



Deploying BlueField Software Using BFB with PXE

i Info

It is recommended to upgrade your BlueField product to the latest software and firmware versions available to benefit from new features and latest bug fixes.

i 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. Convert the BFB image file to PXE bootable image(s). Run:

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

For example:

```
# mlx-mkbfm -x DOCA_2.7.0_BSP_4.7.0_Ubuntu_22.04-  
<version>.bfm
```

(i) Note

`mlx-mkbf` 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-mkbf`.

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

(i) Info

To use a kernel that is compressed with LZMA (as included in BFB as `dump-image-v0`) for PXE installation, it must be uncompressed before use:

```
$ file dump-image-v0
```

If the output says `LZMA compressed data`, proceed to uncompress.

To uncompress the kernel, run:

```
$ text xz -dc < dump-image-v0 > vmlinuz
```

This will uncompress the LZMA kernel image to a usable format called `vmlinuz`.

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$3B0RlrfX$T1Hry93NFUJzg3Nya00rE1 '
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";
}
```

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