

# Display Persistence Fix

## Problem

Display configuration changes are not persistent across reboots. Settings in `config.txt` and `cmdline.txt` get reset or overwritten by moOde's `worker.php` daemon, which runs early in the boot process and can modify boot configuration files.

## Root Cause

1. `moOde's worker.php` runs early in boot and checks/modifies `config.txt` using the `updBootConfigTxt()` function
2. `config.txt.overwrite` template in `/usr/share/moode-player/boot/firmware/` can be used to restore default config
3. `Display settings` (`hdmi_cvt`, `hdmi_mode`, etc.) are NOT managed by `updBootConfigTxt()`, so they can be lost
4. `cmdline.txt` can be modified by moOde for DSI displays, but HDMI settings may not persist

## Solution

Created a **persistent display configuration service** that:

1. `Runs AFTER moOde's worker.php` finishes (waits for `worker.pid` to complete)
2. `Restores display settings` in `config.txt`:
  - `hdmi_cvt=400 1280 60 6 0 0 0`` (Waveshare 7.9" HDMI display)
  - `hdmi_mode=87``
  - `hdmi_group=2``
  - `hdmi_force_mode=1``
  - `disable_overscan=1``
3. `Restores cmdline.txt` settings:
  - `video=HDMI-A-1:400x1280M@60,rotate=90``
  - Fixes any `HDMI-A-2`` → `HDMI-A-1`` mistakes
4. `Ensures config.txt.overwrite` has correct settings for future restores

## Files Created

### Script

- `scripts/display/persist-display-config.sh``
- Main script that restores display settings
- Waits for moOde `worker.php` to finish
- Verifies and fixes both `config.txt`` and `cmdline.txt``
- Logs to `/var/log/persist-display-config.log``

### Service

- `moode-source/lib/systemd/system/persist-display-config.service``
- Systemd service that runs the script on boot

- Runs AFTER `moode-player.service` (which starts worker.php)
- Runs BEFORE `graphical.target` (display system)

## Template

- `**`moode-source/boot/firmware/config.txt.override`**`
- Template file with correct display settings
- Copied to `/usr/share/moode-player/boot/firmware/` during installation
- Used by moOde if it needs to restore config.txt

## Installation

### For New SD Card (After Flash)

The fix is automatically installed by `INSTALLFIXESAFTER_FLASH.sh`:

```
cd ~/moodeaudio-cursor
sudo ./INSTALL_FIXES_AFTER_FLASH.sh
```

This will:

1. Copy `persist-display-config.sh` to `/usr/local/bin/`
2. Copy `persist-display-config.service` to `/lib/systemd/system/`
3. Enable the service
4. Update `config.txt.override` with correct settings
5. Fix `cmdline.txt` with correct HDMI settings

### For Running System

Run the script manually to apply the fix immediately:

```
# On the Pi (via SSH)
sudo /usr/local/bin/persist-display-config.sh

# Or if not installed yet, copy from project:
cd ~/moodeaudio-cursor
scp scripts/display/persist-display-config.sh andre@192.168.10.2:/tmp/
ssh andre@192.168.10.2
sudo cp /tmp/persist-display-config.sh /usr/local/bin/
sudo chmod +x /usr/local/bin/persist-display-config.sh
sudo /usr/local/bin/persist-display-config.sh

# Install service
sudo cp moode-source/lib/systemd/system/persist-display-config.service /lib/systemd/system/
sudo systemctl daemon-reload
sudo systemctl enable persist-display-config.service
sudo systemctl start persist-display-config.service
```

## How It Works

1. `**Service starts**` after `moode-player.service` (which runs worker.php)
2. `**Script waits**` for worker.php to finish (checks `/run/worker.pid`)
3. `**Script restores**` display settings in `config.txt`:
  - Ensures `[pi5]` section has correct display settings
  - Adds settings to `[all]` section if needed
  - Fixes any incorrect values
4. `**Script restores**` `cmdline.txt`:
  - Ensures `video=HDMI-A-1:400x1280M@60,rotate=90` is present
  - Removes any conflicting video parameters
  - Fixes `HDMI-A-2` → `HDMI-A-1` mistakes

## 5. **\*\*Script verifies\*\*** settings and logs results

### Verification

Check the log to see what was fixed:

```
sudo journalctl -u persist-display-config.service
# or
cat /var/log/persist-display-config.log
```

Verify settings manually:

```
# Check config.txt
grep "hdmi_cvt=400 1280 60 6 0 0 0" /boot/firmware/config.txt

# Check cmdline.txt
grep "video=HDMI-A-1:400x1280M@60,rotate=90" /boot/firmware/cmdline.txt
```

### Troubleshooting

#### ***Display still not working after reboot***

1. Check if service ran:

```
sudo systemctl status persist-display-config.service
```

2. Check logs:

```
sudo journalctl -u persist-display-config.service -n 50
```

3. Run script manually:

```
sudo /usr/local/bin/persist-display-config.sh
```

4. Verify settings:

```
cat /boot/firmware/config.txt | grep hdmi_cvt
cat /boot/firmware/cmdline.txt | grep video=
```

#### ***Service not starting***

1. Check if service file exists:

```
ls -l /lib/systemd/system/persist-display-config.service
```

2. Check if script exists and is executable:

```
ls -l /usr/local/bin/persist-display-config.sh
```

3. Reload systemd:

```
sudo systemctl daemon-reload
sudo systemctl enable persist-display-config.service
```

### Related Files

- ``moode-source/www/daemon/worker.php`` - moOde worker that can modify config.txt
- ``moode-source/www/inc/common.php`` - Contains ``updBootConfigTxt()`` function
- ``moode-source/boot/firmware/config.txt.override`` - Template for config.txt restore
- ``scripts/display/persist-display-config.sh`` - Main fix script
- ``moode-source/lib/systemd/system/persist-display-config.service`` - Systemd service

### Notes

- The service runs **AFTER** moOde's modifications, ensuring our settings persist
- The script is **idempotent** - safe to run multiple times
- Settings are **verified** after restoration
- All changes are **logged** for debugging