

# Installing Fedora with LANforge on mSATA

This guide is primarily intended to help restore mSATA images for the ct521 or the ct920 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 5.3.6 on Fedora 24 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
[ 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.

```
$ lsblk
NAME                                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sdc                                  8:32  0   28G  0 disk
├─sdc2                               8:34  0  27.5G  0 part
│ └─fedora-root                     252:4  0  24.7G  0 lvm
│ └─fedora-swap                     252:3  0   2.8G  0 lvm
└─sdc1                               8:33  0   500M  0 part
sda                                  8:0    0 111.8G  0 disk
├─sda2                               8:2    0 111.3G  0 part
│ └─fedora_brent--521--2-swap       252:1  0    7.6G  0 lvm  [SWAP]
│ └─fedora_brent--521--2-home       252:2  0   53.7G  0 lvm  /home
│ └─fedora_brent--521--2-root       252:0  0    50G  0 lvm  /
└─sda1                               8:1    0   500M  0 part /boot
```

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!**

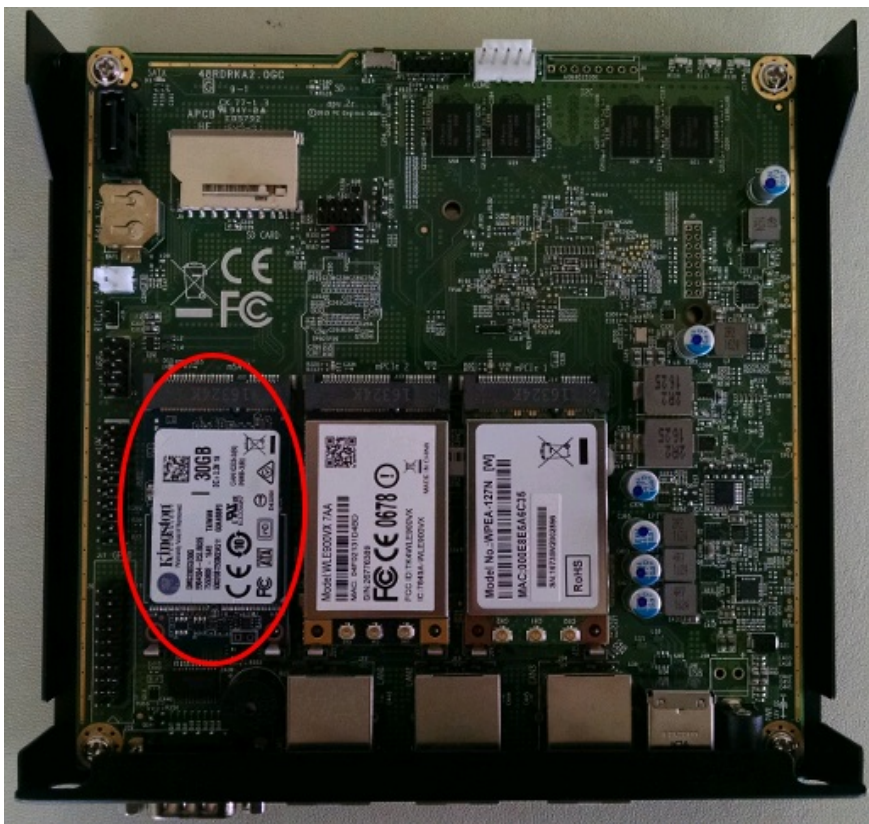
```
$ cd ~/Downloads
$ sudo bzcat f24-msata-28g-img.bz2 | dd of=/dev/sdc
```

**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 [ct521](#) 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 ct521 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 DE0  
link/ether 00:0d:b9:44:6f:40 brd ff:ff:ff:ff:ff:ff
```

- 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_install` script to configure LANforge software.

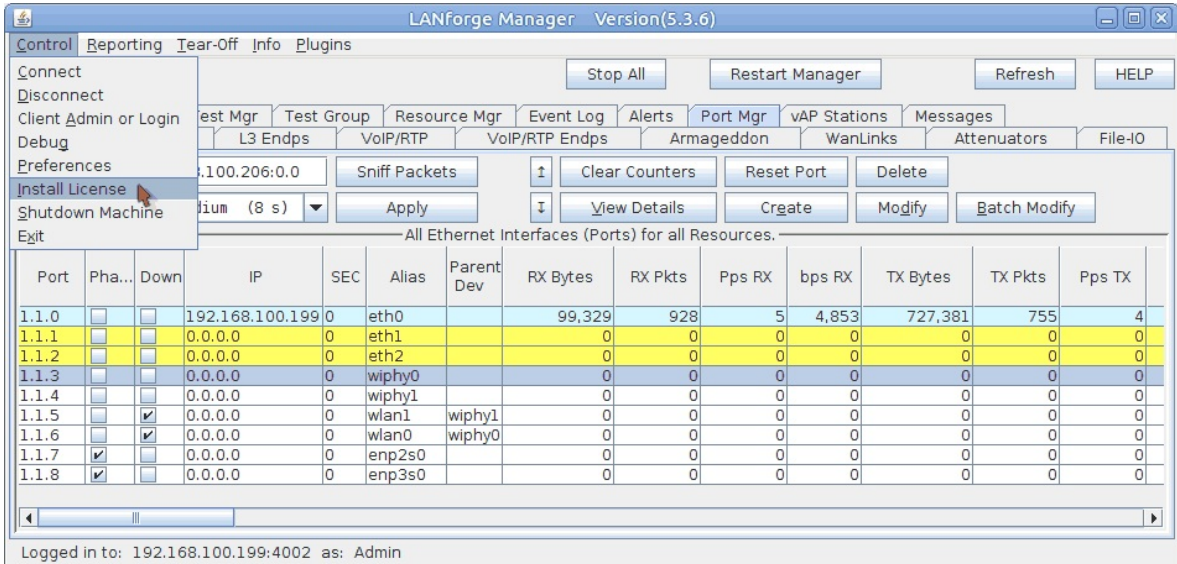
- In the serial terminal, copy and paste the below command.  
`/root/lf_install.pl --lfver 5.3.6 --kver 4.9.27+ --do_all_ct --do_sys_reconfig`
- Reboot the system after `lf_install` completes: `reboot`
- Run `lf_install` again with `do_grub` option. This makes kernel options show up on boot.  
**Note:** The options should normally show up on the first `lf_install`. 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`

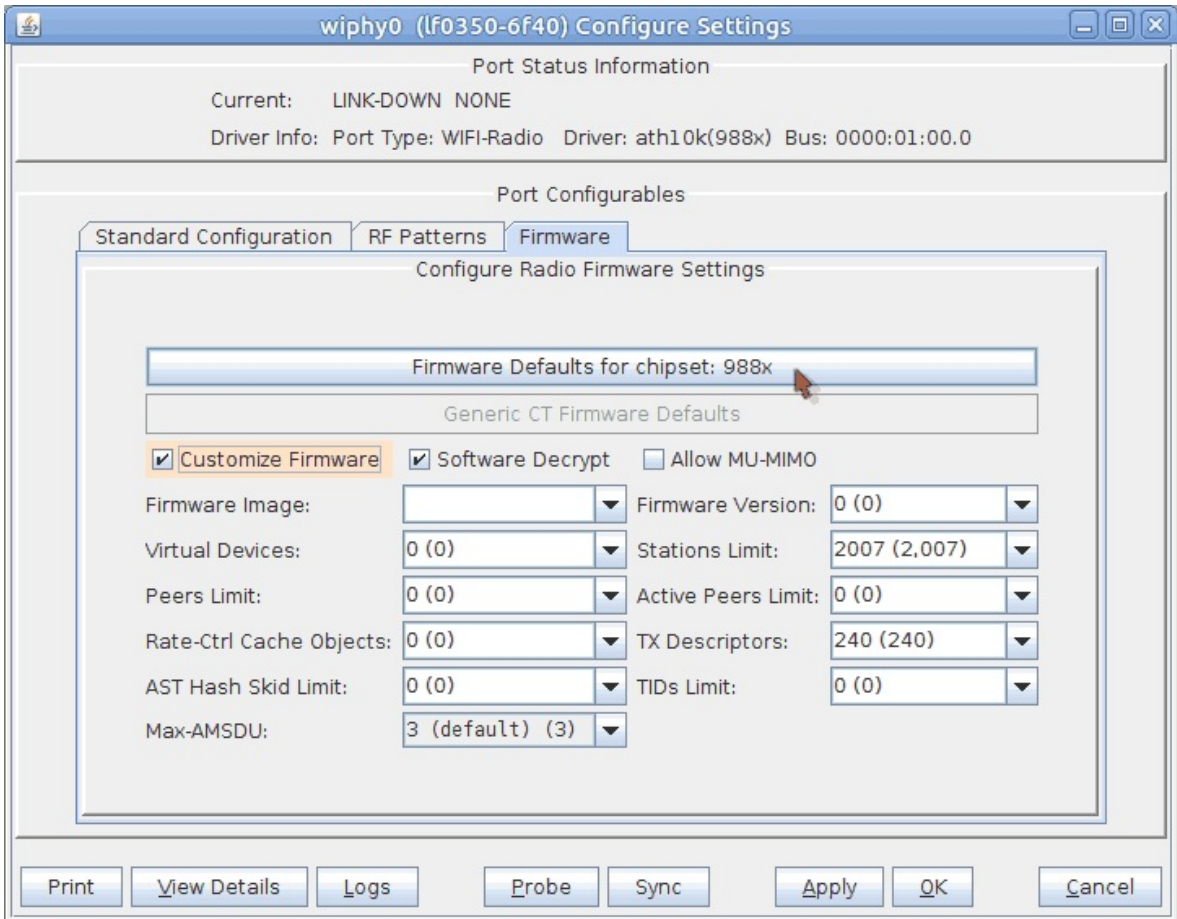
Install the LANforge license.

- 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.

The screenshot shows the LANforge Manager interface. The 'Port Mgr' tab is active, displaying a table of Ethernet interfaces. The table has columns for Port, Phase, Down, IP, SEC, Alias, Parent Dev, RX Bytes, RX Pkts, Pps RX, bps RX, TX Bytes, TX Pkts, and Pps TX. The 'Delete' button is highlighted over the table.

Port	Pha...	Down	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX
1.1.0	<input type="checkbox"/>	<input type="checkbox"/>	192.168.100.199	0	eth0		32,988	289	3	3,299	219,987	239	3
1.1.1	<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	0	eth1		0	0	0	0	0	0	0
1.1.2	<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	0	eth2		0	0	0	0	0	0	0
1.1.3	<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	0	wiphy0		0	0	0	0	0	0	0
1.1.4	<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	0	wiphy1		0	0	0	0	0	0	0
1.1.5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.0.0.0	0	wlan1	wiphy1	0	0	0	0	0	0	0
1.1.6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0.0.0.0	0	wlan0	wiphy0	0	0	0	0	0	0	0
1.1.7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	0	enp2s0		0	0	0	0	0	0	0
1.1.8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	0	enp3s0		0	0	0	0	0	0	0

All set up! If you have any questions or comments, please contact us at [support@candelatech.com](mailto:support@candelatech.com).

*Candela Technologies, Inc., 2417 Main Street, Suite 201, Ferndale, WA 98248, USA*

*[www.candelatech.com](http://www.candelatech.com) | [sales@candelatech.com](mailto:sales@candelatech.com) | +1.360.380.1618*