Introduction

This system image is a dedicated Linux operating system that provides ITGMania to cabinet owners, home pad players, and arcade maintainers in a manner that targets 720p resolution at 60fps on older computer hardware. It is designed to be a turn key, embedded stepmania installation that can be powered off at any time for you to get the most of your dance game experience.

Goals

- Easy installation and maintenance with updatable packages
- Modern high tick rate Linux installation with 1ms/1kHz polling forced
- ITGMania
- Support for SD (480p), SD15 (15kHz displays, CRTs), and HD (720p) resolution modes
- Support for multiple input, output cards, and pads.
  - JPAC, Minimaid, Snek Board, PIUIO, ITGIO, LXIO, LIT Board, PacDrive, STAC, LumenAR, GHETT.io, BARR.io, SMX, your home mat, and more!
- Utilities for checking polling rate, setting common stepmania settings, and more!
- Small file size (~2GB download)
- Targets old hardware

Download:

>>Current Version: v0.23<<

Changelog

Version 0.23 ([download](#))
- Update to ITGMania 1.1.0
- Simply Love updated to 5.7.0
- Cherry Pick commits:
  - PacDrive bugfix: https://github.com/itgmania/itgmania/pull/927
  - MinimaidHID: https://github.com/itgmania/itgmania/pull/946
  - PumpHID/LXIO support: https://github.com/dinsfire64/itgmania/tree/lxio-hidapi
    - To enable: set InputDrivers=X11,LinuxJoystick,PumpHID
    - Save and reboot
- Updated udev rules to match new hidapi lights backend drivers
- Bugfix to force ALSA again (Null is now case sensitive in ITGMania due to std::string swap)
  - Be sure to adjust your offset and volume (Win+V) if it gives you trouble.
  - Or override [start.sh](#) if needed.
- Ongoing bug with 1.1.0, please do not modify the Preferred Sample Rate option in the settings
  - See changes and [discussion in the PR](#)

Version 0.22 ([download](#)):
- ITGMania updated to 1.0.2

Version 0.21 (removed due to 1.0.2 bugfix):
- ITGMania updated to 1.0.1
- Simply Love updated to 5.6.1

Version 0.20 ([download](#)):
- (Sorry for the delay, the 1.0.1 bugfix is taking time, so I'm releasing this as is.)
- Update to [ITGMania 1.0.0](#)
  - This WILL REGENERATE YOUR CACHE, this can take a moment on first boot
- Update to [Simply Love 5.6.0](#)
- P23io support dropped
  - Itgmania updated to an incompatible libusb variant and would require a complete rewrite.
- Added /mnt/stepmania/monitor.sh to the startup check (persists across updates)
- Removed LightsStepDifficulty override in startup
- Chronyd added for NTP sync of time.
- **Known Issues:**
  - QR codes cannot be scanned using Pixel Camera (fix in 1.0.1)
  - Stats.xml for USB Flash Drive profiles can cause crashes (fix in 1.0.1)

- ○ 1.0.1 will be updated as soon as it goes gold.

Version 0.19 ([download](#)):
- Updated to ITGMania 0.9.0 & Updated to Simply Love 5.6.0 (Beta)
  - ○ Cherry picks diffs:
    - HID gamepad fix https://github.com/itgmania/itgmania/pull/477
    - Linux Sort Devices (forced on)
      https://github.com/itgmania/itgmania/pull/443
    - P23IO support
- Fixed SextetStreamToFile using mitigation strategy (Save directory)
  - ○ https://github.com/itgmania/itgmania/issues/187#issuecomment-2239422555
- Added checking for /dev/ACM0 for sextet device
- Support for icedragon.io Snek Board, including SnekCharmer with Win+K

Version 0.18 ([download](#)):
- Updated to ITGMania 0.8.0 & Updated to Simply Love 5.5.0 (Beta)

Version 0.17 ([download](#)):
- Updated to ITGMania 0.7.0 & Updated to Simply Love 5.3.0
- Update support added back
  - ○ NOTE: This is only intended to update 0.16 and above
  - ○ Do NOT attempt to upgrade 0.15 or below, this WILL break your install.
- Prelim support for Python2/3

Version 0.16 ([download](#))
- Changed to ITGMania 0.6.0 & Updated to Simply Love 5.2.1
  - ○ ITL 2023 Ready
  - ○ Be sure to enable GrooveStats in the Operator Settings
  - ○ Ensure your BIOS Clock is correctly set
    - Could cause issues with SSL connection otherwise
  - ○ GrooveStats Launcher functionality now built into the engine.
- Added status bar to system mode
  - ○ Shows disk usage, version, IP address, etc.
- Removed ALSA device 0 override
- Added alsactl store after volume mixer for weird sound card setups
- Removed modprobe message during GPU driver detection
- Increased size of system and stepmania partitions
  - ○ Only applies to clean installs
- Change startup script to respect VSync setting from stepmania

Version 0.15-wip ([download](#))
- Added auto-updated of gslauncher with simply love startup script (Win + S)
- Lighting hotfix for ITGIO/PIUIO mixup.

- Fixed 15khz again because messed it up
- Added image viewer Viewnior for testing/debugging

Version 0.14 ([download](#))
- Added STAC lighting support
- Added STAC Util for configuration
  - Launch with Win + T in system mode
- Added gslauncher (https://github.com/GrooveStats/gslauncher)
  - Enable with Win + G in system mode
    - System will reset and will be enabled on launch.
    - To disable delete /mnt/stepmania/gs
  - Launch utility with Win + G for downloading of stamina rpg
- Moved usbhid loading to bash_profile to prevent bad X launches from using keyboard

Version 0.13 ([download](#))
- Updated all system packages and kernel to 5.10.11
  - Allows for more mainline package usage to prevent odd and out of date package errors.
  - Brings better compatibility for newer AMD and Nvidia GPUs as the packages are up to date.
- Switched to linux-zen
  - Allows for high priority of USB control transfer requests for things like the PIUIO and allows for a higher tick rate
  - Allows for a more mainline kernel release as previous iterations were stuck using a custom kernel that required manual updating
  - https://liquorix.net/
  - https://github.com/zen-kernel/zen-kernel
- Swapped Nouveau and Nvidia loading strategies
  - Prevents the system from being "stuck" using nouveau drivers when a proper modern nvidia card is detected
- Swapped to unloading usbhid and reloading modified kernel object at runtime
  - Allowed for the use of a mainline kernel and portability of updates
- Added support for PIUIO Button Board Lighting
- Enabled Nvidia triple buffer to parity AMD TearFree
- Updated stepmania to (commit [8ae4beb2d4313e22b2cd3a0bcf0d893e6df8f7c4](#))

Version 0.12 ([download](#))
- **THE MINES HAVE BEEN FIXED**
  - **This is still a WORK IN PROGRESS**
  - However I am satisfied with including it in here, at least for testing.
  - **Please** let me know if you have any issues
  - You can read more on the [issue ticket](#)
- NVidia binaries added

- - Allows for much higher frame rates with modern NVidia cards
    - Nouveau is still used as a backup
  - Simply Love updated to 4.9.1
    - Changelog can be seen [here](#).
  - StepMania 5.1 updated to current git tree
    - Pulled 6a645b4710dd6a89a5f22a2d849e86a98af5c9a3
    - Includes minor updates be sure to keep an eye on the [git history](#)
  - NTFS and exFAT support added
  - Custom Folders are created
    - Please place all custom content on /mnt/stepmania in the appropriate folder
    - This prevents wipes between updates.
  - More 15KHz fixes
    - ITGIO required inverted HSync pulse, automatically detected and applied
    - Framerate uncapped, vsync turned off
      - Provides for a *much* smoother experience in comparison
      - Frame drops during videos and other intense moments have been fixed.
    - Rolled back OpenGL Bug [causing lockups](#)
  - SnekBoard support added
    - Preliminary as hardware has yet to be released to the public.

Version 0.11 ([download](#)):
  - NVidia card loading fix
    - Xorg was not attempting to use nouveau
  - PacDrive Ordering fixed
    - This affects those with PacDrive setups in different manners.
  - 15kHz quirks fixed.

Version 0.10 ([download](#)):
  - ITGIO Support
    - Via [kernel module](#) and [StepMania LightsDriver](#)
  - Memory Leak fix [backported](#)
    - This is a dramatic improvement on memory usage for long uptime games.
    - **It is recommended that you update to this version** if this is a public machine or run for extended periods of time.
  - Enabled TearFree and Performance mode for ATI/AMD Radeon cards
  - CloneZilla settings updated
    - Will now prompt user before updates
    - Prompts users for harddisks to write to on clean install
    - Offers vanilla CloneZilla booting for backups to external disks or other maintenance tasks.

Version 0.9 ([download](#)):
  - Updated Simply Love to v4.8.7

- PacDrive / LumenAR Support has been added
  - Just select it from the Win + C lighting card prompt
  - Cherry picked [commit](.).
- Default Settings modified to reflect LightsDriver and FailAtEnd

Version 0.8 ([download](.)):
- Updated Simply Love to v4.8.6
- Incorporated in [auto-gen lights](.) during gameplay
  - This means **you no longer need to generate the lighting charts**. The game will do so automatically.
  - As such the lighting program and key combos have been removed.
- Added Nvidia card support
  - This was done with the open source drivers, as such performance on older card variants may not be optimal.

Version 0.7 ([download](.)):
- Added script to update Simply Love from Dan's github if new stable versions come out.
- Added resize partition script in case of issues with expansion on install.
- Modified resolutions on startup.
  - Fix SD15 issues with non-primary monitors
  - Fix multi monitor oddities with multiple refresh rates
  - Please let me know if you have any further issues.
- Added a check for ~/monitor.sh and will use that for monitor setup.
  - Can be saved from Arandr during system mode if desired.
- Added +x to start.sh on start, so updated script can be drag and dropped from external disk.

Version 0.6 ([download](.)):
- Simply Love updated to 4.8.5
- Fixed boot config for EFI systems.

Version 0.5 ([download](.)):
- Simply Love updated to 4.8.4
- Stepmania 5.-1new reverted to [5-1b2](.)
  - There was a memory leak somewhere, and there still is, but it grows at a much more manageable pace.
  - Cherry picked [attract watchdog](.) commit to combat memory leak.
- Updated noteskins from mute
- Added staggered PIUIO kernel module loading for Pump button boards without swapping Joy10 and Joy11.
- Added evhz for debugging polling
- Removed pulseaudio, changed to straight ALSA
  - **Please resync your cabinet. ALSA has a lot lower latency.**

- Sets volume of all cards to 90%
- Added color to x background (helps knowing where it is in the boot process)
- Lights builder update
- SD15 and other DDR upgrade bugfixes.

Version 0.4 ([download](#)):
- Simply Love updated to 4.8.2
- Changes in monitor output, now mirrors on all outputs
- Removed default songs to reduce storage footprint
- PIUIO loading bugfixes

Version 0.3 ([download](#)):
- Added support for 15kHz CRT displays
- Added Minimaid support
- Added LIT board support
- Added lighting board selector
- Changed to AMD/ATI cards instead of nVidia
- Updated all packages on system (20181108)
- Updated Stepmania 5.1-new to 9c9df4070adcdedffda82eef88d8d767575f3390
- Updated Simply Love to 4.8.1

Version 0.2 ([download](#)):
- Added support for SD cabinets
- Updated Stepmania 5.1
  - https://github.com/stepmania/stepmania/commit/9bd2770fed48c444c31dd578fb3ff10229423d93
- Removed branding for more generic install

Version 0.1 ([download](#)):
- Initial release

Technical Information

Hardware

Minimum Supported Hardware:

- Intel x64 Something
- 20GB SATA Hard Drive
- Old AMD/ATI card
- 512mb RAM
- Legacy Boot **ONLY**
- SATA SSD **ONLY**

Recommended Hardware Configuration:

- Intel Core 2 Duo/Quad
- AMD HD6xxx+ (Around $10 on eBay, runs HD and SD)
- 120GB+ SATA SSD
- 2+GB RAM

Sample Hardware Configuration:

- Dell Optiplex 380/760 Small Form Factor (SFF)
  - Intel Socket 775, Core 2 Duo
- AMD HD6450 (Dell PN ATI-102-C26405(B))
- 120gb Kingston SATA SSD
- 2+GB RAM
  - The more songs you have, the more RAM you need.
- Misc:
  - DVI to VGA video adapter
  - 3.5mm to RCA audio adapter
  - Sata to Molex power adapter (for PIUIO)

Installation Requirements

1. 4GB Flash Drive or larger
2. TuxBoot: https://tuxboot.org/download/
3. 40GB+ Hard Drive or SSD
   a. **ALL DATA IN THIS DEVICE WILL BE ERASED IN THE PROCESS**
4. The System Image linked above
5. USB Keyboard for the Target Computer
6. A second monitor if using 15kHz displays
7. A Secondary Computer for installation medium creation
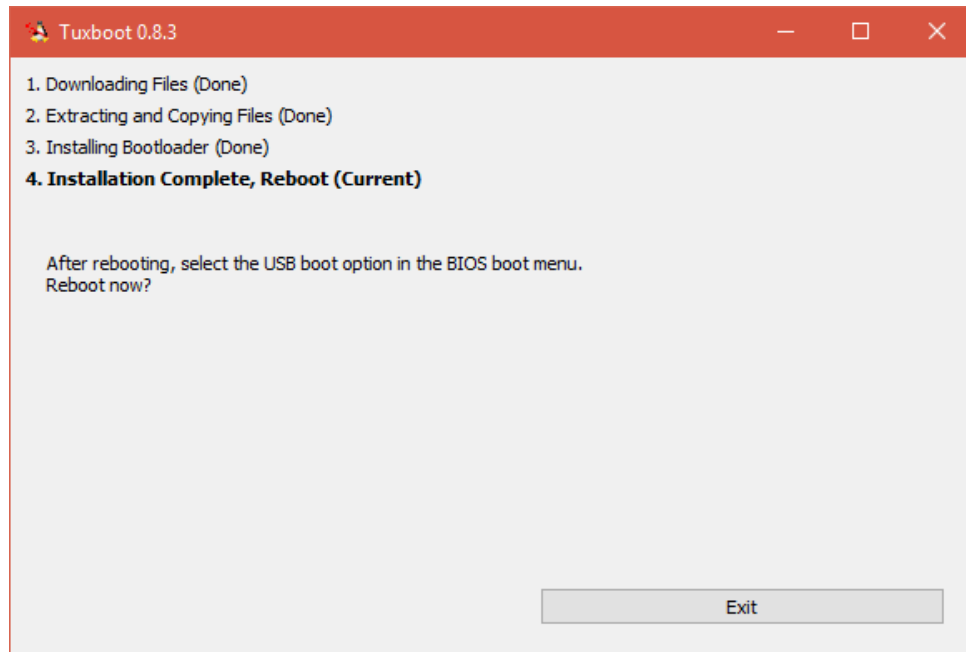   a. Windows is what this manual was written for, but Linux will do just fine.

Installation Medium Creation

1. Download the System Image and TuxBoot onto the Secondary Computer
2. Plug the flash drive into your computer
3. Double click TuxBoot
4. Grant it administrative privileges when asked.
5. Click the "Pre Downloaded" radio button
6. Select the "7zs" option in the dropdown box
7. Click the "..." button
8. Navigate to the System Image as previously downloaded
9. Select your flash drive from the dropdown box
   a. This is how your screen should look at this point
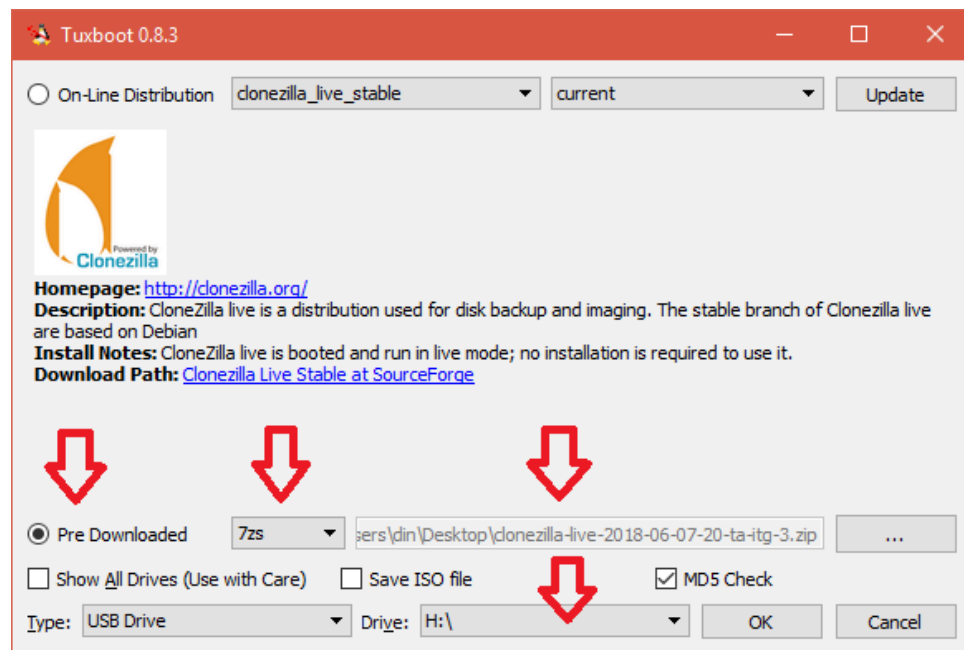
   b.
10. Once everything has been selected, click "OK" to start the copying process.

11. Wait for completion.
   a. This is an indication of a successful complete installation

    b.
        ```
        Tuxboot 0.8.3                                    —   □   ✕

        1. Downloading Files (Done)
        2. Extracting and Copying Files (Done)
        3. Installing Bootloader (Done)
        4. Installation Complete, Reboot (Current)


           After rebooting, select the USB boot option in the BIOS boot menu.
           Reboot now?




                                                              Exit
        ```
12. Click "Exit"
13. Safely remove the flash drive using the system utility
    a. For Windows, this is located in the system tray.

        i.
        ```
        Open Devices and Printers

        Eject Flash Drive
           -  HD_60GB (H:)
        ```
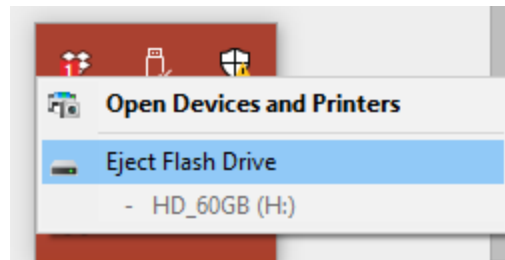
Installation on Target Computer

1. Ensure the computer is powered off
2. Unplug any and all hard drives that are **not** the hard drive you want to install the System Image onto.
    a. This is to ensure no data is erased other than the target drive.
3. If using a 15kHz display, then hook up a secondary display for the installation process.
4. Plug the flash drive into the back of the computer
    a. We are attempting to plug into a port on the motherboard that has the highest speed and reliability
5. Plug in your keyboard to the computer.
6. Power on the machine

a. For many arcade built machines such as the Andamiro MK6 or 9, this means simply plugging it in. It will power on automatically.
7. Start pressing the key for the Boot Menu
   a. Often times for computers this means F12, F2, Del, etc.
   b. It should be printed on the screen during startup.
8. Wait for the Boot Menu to display
   a. For Gigabtye motherboards, the screen looks like this
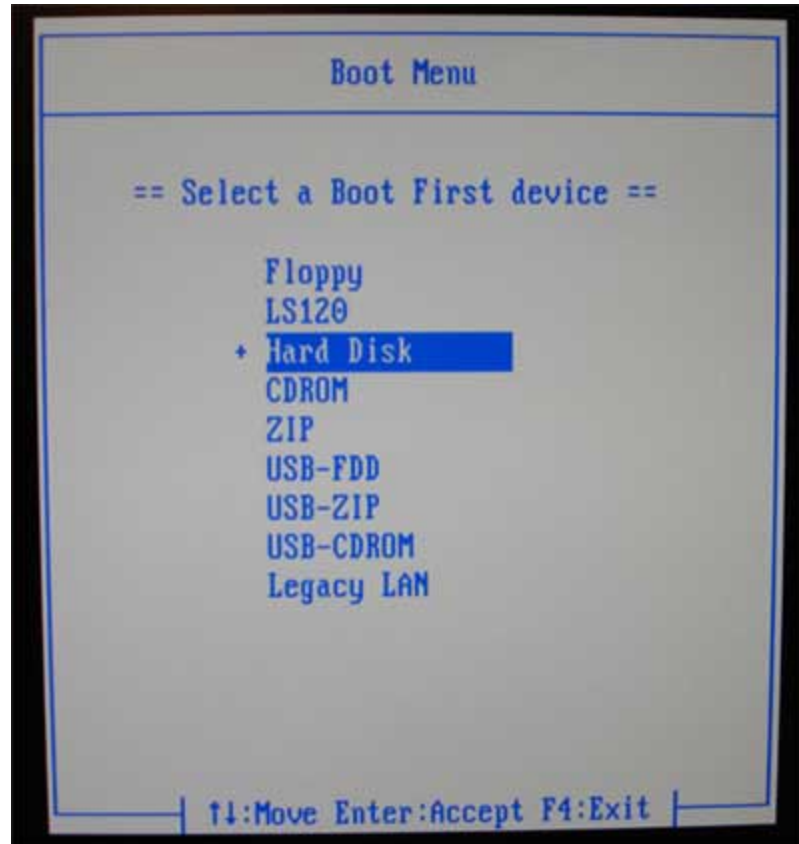
   b.

9. Select the flash drive you just inserted by using the arrow keys and hitting enter
   a. For some motherboards, flash drives are incorrectly listed under the "Hard Disk" option.
   b. Simply look around and attempt to find your flash drive to boot from it.
10. Wait for the following screen to appear:

```
                    In the Groove Installer

 Clean Install
 Update






            Automatic boot in 27 seconds...

  * Use this if this image has never been installed on this computer.
```
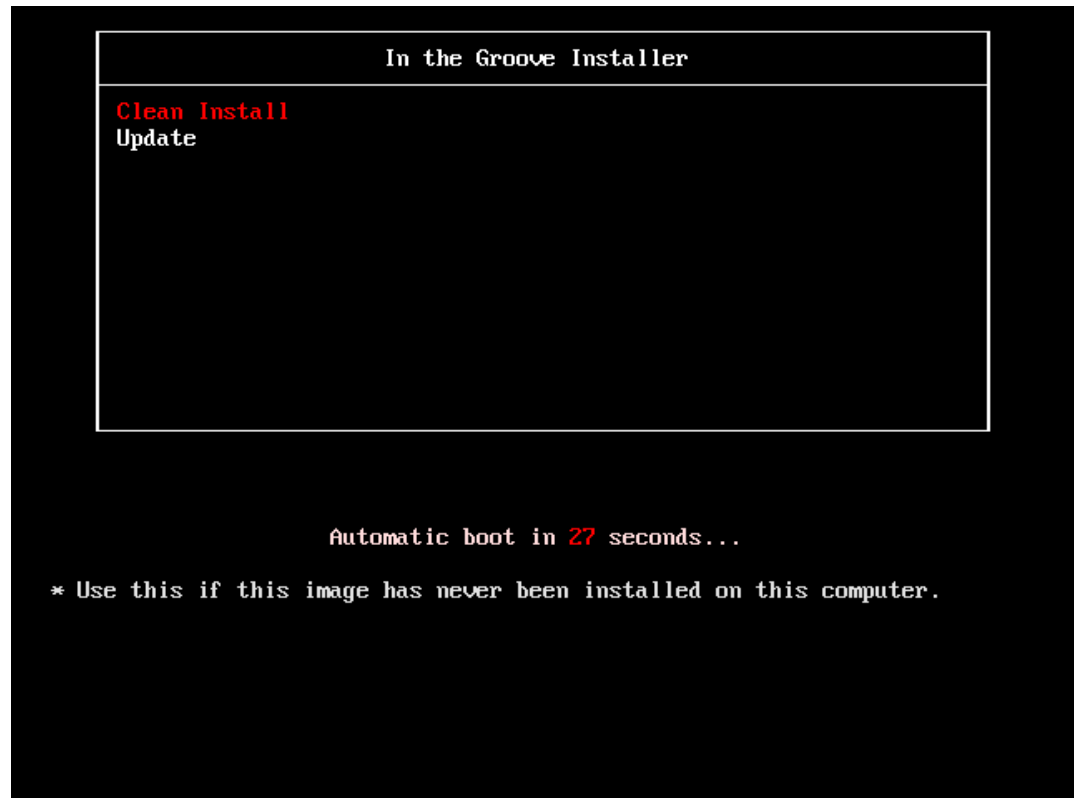
a.

11. Using the arrow keys, select the proper installation option
    a. If you have never installed this image before, then select "Clean Install"
    b. If you are updating this image select "Update"
12. Press Enter
    a. Please note it may take a while after pressing enter to receive any feedback. Please be patient and only press enter once
13. Wait for the installation system to boot.
14. The system should be asking you if you would like to erase the disk
    a. **WARNING ALL DATA ON THE HARD DISK/SSD INSERTED WILL BE ERASED IN THIS PROCESS**

```
The jobs in /etc/ocs/ocs-live.d/ are finished. Start "ocs-live-restore" now.
Setting the TERM as linux
Starting /usr/sbin/ocs-sr at 2018-06-09 14:15:51 UTC...
*************************************************************.
Clonezilla image dir: /home/partimag
*************************************************************.
Failed to stop mkswapfile.service: Unit mkswapfile.service not loaded.
Shutting down the Logical Volume Manager
Finished Shutting down the Logical Volume Manager
*************************************************************.
Activating the partition info in /proc... done!
Getting /dev/sda1 info...
*************************************************************.
The following step is to restore an image to the hard disk/partition(s) on this
machine: "/home/partimag/itg" -> "sda sda1 sda2 sda3 sda4"
The image was created at: 2018-0607-2050
WARNING!!! WARNING!!! WARNING!!!
WARNING. THE EXISTING DATA IN THIS HARDDISK/PARTITION(S) WILL BE OVERWRITTEN! AL
L EXISTING DATA WILL BE LOST:
*************************************************************.
Machine: VirtualBox
sda (64.2GB_VBOX_HARDDISK__VBOX_HARDDISK_VB4b47abab-bdffe7b7)
sda1 (59.8G_vfat_0x41:_Dirty_(In_VBOX_HARDDISK_)_VBOX_HARDDISK_VB4b47abab-bdffe7
b7)
*************************************************************.
Are you sure you want to continue? (y/n)
```

b.

15. Type "Y" to confirm data erasure
16. Press Enter
17. Type "Y" to double confirm data erasure
18. Press Enter
19. The system will begin installing or updating, please wait

a.

20. Once the files are done copying, then you can select your cabinet type by typing in your selection (1,2 or 3) and hitting enter

Please select your cabinet type:
1) HD (720p)
2) SD (480p)
3) SD15 (Upgrade)
[1,2,3]:

a.

b. If you are planning on running this in SD15, on a Konami cabinet or similar CRT, select SD15

c. If you are planning to run this in SD, 480p, 31khz, or on an original In the Groove dedicab, select SD.

d. If you are planning on running this in HD, 720p, or on a modern LCD panel in HD, select HD.

21. Wait for the machine to reboot and the game to start.

Updating the System Image

This system was designed so you can update the system image without changing or modifying your songs, data, scores, or setup. This allows for bug fixes to be sent out, new versions of StepMania to be compiled,etc.

Updating is very similar to the installation process, but only this time we select the "Update" option on the boot menu.

To update follow the "Installation" section up until the option to "Update" and hit enter. The system will automatically apply the update and reboot.
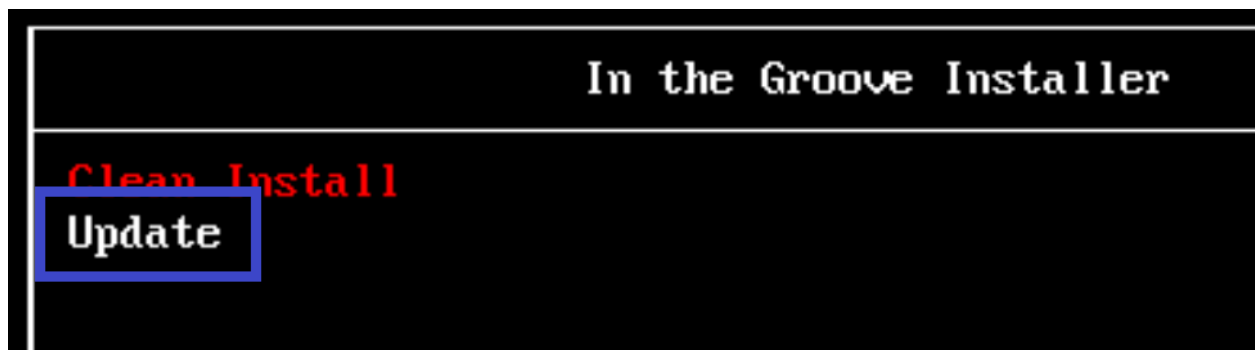
Once the installer has rebooted, **you will need to reapply your memory card settings.** Follow the settings under "Configuring User Memory Cards" to set this up.

Operation

The operation of this image is in two modes: Game Mode and System Mode.

Game Mode

Game mode is exactly as the name implies, Stepmania 5.1-new. The system automatically boots into the game and can be played and configured exactly like Stepmania should. If Stepmania is to crash at any point, then the game will simply restart and continue where it left off.

During Game Mode, the system can be shut down like any other arcade game: flipping the power switch to off.

Some things to note:
- Front USB ports of Andamiro cabinets (using PIUIO) are available at any time, feel free to plug in a keyboard to configure StepMania
- Default operator key input is ScrollLock
- By default **THE GAME IS NOT SYNCED,** please sync the game by going to your favorite stepchart and hitting F6 twice to perform autosync.
- Game buttons **may need to be configured** in the operator menu.
- Menus can be Navigated with "Del" as Left "Page Down" as Right and "Enter" as Select
    - This is due to the Stepmania setting "OnlyDedicatedMenuButtons" being set by default.
- The system is not protected against those with malintent
    - Keyboards can be plugged in to the front port and the credit button can be pressed
    - If you desire a hardened system for public play that protects against malicious individuals, please contact me.

System Mode

This mode allows the arcade operator to perform system maintenance tasks such as resetting the game state, installing songs, configuring memory cards, etc.

When entering system mode **never turn the system off using the power switch**. Use the shortcut **Win + P** to properly save your changes.

To enter System Mode:
1. Plug in a keyboard to any USB slot
2. Toggle Caps Lock so that it is on

3. Press Alt+F4 to quit Stepmania
4. Wait for the file manager to appear

a.
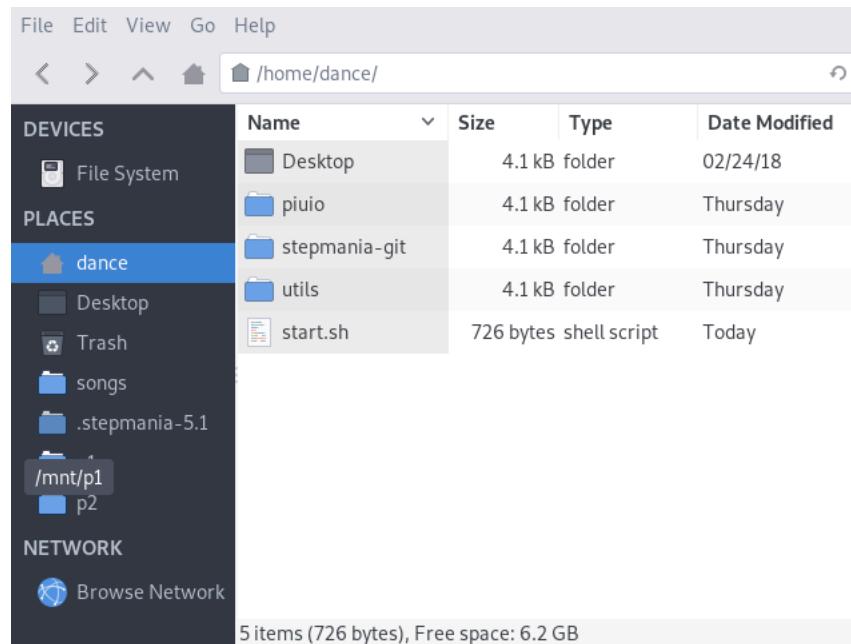
System Mode Shortcuts

Win + M	Configure **M**emory Card ports
Win + R	**R**eset Stepmania Settings
Win + P	**P**ower Off
Win + B	Re**b**oot
Win + S	Update **S**imply Love
Win + C	Lighting **C**ard Setup
Win + V	**V**olume Setup
Win + E	Run **E**VHZ for polling check
Win + X	E**x**pand Song Partition to end of Disk
Win + T	Launch S**T**AC Utility
Win + K	Launch Sne**k** Charmer
Win + Enter	System Shell (if needed)

Maintenance Tasks

Configuring User Memory Cards

User memory cards can be used to save progress and for users to bring songs to the machine to play. They are simple to set up.

Required Items:
- USB Keyboard
- USB Flash drive

Steps:
1. Ensure that the USB hub or USB extensions are properly plugged in to the back of the motherboard
   a. This process sets where the ports reside, so once you have plugged them in, keep them in that USB port.
2. Enter System Mode as described under the Operation Section
3. Press Win + M on the keyboard
4. Following the instructions, put the flash drive in the player 1 slot and wait for the system to recognize it.
5. Put the flash drive in the player 2 slot and wait for the system to recognize it.
6. The system will now reboot to save the changes.
7. Once Stepmania is loaded, ensure that both memory cards work.

Setting up Lighting Boards

By default the system installation will not set up any lights as that is dependent on your setup. To choose your lighting device perform the following.

Steps:
1. Enter System Mode as described under the Operation Section
2. Press Win + C on the keyboard
3. Enter the corresponding number that matches your lighting setup
4. Hit enter
5. The system will now reboot to save the changes.
6. Once Stepmania is loaded, ensure that your lights are working properly.

Installing Songs

Songs can be installed one of two ways: from a USB port or over the network.

Installing Songs from USB

This is the slowest method of installing songs, but it is the most convenient. If possible use the ports at the back of the machine.

Steps:
1. Plug the storage medium containing the new songs (flash drive, hard drive, etc) into the machine
2. Plug in a keyboard and mouse for optimal control
3. Enter System Mode
4. Click your flash drive on the left hand side
5. Navigate to your songs
6. Right click the song folders and click "Copy"
7. Click the "Songs" option on the left hand column of the file browser
8. Right click the white space and click "Paste"
9. Wait for the file operation to complete
10. Reboot the system with Win + B
11. The system will now reboot to save the changes.

Installing Songs over the Network

The system is listening for SSH connections on the standard port (22), so we can leverage this to install songs. The default hostname for the system is "itg", but look at your current network to find the current IP address of the system.

Windows Users

1. Download WinSCP to transfer files to the internal hard drive
   a. https://winscp.net/eng/download.php
2. Launch WinSCP
3. Create a new Session with the following parameters
   a. File Protocol: SFTP
   b. Host name: IP address of the computer
   c. Port Number: 22
   d. User Name: dance
   e. Password: stepmania
4. Ensure the window looks like this

a.

5. Click "Login"
6. Accept any security protocols
   a. This in WinSCP informing you of the fingerprint of the computer in case it changes in the future
7. You should now be connected with your computer on the left hand side, and the cabinet's computer on the right.
8. In the left hand window navigate to where your local song folders are stored.
9. In the right hand window, click songs
10. Click Songs again.
11. The screen should look like this:

a.

12. Right click all the folders in the left window and select the Upload button
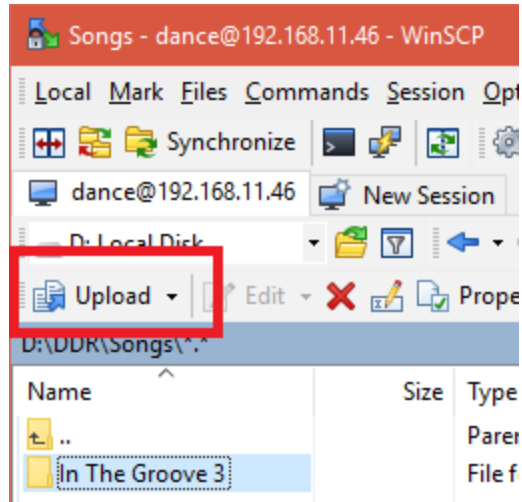
a.

13. Click "OK"
14. Wait for the files to transfer
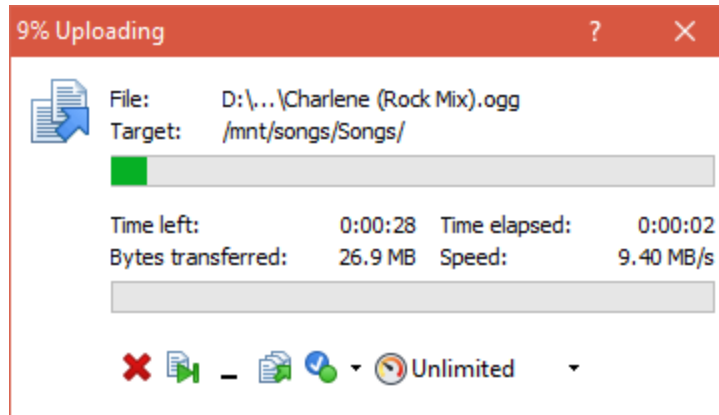
a.

15. Once the transfer is complete, go back over to the cabinet.
16. Reboot the system with Win + B
17. Wait for the system to reboot.
    a. Please note the startup procedure can take longer the first startup as Stepmania needs to generate the cache needed for your new songs.
18. Ensure the new songs are installed properly.

Linux Users

1. Enter System Mode as described above
   a. This will mount the file system was r/w
   b. Or run ~/util/rw.sh
2. Songs and Courses are located in /mnt/songs
3. Use sshfs to copy over the songs to the folder
4. Power off the machine.
5. Confirm songs are installed

Resetting all Stepmania Data

1. Enter system mode
2. Press Win + R
3. Type "y" to confirm
4. Hit Enter
5. Select your cabinet type from the menu selection.
6. Wait for system to reboot
   a. Please note the first starting after a reset can take longer as Stepmania needs to generate the cache needed for the entire song directory.

Troubleshooting

Installation

I can't get my computer to boot from the USB drive, what gives?

Older motherboards can be strange about booting from USB devices. If possible try another USB drive that you have sitting around. I've had issues where two flash drives of the same manufacturer and model, one works one doesn't.

You can try formatting the device using the [Verbatium FAT32 tool](#) as well then following the installation material again. Sometimes syslinux or the boot flags aren't set properly.

I was able to successfully install the image, but there was an error after copying all of the files over or it never asked me for a resolution!

No worries! By default the system installs into HD mode with the song partition as small as possible. To remedy this:

1. Power off the system after the failed installation attempt
2. Allow the system to boot into the itg image itself
3. Wait for stepmania to start
4. Press Caps Lock and Alt + F4 to exit stepmania
5. Press Win + X to E**x**pand the song partition.
6. Wait for the system to reboot into stepmania
7. Press Caps Lock and Alt + F4 to exit stepmania
8. Press Windows + R to **R**eset the installation
9. Select your desired video mode
10. Allow the system to reboot.

I'm having a hard time trying to get the installer to load from my USB drive at all, is there another way?

Sure! This image system is based on clonezilla. All I attempted to do was provide the image with an installer that extracts the image to the disc and runs a quick script. You can do both of these things manually.

1. Follow clonezilla's official instructions to create a bootable instance of clonezilla
   a. https://clonezilla.org/liveusb.php

b. I have personally had success with Tuxboot and Rufus
c. You can also burn the ISO onto optical media to perform the installation, it's all up to your setup!
2. Extract the itg installation image onto an external flash drive, hard disc, or network drive.
3. Boot up clonezilla live from your installation medium of choice
   a. More detail is located on their documentation.
   b. https://clonezilla.org/fine-print-live-doc.php
4. Proceed through the bootup process as normal until you receive a prompt for "Start_Clonezilla"
5. Select the "device-image" option
6. Select the appropriate selection for where you unzipped the installation image
   a. For example if you have the installation media on a flash drive select "local_dev"
7. Using the directory browser, navigate your device to the "home/partimage" folder of the installation medium
   a. You should see the folder titled "itg", this is the clonezilla image you want to restore!
8. Select the itg image to restore
9. Proceed with all defaults to restore the image to the desired harddisk.
10. Once the image is extracted, reboot the system with all installation medium removed
11. Ensure the imaged harddisk boots up to stepmania
12. Follow the directions above to expand the disk and reset stepmania settings to your desired resolution

Stepmania

I'm seeing a blue screen with an empty rectangle in it. Huh?

If you have a lit board or a snek board setup, that is stepmania waiting for the board to connect before continuing. Please ensure that you have the USB connected properly to the system and restart.

I'm getting frame drops or isn't as smooth, what's up with that?

Try disabling VSync by:
1. Holding F3
2. Pressing 6 to toggle vsync
3. Pressing Alt+F4 to reload the game
4. See if the game is smoother

If that doesn't work I would look to upgrade video cards. Older cards that can run Stepmania at 720p60 are not that expensive.
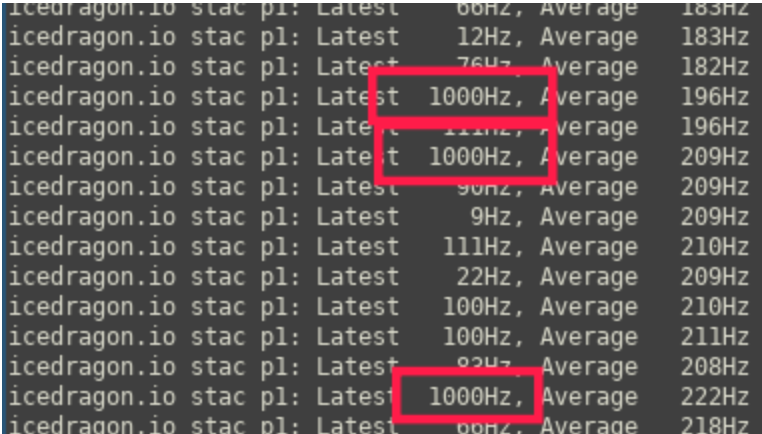
For SD purposes the HD6450 is great for 15khz and 480p.

I think my timing is a bit off, can I check that?

Sure! Included in this image is a modified version of evhz that will show you any events that occur from attached peripherals.

To test your polling rate:
1. Enter System Mode as instructed above
2. Press Win + E to launch evhz
3. Start creating very rapid and fast inputs that simulate fast gameplay.
   a. The concept is to create "events" or buttons pressed that are very close in time to ensure that they are seen by the system.
   b. The best way to do this is to mash jumps and brackets so that multiple panels are pressed and released rapidly.
4. Read the output of EVHZ on the screen
5. You are looking for output that contains the phrase "1000hz"
   a. If you see any listing with the phrase 1000hz matching your input device, then congratulations! Your polling rate is good to go.
   b. Good Example:
      i.

The Dell that I'm using outputs all of the audio to the Speaker and not the headphone jack or sounds weird. What's up?

Easy fix! We just need to mute the speaker.

1. Enter System Mode as instructed above
2. Press Win + V to enter the volume mixer
3. Press the right arrow key to select the "Speaker" option
4. Press M to ensure that we mute the speaker
   a. It should be showing an "MM" in the box now

5. Press Esc to save.
6. Reboot the system with Win+B

Miscellaneous

Software Information

- Arch Linux
  - Linux-zen 5.10.11 based
  - [Usbhid force 1ms polling on all devices](#) loaded in runtime
- Auto login
  - Username: dance
  - Password: stepmania
- WM: i3
- Grub bootloader
- Clonezilla automated installer
- 4 partitions
  - 1: /boot read only (200MB)
  - 2: / read only (10GB)
  - 3: /mnt/stepmania read/write (1GB)
    - Cache
    - Save
    - Settings
  - 4: /mnt/songs read only (expanded to end of disk on installation)
    - Courses
    - Songs
- All build information for software (including patch diffs) in ~/build
- All scripts used to create image/update/modify are in ~/utils