

# Well Hello There. TeeHee

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# <u>Welcome</u>

#### Wassup

Congrats on acquiring a friendly little box ready to ride along on even the cleanest camera builds. This brief start guide will help you get up and running in no time! Never done camera control before? Worried whether the wireless voodoo gods will actually favor you? Wondering why you even exist? This guide can... at least help reassure you about the first two points of concern.

#### Package Contents

1x TeeHee 2x Antennas 1x "Oh-No-What-Have-I-Done" Micro SD Card<sup>1</sup>

#### **Hardware Overview**



<sup>&</sup>lt;sup>1</sup> The micro SD card should be able to stay untouched unless something catastrophic happens... like if a Tully monster appears and telepathically wipes out the base TeeHee software. Think of it as the key to doing a <u>reset via hardware</u>. Should you need it, it's in the box waiting to join the jamboree.



# Power

Pin	Description
1 (Closest to Red Dot)	GND
2	+DC (5-50V)

# **Prerequisites**

Hopefully you already have an on-set "infrastructure" network configured; if not, please set up your wireless network prior to embarking on the TeeHee journey.

Once your wireless network is set up to your liking, it's time to interface with TeeHee for the first time. Please plug TeeHee into an adequate power source; remember, TeeHee accepts anywhere from 5-50V DC. Please ensure TeeHee is always plugged into a consistent power source when changing settings to avoid loss of preferences and interruptions to active processes.

#### First Steps

#### Antennas

Ensure you have screwed on the two included antennas until they no longer rotate. Each antenna should be snug with no threads remaining visible on the unit once tightened. If the antennas are not mounted properly, you may encounter less-than-stellar wireless performance.

#### **Boot Sequence**

TeeHee will boot upon receiving power. The red PWR light will be steady for a few seconds and thereafter continuously flash in bursts of two, which means the device is booting. No other lights will be illuminated at this time. After about 30 seconds, the device will be fully powered up. The PWR light will continue flashing in bursts of two as long as the device is online. (It's a counterintuitive color choice, but don't be alarmed: The flashing red PWR light is normal.)

Hint: If you are using a Ruckus R710 as your set network access point, turn it on now to give it time to power up.

#### **RJ45 to Computer Connection**

Physically connect TeeHee to an RJ45 port on the computer you wish to use for configuration using a standard Ethernet cable.

- 1. If you're on a laptop without an RJ45 port, please utilize a dongle or other peripheral device that offers at least a single 10G RJ45 port.
- 2. Plug the other end of your RJ45 cable into the **LAN** port on TeeHee.

The LAN status light on TeeHee will illuminate solid green to confirm your physical connection.

#### The Essentials

#### **Connect TeeHee to Your Wireless Network**

Now you'll want to connect TeeHee to the network you'll be using on set for camera control.

- 1. With TeeHee plugged into your computer via the LAN port as described above, open your preferred web browser.
- 2. Navigate to <a href="http://fd00:ab:cd::1">http://fd00:ab:cd::1</a>].

3. The prefilled username will read *root*. Enter *lolwut* as the password.

You've hacked the mainframe! Well, almost. Now it's time to really crank the gas by connecting this bad boy to your actual DIT set network.

4. Using the top navigation bar of the web GUI, navigate to Network > Wireless.



5. To the right of *radio0*, click the *scan* button.

TeeHee	Status <del>-</del>	System -	Services -	NAS -	Network -	Statistics -	Logout		REFRESHING
Wireless	Overview	,							
	radio0	Gene Chanr	eric MAC802 nel: ? (? GHz)	211 802.1 Bitrate: ?	l <b>1acbgn</b> Mbit/s			Restar	Scan
Associate	ed Statio	ns							
Network		MAC addre	SS	1	Host	Signal / No	bise	RX Rate / TX Rate	
					No infor	mation available	e		
								Save & Apply 🔻 Sa	ave Reset

- 6. After a few seconds, a list of nearby wireless networks appears. Find the name of your DIT network and select *Join Network* all the way to the right of its name.
- 7. Confirm your network name is correct where it says *Joining Network:* "YOUR\_NETWORK\_NAME".
- 8. Check the box beside *Replace wireless configuration*.

Replace wireless configuration

- 9. Enter the network's password as the WPA passphrase.
- 10. Change the Create / Assign firewall-zone dropdown to the green option.



12. On the proceeding dialogue box titled Wireless Network: Client "YOUR\_NETWORK\_NAME" (radio0.network1), choose the appropriate option next to Operating frequency. Chances are you'll want to select N as Mode if you're connecting to a Ruckus R710 unit, and then the appropriate Band (2.4 Ghz or 5 Ghz). Channel can remain as auto (default) unless you have specific, known reasons to change it. The optimal Width setting for camera control purposes is typically 20 MHz (default).



13. Everything else on this page can retain the default settings. Click the green *Save* button at the bottom right. Once the window closes, click *Save & Apply* at the bottom right of the page.



These changes will typically take about five seconds to implement, and your network will now appear in the *Associated Stations* section of the *Wireless* page. Likewise, the WIFI status light on TeeHee will illuminate solid green to confirm your wireless connection.

# Assign A Static IP Address to TeeHee

Like all good lads, TeeHee tends to perform better when it has a defined play space—or, shall we say, IP Address. In this case, we'll want to assign a static IP address to TeeHee so you can reliably interface with TeeHee through DIT apps like Pomfort Livegrade. A static IP address will also allow you to consistently access TeeHee's web GUI if you need to check system status or change settings in the field, even if you have multiple TeeHee units playing together on your network.

- 1. With TeeHee plugged into your computer via the LAN port as described above, open your preferred web browser.
- 2. Navigate to <a href="http://fd00:ab:cd::1">http://fd00:ab:cd::1</a>].
- 3. Log in with the default password *lolwut* or your <u>custom password</u>.
- 4. Using the top navigation bar of the web GUI, navigate to *Network > Interfaces*.

Network <del>-</del>	Statistics -
Interfaces	

5. To the very right of *LAN*, select *Edit*.



- 6. Change the Device dropdown to Wireless Network: Client "YOUR\_NETWORK\_NAME" (wwan).
- 7. Change the *IPv4 address* to whatever your heart desires (well, within the confines of IPv4 protocols, that is). **Document whatever static IP address you opt to use for future reference.**
- 8. Click the green *Save* button.
- 9. Once the window closes, click *Save & Apply* at the bottom right of the page.



10. A yellow warning box titled *Connectivity change* will appear. Go ahead and select the red *Apply and keep settings* button.

Heads up! If this yellow warning box does not appear, it means TeeHee has rejected your choice of static IP address. This is because you attempted to assign TeeHee a Static IP address that's not available under your DHCP server's pre-existing range. You will need to choose a different static IP address within the proper range. (The DHCP server may be controlled by a hardware router on your cart, or it may be done internally by your wireless access point, e.g. Ruckus R710; it depends how you have chosen to configure your network.)



These changes will typically take about 10 seconds to apply. The green LAN status light on TeeHee will turn off to confirm the LAN change you've just made.

 Heads up! If you do not refresh the page by the time the 90 second countdown ends, a yellow warning box titled *Device unreachable!* will appear to try and intimidate you.
 Worse yet, if the page is refreshed, all appears lost. Fear not, for, on the contrary, this warning actually reiterates that TeeHee is now successfully living on your network, which is why you can no longer communicate with it over the physical connection.

#### Device unreachable!

Could not regain access to the device after applying the configuration changes. You might need to reconnect if you modified network related settings such as the IP address or wireless security credentials.

You can now continue to the next section in order to verify that the wireless connection has properly been established.

#### **Confirm Wireless Connection Via Static IP Address**

Of course, because you are a human who should never just believe what a digital dialogue box implies, you should now quadruple-quintuple-sextuple check to ensure TeeHee is indeed playing nicely with your network.

- 1. Unplug any physical connection present between TeeHee and your computer.
- 2. Connect your computer to your DIT wireless access point if it wasn't already connected.
- 3. With TeeHee still powered on (WIFI light solid green and PWR light flashing red in bursts of two), open your preferred web browser.
- 4. Navigate directly to the static IP address you assigned to TeeHee <u>above</u>.
- 5. You'll be greeted with the login screen for the web GUI. As you may recall, the prefilled username will read *root*. The password is still *lolwut*.
- 6. Xou did it! Xour TeeHee is now just having a grand ole time frolicking amongst the data packets of your very own DIT network. Oh to be a non-ontological entity without all the worries of life and work and... nevermind.

# Customize TeeHee Settings

#### Change the Web GUI Password

Let's be honest: What really gives people feelings of power in this world is accessing camera control devices that don't belong to them. To combat that, you'll want to set a password for the TeeHee web GUI.

- 1. With TeeHee plugged into your computer via the LAN port, open your preferred web browser.
- 2. Navigate to <a href="http://[fd00:ab:cd::1">http://[fd00:ab:cd::1]</a>.
- 3. The prefilled username will read *root*. Enter *lolwut* as the password.
- 4. Using the top navigation bar of the web GUI, navigate to System > Administration

System 👻	Services <del>-</del>
System	
Administra	ation

5. Upon typing your password twice, click the green *Save* button.

TeeHee Status <del>-</del> S	System    System   Sy
Router Password SSH Ac	ccess SSH-Keys HTTP(S) Access
Router Passwo	ord assword for accessing the device
Passwo	rd *
Confirmati	on  Password strength: Strong
	Save

6. Once the window closes, click *Save & Apply*. A blue confirmation banner will appear.

The system password has been successfully changed.	Dismiss

Now those pesky hackers won't be able to change color temp in the middle of your shot. Take that!

#### **Create A Configuration Backup File**

Since you're already at this point, you should take a moment now to take a deep breath of the air around you. You should also create a configuration backup file. A configuration backup file will save you time later: Whether you have to reset TeeHee or if you just get another TeeHee that needs to be set up, having your settings set aside will save future-you time and effort.

- 1. With TeeHee plugged into your computer via the LAN port as described above, open your preferred web browser.
- 2. Navigate to <a href="http://[fd00:ab:cd::1]">http://[fd00:ab:cd::1]</a>.
- 3. Since you've already <u>changed the web GUI password</u>, go ahead and log in with the password you created.
- 4. Using the top navigation bar of the web GUI, navigate to System > Backup / Flash Firmware.



#### 5. Select Generate archive

Actions Configuration	
Backup	
Click "Generate archive" to down	load a tar archive of the current configuration files.
Download backup	Generate archive

6. You may have to "enable downloads from this website" if a browser popup appears.

Heads up! The file you just downloaded should end in tar.gz. If your file has no .gz and only ends with .tar, your configuration backup file will not work, even if you change the file extension using macOS. If you don't have the correct file extension on your downloaded file, try downloading it using a different web browser (return to step two above).

7. Label your downloaded configuration backup file something memorable and store it with your other DIT hardware imaging files, ideally with a version number in case you create an updated configuration backup file in the future (e.g. if you change the SSID of your wireless access point).

# Additional Resources

#### **Imaging Additional TeeHee Units**

The good news is that, as part of this process, you've already <u>created your own custom</u> <u>configuration backup file</u> and all you'll need to do to set up additional TeeHee units is assign a unique static IP address unique to the additional unit. To learn how to import your configuration backup file to an additional TeeHee, please review <u>Appendix I: How to</u> <u>Configure Additional TeeHee Units</u>.

#### I Can't Access TeeHee's Web GUI

First, review what to do if <u>the web GUI is MIA</u>. If necessary, you may need to <u>reset via</u> <u>hardware</u>.

#### FAQ

Please review the Appendix II: TeeHee FAQ.

#### **Phone A Friend**

If you encounter any issues with TeeHee, please feel free to reach out to <a href="mailto:support@sampetrov.lol">support@sampetrov.lol</a>.

# Appendix I: How to Configure Additional TeeHee Units

#### So You Got Another One

Controlling more than one camera at the same time, eh? The quicker you can bring your additional TeeHee unit into the fold, the sooner you'll be changing camera settings on set. Before proceeding, make sure you made a <u>backup</u> of your first unit's settings.

- 1. With your additional TeeHee plugged into your computer via the LAN port as described above, open your preferred web browser.
- 2. Navigate to <a href="http://[fd00:ab:cd::1]">http://[fd00:ab:cd::1]</a>.
- 3. The prefilled username will read *root*. Enter *lolwut* as the password.
- 4. Using the top navigation bar of the web GUI, navigate to System > Backup / Flash Firmware.



5. Under Restore, select Upload archive...



- 6. Click *Browse...* and navigate to the location where you saved <u>your custom</u> <u>configuration backup file</u>.
- 7. Click the blue *Upload* button.



8. A box similar to the following will appear.

Apply backup?
The uploaded backup archive appears to be valid and contains the files listed below. Press Continue* to restore the backup and reboot, or "Cancel" to abort the operation.
etc/collectd.conf etc/config/adblock etc/config/aria2 etc/config/collectd etc/config/cpufreq etc/config/ddms etc/config/ddms
etc/config/dropbear etc/config/dropbear etc/config/emmc-tools
etc/config/fstab etc/config/fstab etc/config/hd-idle
etc/config/luci_statistics etc/config/luci_statistics
etc/config/my_installed_packages etc/config/network etc/config/nft-gos
etc/config/nlbwmon etc/config/ntpclient etc/config/opensi
etc/config/packages etc/config/rpcd etc/config/sambd
etc/config/samtdy etc/config/samtdas etc/config/sam
etc/config/ttpd etc/config/ttpd etc/config/ucitrack
etc/config/unpd etc/config/watchcat
etc/coohrgywiretess etc/dropbear/dropbear_ed25519_host_key etc/dropbear/dropbear_rsa_host_key
etc/posts etc/nosts etc/nittab
etc/netdata/.install-type etc/netdata/.opt-out-from-anonymous-statistics etc/netdata/edit-config
etc/netdata/netdata.conf etc/nftdbles.d/10-custom-filter-chains.nft etc/nftbles.d/README
etc/opkg.conf etc/opkg/keys/40017e6f1ed5d616 etc/paswd
etc/ppp/radius/dictionary etc/ppp/radius/dictionary.asnet etc/ppp/radius/dictionary.microsoft etc/ppp/radius/servers
etc/profile etc/profile.d/sys_bashrc.sh etc/rc.local
etc/samba/secrets.tdb etc/samba/smb.conf etc/samba/smbpasswd
etc/shadow etc/shalls etc/shinit
etc/ssl/engines.cnf.d/devcrypto.cnf etc/syscll.conf etc/uhttpd.cnt
etc/uhttpd.key etc/xattr.conf etc/uhttpd.key etc/uhttpd.crt
Cancel

Ensure there are no errors—usually if there are, it's because the file extension of the configuration backup file changed (it should be .tar.gz). If there are no errors, you can click *Continue*.

#### 9. TeeHee will reboot and its status lights will reflect that.

#### Rebooting...

O The system is rebooting now. If the restored configuration changed the current LAN IP address, you might need to reconnect manually.

After about 30 seconds, you will be greeted with the web GUI login screen. Because you have restored settings from your custom backup configuration profile, you are now in the exact same state as your first TeeHee unit. Even your web GUI password and wireless access point information are now programmed on the additional TeeHee. All you need to do now is <u>assign a new static IP address</u> to the additional TeeHee unit and <u>confirm</u> wireless connection, and you'll be golden!

# Appendix II: TeeHee FAQ

#### Is it normal for TeeHee to get warm?

Yes. The silent, fanless design dissipates heat from the chassis and may feel warm to the touch. Using the integrated threaded mounting points is recommended to avoid any adhesive coming undone during histrionic handheld camera movements.

# What's the difference between the version with the internal UPS versus the one without it?

The \$100 price difference says goodbye to power cycling if TeeHee's external power input gets unplugged or otherwise loses power for a brief interval of time. Essentially, the internal battery allows you to avoid waiting 30 seconds— an eternity if all eyes are on DIT—for TeeHee to turn on and instead keeps TeeHee online even during camera power swaps.

TeeHee is typically powered directly from a camera body port or indirectly from a breakout box somewhere on the camera build. Thus, the internal battery inside TeeHee acts just like a UPS on a DIT cart and keeps TeeHee powered on for about five minutes after external power input disappears. This ensures you're always able to have camera control as soon as picture's up.

#### What if I can't find TeeHee on my network?

You can try to find it using the app LanScan. Please see <u>The Web GUI is MIA</u> for guidance.

#### What if my wireless connection seems weak?

In most cases, the wireless connection of Teehee will be dictated by your infrastructure access point(s) of choice (e.g. Ruckus R710), its placement and the physical environment in which TeeHee is being deployed. You can also review the Antennas section under *<u>First</u>* <u>Steps</u>; swapping the two antennas may also help.

#### Can I enable and disable individual wireless radios frequencies?

You cannot explicitly dictate which wireless radios receive power within TeeHee's web GUI. Upon connection to a particular wireless access point, however, you have the ability to dictate more detailed parameters about which frequency is being used and even specific channels and channel widths. To learn more, review step 12 under <u>Connect</u> <u>TeeHee to Your Wireless Network</u>.

#### Which antenna is which?

TeeHee has two female RP-SMA ports and they are <u>labeled on the enclosure</u>. Unlike some devices, which allocate antennas based on their frequency, TeeHee allocates wireless transmissions to its antennas based on use and respective salience. Antenna one, which is labeled "MAIN," should always be prioritized. Antenna two, which is labeled "AUX," is secondary to the main antenna to enhance wireless reliability.

#### Where's the Reset Button on TeeHee?

Though it doesn't have a hardware reset button, you certainly can <u>reset TeeHee</u> if necessary. You may, however, just need to <u>restore the base TeeHee settings</u>.

#### How do I utilize the internal UPS?

If you own TeeHee with internal UPS, there are no additional steps to take advantage of the integrated supplemental power system.<sup>2</sup> TeeHee will simply stay powered on after power is disconnected—for up to five minutes, if the internal battery is fully charged. Like a standard UPS, the system is entirely automatic: TeeHee runs off of external power input when external power is present, and the battery kicks in whenever external power is lost. The internal battery takes about 30 minutes to fully charge when TeeHee is being used.

#### How do I turn off TeeHee?

If your TeeHee has no internal UPS, the unit simply turns on or off when you provide or disconnect external power.

If your TeeHee has an internal UPS, you may need to wait up to 30 minutes for the unit to deplete its battery and fully shut down. Eventually the red PWR light will flash slowly as the battery runs low and is no longer able to power up the actual device. Shortly thereafter, TeeHee will power down entirely and all status lights will turn off.

#### How do I contact support?

If you encounter any issues with TeeHee, please reach out to <u>support@sampetrov.lol</u>.

<sup>&</sup>lt;sup>2</sup> You can verify whether or not your TeeHee contains a battery by unplugging external power to see if the unit continues running once external power is removed.

# Appendix III: Limited Warranty

sampetrov.lol warrants that this product will be free from defects in materials and workmanship for a period of one year from the date of purchase. If a product proves to be defective during this warranty period, sampetrov.lol, at its option, will either repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, you, the Customer, must notify sampetrov.lol of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. The Customer shall be responsible for packaging and shipping the defective product to sampetrov.lol, with shipping charges prepaid. sampetrov.lol shall pay for the return of the product to the Customer if the shipment is to a location within the country in which sampetrov.lol is located. Customer shall be responsible for paying all shipping charges, insurance, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. sampetrov.lol shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than those employed by sampetrov.lol to install, repair or service the product, b) to repair damage resulting from improper use or connection to incompatible equipment, c) to repair any damage or malfunction caused by the use of non-sampetrov.lol supplied parts or supplies, or d) to service a product that has been modified or integrated with other products when the effect of such a modification or integration increases the time or difficulty of servicing the product.

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