

LANforge InterOp Setup for iOS

Goal: Cable an iPhone to a LANforge machine, then have the LANforge machine recognize the iPhone as a resource.

This cookbook requires LANforge GUI version 5.4.7 and above.

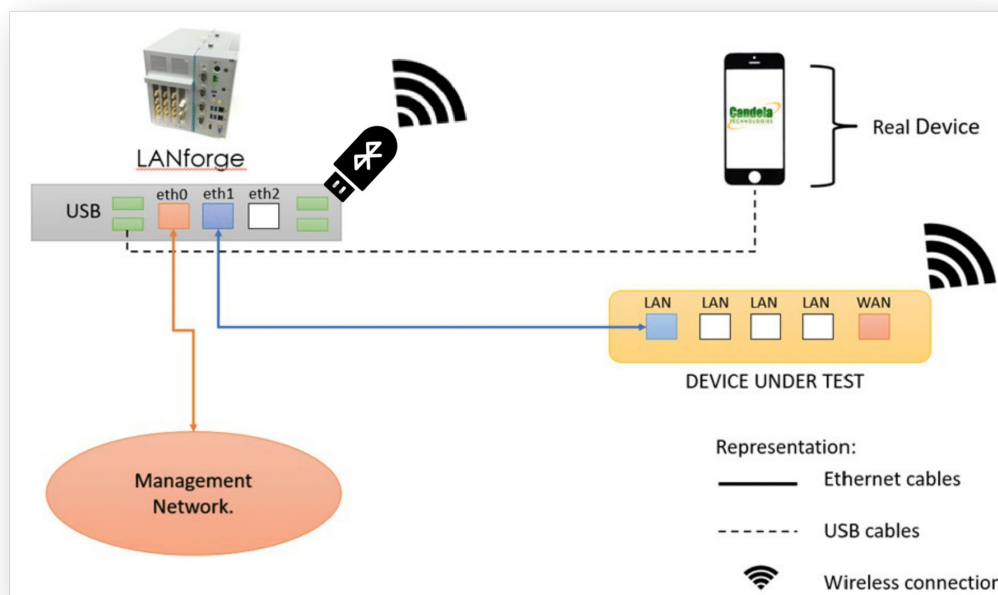
Background

Our LANforge InterOp solution is used to support real clients for testing access points. InterOp gives the ease of handling real clients with complete automation and detailed, customizable test reporting.

We have support for various kinds of real clients:

- Android clients.
- iOS clients.
- Windows Machines.
- Linux Machines.
- MacOS Machines.

Network Topology:



Hands-Free iPhone Control:

In order to provide a hands-free solution for iOS testing, LANforge controls each iPhone via a Bluetooth connection. USB Bluetooth adapters plugged into the LANforge act as Bluetooth keyboard devices. An adapter connects with the iPhone and then sends it keystroke packets. These keystrokes are interpreted by the iPhone as actions, and it's possible to perform system functions, navigate the UI, send text, etc.

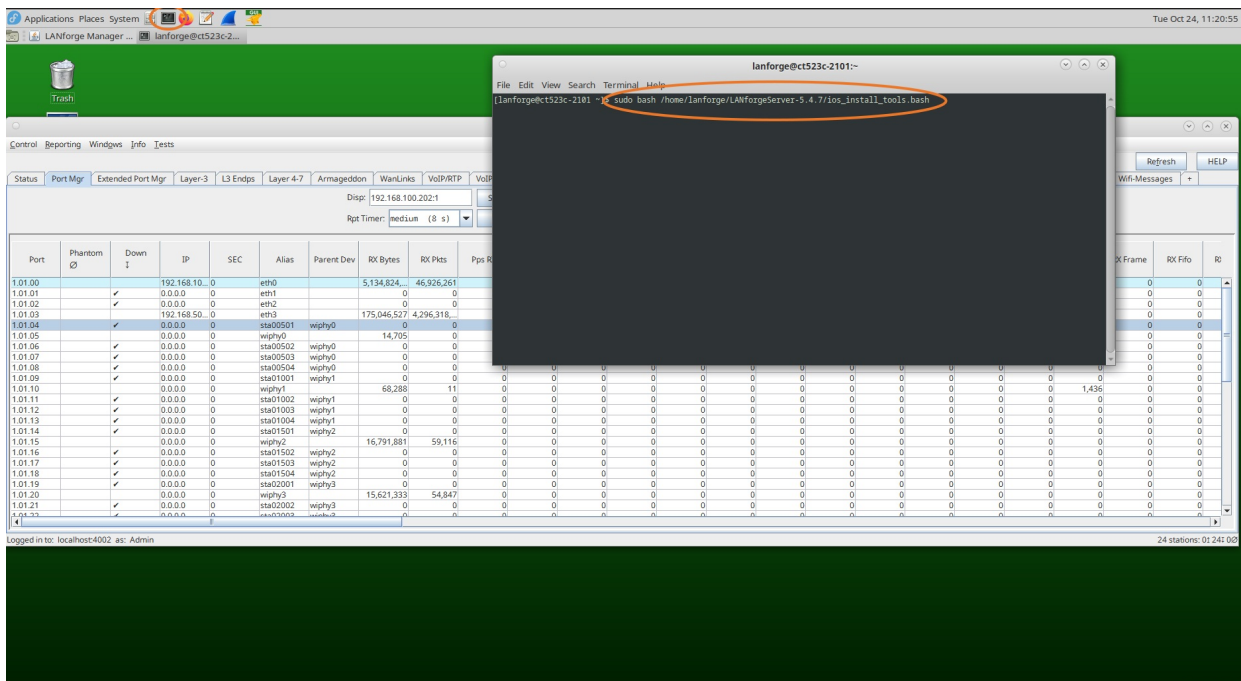
Before getting started:

Hardware Requirements:

- a Bluetooth 5.0 adapter (Edimax BT-8500 is known to work).
- an iPhone 8 (2017) or newer.
- a USB cable for the iPhone device -- USB-A to Lightning/USB-C.
- a LANforge system with at least two free USB ports.

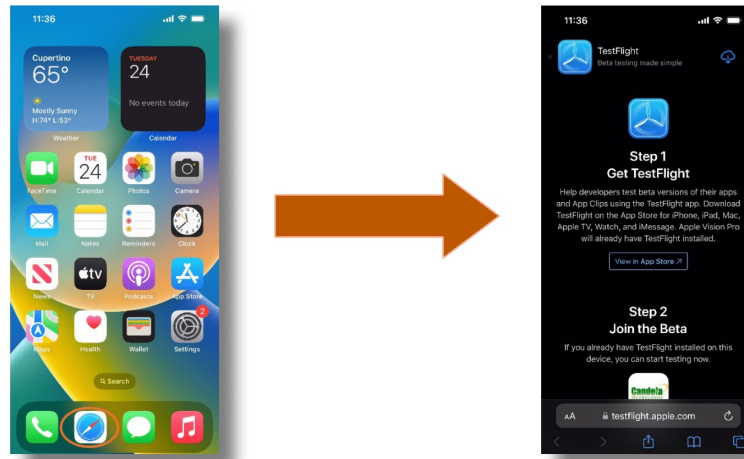
LANforge Machine Installs/Config

1. Simply open a terminal on your LANforge machine (CTRL + ALT + T) and run:
`sudo bash /home/lanforge/LANforgeServer-5.4.7/ios_install_tools.bash`

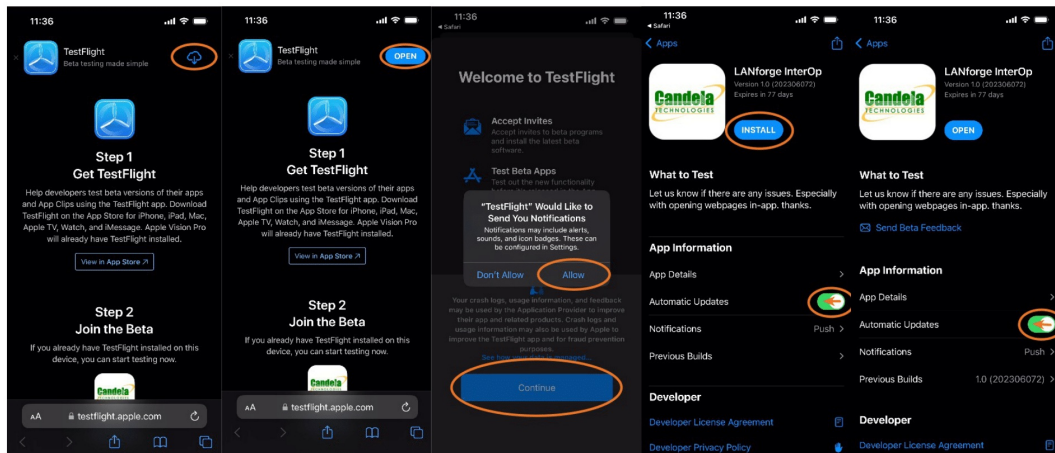


iOS Device Initial Setup

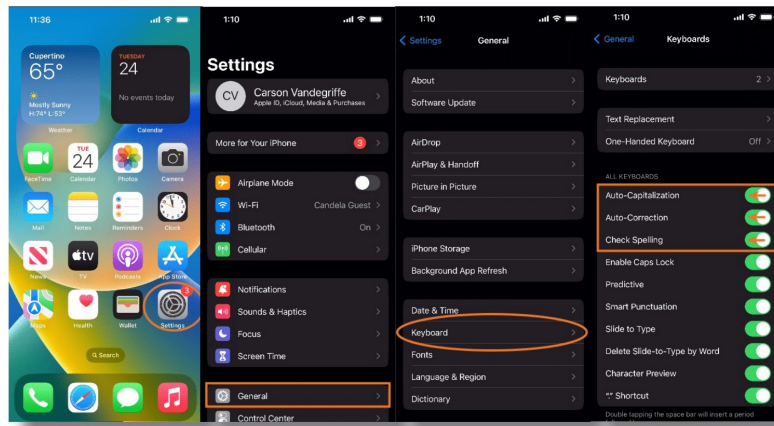
2. If using a new iPhone, ensure that the initial Apple setup is complete and that the device is logged into an Apple account. It's fine to log multiple devices into the same Apple account.
3. Visit the following link: [iOS Interop App Install](#).



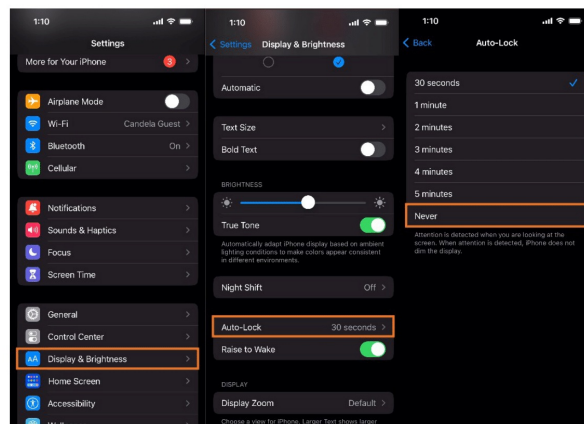
4. Download TestFlight, Open TestFlight, and install the LANforge Interop App. Be sure to disable Automatic Updates.



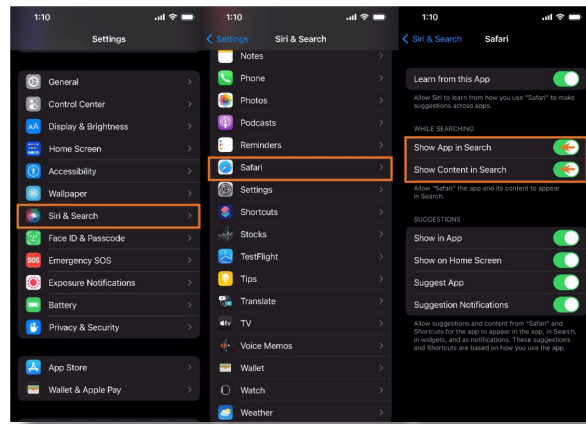
5. Open the Settings App on the iPhone.
 1. Disable Keyboard Autocapitalization and Autocorrection



2. Set Display Auto-Lock to **Never**

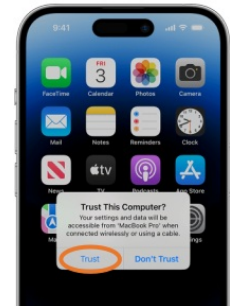


3. Disable Safari Suggestions in Search.

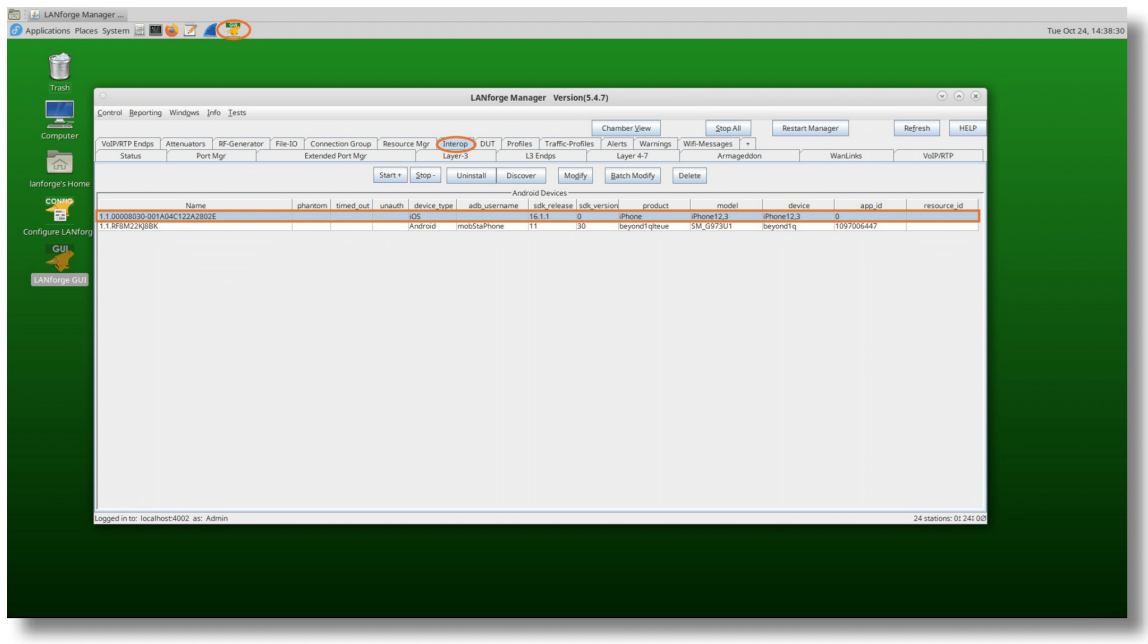


Connecting the iPhone to LANforge

6. Connect the iPhone via its USB port (Lightning or USB-C) to one of the USB-A slots on the LANforge. (as per the testbed topology)
7. On the iPhone screen, when prompted about trusting the computer, select 'Trust'.

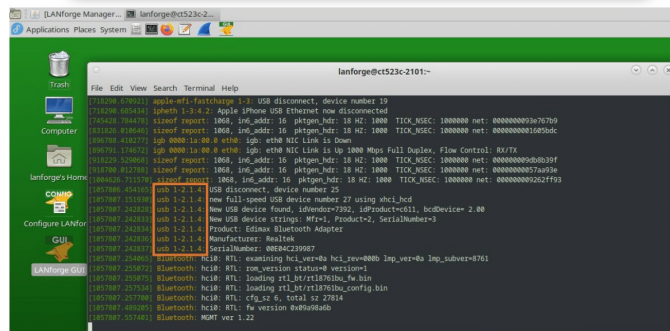
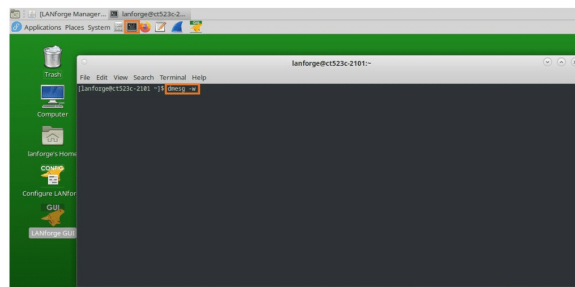


8. Open the LANforge GUI window. The Interop tab should appear now. Click on the tab to see your phone detected as an InterOp device.



Connecting Bluetooth USB Adapter

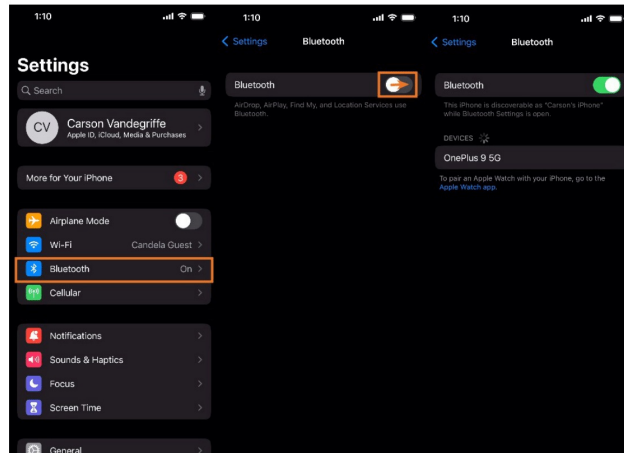
9. Open a terminal on the LANforge machine (CTRL + ALT + T). And run:
dmesg -w
10. Plug your USB Bluetooth dongle into one of the USB ports on the LANforge.
11. The terminal window should show dmesg output acknowledging the new USB device.



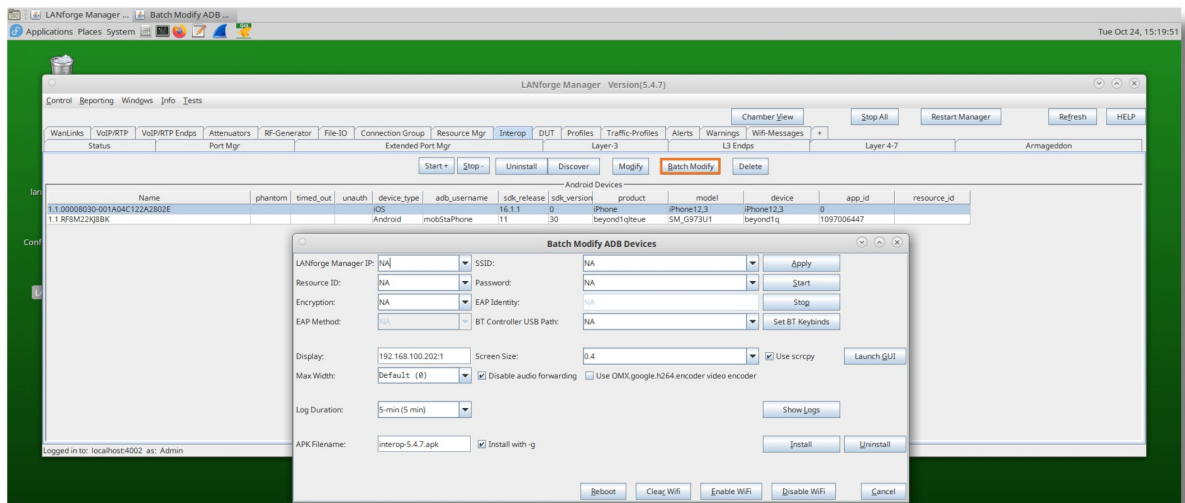
12. The string 'usb 1-2.1.4' indicates that '2-1-4' is the USB-path of the adapter. Write this down.
13. You can close the 'dmesg' terminal window.

Setting up iOS Device Keyboard Control

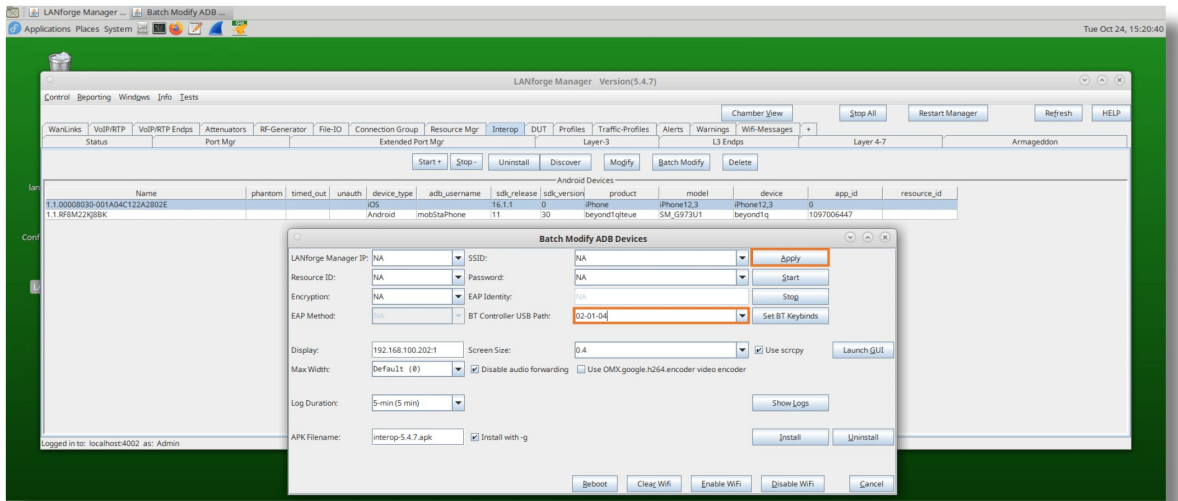
14. On the iPhone, open the Bluetooth settings page and enable Bluetooth.



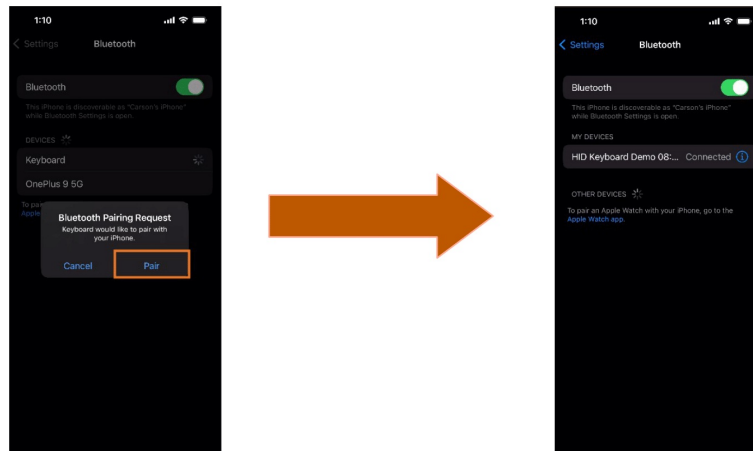
15. On your LANforge machine, select the iPhone in the Interop tab and tap the button labeled Batch-Modify.



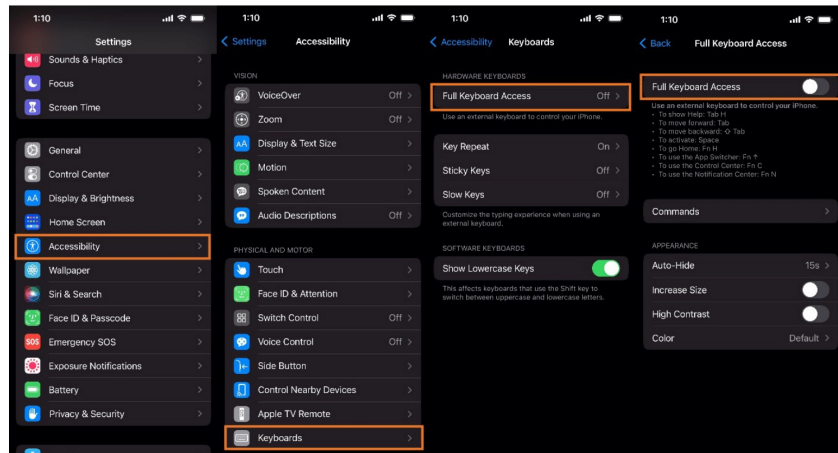
16. In the Batch-Modify window, enter the Bluetooth Controller's USB path (found from dmesg earlier). And click Apply to start the Bluetooth control process.



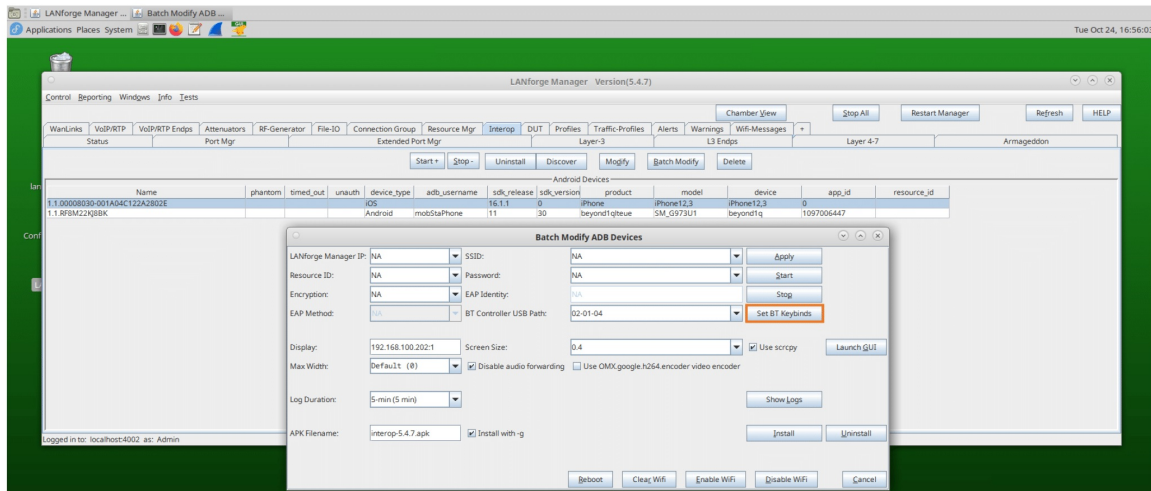
17. Keep watch on the iPhone's Bluetooth settings page and a connection prompt should appear. Select 'Pair' to pair the phone with your Bluetooth adapter.



18. On the iPhone, open the Keyboard Accessibility settings and enable 'Full Keyboard Access'.

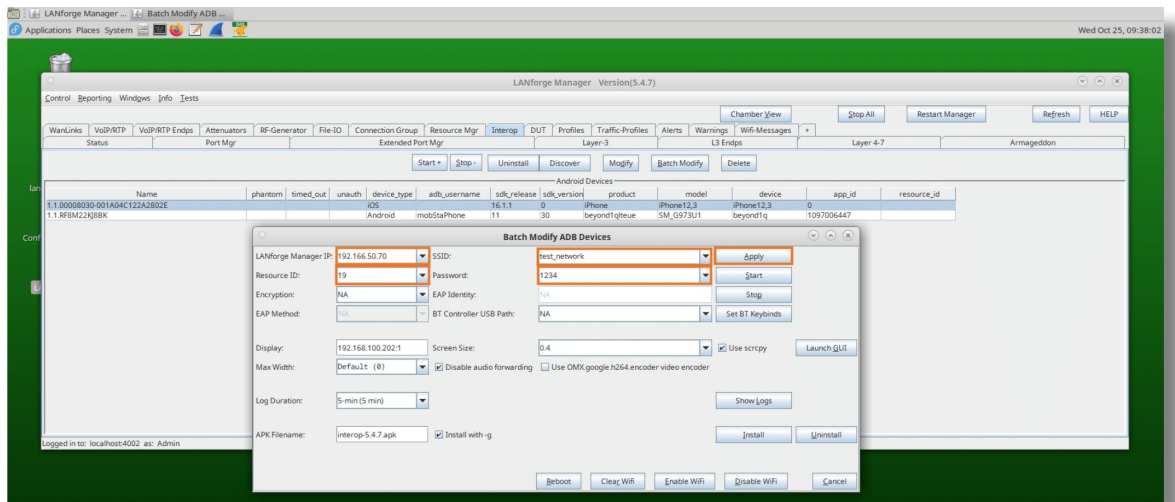


- Back in the LANForge Batch-Modify window, tap the Set BT Keybinds button. Allow 5-10 minutes for this command to run and do not interfere with the process by touching the screen or power-cycling the phone. Once this command is finished, the phone will appear idle again.

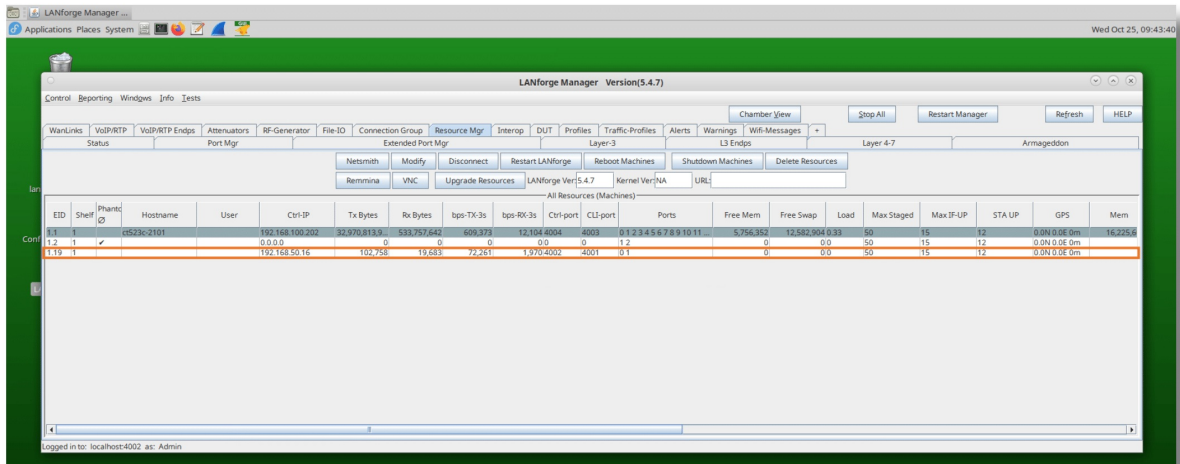


Starting the LANforge App

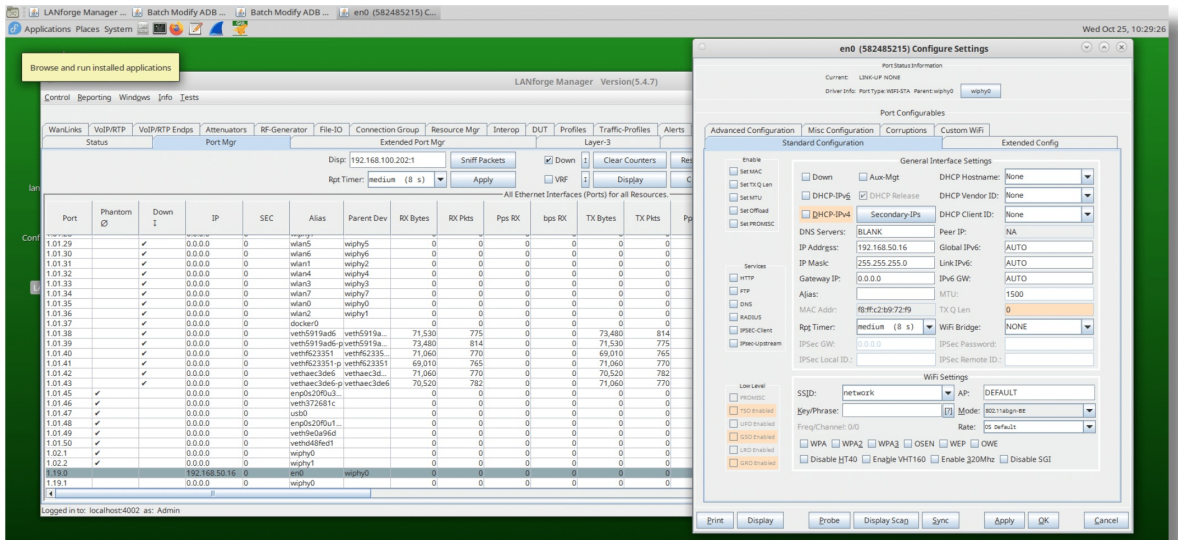
- Set the values needed to connect the iPhone to LANforge: LANforge Manager IP and Resource ID (must be a Resource ID that's not in use). And if you wish to automatically connect the phone to a WiFi network, then enter the SSID and password. Click Apply when done populating fields.



21. Open the Resource Mgr tab and within a minute, the iPhone should appear under the requested resource ID.



22. Back in the Port Mgr tab, we can see the iPhone's ports, IP address, and MAC address.



23. Your iPhone should now be ready for use with LANforge testing.

Known Limitations:

1. Screen Mirroring iOS devices onto Linux is not yet supported.
2. Automated installation and removal of the iOS Interop app through the Interop is not yet supported.

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