MS Surface Pro 3

https://github.com/linux-surface

https://github.com/jakeday/linux-surface/issues/431

https://github.com/jakeday/linux-surface/issues/473

https://askubuntu.com/questions/1022587/surface-pro-4-wont-wake-up-on-ubuntu-18-04

https://01.org/blogs/qwang59/2018/how-achieve-s0ix-states-linux

https://wiki.archlinux.org/index.php/Microsoft_Surface_Pro_3

https://www.reddit.com/r/SurfaceLinux/comments/bjibfx/surface_pro_3_sleepsuspend_problem/

https://amp.reddit.com/r/SurfaceLinux/comments/59lcio/arch_linux_lid_close_on_surface_book/

Kernel less 4.16

Linux seems to get stuck in sleep on kernels less than 4.16. A workaround is to replace the sleep function with hibernate so that when you put your device to sleep it hibernates instead.

```
sudo ln -s /usr/lib/systemd/system/hibernate.target
/etc/systemd/system/suspend.target
sudo ln -s /usr/lib/systemd/system/systemd-hibernate.service
/etc/systemd/system/systemd-suspend.service
```

Substitute Suspend with Freeze

Surface Pro 3 does not support suspend-to-RAM (not even in Windows). The “Connected Standby”, “modern” standby or active idle (S0i1/S0i3 states) is not implemented in Linux, but there is “freeze” state which is at least something and may help conserve battery somewhat compared to leaving the machine running.

```
sudo vi /etc/systemd/sleep.conf
```

```
[Sleep]
SuspendState=freeze
```

Wifi crashes

Wifi crashes

```
sudo vi /etc/NetworkManager/dispatcher.d/no-power-save
```

```
#!/bin/sh

# MDJ
IFACE=$1
ACTION=$2

IW=/sbin/iw

test -x $IW || exit 0
[ "$IFACE" = "wlp1s0" ] || exit 0

case "$ACTION" in
    up)
        $IW dev $IFACE set power_save off
        ;;
esac
```

```
sudo chmod 755 /etc/NetworkManager/dispatcher.d/no-power-save
```

```
sudo vi /etc/NetworkManager/NetworkManager.conf
```

```
[connection]
wifi.powersafe=2 # 2=disable
wifi.mac-address-randomization=1 # 1=disable
wifi.cloned-mac-address=permanent

[device]
wifi.scan-rand-mac-address=no
```

Wifi sleep

Wifi slow not not coming back after sleep:

Turn off or enable wifi power savings:

```
cat /etc/NetworkManager/conf.d/default-wifi-powersave-on.conf
[connection]
# 2 = powersave disabled, 3 = powersave enabled
wifi.powersave = 2

sudo systemctl restart NetworkManager
```

OR

A systemd script which reloads the mwiflex WiFi kernel module of the Surface Pro 3 when resuming from suspend:

/lib/systemd/system-sleep/wifi-reset

```
#!/bin/sh

# NAME: /lib/systemd/system-sleep/wifi-reset
# DESC: Resets WiFi which can be flakey after a long suspend.

MYNAME=$0

restart_wifi() {
    /usr/bin/logger $MYNAME 'restart_wifi BEGIN'
    /sbin/modprobe -v -r mwifiex_pcie # This removes mwifiex too
    /sbin/modprobe -v mwifiex
    /sbin/modprobe -v mwifiex_pcie
#    systemctl restart NetworkManager.service
    /usr/bin/logger 'systemctl restart NetworkManager.service
(SUPPRESSED)'
    /usr/bin/logger $MYNAME 'restart_wifi END'
}

/usr/bin/logger $MYNAME 'case=[' ${1}' ]'
case "${1}/${2}" in
    hibernate|suspend|pre*)
      ;;
    resume|thaw|post*)
      restart_wifi;;
esac
```

NOTE: Sometimes simply resetting network manager is all that is needed. In that case un-comment the line above by removing #. Then comment out the two lines above it by putting # at the beginning of those two lines.

You'll need to create this script, called wifi-reset, with sudo powers and save it into the directory /lib/systemd/system-sleep. Then mark it executable using:

```
chmod a+x /lib/systemd/system-sleep/wifi-reset
```

OR

Try to go into sleep mode, start the computer up and do

```
sudo nmcli radio wifi on
```

if your computer connects to the correct wifi, then this might be a optional solution for you. your computer should auto-connect to your saved wi-fi access point.

Switch wifi off and on again using a script: Create a script

```
sudo vi /usr/lib/pm-utils/sleep.d/wakewifi
```

content:

```
#!/bin/sh
    case "$1" in
        resume)
            nmcli radio wifi on
    esac
```

Make it executable.

```
sudo chmod a+x /usr/lib/pm-utils/sleep.d/wakewifi
```

Disable power management of network interface: Another approach is to add an explicit directive (wireless-power) to control power management in the /etc/network/interfaces configuration file (e.g. Disable it for wlan0 with DHCP):

```
    auto wlan0
    iface wlan0 inet dhcp
    wireless-power off
```

Wifi Resume service: Test if the following command works

```
sudo systemctl restart network-manager.service
```

If this works, you can create a script to automate it.

```
sudo vi /etc/systemd/system/wifi-resume.service
```

```
#/etc/systemd/system/wifi-resume.service
#sudo systemctl enable wifi-resume.service
[Unit]
Description=Restart networkmanager at resume
After=suspend.target
After=hibernate.target
After=hybrid-sleep.target

[Service]
Type=oneshot
ExecStart=/bin/systemctl restart network-manager.service

[Install]
WantedBy=suspend.target
WantedBy=hibernate.target
WantedBy=hybrid-sleep.target
```

Activate it with

```
sudo systemctl enable wifi-resume.service
```

Module option available to prevent deep sleep:

```
$ grep 'MWIFIEX' /var/log/dmesg
[   31.679019] kernel: mwifiex_pcie 0000:01:00.0: info: MWIFIEX VERSION:
mwifiex 1.0 (15.68.19.p21)
$ modinfo mwifiex | egrep 'desc|sleep'
description:    Marvell WiFi-Ex Driver version 1.0
parm:           disable_auto_ds:deepsleep enabled=0(default), deepsleep
disabled=1 (bool)
$ sudo vi /etc/modprobe.d/mwifiex.conf
options mwifiex disable_auto_ds=1
$ sudo systemctl restart NetworkManager

$ iwconfig wlp1s0 | grep "Power Management"
```

Mint on Surface Notes

```
menu -> display -> set display resolution to 1600x1024
menu -> power management -> set lid to do nothing
menu -> keyboard -> layouts -> set to english uk with win keys

sudo vi /etc/initramfs-tools/modules
hid_sensor_hub
i2c_hid
hid_generic
usbhid
hid_multitouch

sudo update-initramfs -u



#swap suspend with hibernate (suspend not supported)
sudo rm -Rf /etc/systemd/system/suspend.target && sudo ln -sf
/lib/systemd/system/hibernate.target /etc/systemd/system/suspend.target
sudo rm -Rf /etc/systemd/system/systemd-suspend.service && sudo ln -sf
/lib/systemd/system/systemd-hibernate.service /etc/systemd/system/systemd-
suspend.service

#swap suspend with hibernate (suspend not supported)
sudo rm -Rf /etc/systemd/system/suspend.target
sudo rm -Rf /etc/systemd/system/systemd-suspend.service
sudo ln -sf /lib/systemd/system/suspend.target
/etc/systemd/system/suspend.target
sudo ln -sf /lib/systemd/system/systemd-suspend.service
/etc/systemd/system/systemd-suspend.service
sudo ln -sf /lib/systemd/system/hibernate.target
/etc/systemd/system/hibernate.target
sudo ln -sf /lib/systemd/system/systemd-hibernate.service
/etc/systemd/system/systemd-hibernate.service
```

```
Disable Lid-Wake if you find lid-events to cause sleep issues.
    sudo gedit /etc/UPower/UPower.conf
    and change IgnoreLid=false to IgnoreLid=true


add applet: battery applet with monitoring and shutdown (bams)
https://cinnamon-spices.linuxmint.com/applets/view/255
requirements:
sudo apt-get install zenity sox libsox-fmt-mp3

#wifi disconnect issues requiring full reboot to get wifi working again:
sudo vi /etc/NetworkManager/conf.d/default-wifi-powersave-on.conf
#disable wifi powersave using:
wifi.powersave = 2
alternative (older version?):
iwconfig mlan0 power off
and you should see Power Management:off when you type iwconfig. To get it
automatically, save this script in /etc/pm/power.d/wireless:
#!/bin/sh
/sbin/iwconfig mlan0 power off


Screen saver
It works but the screen is not off which heats and consumes energy. If you
want it really off do:

xset +dpms
xset dpms 300

300 being seconds, it turns off the screen after 5 minutes. It can be put in
Xorg configuration by adding a file in /etc/X11/xorg.conf.d with:

Section "Monitor"
  Identifier "Monitor0"
  Option "DPMS" "true"
EndSection

Section "ServerLayout"
  Identifier "ServerLayout0"
  Option "OffTime" "5"
EndSection

I must confess it is not a perfect success since sometime it does turn off
the backlight, sometime it does not...


http://www.ricou.eu.org/sp3.html


wifi drivers:
1. Open a Terminal and install Git via sudo apt-get install git
```

```
2. Download the drivers from the Git repository, to do so, run:
git clone git://git.marvell.com/mwifiex-firmware.git
mkdir -p /lib/firmware/mrvl/
cp mwifiex-firmware/mrvl/* /lib/firmware/mrvl/
```

Firmware updates

https://github.com/linux-surface/surface-firmware-old

FN Keys

By default the F1-F12 keys on the Surface Pro 3 need to be accessed using the FN key and the media keys are the default state.

To lock the FN key, so that the F1-12 keys work directly, press `FN + CAPS LOCK`

Custom Surface Kernel

https://github.com/linux-surface/linux-surface/wiki/Installation-and-Setup

Debian / Ubuntu

```
First you need to import the keys we use to sign packages.

$ wget -qO -
https://raw.githubusercontent.com/linux-surface/linux-surface/master/pkg/key
s/surface.asc \
    | gpg --dearmor | sudo dd of=/etc/apt/trusted.gpg.d/linux-surface.gpg
After this you can add the repository configuration and update APT.

$ echo "deb [arch=amd64] https://pkg.surfacelinux.com/debian release main" \
    | sudo tee /etc/apt/sources.list.d/linux-surface.list

$ sudo apt update
Now you can install the linux-surface kernel and its dependencies. You
should also enable the iptsd service for touchscreen support.

$ sudo apt install linux-image-surface linux-headers-surface iptsd libwacom-
surface
$ sudo systemctl enable iptsd
After that you can install our secureboot key. This will import the key that
the linux-surface kernel is signed with into your bootloader, so that the
kernel is bootable without disabling secureboot. This package will print
instructions to the terminal, so please install it on its own, not as part
of a bigger batch of packages.
```

```
$ sudo apt install linux-surface-secureboot-mok
If your Debian derivate does not support secure boot, please skip the last
step.

The linux-surface kernel will be installed alongside the default kernel
provided by the distribution. This way you have a backup kernel you can use
if something goes wrong. The bootloader will pick up the kernel by default,
but you should update its configuration to make sure it was recognized.

$ sudo update-grub
Finally, reboot your system and you should boot into the linux-surface
kernel. Please make sure you are actually using the right kernel by checking
if the output of uname -a contains the string surface. If it doesn't contain
that string, you are still using the default kernel and need to configure
your bootloader.
```

Adjust apt if manually installed to enable autoremove to work on old kernels:
https://help.ubuntu.com/community/RemoveOldKernels

Plymouth Theme

Download from https://www.gnome-look.org/p/1233605/

```
tar -xvzf urko-mint-dark-plymouth-theme_v1.0.tar.gz
cd urko-mint-dark/
sudo ./install.sh
cd ..
rm -rf urko-mint-dark
rm urko-mint-dark-plymouth-theme_v1.0.tar.gz
```

Missing i915 firmware

To rectify initramfs and boot errors like:

```
W: Possible missing firmware /lib/firmware/i915/tgl_huc_7.5.0.bin for module
```

```
i915
```

Download the missing firmware from: http://anduin.linuxfromscratch.org/sources/linux-firmware/i915/ https://git.kernel.org/pub/scm/linux/kernel/git/firmware/linux-firmware.git/tree/ and regenerate initramfs and update grub:

```
wget
http://anduin.linuxfromscratch.org/sources/linux-firmware/i915/tgl_huc_7.5.0
.bin
sudo mv tgl_huc_7.5.0.bin /lib/firmware/i915/
sudo chmod 755 /lib/firmware/i915/tgl_huc_7.5.0.bin
sudo update-initramfs -u
sudo update-grub
```

Manual Kernel update

https://github.com/linux-surface/linux-surface/releases

```
wget
https://github.com/linux-surface/libwacom-surface/releases/download/v1.12-2/
libwacom-surface_1.12-2_amd64.deb
sudo dpkg -i libwacom-surface_1.12-2_amd64.deb
wget
https://github.com/linux-surface/secureboot-mok/releases/download/20211103-1
/linux-surface-secureboot-mok_20211103-1_amd64.deb
sudo dpkg -i linux-surface-secureboot-mok_20211103-1_amd64.deb

wget
https://github.com/linux-surface/linux-surface/releases/download/debian-5.14
.16-2/linux-image-5.14.16-surface_5.14.16-surface-2_amd64.deb
wget
https://github.com/linux-surface/linux-surface/releases/download/debian-5.14
.16-2/linux-headers-5.14.16-surface_5.14.16-surface-2_amd64.deb
wget
https://github.com/linux-surface/linux-surface/releases/download/debian-5.14
.16-2/linux-headers-surface_5.14.16-surface-2_amd64.deb
wget
https://github.com/linux-surface/linux-surface/releases/download/debian-5.14
.16-2/linux-image-surface_5.14.16-surface-2_amd64.deb
sudo dpkg -i linux-headers-5.14.16-surface_5.14.16-surface-2_amd64.deb
sudo dpkg -i linux-image-5.14.16-surface_5.14.16-surface-2_amd64.deb
sudo dpkg -i linux-headers-surface_5.14.16-surface-2_amd64.deb
sudo dpkg -i linux-image-surface_5.14.16-surface-2_amd64.deb
```

kernel.sh

```
#!/bin/bash

get_surface_releases() {
```

```
curl -s
https://api.github.com/repos/linux-surface/linux-surface/releases | \
  jq -r '[[.[] |
    select(.draft != true) |
    select(.prerelease != true)][] |
    .assets |
    .[] |
    select(.name | endswith(".deb")) |
    .browser_download_url]' | grep -o "http.*deb"
}

mkdir /tmp/linsurf
cd /tmp/linsurf
get_surface_releases | head -4 | xargs -n1 wget
sudo dpkg -i -R /tmp/linsurf
rm -rf /tmp/linsurf
```

Surface Kernel Github issue solved by upgrading apt to 2.0.9 (for ubuntu focal based distros)

```
sudo add-apt-repository ppa:gpxbv/apt-urlfix
sudo apt-get update
sudo apt install apt
```