CANONICAL

Ubuntu Server Hardware Certification Test Case Guide

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Contents

Introduction

This guide describes the jobs performed in Ubuntu server certification testing. A job can be anything executed by Checkbox, typically these are either information gathering jobs or test cases.

Test cases follow the format Category/TestName such as *ethernet/detect*. Some job names may simply be a TestName without the category designator. These are typically jobs that gather and/or attach hardware info for the submission file.

Jobs are grouped into three categories:

mandatory_include

Items that Checkbox *will* run every time. These jobs can not be skipped.

include

Items that Checkbox *may* run. These jobs can be skipped depending on the presence or absence of certain components, or software.

bootstrap_include

Items that Checkbox will run before the final test list is created. These jobs accomplish tasks such as gathering initial system information that is used to determine which test cases are applicable to the SUT.

This guide is based on the *server-full-16.04.pxu* list used for full Server Certification. Other lists in the *canonical-certification-server* UI are either subsets of this list, or not applicable to 16.04 certification, such as the 14.04 lists.

Tests

bootstrap include:

device

No description available

fwts

No description available

include:

benchmarks/disk/hdparm-cache-read_{name}

This test runs hdparm timing of cache reads as a benchmark for {name}

benchmarks/disk/hdparm-read_{name}

This test runs hdparm timing of device reads as a benchmark for {name}

cpu/clocktest

Runs a test for clock jitter on SMP machines.

cpu/maxfreq_test

Use the Firmware Test Suite (fwts cpufreq) to ensure that the CPU can run at its maximum frequency.

cpu/maxfreq_test-log-attach

Attaches the log generated by cpu/maxfreq_test to the results submission.

cpu/purley_id

Identifies Purley Platform CPUs

cpu/scaling_test

Use Firmware Test Suite (fwts cpufreq) to test the scaling capabilities of the CPU.

cpu/scaling_test-log-attach

Attaches the log generated by cpu/scaling_test to the results submission.

cpu/topology

Parses information about CPU topology provided by proc and sysfs and checks that they are consistent.

disk/detect

Uses lsblk to gather information about each disk detected on the system under test.

disk/disk_cpu_load_{name}

Check to ensure CPU load of {product_slug} is not too high

disk/disk_stress_ng_{name}

Disk stress_ng test for {product_slug}

disk/read_performance_{name}

Verify that disk storage performs at or above baseline performance

disk/smart_{name}

This tests the SMART capabilities for {product_slug} (Note that this test may not work against hardware RAID)

disk/stats_{name}

This test checks disk stats, generates some activity and rechecks stats to verify they've changed. It also verifies that disks appear in the various files they're supposed to. . This test will inspect the following disk: . product name: {product_slug} sysfs path: {path} device node path: /dev/{name}

ethernet/detect

Test to detect and return information about available network controllers on the system under test.

ethernet/ethertool_check_device{__index__}_{interface}

This test executes ethtool requests against ethernet device {__index__} ({interface}).

ethernet/ethtool_info

No description available

ethernet/info_automated

Gathers some info on the current state of your network devices. If no devices are found, the test will exit with an error.

ethernet/multi_iperf3_nic_device{__index__}_{interface}

This test uses iperf3 to ensure network devices pass data at an acceptable minimum percentage of advertized speed.

info/hdparm_{name}.txt

Attaches the bootchart png file for bootchart runs

info/kvm_output

Attaches the debug log from the virtualization/kvm_check_vm test to the results submission.

mediacard/sd-preinserted

This is a fully automated version of mediacard/sd-automated and assumes that the system under test has a memory card device plugged in prior to checkbox execution. It is intended for SRU automated testing.

memory/info

This test checks the amount of memory which is reporting in meminfo against the size of the memory modules detected by DMI.

memory/memory_stress_ng

Test to perform some basic stress and exercise of system memory via the stress_ng tool. This test also includes an over-commit function to force swapping to disk, thus SUTs should have suitably large swap files for the amount of RAM they have installed.

miscellanea/bmc_info

This will gather some info about the BMC itself for diagnostic purposes. This will not works on non-IPMI systems like AMT and blade/sled type systems.

miscellanea/fwupdate

Determine if EFI firmware supports update from OS.

miscellanea/ipmi_test

This will run some basic commands in-band against a BMC, verifying that IPMI works. Use of MAAS to deploy the system implicitly tests out-of-band BMC control.

miscellanea/oops

Run Firmware Test Suite (fwts) oops tests.

miscellanea/oops_results.log

Attaches the FWTS oops results log to the submission

miscellanea/sosreport

Generates a baseline sosreport of logs and system data

miscellanea/sosreport_attachment

No description available

networking/predictable_names

Verify that all network interfaces have predictable names.

optical/detect

Detects optical drives (CD/DVD) attached to the system.

optical/read-automated_{name}

This is an automated version of optical/read. It assumes you have already inserted a data CD into your optical drive prior to running Checkbox.

power-management/rtc

Verify that the Real-time clock (RTC) device functions properly, if present.

stress/cpu_stress_ng_test

Impose a high system load using the 'stress_ng' tool to exercise the CPU for several hours. The test is considered passed if the system does not freeze and if the stress_ng tool does not report errors.

usb/detect

Detects and shows USB devices attached to this system.

usb/storage-preinserted

Tests USB 2.0 or 1.1 ports on a system by doing write/read/compare tests on randomly created data. It requires that a USB stick is plugged into an available USB port before running the certification suite.

usb3/storage-preinserted

Tests USB 3.0 ports on a system by doing write/read/compare tests on randomly created data. It requires that a USB stick is plugged into an available USB port before running the certification suite. Additionally, it will only work with USB sticks and ports rated for USB 3.0 speeds or faster.

virtualization/kvm_check_vm

Verifies that a KVM guest can be created and booted using an Ubuntu Server cloud image.

virtualization/verify_lxd

Verifies that an LXD container can be created and launched

mandatory include:

config_file_attachment

No description available

cpuinfo_attachment

Attaches a report of CPU information

dkms_info_attachment

Attaches json dumps of installed dkms package information.

dmesg_attachment

Attaches a copy of /var/log/dmesg or the current dmesg buffer to the test results

dmi_attachment

Attaches info on DMI

dmidecode_attachment

Attaches dmidecode output

efi_attachment

Attaches the firmware version

info/disk_partitions

Attaches information about disk partitions

info/network_devices

Provides information about network devices

kernel_cmdline_attachment

Attaches the kernel command line used to boot

lsblk_attachment

Attaches disk block devices mount points

lshw_attachment

Attaches lshw output

lsmod_attachment

Attaches a list of the currently running kernel modules.

lspci_attachment

Attaches very verbose lspci output.

lsusb_attachment

Attaches a list of detected USB devices.

meminfo_attachment

Attaches info on system memory as seen in /proc/meminfo.

miscellanea/check_prerelease

Test to verify that the system uses production, rather than pre-release, versions of the kernel and the OS.

miscellanea/cpus_are_not_samples

Sanity check of CPU information; fails if CPU is an engineering sample

miscellanea/dmitest_server

Sanity check of DMI system identification data (for servers)

miscellanea/efi_boot_mode

Test to verify that the system booted in EFI mode with Secure Boot active.

miscellanea/efi_pxeboot

Test to verify that the system booted from the network. Works only on EFI-based systems.

miscellanea/get_maas_version

If system was installed via MAAS from a cert server, the MAAS version used should be contained in /etc/installed-by-maas

miscellanea/get_make_and_model

Retrieve the computer’s make and model for easier access than digging through the dmidecode output.

miscellanea/secure_boot_mode

Test to verify that the system booted in Secure Boot active.

miscellanea/submission-resources

A meta-job that verifies the data necessary for a complete result submission are present. Failure indicates that the results are incomplete and may be rejected.

modinfo_attachment

Attaches modinfo information for all currently loaded modules

modprobe_attachment

Attaches the contents of the various modprobe conf files.

modules_attachment

Attaches the contents of the /etc/modules file.

sysctl_attachment

Attaches the contents of various sysctl config files.

sysfs_attachment

Attaches a report of sysfs attributes.

udev-summary_attachment

No description available

udev_attachment

Attaches a dump of the udev database showing system hardware information.