervisors follows:

SUPPORTED GUEST OPERATING SYSTEMS

- SUSE Linux Enterprise Server
- openSUSE
- Red Hat Enterprise Linux
- Fedora
- Microsoft Windows Server 2003 and 2008

SUPPORTED SOURCE HYPERVISOR

- Xen

SUPPORTED TARGET HYPERVISOR

- KVM (managed by `libvirt`)

1.2 Installing `virt-v2v`

The installation of **`virt-v2v`** is simple:

```
sudo zypper install virt-v2v
```

Remember that **`virt-v2v`** requires `root` privileges, so you need to run it either as `root`, or via **`sudo`**.

1.3 Preparing the Virtual Machine

Note: Conditions for Skipping This Step

If running **`virt-v2v`** on SLES 12 SP1 or before, this step can be safely skipped. This step can also be ignored if the virtual machine is fully virtualized or if it runs on SLES 12 SP2 or later.

The Xen virtual machine must have default kernel installed. To ensure this, run **`zypper in kernel-default`** on the virtual machine.

1.4 Converting Virtual Machines to Run under KVM Managed by `libvirt`

`virt-v2v` converts virtual machines from the Xen hypervisor to run under KVM managed by `libvirt`. To learn more about `libvirt` and **`virsh`**, see *Book "Virtualization Guide"*. Additionally, all **`virt-v2v`** command line options are explained in the **`virt-v2v`** manual page (**`man 1 virt-v2v`**).

Before converting a virtual machine, make sure to complete the following steps:

PROCEDURE 1: PREPARING THE ENVIRONMENT FOR THE CONVERSION

1. Create a new local storage pool.

`virt-v2v` copies the storage of the source virtual machine to a local storage pool managed by `libvirt` (the original disk image remains unchanged). You can create the pool either with Virtual Machine Manager, or `virsh`. For more information, see *Book "Virtualization Guide", Chapter 12 "Managing Storage", Section 12.1 "Managing Storage with Virtual Machine Manager"* and *Book "Virtualization Guide", Chapter 12 "Managing Storage", Section 12.2 "Managing Storage with* **virsh***"*.

2. Prepare the local network interface.

   Check that the converted virtual machine can use a local network interface on the VM Host Server. It is usually a network bridge. If it is not defined yet, create it with *YaST* › *System* › *Network Settings* › *Add* › *Bridge*.

Note: Mappings of Network Devices

Network devices on the source Xen host can be mapped during the conversion process to corresponding network devices on the KVM target host. For example, the Xen bridge `br0` can be mapped to the KVM network default. Sample mappings can be found in `/etc/virt-v2v.conf`. To enable these mappings, modify the XML rule as necessary and ensure the section is not commented out with `<!--` and `-->` markers. For example:

```
<network type='bridge' name='br0'>
  <network type='network' name='default'/>
</network>
```

Tip: No Network Bridge

If there is no network bridge available, Virtual Machine Manager can optionally create it.

`virt-v2v` has the following basic command syntax:

```
virt-v2v -i INPUT_METHOD -os STORAGE_POOL SOURCE_VM
```

input_method

There are two input methods: `libvirt` or `libvirtxml`. See the *`SOURCE_VM`* parameter for more information.

storage_pool

The storage pool you already prepared for the target virtual machine.

source_vm

The source virtual machine to convert. It depends on the *`INPUT_METHOD`* parameter: For `libvirt`, specify the name of a libvirt domain. For `libvirtxml`, specify the path to an XML file containing a libvirt domain specification.

Note: Conversion Time

Conversion of a virtual machine takes a lot of system resources, mainly for copying the whole disk image for a virtual machine. Converting a single virtual machine typically takes up to 10 minutes, although virtual machines using very large disk images can take much longer.

1.4.1 Conversion Based on the `libvirt` XML Description File

This section describes how to convert a local Xen virtual machine using the `libvirt` XML configuration file. This method is suitable if the host is already running the KVM hypervisor. Make sure that the `libvirt` XML file of the source virtual machine, and the `libvirt` storage pool referenced from it are available on the local host.

1. Obtain the `libvirt` XML description of the source virtual machine.

Tip: Obtaining the XML Files

To obtain the `libvirt` XML files of the source virtual machine, you must run the host OS under the Xen kernel. If you already rebooted the host to the KVM-enabled environment, reboot back to the Xen kernel, dump the `libvirt` XML file, and then reboot back to the KVM environment.

First identify the source virtual machine under virsh:

```
root # virsh list
 Id    Name                           State
----------------------------------------------------
[...]
  2     sles12_xen                     running
```

```
[...]
```

`sles12_xen` is the source virtual machine to convert. Now export its XML and save it to `sles12_xen.xml`:

```
root # virsh dumpxml sles12_xen > sles12_xen.xml
```

2. Verify all disk image paths are correct from the KVM host's perspective. This is not a problem when converting on one machine, but may require manual changes when converting using an XML dump from another host.

```
<source file='/var/lib/libvirt/images/XenPool/SLES.qcow2'/>
```

Tip: Copying Images

To avoid copying an image twice, manually copy the disk image(s) directly to the `libvirt` storage pool. Update the source file entries in the XML description file. The **`virt-v2v`** process will detect the existing disks and convert them in place.

3. Run **`virt-v2v`** to convert to KVM virtual machine:

```
root # virt-v2v sles12_xen.xml❶ \
-i LIBVIRTXML❷ \
-os remote_host.example.com:/exported_dir❸ \
--bridge br0❹ \
-on sles12_kvm❺
```

❶ The XML description of the source Xen-based virtual machine.

❷ **`virt-v2v`** will read the information about the source virtual machine form a `libvirt` XML file.

❸ Storage pool where the target virtual machine disk image will be placed. In this example, the image will be placed on an NFS share `/exported_dir` on the `remote_host.example.com` server.

❹ The target KVM-based virtual machine will use the network bridge `br0` on the host.

❺ The target virtual machine will be renamed to `sles12_kvm` to prevent name collision with the existing virtual machine of the same name.

1.4.2 Conversion Based on the `libvirt` Domain Name

This method is useful if you are still running `libvirt` under Xen, and plan to reboot to the KVM hypervisor later.

1. Find the `libvirt` domain name of the virtual machine you want to convert.

```
root # virsh list
 Id    Name                           State
----------------------------------------------------
[...]
  2     sles12_xen                     running
[...]
```

   `sles12_xen` is the source virtual machine to convert.

2. Run **`virt-v2v`** to convert to KVM virtual machine:

```
root # virt-v2v sles12_xen❶ \
-i libvirt❷ \
-os storage_pool❸ \
--network eth0❹ \
-of qcow2❺ \
-oa sparce❻ \
-on sles12_kvm
```

   ❶ The domain name of the Xen-based virtual machine.

   ❷ **`virt-v2v`** will read the information about the source virtual machine directly from the active `libvirt` connection.

   ❸ The target disk image will be placed in a local `libvirt` storage pool.

   ❹ All guest bridges (or networks) will be connected to a locally managed network.

   ❺ Format for the disk image of the target virtual machine. Supported options are `raw` or `qcow2`.

   ❻ If the converted guest disk space will be `sparse` or `preallocated`.

1.4.3 Converting a Remote Xen Virtual Machine

This method is useful if you need to convert a Xen virtual machine running on a remote host. As **`virt-v2v`** connects to the remote host via **`ssh`**, ensure that SSH service is running on the host.

Note: Passwordless SSH Access

Starting with SLES 12 SP2, **virt-v2v** requires a passwordless SSH connection to the remote host. This means a connection using an SSH key added to the ssh-agent. See **man ssh-keygen** and **man ssh-add** for more details on this.

To connect to a remote libvirt connection, construct a valid connection URI relevant for your remote host. In the following example, the remote host name is remote_host.example.com, and the user name for the connection is root. The connection URI then looks as follows:

```
xen+ssh://root@remote_host.example.com/
```

For more information on libvirt connection URIs, see https://libvirt.org/uri.html.

1. Find the libvirt domain name of the remote virtual machine you want to convert.

   ```
   root # virsh -c xen+ssh://root@remote_host.example.com/ list
    Id    Name                           State
   ----------------------------------------------------
     1     sles12_xen                     running
   [...]
   ```

   sles12_xen is the source virtual machine to convert.

2. The **virt-v2v** command for the remote connection looks like this:

   ```
   root # virt-v2v sles12_xen \
   -i libvirt \
   -ic xen+ssh://root@remote_host.example.com/ \
   -os local_storage_pool \
   --bridge br0
   ```

1.5 Running Converted Virtual Machines

After **virt-v2v** completes successfully, a new libvirt domain will be created with the name specified with the -on option. If you did not specify -on, the same name as the source virtual machine will be used. The new guest can be managed with standard libvirt tools, such as **virsh** or Virtual Machine Manager.

Tip: Rebooting the Machine

If you completed the conversion under Xen as described in *Section 1.4.2, "Conversion Based on the `libvirt` Domain Name"*, you may need to reboot the host machine and boot with the non-Xen kernel.

2 Xen to KVM Manual Migration

2.1 General Outline

The preferred solution to manage virtual machines is based on `libvirt`; for more information, see https://libvirt.org/. It has several advantages over the manual way of defining and running virtual machines—`libvirt` is cross-platform, supports many hypervisors, has secure remote management, has virtual networking, and, most of all, provides a unified abstract layer to manage virtual machines. Therefore the main focus of this article is on the `libvirt` solution.

Generally, the Xen to KVM migration runs in the following basic steps:

1. Make a backup copy of the original Xen VM Guest.
2. OPTIONAL: Apply changes specific to paravirtualized guests.
3. Obtain information about the original Xen VM Guest and update it to KVM equivalents.
4. Shut down the guest on the Xen host, and run the new one under the KVM hypervisor.

Warning: No Live Migration

The Xen to KVM migration cannot be done live while the source VM Guest is running. Before running the new KVM-ready VM Guest, you are advised to shut down the original Xen VM Guest.

2.2 Back Up the Xen VM Guest

To back up your Xen VM Guest, follow these steps:

1. Identify the relevant Xen guest you want to migrate, and remember its ID/name.

```
# virsh list --all
Id Name                 State
----------------------------------
 0 Domain-0             running
 1 SLES11SP3            running
[...]
```

2. Shut down the guest. You can do this either by shutting down the guest OS, or with `virsh`:

```
# virsh shutdown SLES11SP3
```

3. Backup its configuration to an XML file.

```
# virsh dumpxml SLES11SP3 > sles11sp3.xml
```

4. Backup its disk image file. Use the `cp` or `rsync` commands to create the backup copy. Remember that it is always a good idea to check the copy with the `md5sum` command.

5. After the image file is backed up, you can start the guest again with

```
# virsh start SLES11SP3
```

2.3 Changes Specific to Paravirtualized Guests

Apply the following changes if you are migrating a paravirtualized Xen guest. You can do it either on the running guest, or on the stopped guest using `guestfs-tools`.

Important

After applying the changes described in this section, the image file related to the migrated VM Guest will not be usable under Xen anymore.

2.3.1 Install the Default Kernel

Warning: No Booting

After you installed the default kernel, do not try to boot the Xen guest with it, the system will not boot.

Before cloning the Xen guest disk image for use under the KVM hypervisor, make sure it is bootable *without* the Xen hypervisor. This is very important for paravirtualized Xen guests as they usually contain a special Xen kernel, and often do not have a complete GRUB 2 boot loader installed.

1. For SLES 11 update the `/etc/sysconfig/kernel` file. Change the `INITRD_MODULES` parameter by removing all Xen drivers and replacing the with virtio drivers. Replace

   ```
   INITRD_MODULES="xenblk xennet"
   ```

   with

   ```
   INITRD_MODULES="virtio_blk virtio_pci virtio_net virtio_balloon"
   ```

   For SLES 12 search for `xenblk xennet` in `/etc/dracut.conf.d/*.conf` and replace them with `virtio_blk virtio_pci virtio_net virtio_balloon`

2. Paravirtualized Xen guests are running a specific Xen kernel. To run the guest under KVM, you need to install the default kernel.

   

   ### Note: Default Kernel Is Already Installed

   You do not need to install the default kernel for a fully virtualized guests as it is already installed.

   Enter **`rpm -q kernel-default`** on the Xen guest to find out if the default kernel is installed. If not, install it with **`zypper in kernel-default`**.
   The kernel we are going to use to boot the guest under KVM must have *virtio* (paravirtualized) drivers available. Run the following command to find out. Do not forget to replace `4.12.14-94.37` with your kernel version:

   ```
   # find /lib/modules/4.12.14-94.37-default/kernel/drivers/ -name virtio*
   /lib/modules/4.12.14-94.37-default/kernel/drivers/net/virtio_net.ko
   /lib/modules/4.12.14-94.37-default/kernel/drivers/scsi/virtio_scsi.ko
   /lib/modules/4.12.14-94.37-default/kernel/drivers/block/virtio_blk.ko
   /lib/modules/4.12.14-94.37-default/kernel/drivers/char/virtio_console.ko
   /lib/modules/4.12.14-94.37-default/kernel/drivers/char/hw_random/virtio-rng.ko
   /lib/modules/4.12.14-94.37-default/kernel/drivers/virtio
   /lib/modules/4.12.14-94.37-default/kernel/drivers/virtio/virtio.ko
   /lib/modules/4.12.14-94.37-default/kernel/drivers/virtio/virtio_pci.ko
   /lib/modules/4.12.14-94.37-default/kernel/drivers/virtio/virtio_balloon.ko
   ```

```
/lib/modules/4.12.14-94.37-default/kernel/drivers/virtio/virtio_ring.ko
/lib/modules/4.12.14-94.37-default/kernel/drivers/virtio/virtio_mmio.ko
```

3. Update `/etc/fstab`. Change any storage devices from `xvda` to `vda`.

4. Update the boot loader configuration. Enter **`rpm -q grub2`** on the Xen guest to find out if GRUB 2 is already installed. If not, install it with **`zypper in grub2`**.
   Now make the newly installed default kernel the default for booting the OS. Also remove/update the kernel command line options that may refer to Xen-specific devices. You can do it either with YaST (*System › Boot Loader*), or manually:

   - Find the preferred Linux boot menu entry by listing them all:

     ```
     cat /boot/grub2/grub.cfg | grep 'menuentry '
     ```

     Remember the order number (counted from zero) of the one you newly installed.

   - Set it the default boot menu entry:

     ```
     grub2-set-default N
     ```

     Replace *`N`* with the number of the boot menu entry you previously discovered.

   - Open `/etc/default/grub` for editing, and look for `GRUB_CMDLINE_LINUX_DEFAULT` and `GRUB_CMDLINE_LINUX_RECOVERY` options. Remove/update any reference to Xen-specific devices. In the following example, you can replace

     ```
     root=/dev/xvda1 disk=/dev/xvda console=xvc
     ```

     with

     ```
     root=/dev/vda1 disk=/dev/vda
     ```

     Note that you need to remove all references to `xvc`-type consoles (such as `xvc0`).

5. Update `device.map` in one of `/boot/grub2` or `/boot/grub2-efi` directories. Change any storage device from `xvda` to `vda`.

6. To import new default settings, run

   ```
   grub2-mkconfig -o /boot/grub2/grub.cfg
   ```

2.3.2 Update the Guest for Boot under KVM

1. Update the system to use default serial console. List the configured consoles, and remove symbolic links to `xvc?` ones.

```
# ls -l /etc/systemd/system/getty.target.wants/
getty@tty1.service -> /usr/lib/systemd/system/getty@.service
getty@xvc0.service -> /usr/lib/systemd/system/getty@xvc0.service
getty@xvc1.service -> /usr/lib/systemd/system/getty@xvc1.service

# rm /etc/systemd/system/getty.target.wants/getty@xvc?.service
```

2. Update the `/etc/securetty` file. Replace `xvc0` with `ttyS0`.

2.4 Update the Xen VM Guest Configuration

This section describes how to export the configuration of the original Xen VM Guest, and what particular changes to apply to it so it can be imported as a KVM guest into `libvirt`.

2.4.1 Export the Xen VM Guest Configuration

First export the configuration of the guest and save it to a file. A typical one may look like this:

```
# virsh dumpxml SLES11SP3
<domain type='xen'>
  <name>SLES11SP3</name>
  <uuid>fa9ea4d7-8f95-30c0-bce9-9e58ffcabeb2</uuid>
  <memory>524288</memory>
  <currentMemory>524288</currentMemory>
  <vcpu>1</vcpu>
  <bootloader>/usr/bin/pygrub</bootloader>
  <os>
    <type>linux</type>
  </os>
  <clock offset='utc'/>
  <on_poweroff>destroy</on_poweroff>
  <on_reboot>restart</on_reboot>
  <on_crash>restart</on_crash>
  <devices>
    <emulator>/usr/lib/xen/bin/qemu-dm</emulator>
    <disk type='file' device='disk'>
      <driver name='file'/>
      <source file='/var/lib/libvirt/images/SLES_11_SP2_JeOS.x86_64-0.0.2_para.raw'/>
```

```
      <target dev='xvda' bus='xen'/>
    </disk>
    <interface type='bridge'>
      <mac address='00:16:3e:2d:91:c3'/>
      <source bridge='br0'/>
      <script path='vif-bridge'/>
    </interface>
    <console type='pty'>
      <target type='xen' port='0'/>
    </console>
    <input type='mouse' bus='xen'/>
    <graphics type='vnc' port='-1' autoport='yes' keymap='en-us'/>
  </devices>
</domain>
```

You can find detailed information on the libvirt XML format for VM Guest description at https://libvirt.org/formatdomain.html.

2.4.2 General Changes to the Guest Configuration

You need to make a few general changes to the exported Xen guest XML configuration to run it under the KVM hypervisor. The following applies to both fully virtualized and paravirtualized guests. Note that not all of the following XML elements need to be in your specific configuration.

Tip: Conventions Used

To refer to a node in the XML configuration file, an XPath syntax will be used throughout this document. For example, to refer to a `<name>` inside the `<domain>` tag

```
<domain>
  <name>sles11sp3</name>
</domain>
```

an XPath equivalent `/domain/name` will be used.

1. Change the `type` attribute of the `/domain` element from `xen` to `kvm`.
2. Remove the `/domain/bootloader` element section.
3. Remove the `/domain/bootloader_args` element section.
4. Change the `/domain/os/type` element value from `linux` to `hvm`.

5. Add `<boot dev="hd"/>` under the `/domain/os` element.
6. Add the `arch` attribute to the `/domain/os/type` element. Acceptable values are `arch=”x86_64”` or `arch=”i686”`
7. Change the `/domain/devices/emulator` element from `/usr/lib/xen/bin/qemu-dm'` to `/usr/bin/qemu-kvm`.
8. For each disk associated with the paravirtualized (PV) guest, change the following:
   - Change the `name` attribute of the `/domain/devices/disk/driver` element from `file` to `qemu`, and add a `type` attribute for the disk type. For example, valid options include `raw` or `qcow2`.
   - Change the `dev` attribute of the `/domain/devices/disk/target` element from `xv-da` to `vda`.
   - Change the `bus` attribute of the `/domain/devices/disk/target` element from `xen` to `virtio`.
9. For each network interface card, do the following changes:
   - If there is `model` defined in `/domain/devices/interface`, change its `type` attribute value to `virtio`

     ```
     <model type=”virtio”>
     ```
   - Delete all `/domain/devices/interface/script` sections.
   - Delete all `/domain/devices/interface/target` elements if the `dev` attribute starts with `vif` or `vnet` or `veth`. If using a custom network then change the `dev` value to that target.
10. Remove the `/domain/devices/console` element section if it exists.
11. Remove the `/domain/devices/serial` element section if it exists.
12. Change the `bus` attribute on the `/domain/devices/input` element from `xen` to `ps2`.
13. Add the following element for memory ballooning features under the `/domain/devices` element.

    ```
    <memballoon model="virtio"/>
    ```

Tip: Device Name

`<target dev='hda' bus='ide'/>` controls the device under which the disk is exposed to the guest OS. The `dev` attribute indicates the "logical" device name. The actual device name specified is not guaranteed to map to the device name in the guest OS. Therefore you may need to change the disk mapping on the boot loader command line. For example, if the boot loader expects a root disk to be `hda2` but KVM still sees it as `sda2`, change the boot loader command line from

```
[...] root=/dev/hda2 resume=/dev/hda1 [...]
```

to

```
[...] root=/dev/sda2 resume=/dev/sda1 [...]
```

In the case of paravirtualized `xvda` devices, change it to

```
[...] root=/dev/vda2 resume=/dev/vda1 [...]
```

Otherwise the VM Guest will refuse to boot in the KVM environment.

2.4.3 The Target KVM Guest Configuration

After having applied all the modifications mentioned above, you end up with the following configuration for your KVM guest:

```
<domain type='kvm'>
  <name>SLES11SP3</name>
  <uuid>fa9ea4d7-8f95-30c0-bce9-9e58ffcabeb2</uuid>
  <memory>524288</memory>
  <currentMemory>524288</currentMemory>
  <vcpu cpuset='0-3'>1</vcpu>
  <os>
    <type arch=”x86_64”>hvm</type>
    <boot dev="hd"/>
  </os>
  <clock offset='utc'/>
  <on_poweroff>destroy</on_poweroff>
  <on_reboot>restart</on_reboot>
  <on_crash>restart</on_crash>
  <devices>
    <emulator>/usr/bin/qemu-kvm</emulator>
```

```
    <disk type='file' device='disk'>
      <driver name='qemu' type="raw"/>
      <source file='/var/lib/libvirt/images/SLES_11_SP2_JeOS.x86_64-0.0.2_para.raw'/>
      <target dev='vda' bus='virtio'/>
    </disk>
    <interface type='bridge'>
      <mac address='00:16:3e:2d:91:c3'/>
      <source bridge='br0'/>
    </interface>
    <input type='mouse' bus='usb'/>
    <graphics type='vnc' port='5900' autoport='yes' keymap='en-us'/>
    <memballoon model="virtio"/>
  </devices>
</domain>
```

Save the configuration to a file in your home directory. After you later import it, it will be copied to the default `/etc/libvirt/qemu`. Suppose you save the file as `SLES11SP3.xml`.

2.5 Migrate the VM Guest

After you updated the VM Guest configuration, and applied necessary changes to the guest OS, shut down the original Xen guest, and run its clone under the KVM hypervisor.

1. Shut down the guest on the Xen host by running **`shutdown -h now`** as `root` from the console.
2. Copy the disk files associated with the VM Guest if needed. A default configuration will require the Xen disk files to be copied from `/var/lib/xen/images` to `/var/lib/kvm/images`. The `/var/lib/kvm/images` directory may need to be created (as `root`) if you have not previously created a VM Guest.
3. Create the new domain, and register it with `libvirt`:

   ```
   # virsh define SLES11SP3.xml
    Domain SLES11SP3 defined from SLES11SP3.xml
   ```

4. Verify that the new guest is seen in the KVM configuration:

   ```
   virsh list –all
   ```

5. After the domain is created, you can start it:

   ```
   # virsh start SLES11SP3
    Domain SLES11SP3 started
   ```

3 For More Information

For more information on libvirt, see https://libvirt.org.

You can find more details on `libvirt` XML format at https://libvirt.org/formatdomain.html.

For more information on virtualization with Xen and KVM, see the SUSE Linux Enterprise Server documentation at http://www.suse.com/doc/.

4 Documentation Updates

This section lists content changes for this document.

- *Section 4.1, "October 2016 (Release of SUSE Linux Enterprise Server 12 SP2)"*

4.1 October 2016 (Release of SUSE Linux Enterprise Server 12 SP2)

Section 1, "Migration to KVM Using `virt-v2v`"

- New section (FATE #316274).

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0. PREAMBLE

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