Installing Fedora with LANforge on mSATA

This guide is primarily intended to help restore mSATA images for the cl521 or the cl920 as they do not have video output. It goes through installing a LANforge disk image onto a mSATA drive via Linux or Windows, and then configuration of the LANforge system.

LANforge 3.3.7 on Fedora 27 was the most recent combination as of this writing.

Suggested Items

We want to begin with:

- Your normally working desktop or laptop and an Internet Connection
- 30GB or larger mSATA drive
- USB3 mSATA drive adapter
- LANforge system with internet connectivity
- LANforge license

Installation Steps

1. **Download image**

   Download the f24-msata-28g-img.bz2 image. The username and password is guest/guest.

2. **Write image to mSATA.**

   After you’ve downloaded the disk image f24-msata-28g-img.bz2 to your Downloads folder, you will plug in your mSATA USB adapter (with 30GB+ mSATA drive) and burn the image to it.

   **On Windows**

   Follow the below guide for installing the image using Windows.

   **Writing Disk images on Windows**

   **On Linux**

   - Connect the mSATA adapter with the mSATA drive to the Linux system.
   - Open a terminal window
   - To check the drive name of the mSATA, the last system messages should tell you: dmesg | tail

You might see a message saying:

```
$ dmesg | tail
[ 46.705126] scsi 5:0:0:0: Direct-Access ASMT 2115 0 PQ: 0 ANSI: 6
[ 46.720670] sd 5:0:0:0: Attached scsi generic sgl type 0
[ 46.726785] sd 5:0:0:0: [sdc] 58626288 512-byte logical blocks: (30.0 GB/28.0 GiB)
[ 46.728255] sd 5:0:0:0: [sdc] Write Protect is off
[ 46.728260] sd 5:0:0:0: [sdc] Mode Sense: 43 00 00 00
[ 46.728975] sd 5:0:0:0: [sdc] Write cache: enabled, read cache: enabled, doesn't support DPO or FL
[ 46.733389] sdc: sdc1 sdc2
[ 46.740492] sd 5:0:0:0: [sdc] Attached SCSI disk
```

Or you might use the command `lsblk` which will list all your drives.
For this example, we'll assume your msATA drive is /dev/sdc

You can use the `dd` utility on the command line. Make sure to replace /dev/sdc with your device!

```
$ cd ~/Downloads
$ sudo bzcat f24-msata-28g-img.bz2 | dd of=/dev/sdc
```

Note: This command can take a while to run (roughly 20-25 minutes on USB 3.0 or 1-2 hours on USB 2.0).

3. Connect msATA drive.

Remove the msATA drive from the USB adapter and place it into the desired system.

Note: The system will not function correctly if you try to boot off the msATA while it is in the USB adapter.

The above picture is from a cf521 system.

4. Configure LANforge

Connect to the LANforge system via serial connection and log in.

♦ User/Password: root/lanforge

Configure the LANforge system for internet access.

♦ Make sure just one ethernet cable is plugged in. For the cf521 system, use the leftmost port.

♦ Use the command `ip l show`. One port should show 'UP' as seen below.

```
2: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP mode DE
```
Use the command `dhclient portname` where `portname` is the port found above.
Example: `dhclient enp2s0`

Verify an IP was obtained with `ifconfig portname`.
Example: `ifconfig enp2s0`

Update the system and reboot.
- `dnf update -y`
- `reboot`
- After rebooting you will need to run `dhclient` again to get an IP.
  `dhclient enp2s0`

Run the `lf_kinstall` script to configure LANforge software.
- In the serial terminal, copy and paste the below command.
  `/root/lf_kinstall.pl --lfver 5.3.6 --kver 4.9.27+ --do_all_ct --do_sys_reconfig`
- Reboot the system after `lf_kinstall` completes: `reboot`
- Run `lf_kinstall` again with `do_grub` option. This makes kernel options show up on boot.
  **Note:** The options should normally show up on the first `lf_kinstall`. We are currently looking into this.
  `/root/lf_kinstall.pl --lfver 5.3.6 --kver 4.9.27+ --do_grub`
- Reboot the system once more: `reboot`

Install the LANforge license.
- The license can be installed via the management GUI under the Control->Install License file menu.

Set firmware for ath10k radios (skip this step if there are no ath10k radios).
- In the management GUI's `Port Mgr` tab, Modify the wiphy port of the ath10k radio[s].
- In the firmware tab, click **Customize Firmware** and then **Firmware Defaults for chipset: 988x**.
Click **Apply** and close the window.

Delete Phantom ports.

There are likely to be some phantom ports in the **Port Mgr** tab such as enp2s0 and enp3s0. These can be deleted as they are just remnants of ports that have been renamed.