

Test plan of QXL-WDDM-DOD driver

Revision: 0.1

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Revisions history

- 0.10 Initial revision (Feb 2017)

This test plan defines black-box test procedures for testing of QXL-WDDM-DOD driver, test environment, devices under test and test cases. Exact test procedures are placed in test report template

It also includes the template of test report.

1. Features covered by this test plan
 - Support for targeted operating systems
 - Different hardware revisions (Rev3 and Rev4)
 - Supported display resolutions (predefined and dynamic)
 - Support for multiple monitors
 - Mouse functionality (shape, seamless movement and transition)
 - General reliability
 - BSOD mode (blue screen) support
2. Features not covered by this test plan:

- This test plan does not include testing of features not related to QXL device/driver and dependent on other Spice components
 - Copy-paste functionality
- 3. Testing environment:
 - Guest operating systems
 - (P1) Windows 10 RS1 amd64, 4G, 4 processors
 - (P1) Windows 10 RS1 x86, 3G, 2 processors
 - (P2) Server 2016 4G, 4 processors
 - (P3) Windows 8.1 amd64, 4G, 4 processors
 - (P3) Windows 8.1 x86, 3G, 2 processors
 - Hypervisor
 - RHEL actual release TBD (including QEMU and Spice)
 - Required add-on software on guest
 - VDAgent (actual revision TBD)
 - Required remote client software
 - Remote viewer (actual revision TBD)
- 4. Devices under test:
 - QXL device v3 (single device)
 - Use “-device qxl-vga,revision=3”
 - QXL device v4 (3 devices)
 - Use “-vga qxl -device qxl -device qxl”

5. Test procedure:

- Preparation
 - Run QEMU with respective command line
 - Install VDagent software
 - Activate driver verifier on guest machine (run “verifier /standard /driver qxldod.sys”, reboot the system)
- Test cases
 - Driver installation
 - Predefined video modes (by selection from “Advanced display setting – Resolution” menu)
 - Dynamic video modes (by resizing client window)
 - Mouse cursor shape
 - Text cursor
 - Window boundary cursor
 - Changing mouse size (default / magnified / extra large)
 - Changing mouse color (default / inverted scheme)
 - Mouse movement
 - Inside the screen
 - Hovering over icons
 - Transition between displays
 - Multiple display tests
 - General functionality of multiple displays
 - Turning displays on/off via client software
 - Changing displays scheme using Windows UI (extend/turn off)
 - Stress test

- Running the driver under heavy load
 - Video playback
- Reliability test
 - Check driver status after execution of other tests
 - System reboot with driver enabled
 - System reboot with driver disabled + enable driver
 - Driver disable/enable
 - With default resolution
 - With non-default predefined resolution
 - With custom resolution
 - BSOD mode support
 - System shutdown (S4)
 - System hibernation / return from hibernation
 - System standby (S3)
 - Monitor idle management
 - Surprise removal during hibernation
 - Driver uninstall
- Expected result of each test case
 - Expected behavior during test
 - Expected driver status after test or group of tests

QXL-WDDM-DOD driver test report

Date		Tested by
Driver under test	Release	Device revision (3 or 4)
Guest operating system		
Hypervisor	Host	
	QEMU	
	Spice	
Guest software	VDagent	
Client software	Remote Viewer	
Summary	Passed:	Failed:

Test ID	0.1	Test name	Driver installation
Test procedure: Configure the system to create memory dump on crash and not to restart automatically. Device Manager – Basic Display driver – Update driver.			
Expected result: Driver status OK, display shown correctly			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	1.1	Test name	Predefined video modes
Test procedure: Display settings – Resolution, change resolution to several different video modes			
Expected result: List of video modes present, after changing the screen shown correctly			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	1.2	Test name	Dynamic video modes (for device rev.4 only)
Test procedure: Open “Advanced display settings” window. Resize the display area of remote viewer. Verify the resolution is changed. Select one of predefined resolutions. Verify the resolution is changed and display area is resized. Repeat 5 times (enlarge/reduce window)			
Expected result: Display is shown correctly, driver status is OK			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	2.1	Test name	Mouse cursor shape
Test procedure: Open text file in Notepad. Verify the cursor shape is changed when moving from text area to desktop area and back, when cursor moved to window boundaries			
Expected result: Cursor shape is as expected			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	2.2	Test name	Mouse cursor size
Test procedure: Change pointer scheme in Control panel – Mouse – Pointers to magnified / large / extra large. Verify the cursor size and shape are as expected			
Expected result: Cursor size is changed according to selected scheme			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	2.3	Test name	Mouse cursor scheme
Test procedure: Change pointer scheme in Control panel – Mouse – Pointers to “inverted”.			
Expected result: Cursor is shown as changed according to selected scheme.			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	2.4	Test name	Mouse movement
Test procedure: Open file explorer, move the mouse pointer over the screen, over icons on the desktop, over files / directories in file manager, between displays			
Expected result: The pointer movement is smooth, hovering action is as expected, transition between displays is correct. Driver status is OK after the test.			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	3.1	Test name	Multiple displays (rev.4 only)
Test procedure: Configure all 3 monitors to “Extend” mode. Verify they function correctly. Move notepad window over all displays.			
Expected result: Extended display function as expected without any odd behavior			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	3.2	Test name	Multiple displays on/off via client (rev.4 only)
Test procedure: Disconnect each display when other are connected (use remove viewer – view – Displays) and verify other displays continue to function. Connect disconnected display using remote viewer. Verify the display continues to function.			
Expected result: Displays function correctly			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	3.3	Test name	Multiple displays on/off via Windows (rev.4 only)
Test procedure: Turn off each display via Windows GUI and verify other displays continue to function. Turn the display on and verify the display functions.			
Expected result: Displays function correctly. Driver status is OK after the test.			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	4.1	Test name	Stress test
Test procedure: Play AVI file with 5 min video on first display. Move the window to the second display during playback.			
Expected result: Driver status is OK after the test.			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	5.1	Test name	System reboot with enabled driver
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Test procedure: Restart the system when the driver for all 3 devices are enabled
Expected result: System restarts correctly, driver status after reboot is OK.
Actual result / Notes:
Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Test ID	5.2	Test name	System shutdown
Test procedure: Shutdown the system with all 3 drivers enabled			
Expected result: System does not stuck on shutdown			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	5.3	Test name	Driver enable after reboot
Test procedure: Restart QEMU with single QXL device. Disable the device and restart the system. After restart enable the driver in device manager.			
Expected result: The display is shown correctly.			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	5.4	Test name	Driver disable/enable
Test procedure: Set the resolution to preferred (1024x768). Disable/Enable the driver. Change the resolution to 1280x1024. Disable/Enable the driver. Resize viewer window (rev.4) and make sure the resolution changed. Disable/Enable the driver.			
Expected result: The display is always shown correctly. Driver status is OK after enable.			

Actual result / Notes:	
Pass <input type="checkbox"/>	Fail <input type="checkbox"/>

Test ID	5.5	Test name	Monitor off
Test procedure: Configure the system to turn off display after 1 minute. Wait until the display is turned off (black). Activate the display by mouse move. Repeat 5 times. Is it possible also use application that turns the monitor off programmatically			
Expected result: The display turned off as expected, the driver status is OK			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	5.6	Test name	BSOD support
Test procedure: Initiate system crash (by 'nmi' command or by 'NotMyFault') Restart the system by 'system_reset' command			
Expected result: The BSOD screen is shown correctly			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	5.7	Test name	Hibernation
Test procedure: Place the system into hibernation. Restart QEMU to take the system out of hibernation			
Expected result: System returns as expected, driver status is OK			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	5.8	Test name	Standby
Test procedure: Place the system into standby state. Wake the system using 'system_wakeup' command			
Expected result: System returns as expected, driver status is OK			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	5.9	Test name	Surprise removal during hibernation
Test procedure: Place the system into hibernation. Restart QEMU with "--vga cirrus" instead of QXL. Shutdown the system. Verify the QXL device is not in device manager.			
Expected result: The system returns from hibernation without BSOD and shuts down correctly.			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	

Test ID	5.10	Test name	Driver uninstall / reinstall
Test procedure: Uninstall the driver via Device manager (do not check 'delete drivers'). Reinstall the driver with automatic search of the driver. Verify the driver is installed correctly. Uninstall the driver (specify 'delete drivers')			
Expected result: The display is shown correctly, reboot not requested. Driver status is OK after install.			
Actual result / Notes:			
Pass <input type="checkbox"/>		Fail <input type="checkbox"/>	