

TLXOS 4.8.0 & TLXOS 4.9.0 differences

- TLXOS 4.8.0 will be the final release for NUC32 and RPi IoT, and that it is an older release than 4.7.1 in that it is based on Debian 8 (Jessie) rather than Debian 9 (Stretch), but newer with regard to TMS agent functionality and bug fixes.
- What's the difference between 4.8.0 and 4.9.0?, the short answer is that 4.8.0 has older versions of Horizon Client, Citrix Receiver and the Chromium web browser, and uses ext2 (no compression, faster) rather than reiser4 (with compression, slower) for its main filesystem. Otherwise they're functionally very similar.

TLXOS Licenses now NEVER expire

- Starting with the new TLXOS 4.8.0 and TLXOS 4.9.0 Licenses never expire, we have removed the previous requirement to buy a new License every three years (renewal was needed if you wanted to upgrade firmware after three years)
- If you are running an older version of TLXOS, to see the support expiry change to “Never”, you can just upgrade it to the latest TLXOS 4.8.0 or 4.9.0 or install the new TMS Client end 8.2.0, also ensure that you have upgraded TMS to the new TMS 8.2.0

Software Upgrades/Downgrades

TLXOS 4.8.0

- Debian 8, but with newer packages than TLXOS 4.6.1
- Updated 4.19 kernel (4.19.97 for Pi, 4.19.102 for others), supports Pi v4
- Updated firmware on Pi platform, supports Pi v4 (including latest 8 GB model)
- FreeRDP 2.0.0dev5 (fixes known bug with <ctrl>c and <ctrl>v being ignored), Pi platform includes better performance than on TLXOS RPi 4.6.1
- Citrix Receiver 13.7.0 (most likely to work with old HDX servers, most reliable hardware H.264 support)
- On Pi platform only, Horizon Client 4.5.0 (last version to support PCoIP)
- On other platforms, Horizon Client 5.0.0 (last version to provide legacy client only)
- Chromium 58 on Pi platform, 57 on other platforms

TLXOS 4.9.0

- Based on Debian 10 (TLXOS 4.7.1 used Debian 9)
- Updated 4.19 kernel (4.19.97 for Pi, 4.19.102 for others)
 - Kernel for TLXOS SFF (formerly ISFF) now supports modern AMD processors and a slightly wider range of PCI/USB hardware; hence TLXOS SFF notionally supports all modern x86-based purpose-built thin clients, not just those based on Intel chipsets.
- Updated firmware on Pi platform (supports latest 8 GB Pi 4 model)
- FreeRDP 2.1.1
- Citrix Workspace App 1912 (we chose not to use 2004 due to unexplained performance problems)
- Horizon Client 5.4.1, except for RePC wwhich has 5.4.0 (the 32-bit x86 version of 5.4.1 had a display corruption issue)
- Web mode uses Debian's Chromium 80 packages (even on Pi platform)
- Terminal emulator is now sakura rather than mrxvt
- TN3270 mode now uses Debian's own x3270 packages
- Vastly improved Media Player mode performance on Pi 4 due to working GL back-end for mpv.

New/Removed Features (TMS/tms_client 8.2.0 and Tlxconfig 4.4)

- Displays window/tab now retrieves available resolution information (including Mode Set (Pi) and vertical refresh (other) info) from the O/S where possible, falling back to a hardcoded list otherwise, and has a Mode Set column that only appears in the Raspberry Pi case. The dynamic resolution list is only available on TLXOS $\geq 4.8.0$ (requires userspace helper missing in earlier releases), and also tms_client $\geq 8.2.0$ in the TMS case.
 - TLXOS RPi now defaults to Auto mode rather than DMT mode, and will configure config.txt with the correct hdmi_mode value for the selection.
 - TLXOS RPi now supports selection of CEA (TV) modes.
- Timezone list is now retrieved from the O/S where possible, falling back to a hardcoded list otherwise. Requires tms_client $\geq 8.2.0$ in the TMS case.
- Ability to select local Language (in the TMS case, this requires tms_client $\geq 8.2.0$, otherwise the only available option will be "C"). TMS' *Zone* window has been renamed to *Locale*.
- Peripherals window/tab now retrieves keyboard options from the O/S where possible (requires tms_client $\geq 8.2.0$ in TMS case), falling back to hardcoded options otherwise. Keyboard Options are now properly grouped using a new Option Group selector, and all keyboard options (Model/Layout/Variant/Option Group/Option) now have full descriptive text that is properly sorted.

- Allow Provision Mode PXE booting on TLXOS RPi platforms (with warning about limitations, i.e. requires carefully prepared Pi 4). Requires TLXOS \geq 4.8.0.
- RDS Gateway has been replaced with a generalised gateway/proxy option in the Mode/Application window/tab, and can now be set for HDX, RDP and Web modes; this now always uses the same password that is provided for [auto]login (separate proxy-specific username and password no longer possible). Except for the RDP mode proxy setting, these options will be ignored by TLXOS $<$ 4.8.0.
- Improved USB redirection is now supported for HDX, Horizon, RDP and SPICE modes; it is now possible to explicitly allow or deny devices as overrides for the default redirection policy. Requires TLXOS \geq 4.8.0 for modes other than RDP.
 - RDP mode has no default policy, so only allow “overrides” are permitted in that case.
 - In Horizon mode and on Pi platforms only, an alternative form of default policy named “Auto with audio redir (risky)” has been added to allow the user to attempt USB audio redirection, which may or may not work depending on USB peripheral hardware, since this is the only way that a microphone can be redirected in the absence of RTAV.
- Added rudimentary OpenVPN support via addition of a new installable file type (OpenVPN Configuration File). Requires that the file contain embedded certificates, with an unencrypted private key. Won't work without manual assistance on TLXOS $<$ 4.8.0 because OpenVPN isn't installed on those releases.
- New Power Off (shutdown) option – requires tms_client \geq 8.2.0 in the TMS case.
- Options that are specific to (when not using) or not available on (when using) the Raspberry Pi are now automatically hidden.
- Horizon mode now has a "BLAST - no H.264" submode, which is often necessary to work around application/hardware limitations (e.g. dual monitors on Pi 4). Ignored by TLXOS $<$ 4.8.0.
- Horizon mode now has Graphics Quality option, where High = YUV420 and Best = YUV444. In practice Best is a poor choice because it's almost always software rendering only, so the default is High. Ignored by TLXOS $<$ 4.8.0.
- Serial Redirection option added to Mode/Application window/tab (supported for HDX, RDP and Horizon modes - cosmetically only in the Horizon case (there's nothing to configure)). Ignored by TLXOS $<$ 4.8.0.
- RDP Sound Quality options added. Ignored by TLXOS $<$ 4.8.0.
- Performance Monitor mode removed.
- New mode: Local Desktop; requires TLXOS \geq 4.8.0.
- New mode: TN5250; requires TLXOS \geq 4.8.0.
- IoT Gateway (GateBlu) option removed.
- Video Redirection option removed from Mode/Application window/tab.
- TMS only: PDF help file is now bundled with the TMS application (replaces *Online Help*).
- TMS only: improved *Export Device List* option now exports proper CSV containing almost all status data (only temporary status indications are omitted).

Bug Fixes

TMS (since 8.1.2)

- Now uses QT5 widget set (fixes some drag-and-drop problems).
- Persistent database is now updated to show "unlicensed" status of devices whose licenses were revoked while they were offline.
- TMS now prevents you from revoking the license of an online device, and provides a more detailed warning of revocation consequences.
- Underscores are now prohibited when specifying the device hostname.
- Fixed bug whereby firewall setting was not being applied due to its relocation to the Network Configuration window.
- *Install* license action renamed to *Install/Reinstall* for clarification.
- Restricted Feature Password option now uses a modified form of the widget that Google Cloud Print used previously, which indicates when a password has been set and also allows you to unset the password (previously impossible).
- TMS now provides an error popup if it can't bind to the TCP port (so you can immediately tell if it's running in another user session).
- Part 2 of the solution to the slow `tms_client` download problem (the other part is in `tms_client >= 8.1.1`).
- Added "Show Password" checkbox in *Licensing* window.
- Added "Cache-Control: no-cache" HTTP header to download requests to avoid retrieving stale cached data.

tms_client (since 8.1.1)

- Fixed reboot failure in TFM mode.
- License expiry status is now updated in `save_tms_date()` to ensure that expiry is correctly enforced on systems with long runtimes.
- `tms_client` now reports receipt of commands it doesn't understand to TMS.
- Softened warning that display reconfiguration "requires" reboot on Pi.
- `get_demo_license()` now updates status using `get_lic_info()`, and handles license status changes.
- `kbd_citrix_layout` now defaults to "(User Profile)" rather than "(Server Default)" (as per "HDX keyboard layout fix" hotfix).
- Improved checking of parameters / NULL returns in various functions in `config.c` (`libtms_common`).
- Fixed small file (e.g. hotfix) decryption failure caused by deletion of temp file before closing pipe.
- `aufs_end_udba()` now sets `udba=none` rather than `udba=reval` (hopefully faster).

Tlxconfig (since 4.2)

- Allow unsetting a previously set Restricted Feature Password.
- License status is now updated after a license operation.

- Initial state of web proxy text boxes is now correctly set to environmental values.
- Hotfix list (in GUI) is now updated after hotfix installation.
- `kbd_citrix_layout` now defaults to "(User Profile)" rather than "(Server Default)" (as per "HDX keyboard layout fix" hotfix).
- Improved checking of parameters / NULL returns in various functions in `config.c` (`libtms_common`).
- Fixed small file (e.g. hotfix) decryption failure caused by deletion of temp file before closing pipe.
- `aufs_end_udba()` now sets `udba=none` rather than `udba=reval` (hopefully faster).

TLXOS (since 4.7.1)

- Set `disable_overscan:1=1` and `hdmi_group:1=0` in `/boot/config.txt` (equivalent of "Pi 4 dual display fix" hotfix).
- `xsetup` now sets `AccelMethod` to "none" (which disables GL) unless mode is Web or Digital Signage (equivalent of "Replacement for 'Disable KMS on Pi 4' fix" hotfix). Removed related "RDP Can Run Faster" warning from `rdp` script.
- Properly support booting Pi 3 from USB flash drive (although this was possible previously, maintenance mode functions (including upgrade) were broken).
- Adjust `audio_volume` setting to match actual volume on shutdown, to cope with volume changes outside of TMS/Tlxconfig (e.g. using `alsamixer`).
- Update to FreeRDP $\geq 2.0\text{dev}5$ to fix "ctrl-alt-c and ctrl-alt-v don't work in RDP session" bug.
- HDX mode script now sets `AudioBandwidthLimit` from `hdx_audio_quality` rather than `hdx_latency`.
- `SSL_VERIFICATION=` line in `tlxinit` was missing `|cut -f2 -d\|`.
- `tlxinit` now removes `/run/network/ifstate.$IFACE` also when restarting networking (4.9.0 only, not relevant to Debian Jessie).
- Compensate for Chromium reducing window size by one row/column to prevent background visibility in DSI web mode.
- `lookup_rpi_modenum()` in `tlxinit` now uses correct mode number for 1920x1200 (only relevant if using TMS $< 8.2.0$).
- `Persist` now runs "sync" before "saved!" message is shown.
- Added missing `HID_PRIMAX` kernel option (customer request).
- `tlxinit` now checks that timezone matches configuration at boot (and corrects it if needed).
- Corrected `runuser` syntax mistake in `tlxapp.service`.
- `persist` now uses `udba=none` rather than `udba=reval` (hopefully faster).
- `shadow_session` now uses environmental values for proxy server (can make use of new TMS/Tlxconfig feature for setting Web mode proxy).
- Revised `dsi` (digital signage) and `identify_monitors` scripts to simplify code and remove obsolete references to network connection types; should now be more robust.
- Veto and warn against using submode "blast" rather than "blast_noh264" in `vmview` script when starting Horizon Client on a dual display Pi (which would otherwise fail or crash).
- Safer microphone redirection in `rdp` script (use `"/microphone:sys:pulse"`, and only when a microphone is present).

- On the Pi platform only, change rdp script to use “/sound:sys:alsa” rather than “/sound:sys:pulse” (since PulseAudio overheads can cause audio-video desynchronization).
- pxe-server script no longer assumes the existence of a default route.
- PulseAudio daemon now runs with higher priority (-11 rather than 0).
- pasetup script now ignores inactive ALSA devices and uses only output devices detected by PulseAudio when constructing the combined sink.
- Fixed broken pasetup hook in set_alsa_default that was preventing addition/removal of devices to/from the combined sink when hotplug events occur.
- Corrected typo in /etc/dhcp/dhclient-exit-hooks.d/tlx that prevented tlx-mode option (234) from being recognized.