**NAME**
>     guestfs−release−notes − libguestfs Release Notes

**RELEASE NOTES FOR LIBGUESTFS 1.34**
>     These release notes only cover the differences from the previous stable/dev branch split (1.32.0).  For detailed changelogs, please see the git repository, or the ChangeLog file distributed in the tarball.

>     **New features**
>     Multiple performance enhancements were made in libguestfs.  The ''hot cache'' time to launch to appliance should be under 1 second assuming recent qemu and kernel are installed.  There are also new utilities for precisely benchmarking libguestfs (*utils/boot−benchmark* and *utils/boot−analysis* in the source tree).

>     The virt−p2v tool for converting physical machines to virtual machines was substantially improved.  This includes: clearer, coloured output during conversions, support for Gtk 3, more detailed information about hardware, click to identify network interfaces, more debugging tools included with the ISO, and many bug fixes.

>     f2fs (Flash Friendly File System) is now supported (Pino Toscano).

>     *New tools*

>     **virt−p2v−make−kiwi** (1) can be used to build the virt−p2v ISO based on SLES and openSUSE, using the kiwi utility (Cédric Bosdonnat).

>     *New features in existing tools*

>     virt-resize will now preserve the GPT GUID.  This was required for Windows Server 2012 R2, where the bootloader would become confused if the GUID changed (Maxim Perevedentsev).

>     virt-resize will use sparse copying for (old MBR-style) extended partitions.  This makes resizing of guests that use extended partitions much faster (Maxim Perevedentsev).

>     virt−p2v kernel command line options can now be used to set defaults for GUI configuration.

>     The virt−p2v debugging options have been completely removed, simplifying the interface and documentation.  Debugging information is now captured fully automatically.

>     virt−p2v−make−disk lets you specify an −−*arch* option, allowing you to build a 32 bit virt−p2v, for compatibility with older systems.

>     virt−p2v−make−disk no longer requires that you specify an `os-version` for the virt−p2v disk.  If omitted it will try to choose a suitable `os-version` depending on your host system.

>     virt−p2v−make−disk and virt−p2v−make−kickstart both gain a new −−*install* option that allows you to add arbitrary extra packages to the virt−p2v ISO, for customization, additional debugging tools and so on.

>     virt−v2v will now uninstall Parallels Tools (or the equivalent Virtuozzo Tools) from Linux guests.  Also stop the Windows drivers from loading at boot.  (Roman Kagan and Pavel Butsykin)

>     virt−v2v −−*in−place* mode has been enhanced to allow the caller to choose whether or not to install certain virtio drivers in the guest (Roman Kagan).

>     virt−v2v conversion of Windows guests was substantially rewritten and simplified (Roman Kagan).

>     virt−v2v −−*in−place* mode now supports installing virtio-scsi drivers in guests (Roman Kagan).

>     virt−v2v can now convert SUSE guests and SUSE guests using UEFI (Cédric Bosdonnat and Jim Fehlig).

>     virt−v2v can now convert guests to Glance that have multiple disks.  Previously it would fail on such guests.

>     The virt−v2v −−*no−trim* and −−*vmtype* options are now no-ops.  They will print a warning but are otherwise ignored.  virt−v2v can now generate the OVF vmtype correctly without user intervention.

>     virt−v2v has now been tested against SUSE Xen as a source hypervisor (Cédric Bosdonnat).

>     virt−v2v adds support for SUSE VMDP drivers (Cédric Bosdonnat).

>     virt−v2v can convert OVA files containing subfolders, as produced by SUSE Studio (Cédric Bosdonnat).

virt−v2v sets the OVF `<Origin>` element correctly. oVirt has been extended to support more source hypervisors (Shahar Havivi).

virt−v2v now supports Windows Server 2016 (Tomáš Golembiovský).

The virt-builder −−*list* option can now be used to show all templates or a single template (Pino Toscano).

All OCaml-based tools now use **getopt_long** (3) for option parsing, and −−*help* output has been improved (Pino Toscano).

virt-builder and virt-customize −−*selinux−relabel* option can now fully relabel the guest filesystem at build time, without requiring a lengthy autorelabel at first boot.

virt-customize −−*delete* now accepts globs.

New virt-customize −−*uninstall* option lets you uninstall packages.

virt-customize can now use `pvvxsvc` as an alternative to `rhsrvany` for running firstboot scripts in Windows guests (Cédric Bosdonnat).

virt-customize now uses the strongest hashing scheme for passwords on Arch and Void Linux (Pino Toscano).

virt-customize −−*install* now works correctly on Arch (Pino Toscano).

virt-inspector has new options −−*no−applications* and −−*no−icon* to prevent the list of applications and icon from being included in the XML output (Pino Toscano).

New virt-sysprep −−*network* option has been added, allowing you to actually use the −−*install* etc options which were present in virt-sysprep before but did not usually work. Note that the network is still disabled by default.

virt-sysprep `fs-uuids` operation no longer fails on btrfs guests (Maxim Perevedentsev).

virt-dib can output Docker images (Pino Toscano).

virt-dib has a new −−*drive−format* option to allow the user to specify the format of the helper drive (Pino Toscano).

All OCaml virt tools now have a −−*colors*/−−*colours* option which enables coloured output (using ANSI escape sequences) even if the output is not a tty. The default is to check if the output is a tty and disable coloured output if not. This allows coloured output to be consumed by other tools.

*Language bindings*

PHP test coverage has been enhanced (Pino Toscano).

PHP 7 is now supported (Pino Toscano).

Python bindings are now compliant with PEP 8 (Pino Toscano).

A Python pip package is available in http://libguestfs.org/download/python/

The Ruby bindings now print the full exception if one is thrown by the event callback. Note this is still incorrect behaviour as event callbacks should not throw exceptions, but it aids debugging.

All OCaml libraries and programs are now compiled with −*safe−string*, if supported by the OCaml compiler.

*Inspection*

Alpine Linux using busybox can now be inspected. Also the APK package manager is supported in virt-customize (Pino Toscano).

We now handle inspection of Mageia 4 (Pino Toscano).

Void Linux and the Void Linux xbps package manager are fully supported (Pino Toscano).

Parsing of CoreOS version information has been enhanced (Pino Toscano).

It is now possible to get an icon from ALT Linux (Pino Toscano).

PLD Linux versions < 3 are now recognized (Pino Toscano).

Windows drive letters are now returned for guests using GPT partitions (Dawid Zamirski).

We can now correctly inspect Unix guests that do not have an */etc/fstab* file (Pino Toscano).

Added another source for the Ubuntu icon which doesn't rely on GNOME having been installed in the guest.

We can now get an icon for Windows 7 64 bit guests.

Libosinfo integration was rewritten to deal with the new database format used by osinfo (Pino Toscano).

*Documentation*

New manual page **guestfs−building** (1) describes how to build libguestfs from source.

The man pages, tools and tool −−*help* output is now automatically checked to ensure that all tool options are properly documented, that warning sections are included where necessary, and that every page has a description section.

The **guestfs−testing** (1) man page has been refreshed and based on a newer libguestfs.

*Architectures and platforms*

virt-customize now works on POWER7 and POWER8 platforms, both big endian and little endian (Xianghua Chen and Hu Zhang).

**Security**

See also **guestfs−security** (1).

*CVE−2015−8869*

https://bugzilla.redhat.com/CVE−2015−8869

This vulnerability in OCaml might affect virt tools written in the OCaml programming language. It affects only 64 bit platforms. Because this bug affects code generation it is difficult to predict which precise software could be affected, and therefore our recommendation is that you recompile libguestfs using a version of the OCaml compiler where this bug has been fixed (or ask your Linux distro to do the same).

*virt-customize ownership of .ssh, .ssh/authorized_keys*

https://bugzilla.redhat.com/1337561

Previously when virt-customize injected an SSH key into a guest, when it created the *˜/.ssh* and *˜/.ssh/authorized_keys* directory and file (in case they were missing) it created them with owner and group `root.root`. This has been fixed so the correct user is used. This is not thought to have been exploitable.

*Windows* `%systemroot%`

The inspection code has been made more robust against guests which might use very long `%systemroot%` (derived from the guest-controlled Windows Registry). This is not thought to have been exploitable.

*Virtio-rng is now available in the appliance*

virtio-rng (the virtual Random Number Generator device) is now passed to the appliance, which should improve the quality random numbers generated for GUIDs and cryptographic key generation.

**API**

*New APIs*

```
btrfs_filesystem_show
```
　　List all devices where a btrfs filesystem is spanned (Pino Toscano).

```
download_blocks
download_inode
filesystem_walk
```
　　Download filesystem data blocks from a given partition. Download arbitrary files by inode number. Retrieve all files from a filesystem including deleted files.

Note these require optional dependency The Sleuth Kit.  (Matteo Cafasso)

`get_sockdir`
  Read the path where temporary sockets are stored (Pino Toscano).

`mountable_device`
`mountable_subvolume`
  Split a Mountable into device name and subvolume (Cédric Bosdonnat).

`ntfscat_i`
  Download NTFS file by inode number (Matteo Cafasso).

`part_expand_gpt`
  Allow in-place expanding of GPT partitions by moving the second (backup) partition table to the end of the disk (Maxim Perevedentsev).

`part_get_disk_guid`
`part_set_disk_guid`
`part_set_disk_guid_random`
  Get and set the GPT disk GUID, or set it to a fresh random value (Maxim Perevedentsev).

`selinux_relabel`
  SELinux-relabel part or all of the guest filesystem.

*Other API changes*

`guestfs_set_selinux`, `guestfs_get_selinux`, `guestfs_setcon`, `guestfs_getcon` and `guestfs_llz` have been deprecated.  Use the new API `guestfs_selinux_relabel` to relabel filesystems.  Use `guestfs_lgetxattrs` to list the `security.selinux` extended attributes of existing files.

`guestfs_vfs_minimum_size` can now be used on dirty filesystems (Maxim Perevedentsev).

`guestfs_ll` now works on paths which contain absolute symlinks (Pino Toscano).

`guestfs_glob_expand` now has an optional `directoryslash` boolean parameter which controls whether trailing slashes are returned for directory names (Pino Toscano).

`guestfs_lvs` will no longer return LVs which have the `activationskip` flag set.  The reason is that such LVs have no `/dev/VG/LV` device node and so code which read the list of LVs and then probed the devices themselves would immediately fail.  You can use `guestfs_lvs_full` if you want to read all LVs.  (Pino Toscano).

`guestfs_list_disk_labels` now no longer fails if no disks with labels were added.  Instead it now returns an empty list (Pino Toscano).

`guestfs_is_lv` no longer fails if passed a btrfs subvolume, it returns false instead (Maxim Perevedentsev).

**Build changes**
  qemu ≥ 1.3.0 is required.

  yajl (a JSON parsing library) is required to build libguestfs.

  You can now build with GCC 6.

  `make check-valgrind` now has substantially better coverage.

  `make check-slow` now works again.

  Use `make -C appliance clean-supermin-appliance` to clean the supermin appliance (it will be rebuilt on next `make`).

  There are a variety of new rules for running virt–p2v from the source directory: `make -C p2v run-virt-p2v-directly` | `run-virt-p2v-in-a-vm` | `run-virt-p2v-non-gui-conversion`.  These are documented further in **guestfs–hacking** (1).

  virt–p2v may be built using either Gtk 2 or Gtk 3.  To force a particular version of Gtk to be used,

```
./configure --with-gtk=2|3
```

The `./configure` options are now mostly documented in **guestfs–building** (1).

**Internals**

In git, versions are now tagged with `v1.XX.YY` (previously they were tagged with `1.XX.YY`). Using the `v-` prefix is more common in git repositories.

When using the libvirt backend, we now wait for qemu to exit gracefully instead of killing it after 15 seconds. This helps when writing to slow devices (especially cheap USB keys).

Error messages from libvirt now include the `err->int1` field which usually contains the `errno`.

On ARM, all DTB (device tree) code has been removed. qemu creates the right device tree on the fly, we do not need to specify one.

The C API tests now use larger test disks, allowing BTRFS to be tested properly (Pino Toscano).

The tests should now work on a pure Python 3 host (Pino Toscano).

In C bindings, internal functions are now (mostly) consistently named `guestfs_int_*` whereas previously there was no consistent scheme.

The old `safe_malloc` etc functions are now no longer exported by the library, nor used in language bindings.

Setting TMPDIR to a path longer than ˜ 100 characters will no longer cause libguestfs to fail silently and randomly when creating Unix domain sockets (Pino Toscano).

The `COMPILE_REGEXP` macro can now be used in the daemon.

When tracing, results containing structs are now printed in full (Pino Toscano).

The Perl `Sys::Guestfs` module now no longer embeds an incrementing API "version number". This module is now always at phony version "1.0". To find the real version of libguestfs from Perl you must call `$g->version`.

All code is compiled with `-Wstack-usage=10000` and multiple changes have been made to remove stack allocation of large strings and buffers.

The **error** (3) function is now used everywhere, replacing most previous uses of **perror** (3) + **exit** (3), and **fprintf** (3) + exit.

In C code, `/**` comments are turned into documentation which is automatically added to the **guestfs–hacking** (1) manual page.

A safe "getumask" function has been added. For recent Linux kernels this uses the newly added `Umask` field in */proc/self/status*. For older Linux and other Unix, this uses a thread-safe technique involving **fork** (2) (thanks: Josh Stone, Jiri Jaburek, Eric Blake).

Safe **posix_fadvise** (2) wrappers have been added, and more hints have been added to the code which may make a minor difference to performance.

A safe wrapper around **waitpid** (2) has been added which handles INTR properly.

`podwrapper.pl` (used to generate the manual pages) now stops if any POD error is found. A new script called `podcheck.pl` does cross-checking of *−−help* output, tool options and manual pages.

All version numbers in the library (eg. versions of qemu, versions of libvirt, versions of guest operating systems) are unified in a single file *src/version.c* (Pino Toscano).

On Windows guests, virt-customize will use the vendor-neutral path `C:\ProgramFiles\Guestfs\Firstboot` to store firstboot scripts. Previously it used `C:\ProgramFiles\RedHat\Firstboot`. This change should be invisible to the scripts themselves. (Cédric Bosdonnat)

On Linux guests, the firstboot services generated by virt-builder *−−firstboot* etc have been renamed to `guestfs-firstboot` (Pino Toscano).

There is now a common `debug` function used by all OCaml tools, replacing previous code which did `ifverbose()thenprintf....`

virt–p2v copies files it needs over to the virt–v2v conversion server using **scp** (1), instead of trying to send them via the shell session. This should improve reliability and should be a completely transparent to end users.

All code in *mllib* is now built into a single `mllib.cma` or `mllib.cmxa` library. All code in *customize* is now built into a single `customize.cma` or `customize.cmxa` library. This simplifies the build of the OCaml tools.

**lvmetad** (8) is now used in the appliance when available (Pino Toscano).

''Silent rules'' are used for OCaml, Java, Erlang and POD. Use `make V=1` to see the full command lines again (Pino Toscano).

## Bugs fixed

https://bugzilla.redhat.com/1364347
    virt-sparsify −−in−place failed with UEFI system

https://bugzilla.redhat.com/1362357
    run_command runs exit handlers when execve fails (e.g. due to missing executable)

https://bugzilla.redhat.com/1362354
    virt-dib failed to create image using DIB_YUM_REPO_CONF

https://bugzilla.redhat.com/1359652
    Fail to inspect Windows ISO file

https://bugzilla.redhat.com/1358142
    Some info will show when convert guest to libvirt by virt−v2v with parameter −−quiet

https://bugzilla.redhat.com/1354335
    overlay of disk images does not specify the format of the backing file

https://bugzilla.redhat.com/1352761
    Virt-manager can't show OS icons of win7/win8/ubuntu guest.

https://bugzilla.redhat.com/1350363
    Improve error info ''remote server timeout unexpectedly waiting for password prompt'' when connect to a bogus server at p2v client

https://bugzilla.redhat.com/1348900
    virt−p2v should update error prompt when 'Test connection' with a non-existing user in conversion server

https://bugzilla.redhat.com/1345813
    virt-sysprep −−install always failed to install the packages specified

https://bugzilla.redhat.com/1345809
    virt-customize −−truncate−recursive should give an error message when specifying a no-existing path

https://bugzilla.redhat.com/1343423
    [RFE]Should give a better description about 'curl error 22' when failed using ssh identity http url at p2v client

https://bugzilla.redhat.com/1343414
    Failed SSH to conversion server by ssh identity http url at p2v client

https://bugzilla.redhat.com/1343375
    [RFE] uninstall packages inside the VM

https://bugzilla.redhat.com/1342447
    Ifconfig command is not supported on p2v client

https://bugzilla.redhat.com/1342398
    Convert a guest from RHEL by virt−v2v but its origin info shows RHEV at rhevm

https://bugzilla.redhat.com/1342337
    Should remind a warning about disk image has a partition when using virt−p2v−make−disk

https://bugzilla.redhat.com/1341984
    virt-get-kernel prompts an 'invalid value' error when using −−format auto

https://bugzilla.redhat.com/1341564
    virt−p2v spinner should be hidden when it stops spinning

https://bugzilla.redhat.com/1340809
    Testing connection timeout when input regular user of conversion server with checked "use sudo......"button

https://bugzilla.redhat.com/1340464
    [RFE] Suggestion give user a reminder for "Cancel conversion" button

https://bugzilla.redhat.com/1340407
    Multiple network ports will not be aligned at p2v client

https://bugzilla.redhat.com/1338083
    Update UEFI whitelist for official fedora packages

https://bugzilla.redhat.com/1337561
    virt-customize −−ssh−inject not applying correct file permission

https://bugzilla.redhat.com/1335671
    extra quotes around UUID confuses findfs in RHEL (but not in Fedora)

https://bugzilla.redhat.com/1332025
    Inspection does not parse /etc/redhat−release containing "Derived from Red Hat Enterprise Linux 7.1 (Source)"

https://bugzilla.redhat.com/1327488
    RFE: Allow p2v kernel options without p2v.server to set defaults

https://bugzilla.redhat.com/1325825
    virt−v2v should prevent using multiple '−b' and '−n' option appears on the command line

https://bugzilla.redhat.com/1321620
    libguestfs: error: could not parse integer in version number: 7"

https://bugzilla.redhat.com/1321338
    [1.33.16] Compilation Error: Unbound value List.sort_uniq in v2v.ml line 988, characters 10−24:

https://bugzilla.redhat.com/1317843
    'virt−builder −−update' fails with: "dnf −y −−best upgrade: command exited with an error"

https://bugzilla.redhat.com/1316479
    v2v cmd cannot exit and "block I/O error in device 'appliance': No space left on device (28)" is printed when specified "−v −x"

https://bugzilla.redhat.com/1316041
    virt-rescue fails, but missing error message

https://bugzilla.redhat.com/1314244
    RFE: virt−p2v log window should process colour escapes and backspaces

https://bugzilla.redhat.com/1312254
    virt−v2v −o libvirt doesn't preserve or use correct <graphics type="vnc|spice">

https://bugzilla.redhat.com/1309706
    error: internal error: Invalid floppy device name: hdb

https://bugzilla.redhat.com/1309619
    Wrong warning info "use standard VGA" shows when converting windows > 7 by virt−v2v

https://bugzilla.redhat.com/1309580
    OS name of win8.1 x64 guest shows incorrect in rhevm3.6 general info

https://bugzilla.redhat.com/1308769
    virt−v2v does not copy additional disks to Glance

https://bugzilla.redhat.com/1306666
    Failure when disk contains an LV with activationskip=y

https://bugzilla.redhat.com/1296606
    virt−v2v doesn't remove VirtualBox additions correctly because of file quoting

https://bugzilla.redhat.com/1293527
    There should be a reminder to avoid user to edit a guest image by multiple tools at the same time in
    guestfish man page

https://bugzilla.redhat.com/1293276
    guestfish can not ll a symbolic link dir or edit a file in it

https://bugzilla.redhat.com/1278878
    guestfish should be able to handle LVM thin layouts

https://bugzilla.redhat.com/1264835
    ppc64le: virt-customize −−install fail to detect the guest arch

https://bugzilla.redhat.com/1264332
    Test that trimming in virt−v2v doesn't regress

https://bugzilla.redhat.com/1232192
    Virt−v2v gives an error on a blank disk: part_get_parttype: unknown signature, of the output: BYT;

https://bugzilla.redhat.com/1229386
    virt−p2v in non-GUI mode doesn't show any conversion progress or status

https://bugzilla.redhat.com/1227599
    P2V invalid password prints unexpected end of file waiting for command prompt.

https://bugzilla.redhat.com/1224795
    On Ubuntu, virt-builder −−install and −−update cannot use the network

https://bugzilla.redhat.com/1213324
    virt−v2v: warning: unknown guest operating system: windows windows 6.3 when converting
    win8,win8.1,win2012,win2012R2,win10 to rhev

https://bugzilla.redhat.com/1203898
    Support inspecting docker images without /etc/fstab

https://bugzilla.redhat.com/1186935
    libguestfs cannot inspect recent Fedora / RHEL >= 7 when /usr is a separate partition

https://bugzilla.redhat.com/1167916
    P2V: invalid conversion server prints unexpected end of file waiting for password prompt.

https://bugzilla.redhat.com/1152825
    virt-rescue −−selinux can not work well, when enable selinux in the command line the value of
    'getenforce' is still Disabled in virt-rescue appliance

https://bugzilla.redhat.com/1150298
    ARM 32 bit on Ubuntu: warning: cast to pointer from integer of different size [−Wint−to−pointer−cast]

https://bugzilla.redhat.com/1089100
    NetworkManager avc unlink denied for resolv.conf after using −−selinux−relabel

https://bugzilla.redhat.com/983969
>   RFE: virt-sysprep should be SELinux-aware

https://bugzilla.redhat.com/855058
>   RFE: virt−p2v: display more information about storage devices

https://bugzilla.redhat.com/554829
>   SELinux handling could be done better.

## SEE ALSO

**guestfs−examples** (1), **guestfs−faq** (1), **guestfs−performance** (1), **guestfs−recipes** (1), **guestfs−testing** (1), **guestfs** (3), **guestfish** (1), http://libguestfs.org/

## AUTHOR

Richard W.M. Jones

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## BUGS

To get a list of bugs against libguestfs, use this link: https://bugzilla.redhat.com/buglist.cgi?component=libguestfs&product=Virtualization+Tools

To report a new bug against libguestfs, use this link: https://bugzilla.redhat.com/enter_bug.cgi?component=libguestfs&product=Virtualization+Tools

When reporting a bug, please supply:

•   The version of libguestfs.

•   Where you got libguestfs (eg. which Linux distro, compiled from source, etc)

•   Describe the bug accurately and give a way to reproduce it.

•   Run **libguestfs−test−tool** (1) and paste the **complete, unedited** output into the bug report.