Application Note

Enabling Storage Offloads on Dell® and Marvell® FastLinQ® 41000 Series Adapters

This application note describes how to use NIC partitioning (NPar) to configure Marvell FastLinQ 41000 Series Adapters for iSCSI or FCoE storage offloads on Dell 14G Servers.

- FCoE storage offloads use partition 2.
- iSCSI storage offloads use partition 3 (on dual port adapters) and partition 2 (on quad port adapters).

The following procedures use the LIFECYCLE CONTROLLER; the graphics are from family firmware version (FFV) 14.10.07. Ensure that you are using the latest adapter firmware from the Dell driver download Web site.

1 Configuring FCoE Storage Offloads

To configure 41000 Series Adapters for FCoE storage offloads:

1. From the LIFECYCLE CONTROLLER (Figure 1-1), select **System Setup**.

Figure 1-1. System Setup

2. On the System Setup page (Figure 1-2), select **Advanced Hardware Configuration**.

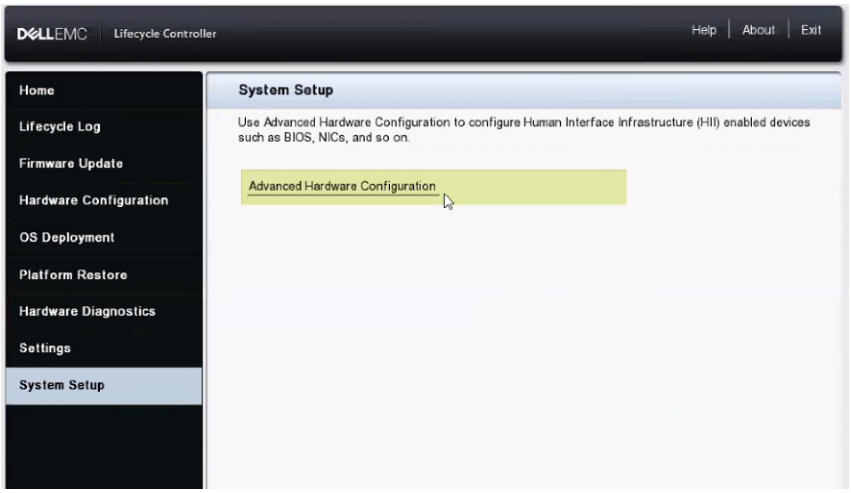

Figure 1-2. System Setup

3. On the System Setup Main Menu (Figure 1-3), select **Device Settings**.

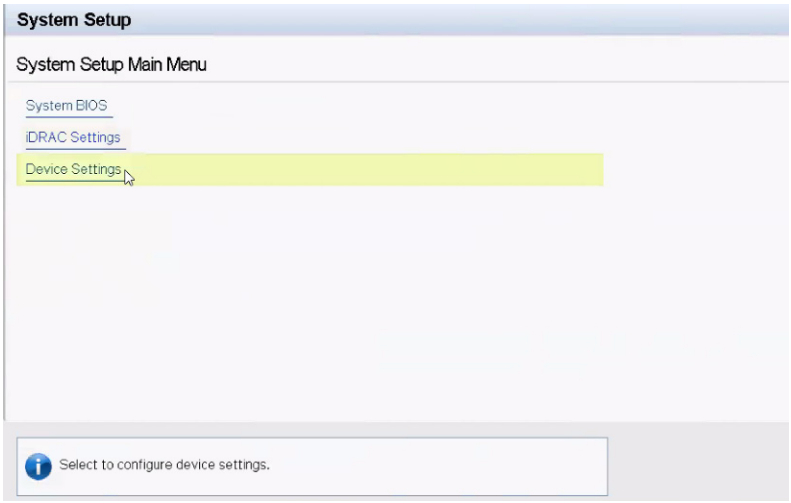

Figure 1-3. System Setup Main Menu

4. On the Device Settings page (Figure 1-4), select the 41000 Series Adapter port you want to configure.

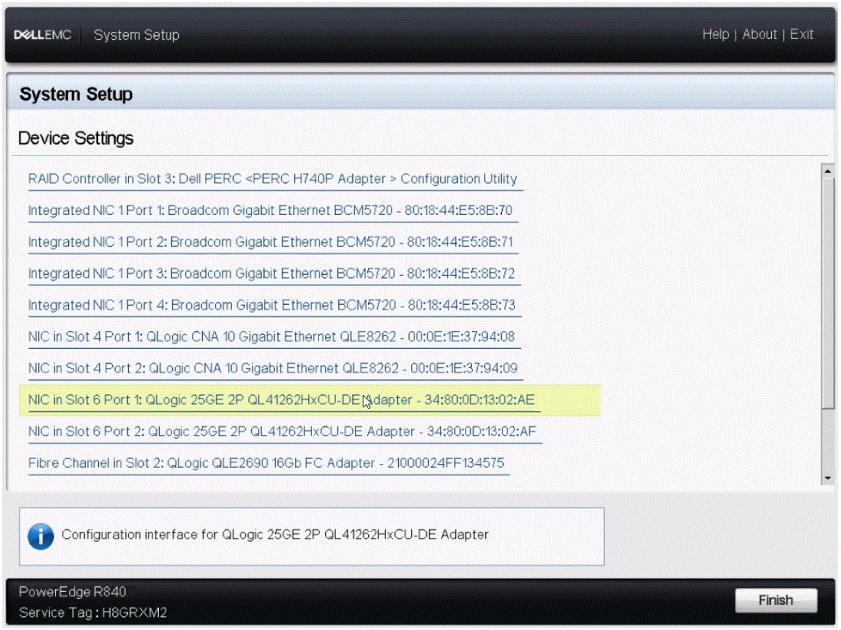

Figure 1-4. Device Settings Page

NOTE

NPAR or NPAR-EP mode is enabled per adapter and enables NPAR/NPAR-EP on all ports on the adapter.

NPAR/NPAR-EP must be enabled to configure storage offloads on Dell versions of the adapter.

5. On the adapter port Main Configuration Page (Figure 1-5), select **Device Level Configuration**.

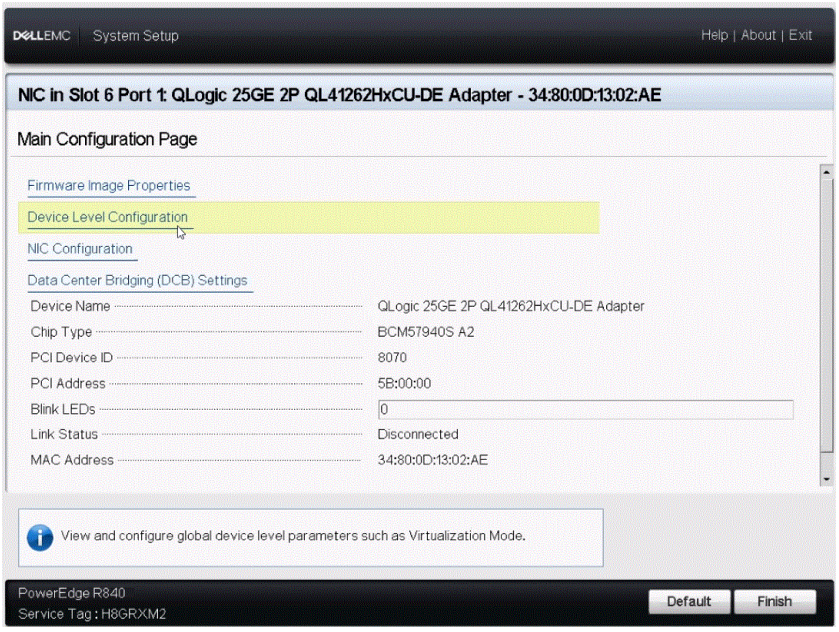

Figure 1-5. Adapter Port Main Configuration Page

6. From the Virtualization Mode menu (Figure 1-6), select either **NPar** or **NPar + SR-IOV**, as appropriate.

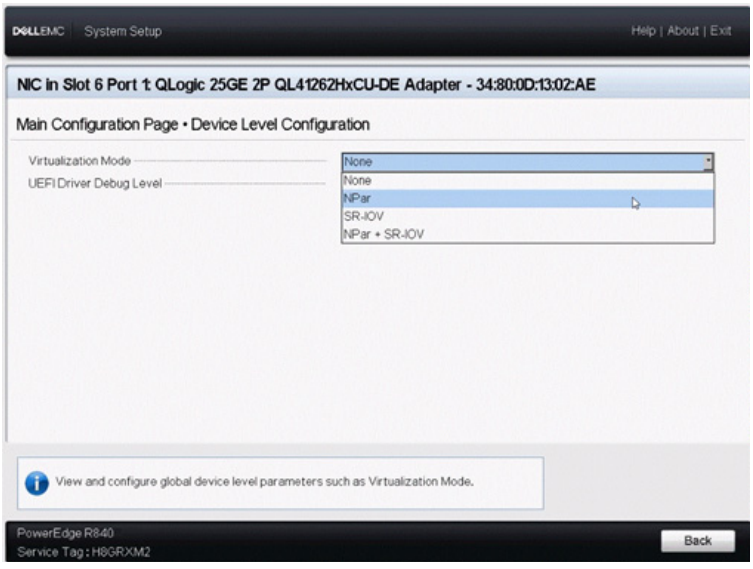

Figure 1-6. Device Level Configuration Page

After NPar is enabled, you can enable NParEP mode (Figure 1-7).

Sixteen physical function (PF) NParEP mode enables 8 PFs, or partitions per port, on a dual-port 41000 Series Adapter, or 4 PFs per port on a quad-port 41000 Series Adapter, for a total of 16 PFs per adapter.

Eight PF NPar mode enables four PFs per port on a dual-port 41000 Series Adapter, or two PFs per port on a quad-port 41000 Series Adapter, for a total of eight PFs per adapter.

On the quad port adapters, in NPar/NParEP mode, FCoE-Offload and iSCSI-Offload are controlled only on the second PF. This configuration is different from the dual port adapters, which have the FCoE-Offload on the second PF, and iSCSI-Offload on the third PF, of each physical port. However, both dual and quad port adapters support only one storage offload per physical port.

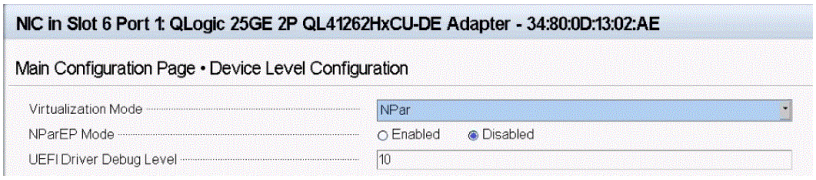

Figure 1-7. Device Level Configuration Page, Enabling NParEP Mode

7. Select **Enable** or **Disable** to NParEP mode, as appropriate.
8. Click the **Back** button at the bottom of the page.

9. On the Main Configuration Page (Figure 1-8), select **NIC Partitioning Configuration**.

   This selection is not visible until NPar mode has been enabled in Step 6.

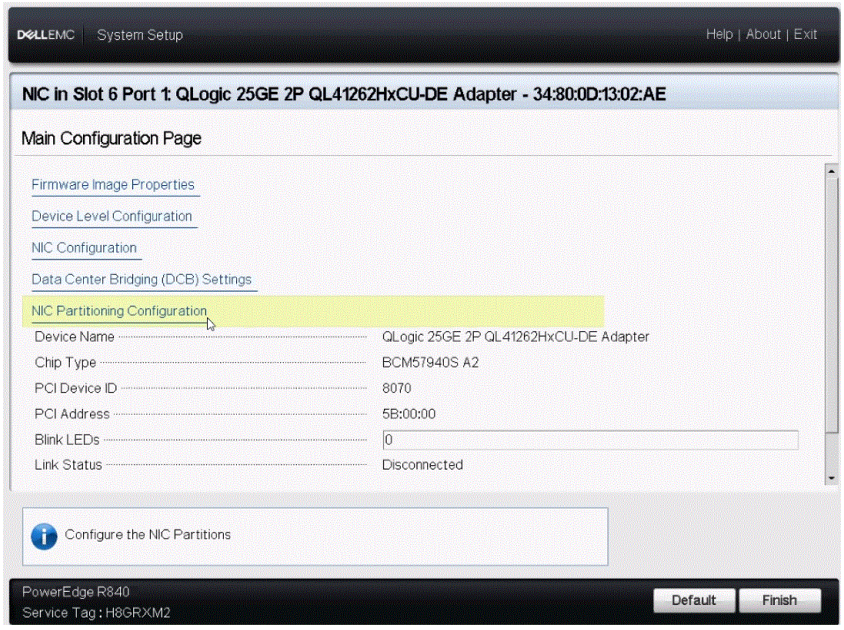

Figure 1-8. Adapter Port Main Configuration Page

10. Select **Partition 2 Configuration** to enable FCoE (Figure 1-9).

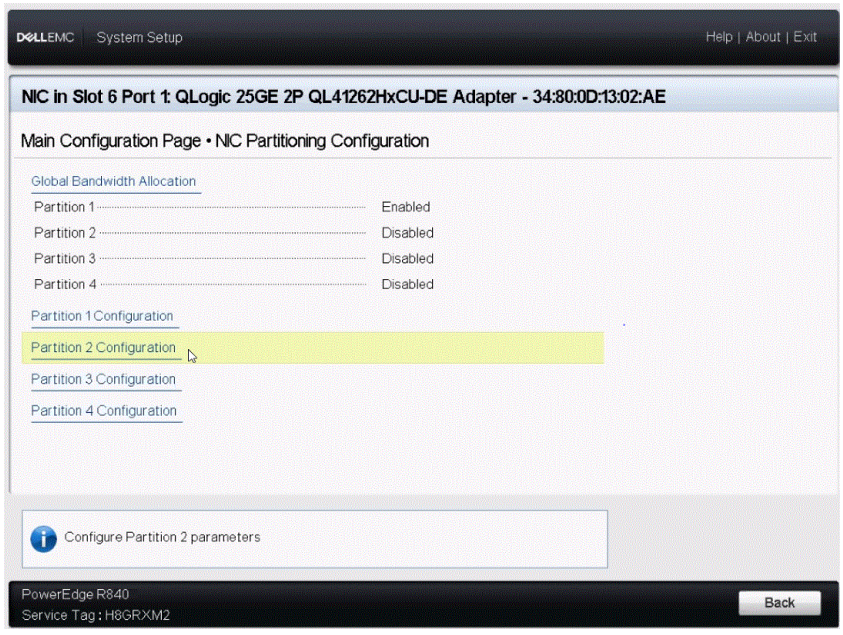

Figure 1-9. Adapter Port Main Configuration Page, NIC Partitioning Configuration

11. Click the **Enabled** button for FCoE Mode (Figure 1-10), which is disabled by default.

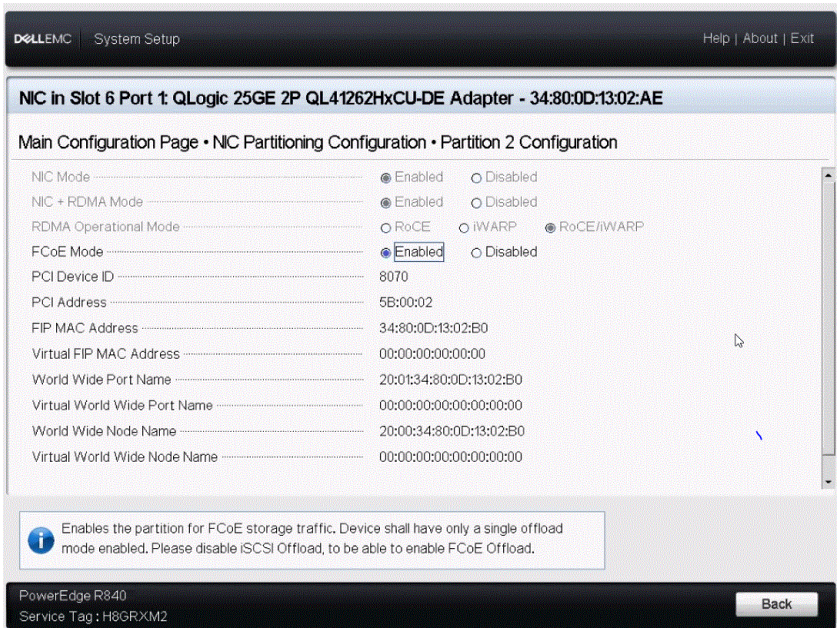

Figure 1-10. Adapter Port Main Configuration Page, Partition Configuration

When FCoE Mode is enabled, NIC Mode, NIC+RDMA Offload Mode, RDMA Operational Mode, and iSCSI-Offload Mode (quad port adapters) are disabled.

NOTE

All but the first partition of a physical port can be disabled (hidden from the OS) by disabling all of the modes on this respective page of the desired partition. Therefore, the number of ports visible to the OS partitions can be tailored from one to the maximum allowed. Additionally, only one personality is allowed per partition. The personalities are NIC/NIC+RDMA-Offload on any partition, FCoE-Offload on the second partition, or iSCSI-Offload on either the third partition (dual port adapters) or the second partition (quad port adapters) (see Figure 2-4).

12. Click **Back** to return to the NIC Partitioning Configuration Page, and then click **Back** again to return to the Main Configuration page (Figure 1-11).

    The FCoE Configuration option is now visible on the Main Configuration Page for that port.

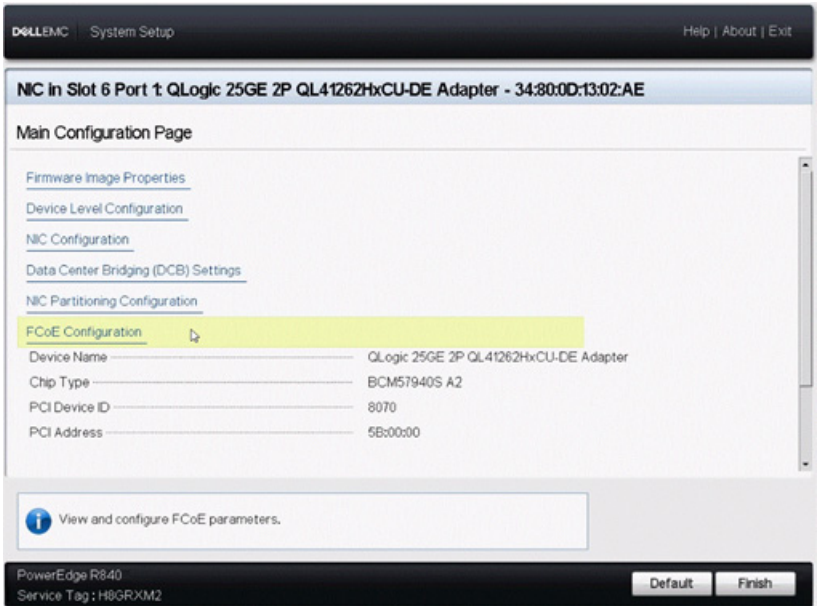

Figure 1-11. Main Configuration Page

13. If you want FCoE boot from LUN, click **FCoE Configuration** (Figure 1-11).

14. If you want FCoE remote boot from LUN, on the Main Configuration Page, select **FCoE Configuration**, and then configure the FCoE general parameters, boot LUNs, and VLAN ID (Figure 1-12). Click **Back** when you are done.

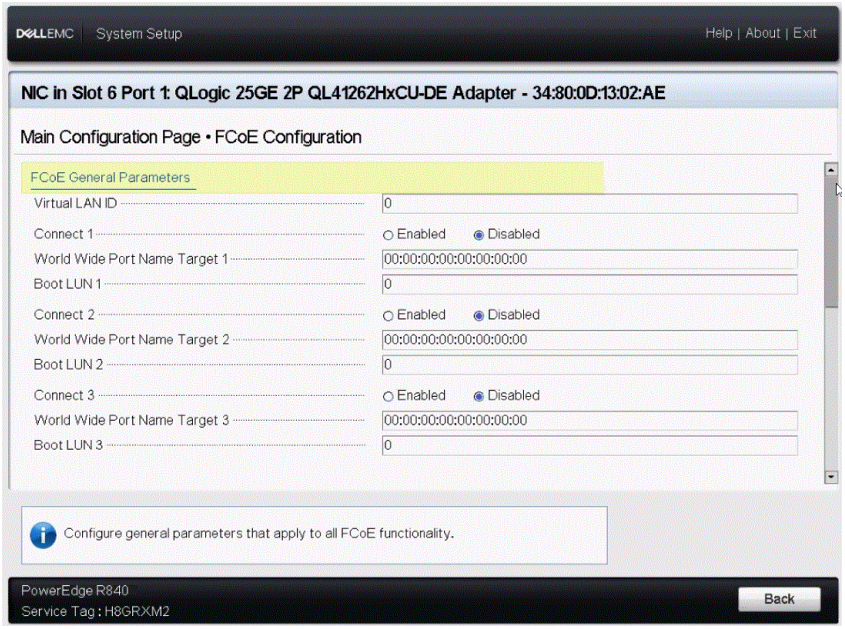

Figure 1-12. Main Configuration Page - FCoE Configuration

15. On the Main Configuration Page, click **Finish**. When the Saving Changes Warning box appears, click **Yes** (Figure 1-13).

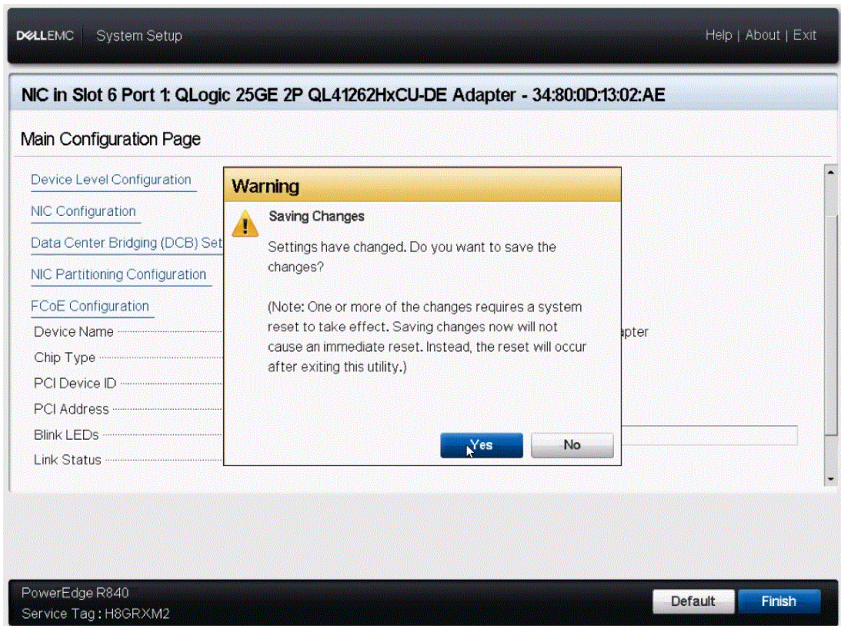

Figure 1-13. Saving Changes

16. When the Success box appears, click **OK** (Figure 1-14).

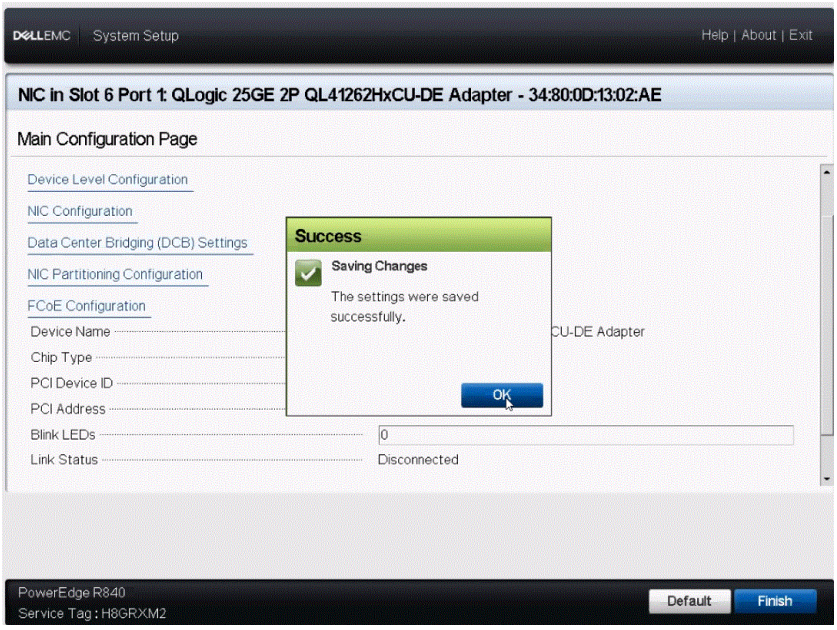

Figure 1-14. Changes Saved Successfully

17. Exit LIFECYCLE CONTROLLER and reboot for the changes to take effect (Figure 1-15).

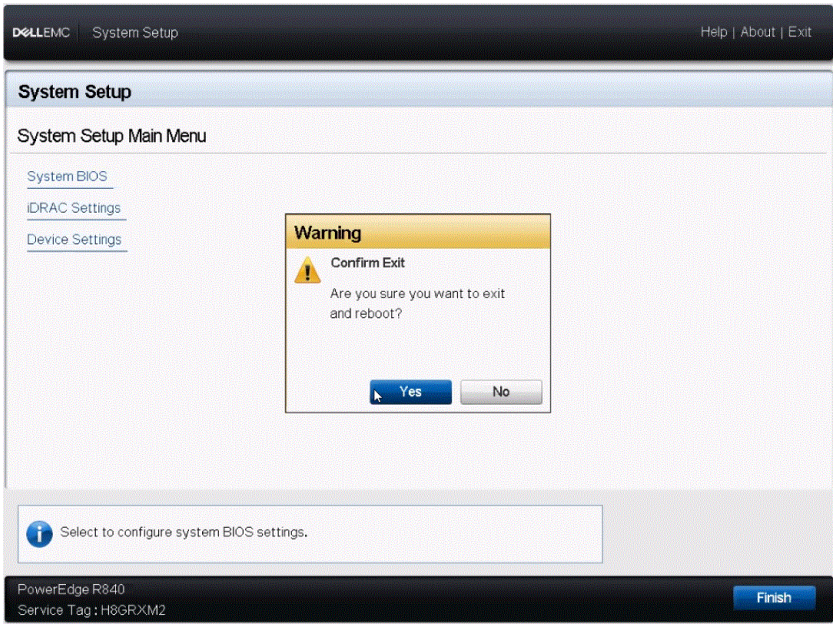

Figure 1-15. Exit and Reboot

2 Configuring iSCSI Storage Offloads

To configure 41000 Series Adapters for FCoE storage offloads:

1. Complete Steps 1 through 9 in "Configuring FCoE Storage Offloads" on page 1.
2. Do one of the following:
   - ❑ For dual port adapters, select **Partition 3 Configuration** to enable iSCSI (Figure 2-1).
   - ❑ For quad port adapters, select **Partition 2 Configuration** to enable iSCSI (Figure 2-1).

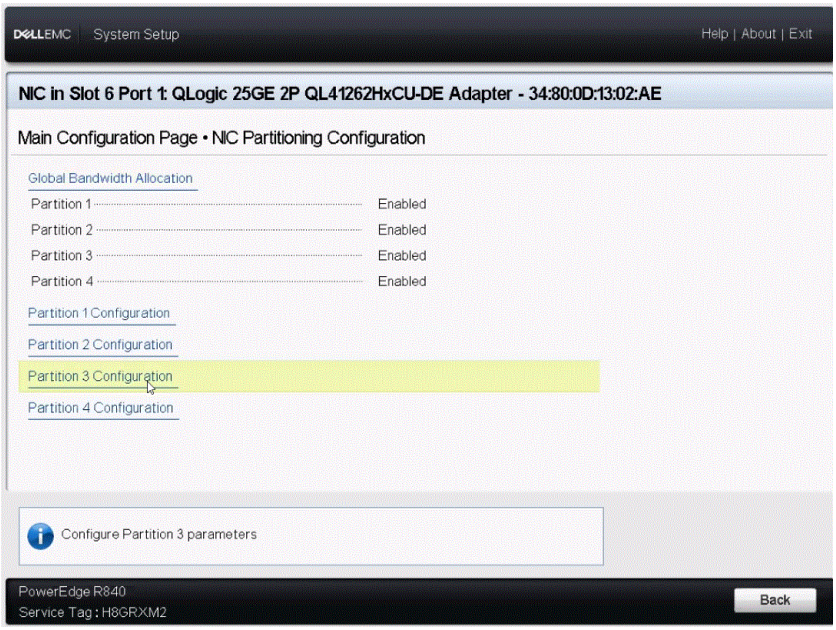

Figure 2-1. Adapter Port Main Configuration Page, NIC Partitioning Configuration

3. Click the **Enabled** button for iSCSI Offload Mode (Figure 2-2 for dual port adapters and Figure 2-3 for quad port adapters), which is disabled by default.

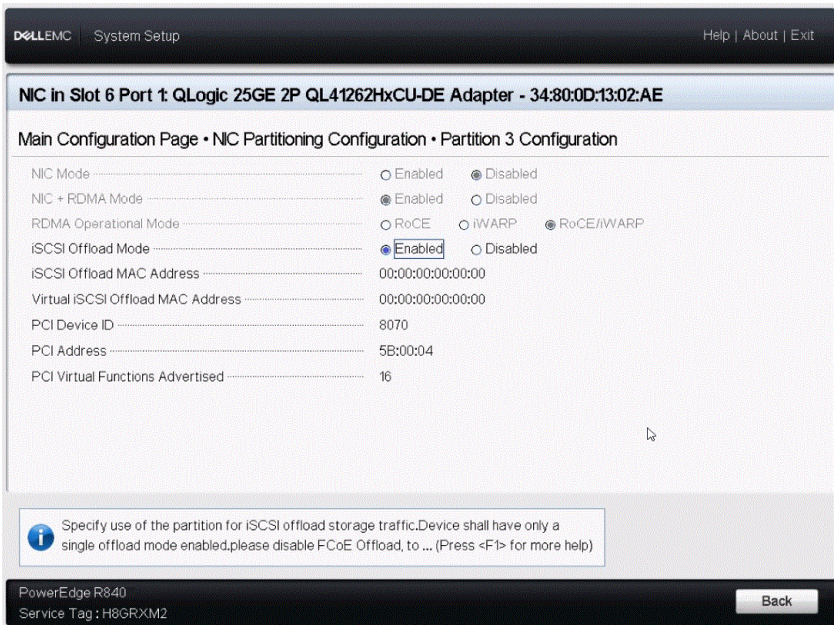

Figure 2-2. Dual Port Adapter Port Main Configuration Page, Partition Configuration

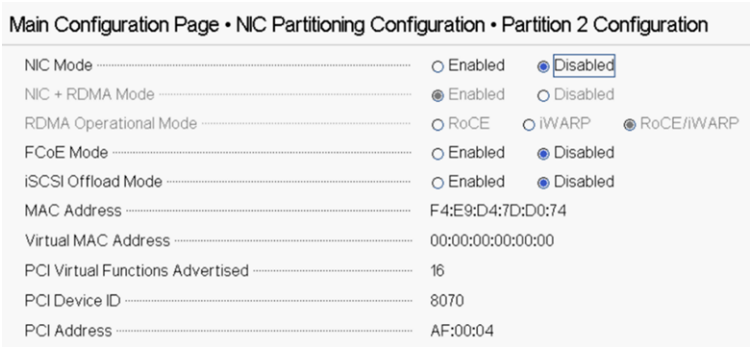

Figure 2-3. Quad Port Adapter Port Main Configuration Page, Partition Configuration

When iSCSI Offload Mode is enabled, NIC Mode, NIC+RDMA Offload Mode, RDMA Operational Mode, and FCoE Mode (quad port adapters) are disabled.

NOTE

All but the first partition of a physical port can be disabled (hidden from the OS) by disabling all of the modes on this respective page of the desired partition. Therefore, the number of ports visible to the OS partitions can be tailored from one to the maximum allowed. Additionally, only one personality is allowed per partition. The personalities are NIC/NIC+RDMA-Offload on any partition, FCoE-Offload on the second partition, or iSCSI-Offload on either the third partition (dual port adapters; Figure 2-2) or the second partition (quad port adapters; Figure 2-3).

4. Click **Back** to return to the NIC Partitioning Configuration Page, and then click **Back** again to return to the Main Configuration page (Figure 2-4).

   The iSCSI Configuration option is now visible in the Main Configuration Page for that port.

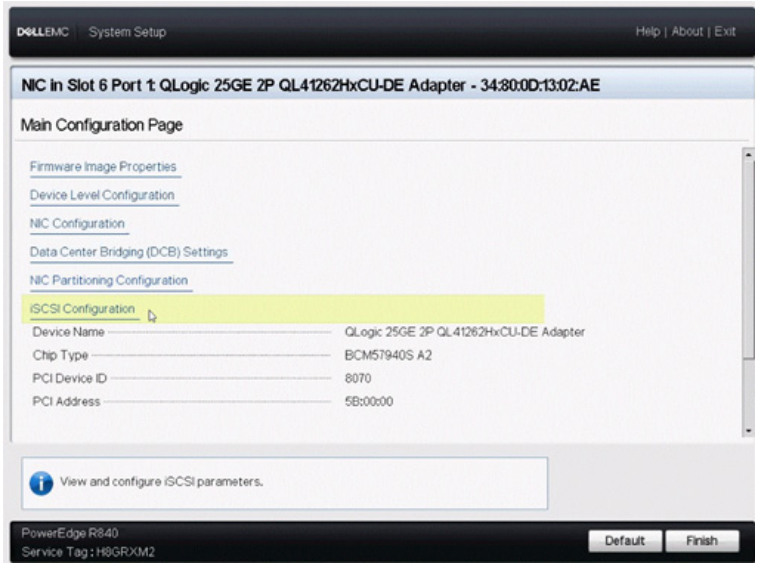

Figure 2-4. Main Configuration Page

5. If you want iSCSI remote boot, on the Main Configuration Page, select **iSCSI Configuration**, and then configure the iSCSI general parameters, initiator parameters, and target parameters (Figure 2-5). Click **Back** when you are done.

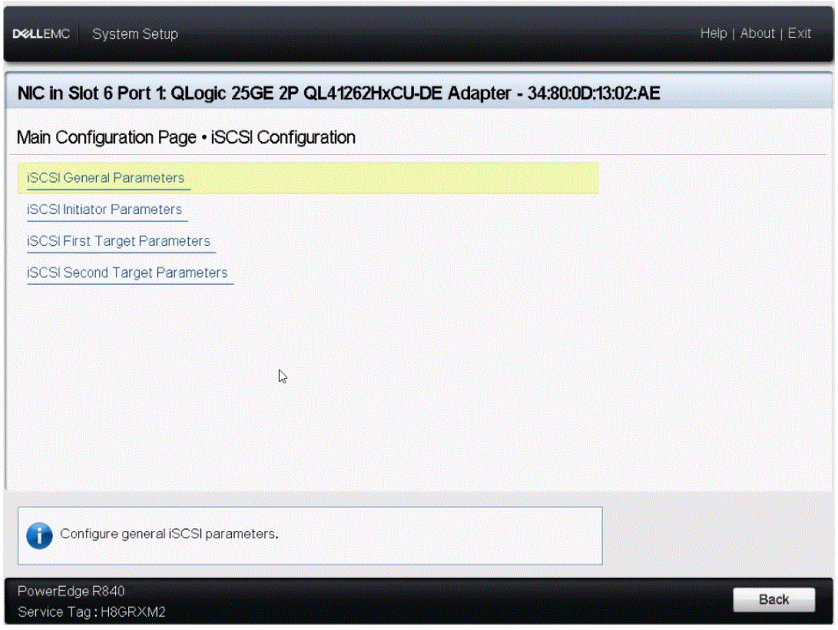

Figure 2-5. Main Configuration Page - iSCSI Configuration

6. On the Main Configuration Page, click **Finish**. When the Warning box appears, click **Yes** (Figure 2-6).

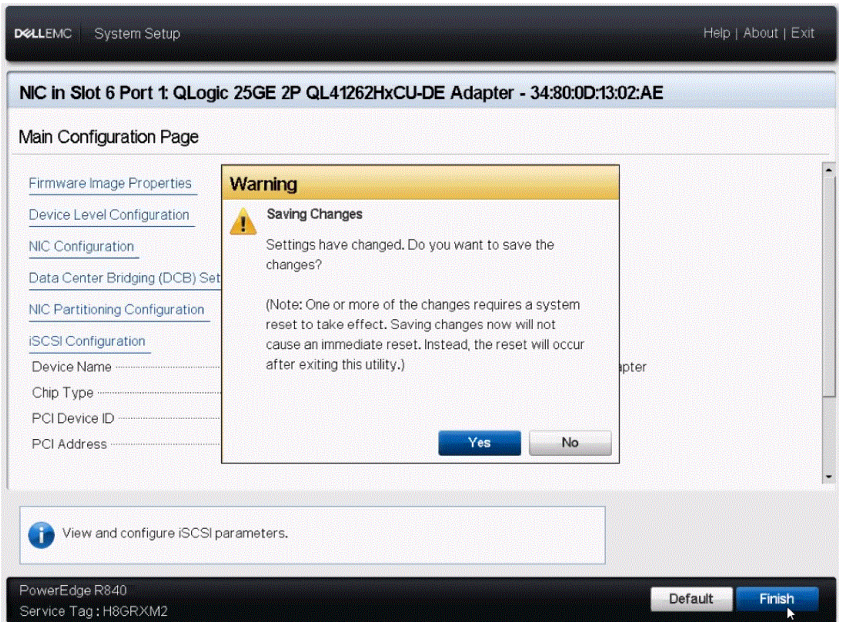

Figure 2-6. Saving Changes

7. When the Success box appears, click **OK** (Figure 2-7).

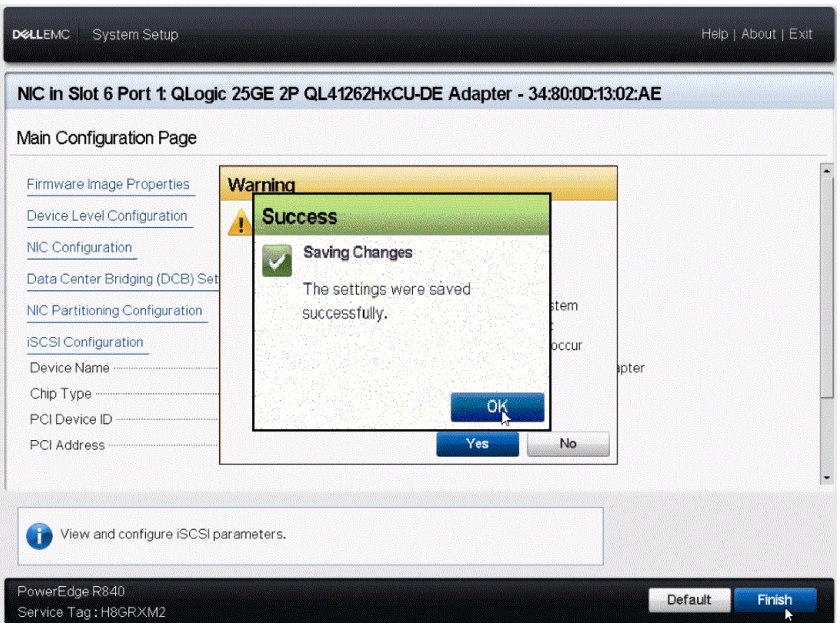

Figure 2-7. Changes Saved Successfully

8. Exit LIFECYCLE CONTROLLER and reboot for the changes to take effect (Figure 2-8).

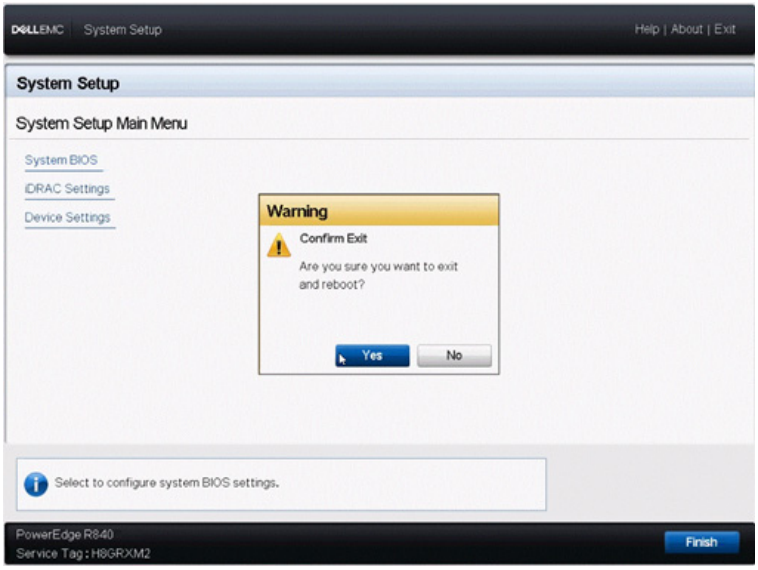

Figure 2-8. Exit and Reboot

Document Revision History
Rev. A, July 17, 2019
Rev B June 3, 2020
Changes
Added instructions for quad port adapters.