Technical Documentation

Hewlett Packard Enterprise

HPE Synergy Image Streamer Documentation to load driver & capture Golden Image on RHEL7 for HPE Virtual Connect SE 100Gb F32 Module & HPE Synergy 50Gb Interconnect Link Module

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1 How to inject drivers during installation of RHEL7 on Synergy Image Streamer

1.1 Introduction

This document is intended to describe how to inject additional drivers which are not included in the native OS iso. For example, newer Gen10 blades will have new CNA cards 4820C and 6820C. Drivers for these are not included in the already released version of OS.

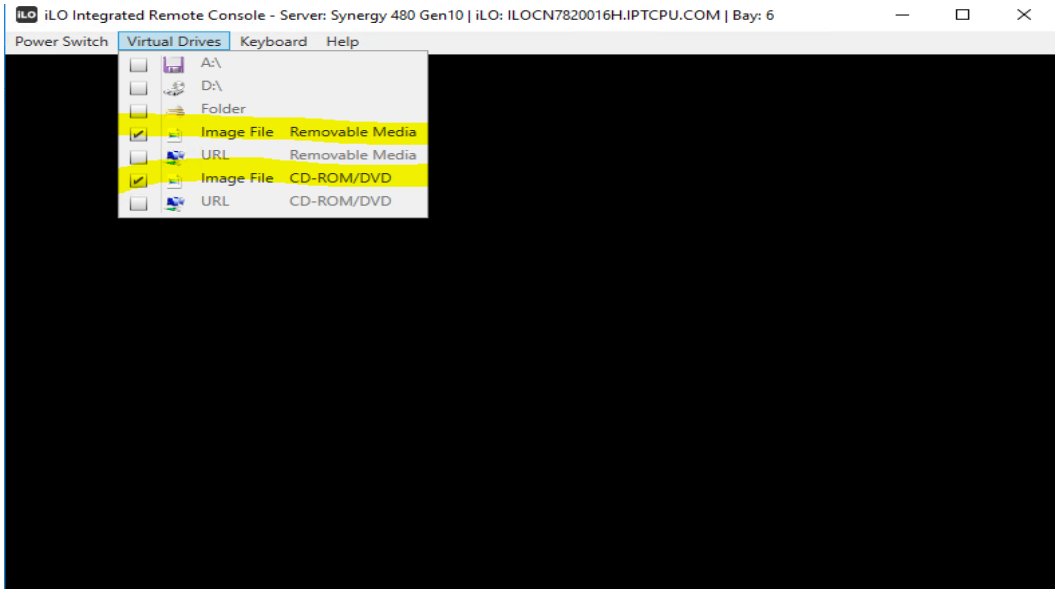
1.2 Steps to inject drivers during installation of RHEL7

Following are the steps to be followed to inject the drivers during installation of RHEL7, along with the screenshots for reference.

1. For additional drivers to be installed along with the OS installation, the driver update disks (DUDs) are required.

2. Rename the iso file to img file so that it can be mounted as image file along with OS iso. For example, rename *fastlinq-8.38.5.0-dd-rhel7u6-3.10.0_957.el7-x86_64.iso* to *fastlinq-8.38.5.0-dd-rhel7u6-3.10.0_957.el7-x86_64.img*

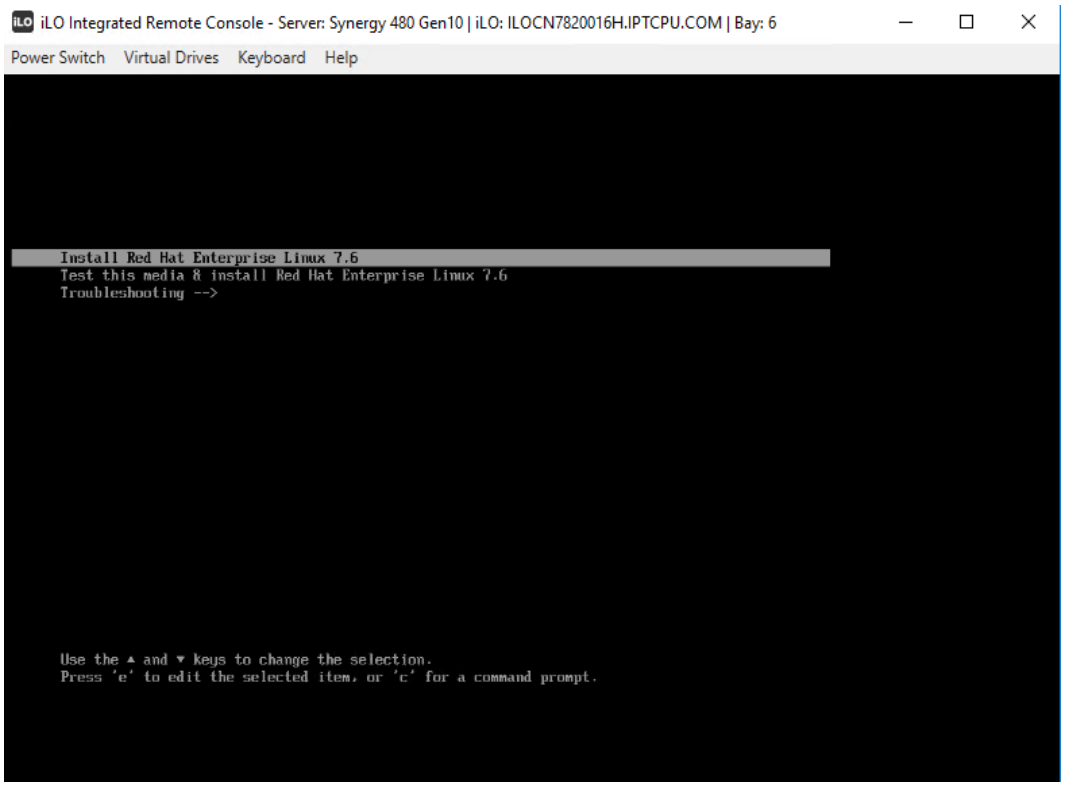
3. Use the iLO remote console to mount OS iso to “Image File CD-ROM/DVD” and Driver DUD img file to “Image File Removable Media”



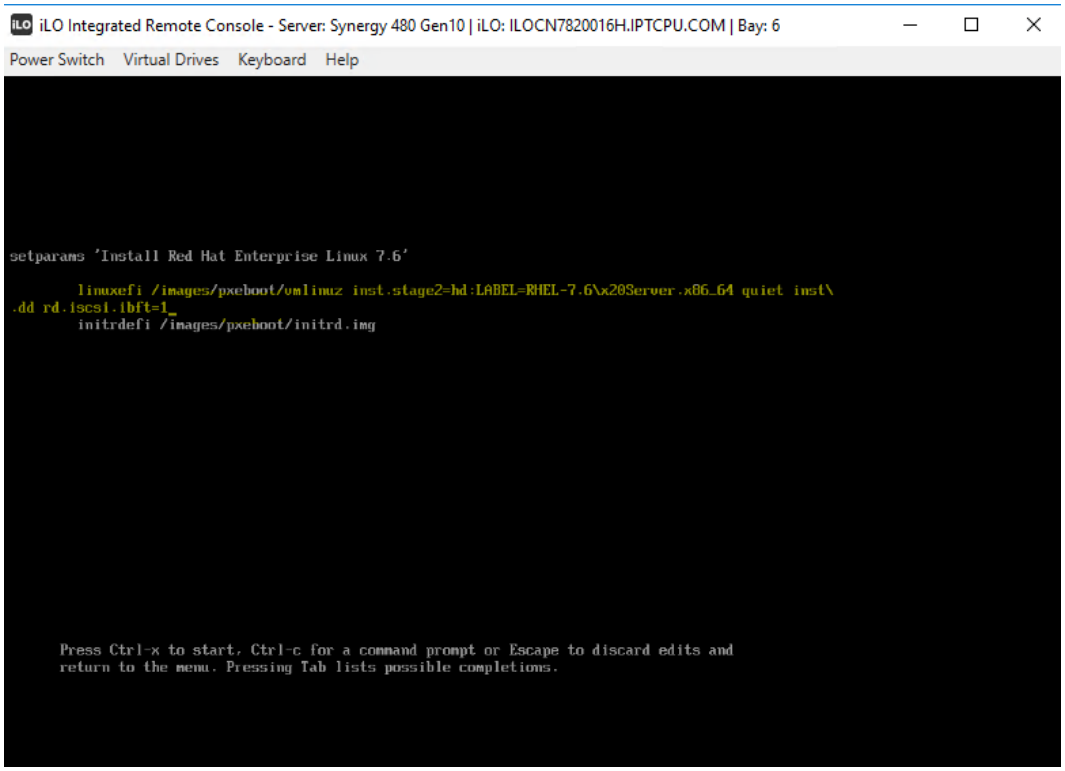
4. Reboot the server to start installation.

5. Press F11 to get to boot menu and boot from virtual CD/DVD.

6. At boot loader screen , select Install boot option to edit. Select the entry “Install Red Hat Enterprise Linux 7.x” and press “e”

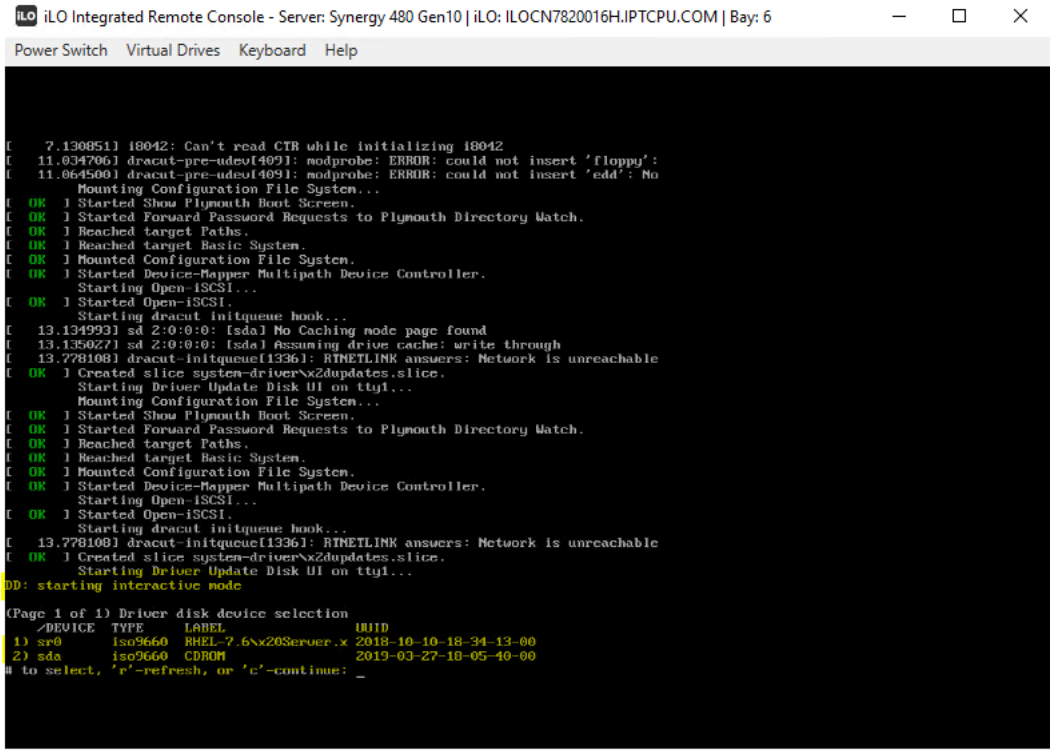


7. Modify the Install kernel vmlinux line to include “inst.dd” (To inject the downloaded version of the driver) and “rd.iscsi.ibft=1” (To tell the kernel to get the OS volume iSCSI configuration parameters from the compute module firmware set by the Server Profile) in the end.

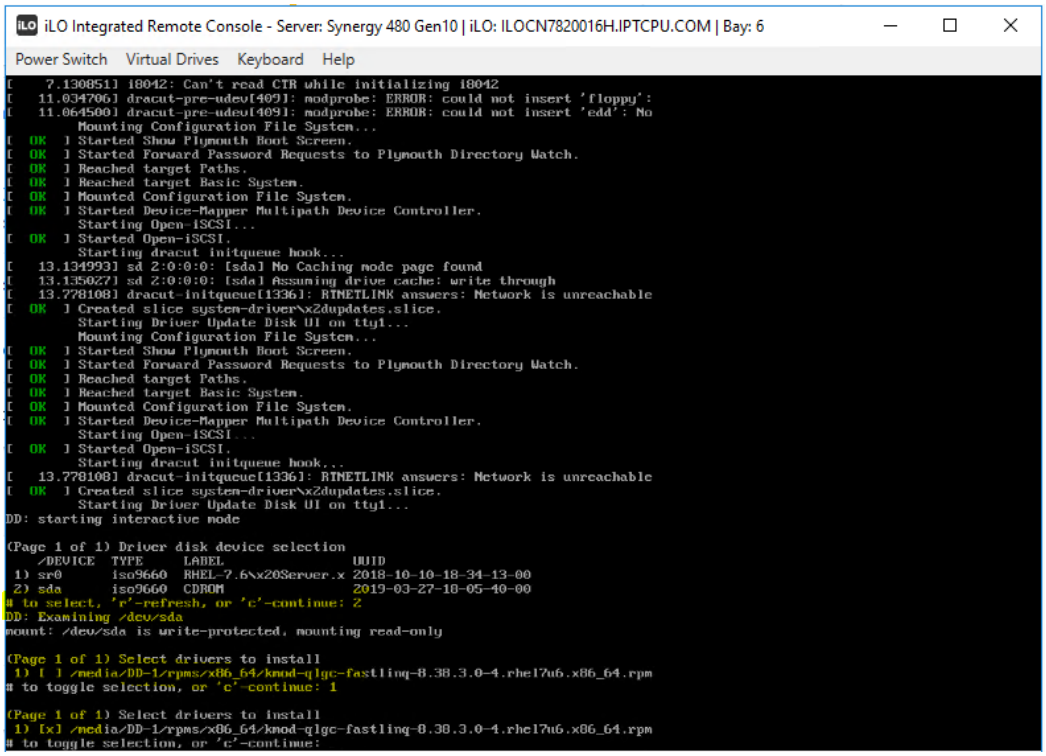


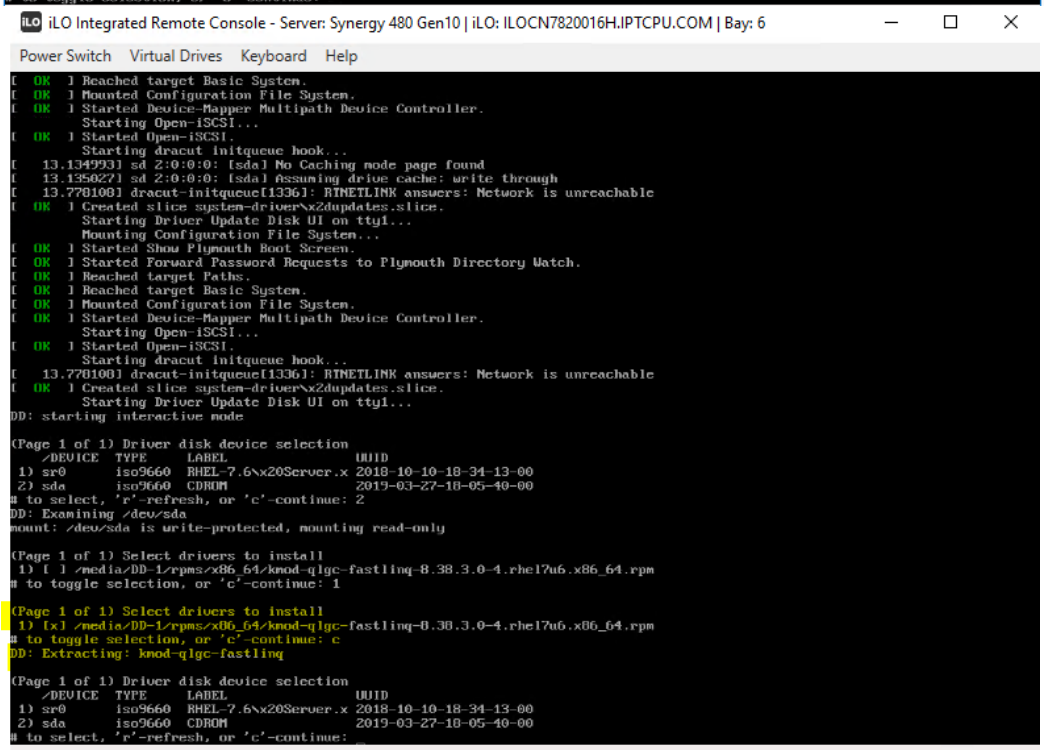
8. Press ctrl+x to start.

9. It will start and wait for user to select the driver to be installed from the virtually attached image file.



10. You can see both the disks listed, OS iso and Driver DUD img. Choose the Driver disk and follow onscreen instructions to finish the driver installation.





11. Press c to conitnue with the installation. Now since the driver is installed the CNA cards would be detected and hence the iscsi disk will be listed during installation. Proceed with the installation as usual.

12. Refer to github README for latest configuration steps for RHEL to create the image compatible with latest artifact bundle - HPE-RHEL7-EFI-2019-06-11-v5.0.zip.

2 How to capture a Golden Image for RHEL7 on HPE Virtual Connect SE 100Gb F32 Module for Synergy or HPE Synergy 50Gb Interconnect Link Module

2.1 Introduction

Once the drivers are loaded on the Gen10 blades which have new CNA cards 4820C and 6820C, the golden image can be captured by following the steps given below.

2.2 Steps to capture Golden Image post OS installation with drivers

After the completion of the OS installation, proceed with the following steps:

1. Edit /boot/efi/EFI/redhat/grub.cfg and change the hardcoded IP and MAC in the grub to ip=ibft as below:

   From This

To This

```
        linuxefi /vmlinuz-3.10.0-957.el7.x86_64 root=/dev/mapper/rhel-root ro crashkernel=auto rd.lvm.lv=rhel/root iscsi_firmware ip=ibft rd.lvm.lv=rhel/
swap rhgb quiet LANG=en_US.UTF-8
        initrdefi /initramfs-3.10.0-957.el7.x86_64.img
```

2. Add the ibftT service that needs to be started on reboot for deployment bonding in local.sh as below before capturing the golden image.

```
[root@rhel74 ~]# cat /etc/rc.d/rc.local
#!/bin/bash
# THIS FILE IS ADDED FOR COMPATIBILITY PURPOSES
#
# It is highly advisable to create own systemd services or udev rules
# to run scripts during boot instead of using this file.
#
# In contrast to previous versions due to parallel execution during boot
# this script will NOT be run after all other services.
#
# Please note that you must run 'chmod +x /etc/rc.d/rc.local' to ensure
# that this script will be executed during boot.

touch /var/lock/subsys/local
sh /boot/efi/EFI/HPE/isdeploy/HPE-ImageStreamer.bash
service ibftT start
```

3. After these manual changes are made we can proceed with capturing the Golden Image.

4. After the OS boots up Create the following directories.
   - mkdir /boot/efi/EFI/HPE
   - mkdir –p /boot/efi/EFI/HPE/isdeploy
   - mkdir –p /boot/efi/EFI/HPE/isdeploy/scripts
   - mkdir –p /boot/efi/EFI/HPE/isdeploy/tmp
   - mkdir –p /boot/efi/EFI/HPE/isdeploy/data

5. Modify /etc/rc.d/rc.local. Add below line
   - sh /boot/efi/EFI/HPE/isdeploy/HPE-ImageStreamer.bash
   - service ibftT start

6. Change permission of the rc.local file. (chmod 755 /etc/rc.d/rc.local)

7. Power off the server.

8. Navigate to HPE Synergy Image Streamer -> Golden Images and Click ‘Create Golden image’

9. Select the OS volume corresponding to the server profile created for empty OS volume and choose “HPE - Foundation 1.0 - capture OS Volume as is” as the capture build plan.

10. HPE Synergy Image Streamer captures RHEL image and adds it as a golden image.