AMD RAID Quick Start Guide for Windows Operating Systems

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Advanced Micro Devices

Contents

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Revision History

Date	Revision	Description
July 2022	1.10	• Added references to AMD RAID User Guide, order# 53987. • Updated Table 1, System Requirements. • Updated Chapter 3, "Pre-Installation Steps." • Consolidated Section 4.1.1 for creating a virtual bootable disk. • Updated Chapter 5, "Install AMD-RAID Drivers" with new notes, NVME_DID/NVME_CC support table, and updated instructions. • Updated Chapter 6 section headings. • Added Chapter 7, "RAID Software Update."
November 2021	1.05	First Public release. • Updated system requirements in Table 1. • In Chapter 4, "Create the Bootable Virtual Disk," added recommendation not to use SMR hard drives with AMD RAID systems.
August 2020	1.04	Remove Web GUI to just GUI. Replaced 6.1 and 6.12 with 4.4.2-4.4.4 from the RAIDXpert2 UG. In 6.1.3 removed list under step 4, removed step 5 Added new section 3.5.
August 2019	1.03	Second public release. Updated steps in Chapter 3. Updated title in Chapters 4. Updated 6.1 and 6.1.1.
April 2018	1.02	First public release.
March 2018	1.01	2nd NDA release. Updated Supported Configuration and minor edits.
February 2018	1.00	Initial NDA release.

Chapter 1 General Information

1.1 Purpose

This Quick Start Guide is designed to assist with system setup in **RAID Mode**, by performing these general procedures:

- Copy AMD RAID device drivers to removable storage media for Microsoft® Windows x64.
- Load AMD RAID device drivers on a system during Windows operating system installation.
- Install the AMD-RAIDXpert2 (GUI) for RAID array management.

1.2 System Requirements

Table 1. System Requirements

Component	Requirements
Memory (RAM)	Minimum: 16 GB total for AMD Ryzen® processors and AMD Ryzen® desktop processors. Recommended: 32 GB total for AMD Ryzen® processors and AMD Ryzen® desktop processors.
Hard Disk, SSD	Total 14 devices Support includes ATAPI DVD, SATA drives, SATA SSD drives, M.2 SATA drives, NVMe M.2 devices, NVMe HHHL devices or NVMe U.2 devices. Number of disks depends on number, type, and capacity of arrays to be created.
Max number of NVMe devices	10
Max Controller Count	11: Two controllers with device ID 0x7917, one controller with device ID 0x43BD and NVMe (one controller per NVMe) 11: One controller with device ID 0x7916, one controller with device ID 0x43BD and NVMe (one controller per NVMe) Maximum for desktop/mobile/X399 systems with driver 9.3.0 and 9.3.1: • 8 arrays for deletion • 8 arrays for creation • 11 controllers (9 NVMe + 2 AHCI) • 14 devices (10 NVMe + 4 SATA) • 8 devices per array ***Notes:*** *1. Desktop/Mobile/x399 systems with driver 9.3.0 support S3 and S4.* *2. Desktop/Mobile systems with driver 9.3.1 support S0i3 and S4.*

Table 1. System Requirements (continued)

Component	Requirements		
Supported AMD Processors	AMD Ryzen™ Threadripper (1st/2nd/3rd Gen) AMD Ryzen™ Desktop (1st/2nd/3rd/4th Gen) AMD Ryzen™ Desktop with Radeon™ Vega Graphics AMD Ryzen™ Mobile with Radeon™ Graphics AMD A-Series (7th Gen)		
Supported AMD Chipsets	AMD A520 AMD A320 AMD TRX40 AMD WRX80	AMD B550 AMD B450 AMD B350	AMD X570 AMD X470 AMD X399 AMD X370

Table 2. Information about Supported Configuration by Installer

SoC SATA Mode	Promontory SATA Mode	NVMe RAID Mode	SATA RAID Support	NVMe RAID Support
AHCI / Auto	AHCI / Auto	Disabled	No	No
RAID	RAID	Enabled	Yes	Yes

1.3 System Setup Overview

IMPORTANT: *To protect data, perform a backup before installing new hardware or software. If adding NVMe as RAID to existing RAID arrays, update existing RAID controller drivers to the latest version and reboot. After, connect NVMe and install RAID driver on NVMe devices or download driver from the vendor support page.*

System setup generally includes the following steps:

1. Copy the **AMD-RAID** drivers to a removable storage medium. *(Refer to Section 2.1)*
2. Power-on the system.
3. To enable RAID Mode on the system, access the platform BIOS window for the system. Configure the BIOS settings as outlined in Section 3.1.
   *Note: This enables the loading of the **AMD-RAID** UEFI driver.*
4. Initialize the disks using RAIDXpert2 Configuration Utility (HII) or UEFI shell.
5. Create arrays using HII or UEFI shell. (Refer to Section 4.1)
6. Load the **AMD-RAID** drivers during operating system installation. *(Refer to Chapter 5)*
7. Complete the rest of the operating system installation.
8. Install the OS RAID Management GUI (AMD RAIDXpert2). *(Refer to Chapter 6)*

Note: *Native AHCI installation does not boot into OS after BIOS setting changed to RAID mode.*

Chapter 2 Bootable Arrays

Note: *Before beginning, have the Windows® operating system installation media available and ready to install.*

Note*: Removable storage (USB flash drive, formatted as FAT32) is required for copying AMD-RAID drivers.*

2.1 Copying AMD-RAID Drivers to Removable Storage

A removable storage medium is needed to copy **AMD RAID** drivers required for OS installation onto an **AMD-RAID** bootable array.

1. Power-on the system.
2. Locate and use a system that is running a Windows operating system and has a CD DVD drive or an I/O port for removable storage (USB flash drive, formatted as FAT32).
3. Insert the storage medium into the system:

   Note: *For Windows, connect removable storage (USB flash drive, formatted as FAT32) to a USB I/O port, or insert a blank CD-DVD disk into the applicable drive.*

4. Go to a browser and access the web site of your system supplier or motherboard vendor.
5. Download the AMD-RAID drivers from the web site to the appropriate removable storage medium.
6. Proceed to Windows Install and load AMD-RAID drivers during a Windows OS installation.

Chapter 3 Pre-Installation Steps

3.1 Enable RAID for AMD X570 Chipset-Compatible AMD Processors

Note: *The following steps to configure a system to RAID are specific to* ***AMD NDA BIOS*** *based on* ***AMI BIOS****. The steps for other BIOS vendors are different.*

Follow these steps before installation:

1. Power-on the system.
2. Press **ESC** to enter the System BIOS setup page.
3. In the BIOS setup:
   a. Select the **Advanced** tab.
   b. Select **AMD CBS**, then press **Enter.**
   c. Select **FCH Common Options**, then press **Enter.**
   d. Select **SATA Configuration Options**, then press **Enter.**
   e. Set **SATA Enable** to **Enabled**, then press **Enter.**
   f. Set **SATA Mode** to **RAID**, then press **Enter.**
4. In the BIOS setup:
   a. Select the **Advanced** tab.
   b. Select **AMD CBS**, then press **Enter.**
   c. Select **Chipset Common Options**, then press **Enter.**
   d. Select **Chipset SATA Configuration Options**, then press **Enter.**
   e. Set **Chipset SATA0 Enable to Enabled**, then press **Enter.**
   f. Set **Chipset SATA1 Enable to Enabled**, then press **Enter.**
   g. Set **Chipset SATA Mode to RAID**, then press **Enter.**
5. In the **BIOS** setup:
   a. Select the **Advanced** tab.
   b. Select **AMD PBS** tab, then press **Enter.**
   c. Set the **NVMe RAID Mode** to **Enabled,** then press **Enter.**
6. Save (**F4**) the settings and restart the system.

3.2 Enable RAID for Older AMD Socket AM4-Compatible Processors

Note: *The following steps to configure a system to RAID are specific to* ***AMD NDA BIOS*** *based on* ***AMI BIOS****. The steps for other BIOS vendors are different.*

Follow these steps before installation:

1. Power-on the system.
2. Press **ESC** to enter the **System BIOS** setup page.
3. In the BIOS setup:
   a. Select the **Advanced** tab.
   b. Select **AMD-CBS,** then press **Enter.**
   c. Select **FCH Common Options**, then press **Enter.**
   d. Select **SATA Configuration Options**, then press **Enter.**
   e. Set **SATA Enable to Enabled**, then press **Enter.**
   f. Set **SATA Mode** to **RAID**, then press **Enter.**
4. In the BIOS setup:
   a. Select the **Advanced** tab.
   b. Select **AMD-CBS,** then press **Enter.**
   c. Set **SATA Mode** to **RAID**, then press **Enter.**
5. In the BIOS setup:
   a. Select the **Advanced** tab.
   b. Select **AMD-PBS**, then press **Enter.**
   c. Set **NVMe RAID Mode** to **Enabled**, then press **Enter.**
6. Save (**F4**) the settings and restart the system.

3.3 Enable RAID for AMD SP3-Series Chipsets

Note: *The following steps to configure a system to RAID are specific to* ***AMD NDA BIOS*** *based on* ***AMI BIOS****. The steps for other BIOS vendors are different.*

Follow these steps before installation:

1. Power-on the system.
2. Press **Delete** or **ESC** to enter the **System BIOS** setup page.
3. In the BIOS setup:
   a. Select the **Advanced** tab, then press **Enter**.
   b. Select the **AMD PBS** tab, then press **Enter**.
   c. Set **NVMe RAID Mode** to **Enabled**.
4. In the BIOS setup:
   a. Select the **Advanced** tab, then press **Enter**.

   b. Select the **AMD CBS** tab, then press **Enter**.
   c. Select **FCH Common Options**, then press **Enter**.
   d. Select **SATA Configuration Options**, then press **Enter**.
   e. Set **SATA Controller** to **Enabled**.
   f. Set **SATA Mode** to **RAID**.
5. In the BIOS setup:
   a. Select the **Advanced** tab, then press **Enter**.
   b. Select **Promontory Common Options**, then press **Enter**.
   c. Select **PT SATA Configuration Options**, then press **Enter**.
   d. Set **PT SATA Port Enable** to **Enabled**.
6. In the BIOS setup:
   a. Select the **Advanced** tab, then press **Enter**.
   b. Select **Promontory Common Options**, then press **Enter**.
   c. Select **PT SATA Configuration Options**, then press **Enter**.
   d. Set **PT SATA Mode** to **RAID**.
7. Save (**F4**) the setting and restart the system.

3.4 Enable RAID for AMD Socket AM4-Compatible Processors

Note: *The following steps to configure a system to RAID are specific to **AMD NDA BIOS** based on **Insyde BIOS**. The steps for other BIOS vendors are different.*

Follow these steps before installation:

1. Power on the system.
2. Press **ESC** to enter the **System BIOS** setup page.
3. Select **Setup Utility**, then press **Enter.**
4. In the BIOS setup:
   a. Select the **Advanced** tab.
   b. Select **IDE Configuration**, then press **Enter.**
   c. Set **SATA Configure As** to **RAID**, then press **Enter.**
   d. Set Force **RAID Mode** to **Enabled**, then press **Enter.**
5. In the BIOS setup:
   a. Select the **Boot** tab.
   b. Set **Boot Type** to **Dual** or **UEFI Boot Type**, then press **Enter.**
   c. Set **EFI Device First** to **Enable**, then press **Enter.**
6. In the BIOS setup:
   a. Select the **AMD-PBS** tab.
   b. Set **NVMe RAID Mode** to **Enabled**, then press **Enter.**

7. In the BIOS setup:
   a. Select the AMD-CBS tab.
   b. Select **SATA Configuration Options**, then press **Enter.**
   c. Set **SATA Controller** to **Enabled**, then press **Enter.**
   d. Set **SATA Mode** to **RAID**, then press **Enter.**
8. In the BIOS setup:
   a. Select the **AMD-CBS** tab.
   b. Select **Promontory Common Options**, then press **Enter.**
   c. Select **PT SATA Configuration Options**, then press **Enter.**
   d. Set **PT SATA Port Enable to Enabled**, then press **Enter.**
   e. Set **PT SATA Mode** to **RAID**, then press **Enter.**
9. Save (**F10**) the settings, then restart the system.

3.5 Enable RAID for FP6 Processors

Note: *RAID configuration support is restricted to Raid0 level only. The steps to configure a system to RAID mentioned here are specific to* ***AMD NDA BIOS*** *based on* ***Insyde BIOS****.*

Follow these steps before installation:

1. Power-on the system.
2. Press **ESC** to enter the System BIOS setup page.
3. In the **BIOS** setup:
   a. Select **AMD PBS** tab, then press **Enter.**
   b. Set the **NVMe RAID Mode** to **Enabled,** then press **Enter.**
4. Save (**F10**) the settings and restart the system.

Chapter 4 Create the Bootable Virtual Disk

You can create a bootable virtual disk using the RAIDXpert2 Configuration Utility (HII mode) or by command line (UEFI mode).

Note: *The steps to configure arrays in RAID mode mentioned here are specific to* ***AMD NDA BIOS*** *based on* ***Insyde BIOS****.*

Note: *AMD recommends not using SMR hard drives with AMD RAID systems because it can cause poor performance or failures. SMR drives are not suitable for workloads that require many random writes (such as boot drive). If used with RAID, the multiple SMR drives and background RAID tasks (such as creates and rebuilds) compound any issues or problems.*

4.1 RAIDXpert2 Configuration Utility (HII Mode) for AMD Ryzen™ SP3-Series, Desktop, and Mobile Processors

Note: *For details on HII, refer to the AMD RAID User Guide, order# 53987.*

4.1.1 Use Configuration Utility (HII) to Create a Bootable Virtual Disk

1. Power-on the system.
   a. Press **ESC/DEL** or similar to access the **Platform BIOS.**
   b. On BIOS based on Insyde BIOS, select **Device Management**, then press **Enter**.
      On BIOS based on AMI BIOS, select **Advanced**.
   c. Select **RAIDXpert2 Configuration Utility**, then press **Enter.**
2. At the RAIDXpert2 Configuration Utility Main Menu, use the **arrow keys** to select **Array Management**, then press **Enter.**
3. Use the **arrow keys** to select **Create Array**, then press **Enter.**
4. Select **RAID Level**, then press **Enter.**
5. From the **Select RAID Level** drop-down menu, use the **arrow keys** to select the desired RAID level, then press **Enter.**
6. Select the disks with which to create the array:
   a. Use the **arrow keys** to select **Select Physical Disks**, then press **Enter.**
   b. To select individual disks, highlight a disk with the arrow keys and press the **Space Bar** or **Enter**. Any number of disks may be selected using this method.
   c. To select all disks, use the **arrow keys** to select **Check All**, then press **Enter.**

d. Use the **arrow keys** to select **Apply Changes,** then press **Enter.**

7. Select an array size by doing the following:
   a. Use the **arrow keys** to select **Array Size**, then press **Enter.**
   b. The array size defaults to the maximum size allowed by the number of physical disks and RAID level selected. If you want a smaller array size, enter the desired value.
   c. Press **Enter** when the desired size is reached.
8. Use the arrow keys to select **Cache Tag Size.**
   a. Any array with only HDD/SSD has the default CTS of 64 k.
   b. Any array with only NVMe or NVMe with HDD/SSD has the default CTS of 256 k.
9. Use the arrow keys to select Read Cache Policy, then press Enter.
   a. Select the desired **Read Cache Policy**, then press **Enter.**
10. Use the arrow keys to select Write Cache Policy, then press Enter.
    a. Select the desired **Write Cache Policy**, then press **Enter.**
11. Use the **arrow keys** to select **Create Array**, then press **Enter.**
12. After completion of the array creation, select **Save** and reboot the BIOS.

4.2 UEFI Mode

Note: *For details on UEFI, refer to the AMD RAID User Guide, order# 53987.*

4.2.1 Use the Command Line to Create a Bootable Virtual Disk

1. At the system **Power-On Self-Test (POST)** screen, press **F7 / F12 / ESC** (or similar) to access the **UEFI Configuration Utility** (aka UEFI Boot Manager).
2. Boot to the **EFI Internal** shell.
   Note: *Obtain the rcadm.efi file from your system supplier or motherboard vendor and copy it onto a UEFI flash drive, in the root directory.*
3. Enter **fsx:** where x is the number of the UEFI flash drive.
4. Use **rcadm** to create the desired Boot Virtual Disk.

   Examples:
   Note*: the user may have to press the page up key to see more of the information.*
   a. Query the devices connected in the system: (Output displays the UEFI Version, physical devices and arrays):

      ```
      rcadm.efi –M -qa
      ```

   b. Create a RAID1 on disks 2, 3 with a max size available and enables Read/Write Cache – default cache setting:

      ```
      rcadm.efi –C –r1 –d 2 3
      ```

c. Create a RAID0 on disks 1, 2 with a size of 100 Gbs and enables Read Cache:
`rcadm.efi -C -r0 -d 1 2 -s 100000 -ca r`

d. Create a RAID10 on disks 1, 2, 3, 4 with a size of 125 Gbs and enables Write Cache:
`rcadm.efi -C -r10 -d 1 2 3 4 -s 125000 -ca w`

Chapter 5 Install AMD-RAID Drivers

Note: *The windows described in this guide are typical. Path names and text can vary, depending on user-designated selections and other parameters.*

Note*: NVMe devices are listed in the "**Where do you want to install Windows?"**, do not delete any of the partitions or format the NVMe devices. Doing so deletes the **AMD-RAID** metadata and the desired RAID level. After the **AMD-RAID** drivers (rcbottom and rcraid) are loaded, a valid **AMD- RAID** Virtual Disk displays.*

Note: *AMD recommends performing a reset/reboot of the system whenever the user is adding or removing a SATA M.2 SSD or NVMe device(s):*

- In the OS, issue a reset/reboot.
- Wait for the AMD BIOS screen to display, press ESC to enter the BIOS.
- Power off the system.
- Install or remove the necessary device(s).
- Power on the system and allow the OS to boot properly.

Note: *When using the* `drvload` *command, rcbottom isn't being propagated to the install image. (C:\Windows\System32\drivers)*
From MS documentation, "Runtime driver load via Drvload.exe – Loads driver into memory and starts the device. Doesn't propagate the driver to the installed OS."
https://docs.microsoft.com/en-US/troubleshoot/windows-client/deployment/limitations-dollar-sign-winpedriver-dollar-sign

To install AMD RAID drivers during the Windows® OS installation:

1. Power-on the system.
2. Create a bootable array (see Chapter 4).
3. Insert the Microsoft Windows operating system CD-ROM or DVD into the drive.
4. Boot the system; allow access to Microsoft Windows operating system CD or DVD.
5. In the **Windows setup** window:
   a. Select the **language**, **time,** and **keyboard** options.
   b. Select **Next.**
   c. Select **Install Now** or similar.
   d. If prompted, select the desired operating system.
   e. Select **Next.**

Table 3. RAID Driver NVME_DID/NVME_CC Support for Related AMD Processors

Socket	Processor	NVMe_CC/ NVMe_DID (0x1022/0xB000)
AM4	AMD 7th Generation A Series Desktop Processors	NVME_CC
AM4	AMD Ryzen™ 1000 Series Desktop Processors	NVME_CC
AM4	AMD Ryzen™ 2000 Series Desktop Processors	NVME_CC
AM4	AMD Ryzen™ 2000 Series Desktop Processors with Radeon™ Graphics	NVME_CC
AM4	AMD Ryzen™ 3000 Series Desktop Processors with Radeon™ Graphics	NVMe_DID
AM4	AMD Ryzen™ 3000 Series Desktop Processors	NVME_CC
AM4	AMD Ryzen™ 4000 Series Desktop Processors with Radeon™ Graphics	NVMe_DID
AM4	AMD Ryzen™ 5000 Series Desktop Processors with Radeon™ Graphics	NVMe_DID
AM4	AMD Ryzen™ 5000 Series Desktop Processors	NVME_CC
FP6	AMD Ryzen™ 4000 Series Mobile Processors with Radeon™ Graphics	NVMe_DID
FP6	AMD Ryzen™ 5000 Series Mobile Processors with Radeon™ Graphics	NVMe_DID
TR4	1st and 2nd Gen AMD Ryzen™ Threadripper™ Processors	NVME_CC
TRX4	AMD Ryzen™ Threadripper™ Processors	NVMe_DID
WRX8	AMD Ryzen™ Threadripper™ PRO Processors	NVMe_DID

f. Depending on the installation window observed, choose one of the methods below to load **rcbottom.inf**.

Option 1

1. Insert the storage medium with the **AMD-RAID** drivers into the USB port or applicable system drive.
2. Select **Browse.**
3. Navigate to the directory containing the saved **AMD-RAID** drivers.
4. Select **OK.**

***Note**: If the installation has multiple controllers, there will be two or more rcbottom.inf files listed. See Option 2 below.*

5. Select the first **AMD-RAID Bottom Device** (**rcbottom.inf**) driver in the list.
6. Select **Next.**

Option 2

If the installation has multiple controllers, two or more rcbottom.inf files are listed. Only one installation of rcbottom.inf is recommended.

1. Follow onscreen prompt until "**Where to install Windows?**" window observed:
2. Select **Load driver**.
3. Click **Browse**.
4. Navigate to the directory containing the saved AMD-RAID drivers.
5. Click **OK**.
6. Select the first **rcbottom.inf** driver in the list.
7. Click **Next**.

6. At the Load Driver Warning message, click **OK.**
7. At the Select the Driver to install window:
   a. Select **Browse.**
   b. Navigate to the directory containing the saved **AMD-RAID** drivers.
   c. Select **OK.**
   d. Select the **AMD-RAID Controller (rcraid.inf)** driver in the list.
   e. Select **Next.**
   f. Select (Check Mark) **I Accept the License Terms.**
   g. Select **Next.**
   h. Select **Custom: Install Windows Only (advanced)** or similar.
8. After both drivers have been loaded (rcbottom and rcraid), a valid Virtual Disk appears:
   a. Select **Load Drivers.**
   b. Select **Browse.**
   c. Navigate to the directory containing the saved **AMD-RAID** drivers.
   d. Select **OK.**
   e. Select the **AMD-RAID Config Device** (**rccfg.inf**) driver from the list.
   f. Select **Next.**
9. At the "Where do you want to install Windows" window, click **Next**.

Note: Windows must be installed to the first array (partition).

10. Follow the on-screen instructions to complete the installation of the applicable Windows operating system.
11. After the OS is installed, open **Device Manager** and verify the following:
    - Expand Storage Controllers: there is an entry listed as **AMD-RAID Bottom Device.**
    - Expand Storage Controllers: there is an entry listed as **AMD-RAID Controller.**
    - Expand System Devices: there is an entry listed as **AMD-RAID Config Device.**
12. Remove the storage medium and Microsoft Windows OS CD-ROM or DVD from the applicable drive(s) or port.
13. Install the **AMD RAIDXpert2 Management Suite for Windows®**. *(See Chapter 6.*)

Chapter 6 Install the AMD RAIDXpert2 Management Suite and GUI

Install this software using one of the following:

- From the *Microsoft Store* at *https://www.microsoft.com/store/apps*.
- From the *AMD support* web site at *https://support.AMD.com*.
- From the RAIDXpert2 Management Suite Manual Installation.

6.1 Installing the Desktop Application from the Microsoft Store

To install the software from the Microsoft Store:

1. Go to the *Microsoft Store* at *https://www.microsoft.com/store/apps*.
2. Select **Search**, type **AMD-RAIDXpert2**, and select the AMD-RAIDXpert2 Management Suite Desktop Application from the search results.
3. Select **Get**.
4. Sign in with your Microsoft account to finish downloading the application.
5. After the RAIDXpert2 software installation is completed, open the Windows menu and search for **AMD RAIDXpert2**, then click **Open**.

6.2 Installing from the AMD Website

To install the software from the AMD support website:

1. Obtain the latest executable file from your system supplier, motherboard vendor, or from *https://www.amd.com/support*.
2. Download the file to the system desktop, run it, then follow the screen prompts.
3. Double-click on the **RAIDXpert2** desktop icon.

6.3 Manual Installation

Note: AMD RAIDXpert2 Management Suite default is silent installation.

To install the software via command line:

1. Download the AMD RAIDXpert2 Management Suite executable file (`Setup.exe`) from your system supplier or motherboard vendor to your system desktop.
   Note: You can unblock the Windows Firewall at this step.

2. Install the AMD RAIDXpert2 (setup.exe):
   a. Open a command prompt with the **Run as Administrator** option.
   b. Type `cd C:\User\User_Name\Desktop`
      - For silent installation, type: `setup.exe`
      - For GUI installation, type: `setup.exe -i gui`
3. Turn off the Windows Firewall (or unblock during step 2).
4. Double-click the **RAIDXpert2 Desktop** icon.

Chapter 7 RAID Software Update

7.1 Purpose

This chapter describes the process for updating AMD RAID drivers and the RAIDXpert2 GUI for Windows 64-bit systems.

7.2 System Overview Process

A generic system update process is described below.

IMPORTANT: *To protect your data; always perform a backup before installing major hardware or software. If you are adding NVMe as RAID to your existing AMD-RAID arrays, update all existing AMD RAID controller drivers to the latest version and restart the system. Then connect NVMe devices and install the AMD-RAID driver onto NVMe devices.*

1. Backup the user data before doing any upgrade.
2. Power-**ON** the system.
3. Log into the system.
4. Copy AMD RAIDXpert2 Installer to the system desktop. See Section Chapter 6.
   - Latest package from AMD (*https://www.amd.com/support*)
   - Manual install, use Setup.exe
5. Run the AMD RAIDXpert2 Installer to update the AMD RAIDXpert2 Management Suite.
6. Update the AMD-RAID OS drivers.
7. Restart the System.

7.3 Updating the AMD RAIDXpert2 Management Suite

This section provides information about updating the AMD RAIDXpert2 Management Suite.

7.3.1 AMD RAIDXpert2 UWP Management Suite

If you have the AMD RAIDXpert2 UWP Management Suite installed, new versions released to the Microsoft store are pushed to the system and automatically updated.

7.3.1.1 Manual Update

To manually update the AMD RAIDXpert2 Management Suite desktop application:

1. Go to the Microsoft Store at *https://www.microsoft.com/store/apps*.
2. Select Search, type AMD RAIDXpert2, and select the AMD RAIDXpert2 Management Suite Desktop Application from the search results.
3. Select **Get**.
4. Sign in with your Microsoft account to finish downloading the application.
5. After the RAIDXpert2 software installation is completed, click the **RAIDXpert2 Desktop** icon.
6. Re-log into the system with the new credentials.

7.3.2 AMD RAIDXpert2 Management Application (GUI)

To update the AMD RAIDXpert2 Management Application AMD RAID Installer:

1. Backup the user data before doing any upgrade.
2. Power-**ON** the system.
3. Download to the system desktop the latest AMD RAID Installer executable file from your system supplier or motherboard vendor.
4. Run the installer and follow the on-screen prompts.

7.3.2.1 Manual Update

To manually update the AMD RAIDXpert2 Management Application (GUI):

1. Backup the user data before doing any upgrade.
2. Open a browser and access the Web Site of your system supplier or motherboard vendor.
3. Download the AMD RAIDXpert2 Installer (**setup.exe**) from the web site and copy it to the Systems Desktop.
4. Open a Command Prompt terminal

   Enter: **`cd \Users\user_name\Desktop`**

   Enter: **`setup.exe`**

7.4 Updating the AMD RAID Windows Drivers

Contact your system supplier or motherboard vendor to obtain the new AMD RAID Windows Installer.

To use the AMD RAID installer:

1. Unzip the AMD RAID installer and execute `AMD_RAID_Software.exe` or similar. Wait for the installer to load.
2. Agree to the Terms and Conditions.
3. Click **Install**. Wait for the installer to complete.
4. Click **Restart now** to reset the computer and load the new drivers.

7.4.1 Manual Update

To manually update drivers on Windows:

1. Backup the user data before doing any upgrade.
2. Open a browser and access the Web Site of your system supplier or motherboard vendor.
3. Download the **AMD-RAID Drivers** from the Web Site and copy it to the **Systems C**: drive.
4. Open Computer Management -> Device Manager.
5. Expand Storage Controllers.
6. Select the first AMD-RAID Bottom Device:
   - Right click and select **Update Driver Software**.
   - Click Browse my computer for driver software.
   - Click **Browse**, set the path to the Systems C drive.
   - Click **OK**.
   - Click **Next**.

   Note: *If a Window Security Window pops up, select* "*Install this driver software anyways.*"

   - Click **Close**.
   - When prompted to restart the system (System Settings Change pop-up), click **No**.

   Note: *Repeat Step 6 for each additional AMD RAID Bottom Device.*

7. Select the first AMD-RAID Controller:
   - Right click and select **Update Driver Software**.
   - Click **Browse my computer for driver software**.
   - Click **Browse**, set the path to the **Systems C** drive.
   - Click **OK**.
   - Click **Next**.

Note: *If a Window Security Window pops up, select* "*Install this driver software anyways.*"

- Click **Close**.
- When prompted to restart the system (System Settings Change pop-up), click **No**.

Note: *Repeat Step 7 for each additional AMD RAID Controller.*

8. Expand System Devices.
9. Select AMD-RAID Config Device:
   - Right click and select **Update Driver Software**.
   - Click **Browse my computer for driver software**.
   - Click **Browse**, set the path to the **Systems C** drive.
   - Click **OK**.
   - Click **Next**.

   Note: *If a Window Security Window pops up, select* "*Install this driver software anyways.*"

   - Click **Close**.
10. Restart the System.