

# Fwcfg & vioinput transfer

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# Agenda

- **Fwcfg**
  - What is fwcfg?
  - Why need fwcfg?
  - Fwcfg test plan
  - Fwcfg automation
- **Vioinput**
  - Test plan
  - Exists bugs

# What is fwcfg?

## What is fwcfg?

It's a driver for device vmcoreinfo in windows vm.

fwcfg64 driver will be included in virtio-win repository

Supported Windows Versions from win7 to win10.

Currently, only virtio-win-prewhql includes it.

And Windows 32 bits will be support with RHEL9.1.0 release.

Bug 1983947 - [RFE] Add support for fwcfg64 driver - 32 bits

We do not test win7, win8, win2008 now, since they are not in maintain list by microsoft.

# Why need fwcfg?

Why need fwcfg?

[Vadim]The driver itself can be quite useful for generating memory crash dumps without crashing the VM down or even pausing it. The crash dumps can be use as the memory dumps for the sake of Windows Memory/Windows Forensic Analysis. If I'm not mistaken this is what GS was asking for. From ny point of view this feature can be useful for the Windows guest (mis-) behavior investigation, memory analysis and security research. But I think that a very limited number of users can benefit from this feature.

[Fabian]For the GS use-case we can also use the memory dump mechanism available today, thus this fwcfg64 approach would be an optimization, but is non blocking for CNV.

Feature priority to Medium

# Fwcfg test plan

## Fwcfg64 test plan

Reboot test with fwcfg64

steps:

1. Boot a guest with "-device=vmcoreinfo" option -device vmcoreinfo \ Note: only support on windows x86\_64 os currently

2. Install fwcfg64 driver in guest vm Install driver from Device Manager and make sure the driver can be installed successfully. eg: Run devmgmt.msc to open Device Management > View -> Check "Show hidden devices" --> Other devices -> right-click on "Unknown device" -> Update Driver Software... ----> Browse my computer for driver software----> Browse to the location of the driver

3. Run "dump-guest-memory -w memory.dmp" in qemu monitor

4. Check the memory.dmp is saved and can be open with windb tools

Shutdown test with fwcfg64

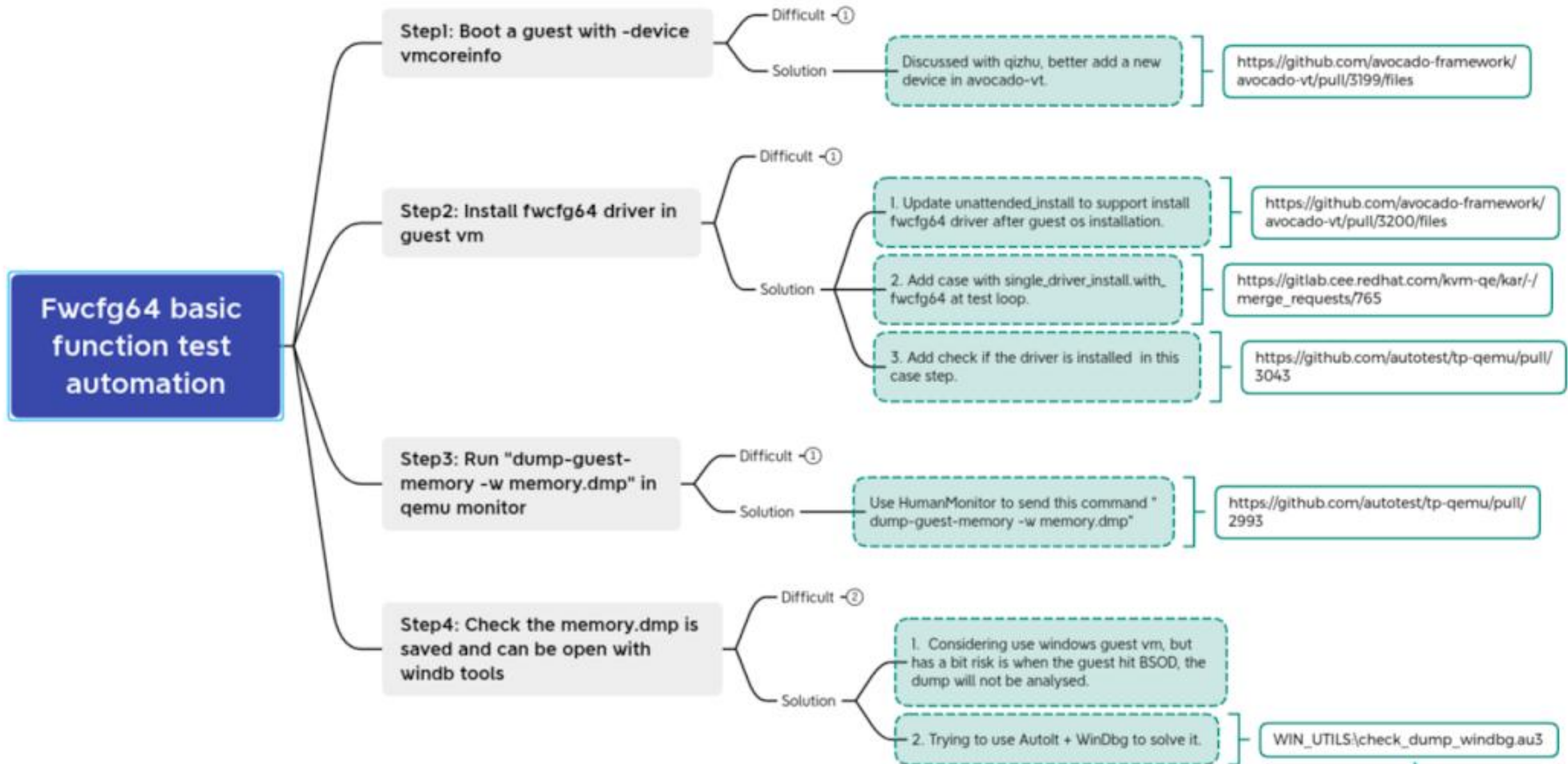
Install/uninstall driver test

Downgrade/upgrade driver test

Signtool verifier test

Migration test with fwcfg64

# Fwcfg Automation





# WIN\_UTILS:\check\_dump\_windbg.au3

```
$ cat check_dump_windbg.au3
#
cs -----
-----

Autolt Version: 3.3.14.5
Author: Peixiu Hou <phou@redhat.com>
Script Function:
Template Autolt script.
#
ce -----
-----

Slog_file = "C:\dump_analyze.log"

;MsgBox(0, "Version", "This is:" & @OSVersion)
If @OSVersion = "WIN_2012" Or @OSVersion = "WIN_2012R2" Or @OSVersion = "WIN_81" Then
    If @OSArch = "X86" Then
        $file_wdbg = "C:\Program Files (x86)\Windows Kits\8.1\Debuggers\x86\windbg.exe"
    Elseif @OSArch = "X64" OR @OSArch = "IA64" Then
        $file_wdbg = "C:\Program Files (x86)\Windows Kits\8.1\Debuggers\x64\windbg.exe"
    Endif
Endif
```

```
Endif
Else
    If @OSArch = "X86" Then
        $file_wdbg = "C:\Program Files (x86)\Windows Kits\10\Debuggers\x86\windbg.exe"
    Elseif @OSArch = "X64" OR @OSArch = "IA64" Then
        $file_wdbg = "C:\Program Files (x86)\Windows Kits\10\Debuggers\x64\windbg.exe"
    Endif
Endif
;MsgBox(0, "Version", "This is:" & $file_wdbg)
$srv = "SRV*http://msdl.microsoft.com/download/symbols"
$dump_file = FileReadLine("C:\dump_path.txt", 1)
$para = " -y " & $srv & " -z " & $dump_file

ShellExecute($file_wdbg, $para, "", "")
$window_analyze = WinWaitActive("[CLASS:WinBaseClass]")
sleep(60000)

ControlSetText($window_analyze, "", "[CLASS:RICHEDIT50W;INSTANCE:2]", "analyze -v")
Send("{ENTER}")
sleep(60000)
```

```
$dump_text = ControlGetText($window_analyze, "", "[CLASS:RICHEDIT50W;INSTANCE:1]")
sleep(6000)
$file = FileOpen($log_file, 9)
if $file == -1 Then
    ; Just try to open the file again.
    $file = FileOpen($log_file, 9)
Endif
FileWrite($file, $dump_text)
FileClose($file)
WinClose("[CLASS:WinBaseClass]")
WinClose("[CLASS:WinDbgFrameClass]")
Exit
```



# Exists bugs

- Product bug:
  - [Bug 1983947](#) - [RFE] Add support for fwcfg64 driver - 32 bits
  - [Bug 2077376](#) - [RFE] Add support for 32-bit guest Windows dump with vmcoreinfo (fwcfg) via 'dump-guest-memory -w'
- Automation bug:
  - [Bug 2062965](#) - [KVM\_AUTOTEST][fwcfg] TestError: Cannot generate dump analyze log.





# Polarion Test Plan - Fwcfg

[https://polarion.engineering.redhat.com/polarion/#/project/RHELVIRT/wiki/RHEL8\\_Test\\_Plan/Fwcfg%20-%20Test%20Specification](https://polarion.engineering.redhat.com/polarion/#/project/RHELVIRT/wiki/RHEL8_Test_Plan/Fwcfg%20-%20Test%20Specification)



# Polarion Test Plan - vioinput

[https://polarion.engineering.redhat.com/polarion/#/project/RHELVIRT/wiki/RHEL8\\_Test\\_Plan/RHEL8%20-%20Virtio%20Input%20Test%20Plan](https://polarion.engineering.redhat.com/polarion/#/project/RHELVIRT/wiki/RHEL8_Test_Plan/RHEL8%20-%20Virtio%20Input%20Test%20Plan)

Automation original reference doc:

[https://docs.google.com/presentation/d/10HH7GCnok4pDqL61dzZf2Q6LWUiB7jJc6WHYS7lEZgk/edit#slide=id.g7ab8ac21a2\\_0\\_22](https://docs.google.com/presentation/d/10HH7GCnok4pDqL61dzZf2Q6LWUiB7jJc6WHYS7lEZgk/edit#slide=id.g7ab8ac21a2_0_22)



# Vioinput Exists bugs

## Product bugs:

- [Bug 2012756](#) - [virtio-win][vioinput]Signtool verify viodhidkmdf.sys file failed with virtio-win-prewhql-211 on win10+ guests

## Auto bugs:

- [Bug 1790266](#) - [KVM\_AUTOTEST]vioinput\_keyboard -> IOError: File not open for reading
- [Bug 2033506](#) - [KVM\_AUTOTEST]vioinput\_mice.device\_mouse.q35>>TestFail: pointer did not move to destination position.it move to pos (51, 577) in guest, but exepected pos is(1, 599)



## To do list

- [Bug 2062965](#) - [KVM\_AUTOTEST][fwcfg] TestError: Cannot generate dump analyze log.
- ~~[Bug 1790266](#) - [KVM\_AUTOTEST]vioinput\_keyboard -> IOError: File not open for reading - closed~~
- [Bug 2033506](#) - [KVM\_AUTOTEST]vioinput\_mice.device\_mouse.q35>>TestFail: pointer did not move to destination position.it move to pos (51, 577) in guest, but exepected pos is(1, 599)
- [Bug 2033502](#) - [virtio-win][fwcfg] Reboot the vm hit BSOD after uninstall the 215 fwcfg driver with a scsi-hd as system disk
- [Bug 1972056](#) - [RFE] Add support for fwcfg64 driver - 64 bits
- [Bug 1986665](#) - [Fwcfg64] dump-guest-memory -w command report error "win-dump: failed to read CPU #2 ContextFrame location" on Win8.1-64 vm
- [Bug 2077376](#) - [RFE] Add support for 32-bit guest Windows dump with vmcoreinfo (fwcfg) via 'dump-guest-memory -w'
- [Bug 2012756](#) - [virtio-win][vioinput]Signtool verify viohidkmdf.sys file failed with virtio-win-prewhql-211 on win10+ guests