

# Seagate® Nytro™ XP6500 Flash Accelerator Cards Quick Install Guide



Read this guide before you install your card. To protect your warranty, note the following:

**CAUTION:** To operate this card, your server environment must meet the 550 LFM (linear feet/minute) minimum airflow requirement.

## Hardware Installation

To install the Seagate® Nytro™ XP6500 Flash Accelerator Card, follow these steps:

**1. Unpack the card and inspect it for damage.** Unpack the Nytro XP6500 card in a static-free environment, and follow anti-static grounding procedures. First, inspect the device for damage. If you notice any damage or if any component is missing, contact Seagate or your reseller support representative.

**CAUTION:** Back up your data before changing your system configuration.

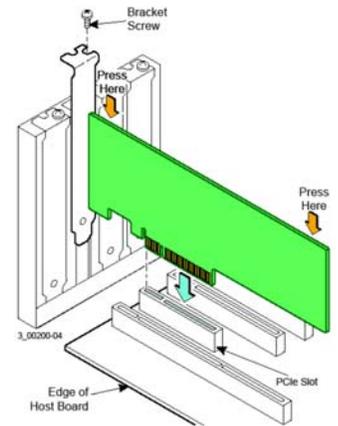
**2. Prepare the computer.** Turn off the computer, and disconnect the power cord from the power supply. Remove the cover from the chassis.

**WARNING:** To avoid electrical shock, disconnect the computer from the main power and from any networks before you install the card.

**3. Insert the Nytro XP6500 card in an available PCI Express® (PCIe®) slot.** Locate an empty PCIe slot. Make sure the PCIe slot provides at least 41.9 W of power. Without sufficient power the Nytro XP6500 card may be damaged or run at less than optimal performance. Remove the blank bracket panel on the server chassis that aligns with the empty PCIe slot. Save the bracket screw, if applicable. Align the card to the PCIe slot. Press down gently, but firmly, to properly seat the card in the slot. The following figure shows how to insert the card in a PCIe slot.

**4. Secure the bracket to the system's chassis.** Install the bracket screw, if applicable, or engage the system retention mechanism to secure the card to the system's chassis.

**5. Replace the cover, the power cord, and power up the system.** Replace the system's cover, and reconnect the power cord and any network cables. Turn on the power.



## Windows Driver Installation

Download the latest Windows Server® 2012 R2 and Windows Server 2008 R2 drivers from the Seagate website. To install the appropriate device driver, follow these steps:

1. Go to this website: <http://www.seagate.com/products/solid-state-flash-storage/accelerator-cards/>
2. Click on **Nytro XP6500 Flash Accelerator Card**.
3. Click **Support**, and click the driver you need.
4. Open the Windows Driver Configuration Utility file and follow the instructions to install the driver.
5. Reboot the system.

## Linux Driver Installation

Seagate provides Linux drivers as binary and as source code.

### Download the Latest Linux® Drivers from the Seagate Website

1. Go to the following Seagate website:  
<http://www.seagate.com/products/solid-state-flash-storage/accelerator-cards/>
2. Click on **Nytro XP6500 Flash Accelerator Card**.
3. Click **Support**. Here you can download product documentation, firmware, and host drivers for all supported operating systems.
4. To download Linux drivers, click on the Linux operating system from the list under the Linux/Unix header.

**Example:** To download RHEL 7.0 drivers, click Nytro Driver RHEL7 (version number).

5. Read the release notes and click **I ACCEPT** and **DOWNLOAD** to download the drivers.
6. Download the driver files and extract the zipped files. The table below lists the unzipped files:

- **Installable rpm for a specific Linux operating system:** kmod-nytrolin-<version>\_<os>-<tag>.x86\_64.rpm
- **For Oracle Linux UEK kernels, use the rpm with \_uek tag:** kmod-nytrolin-<version>\_oel6.<revision>\_uek-1.x86\_64.rpm
- **Nytrolin driver sources compatible on the distro's kernel:** nytrolin-<version>\_<os>-<tag>.src.rpm -
- **Driver Update Disk:** nytrolin-<version>\_<os>-<tag>.x86\_64.iso.gz

7. After unzipping, install the driver with this command:

```
# rpm -ivh kmod-nytrolin-<version>_rhel7.1-1.x86_64.rpm
```

8. To upgrade a driver, run this command:

```
# rpm -Uvh kmod-nytrolin-<version>_rhel7.1-1.x86_64.rpm
```

9. Reboot the system.

## Ultra Low Latency Driver (ULLD) for Linux

In Linux, the Nytro XP6500 uses an Ultra Low latency Driver (ULLD) which is optimized for achieving ultra-low latency and scaling I/OPs. This ULLD exposes a new block device interface (`/dev/nytro-sdX`) in addition to the traditional SCSI block device (`/dev/sdX`).

Both block devices represent the same underlying target, so there is a one-to-one correspondence for both the devices and for partitions created on the devices, if any. You must use the ULLD device (`/dev/nytro-sdX`) for applications and the traditional SCSI block device (`/dev/sdX`) for the Linux operating system installation on the Nytro XP6500 card. You must use only one interface at a time.

## Creating a Driver Update Disk (DUD) on a USB Drive

1. Using the extracted files from the zip file from **Download the Latest Linux® Drivers from the Seagate Website**, extract the driver iso from DUD file using the following command:  

```
# gunzip nytrolin-<version>_<os>-<tag>.x86_64.iso.gz
```
2. Transfer the extracted iso file to a USB drive. In the above example, the iso file is: `nytrolin-06.703.11.261_rhel7.0-1.x86_64.iso`

## Installing a Linux Operating System on a Nytro XP6500 Virtual Disk

1. Boot the server with the operating system installation CD or DVD. Refer to your system documentation, if needed.
2. Enter the following boot option to load the driver disk during installation: `linux dd`
3. Press **Enter** to continue the install.
4. When prompted, insert the USB containing the DUD created in **Creating a Driver Update Disk (DUD) on a USB Drive**.  
The utility locates and loads the driver for your controller.  
The ULLD for Nytro XP6500 creates two interfaces to the same block device:
  - ULLD block device (`/dev/nytro-sdX`)
  - SCSI block device (`/dev/sdX`)
5. At the **Device Selection Screen**, select the SCSI device named SEAGATE XP6500.
6. Partition the boot device as shown in the figures below. You can create additional partitions as needed.
7. Complete the operating system installation and reboot the server.

## Installing Oracle Linux 6 on a Nytro XP6500 Disk

You must perform the following additional steps for Oracle Linux 6 installation on the Nytro XP6500 Virtual Disk.

1. Reboot the server into a Red Hat-compatible kernel (`kernel-2.6.32-xxx.el6`).
2. Install the corresponding UEK rpm of the nytrolin driver.  
**Example:** Oracle Linux 6.5, install `kmod-nytrolin-<version>_oel6.5_uek-1.x86_64.rpm`
3. Reboot the server into the UEK kernel.

## VMware Driver Installation

### VMware ESXi5.1

Download the VMware drivers from the Seagate website. To install the appropriate device driver, follow these steps:

1. Go to this website: <http://www.seagate.com/products/solid-state-flash-storage/accelerator-cards/>
2. Click on **Nytro XP6500 Flash Accelerator Card**.
3. Click **Support**, and click the driver you need.
4. Download the driver files and unzip. Install the drivers.
5. Reboot the system.

You have now completed the hardware and software installation for your Nytro XP6500 card!

## TECHNICAL SUPPORT

For assistance installing, configuring, or using the Seagate Nytro XP6500 card, contact Seagate Technical Support:

**Submit a support ticket here:** <http://support2.seagate.com/>

**Phone:** 1-800-732-4283 (North America), +00-800-4732-4283 (International) **Website:** [www.seagate.com](http://www.seagate.com)