Deploying BlueField Software Using BFB with PXE

> **ⓘ Note**
>
> PXE installation is not supported for NIC mode on NVIDIA®
> BlueField®-3.

The following are the steps to prepare a PXE server to deploy a BFB bundle:

1. Provide the image of the BFB file. Run:

```
# mlx-mkbfb -x <BFB>
```

For example:

```
# mlx-mkbfb -x DOCA_2.7.0_BSP_4.7.0_Ubuntu_22.04-<version>.bfb
```

> **ⓘ Note**

> mlx-mkbfb is a Python script that can be found in BlueField release tarball under the /bin directory or in the BlueField Arm file system /usr/bin/mlx-mkbfb.

2. Copy the 2 dumped files, dump-image-v0 and dump-initramfs-v0 into the PXE server tftp path.

3. Create a boot entry in the PXE server. For example:

```
/var/lib/tftpboot/grub.cfg

set default=0
set timeout=5
menuentry 'Bluefield_Ubuntu_22_04_From_BFB' --class red --class gnu-linux --class gnu --class os
{
  linux (tftp)/ubuntu22.04/dump-image-v0 ro ip=dhcp console=hvc0 console=ttyAMA0
  initrd (tftp)/ubuntu22.04/dump-initramfs-v0
}
```

If additional parameters must be set, use the bf.cfg configuration file, then add the bfks parameter to the Linux command line in the grub.cfg above.

```
menuentry 'Ubuntu22.04 From BFB with bf.cfg' --class red --class gnu-linux --class gnu --class os {
  linux (tftp)/ubuntu22.04/dump-image-v0 console=hvc0 console=ttyAMA0 bfnet=oob_net0:dhcp
bfks=http://15.22.82.40/bfks
  initrd (tftp)/ubuntu22.04/dump-initramfs-v0
}
```

bfks is a BASH script that runs alongside BFB's install.sh script at the beginning of the BFB installation process. Here is an example of bfks that creates a /etc/bf.cfg file:

```
cat > /etc/bf.cfg << 'EOF'
DEBUG=yes
ubuntu_PASSWORD='$1$3B0RIrfX$TlHry93NFUJzg3Nya00rE1'
```

```
EOF
```

4. Define DHCP.

```
/etc/dhcp/dhcpd.conf

allow booting;
allow bootp;

subnet 192.168.100.0 netmask 255.255.255.0 {
  range 192.168.100.10 192.168.100.20;
  option broadcast-address 192.168.100.255;
  option routers 192.168.100.1;
  option domain-name-servers <ip-address-list>
  option domain-search <domain-name-list>;
  next-server 192.168.100.1;
  filename "/BOOTAA64.EFI";
}


# Specify the IP address for this client.
host tmfifo_pxe_client {
  hardware ethernet 00:1a:ca:ff:ff:01;
  fixed-address 192.168.100.2;
}
subnet 20.7.0.0 netmask 255.255.0.0 {
  range 20.7.8.10 20.7.254.254;
  next-server 20.7.6.6;
  filename "/BOOTAA64.EFI";
}
```