

The procedures described below provide step-by-step instructions to successfully complete your ATTO ExpressSAS RAID adapter update. Should you have any questions, or problems, our technical support team is available to assist you. Please contact them at (716) 691-1999 x 243, or techsupp@attotech.com.

Step 1 – Update the ExpressSAS RAID R680,R644,R608,R60F driver.

Download Linux driver 2.15 or later from our website.

1. Power on your system.
2. Open a terminal window and navigate to the driver file.
3. Extract the Linux using the command `tar xfv lnx_drv_esasraid215.tgz`
4. Navigate into the extracted folder.
5. Type `./install.sh` to install the driver.

Step 2 – Launch the ATTO Configuration Tool

If you have not already installed the ATTO Configuration Tool, please download the ATTO Configuration Tool 3.38.

If you have the ATTO Config Tool 4.01 already installed, you must be running both the GUI and the agent on the machine with the ExpressSAS RAID R680, R644, R608, R60F installed.

Step 3 – Changing Notification settings

1. Click on the 'localhost' in the left window pane, labeled 'Device Listing'
2. You will see a tab called 'Notifications' in right window pane. Click on this tab and you should see a screen similar to Figure 1.

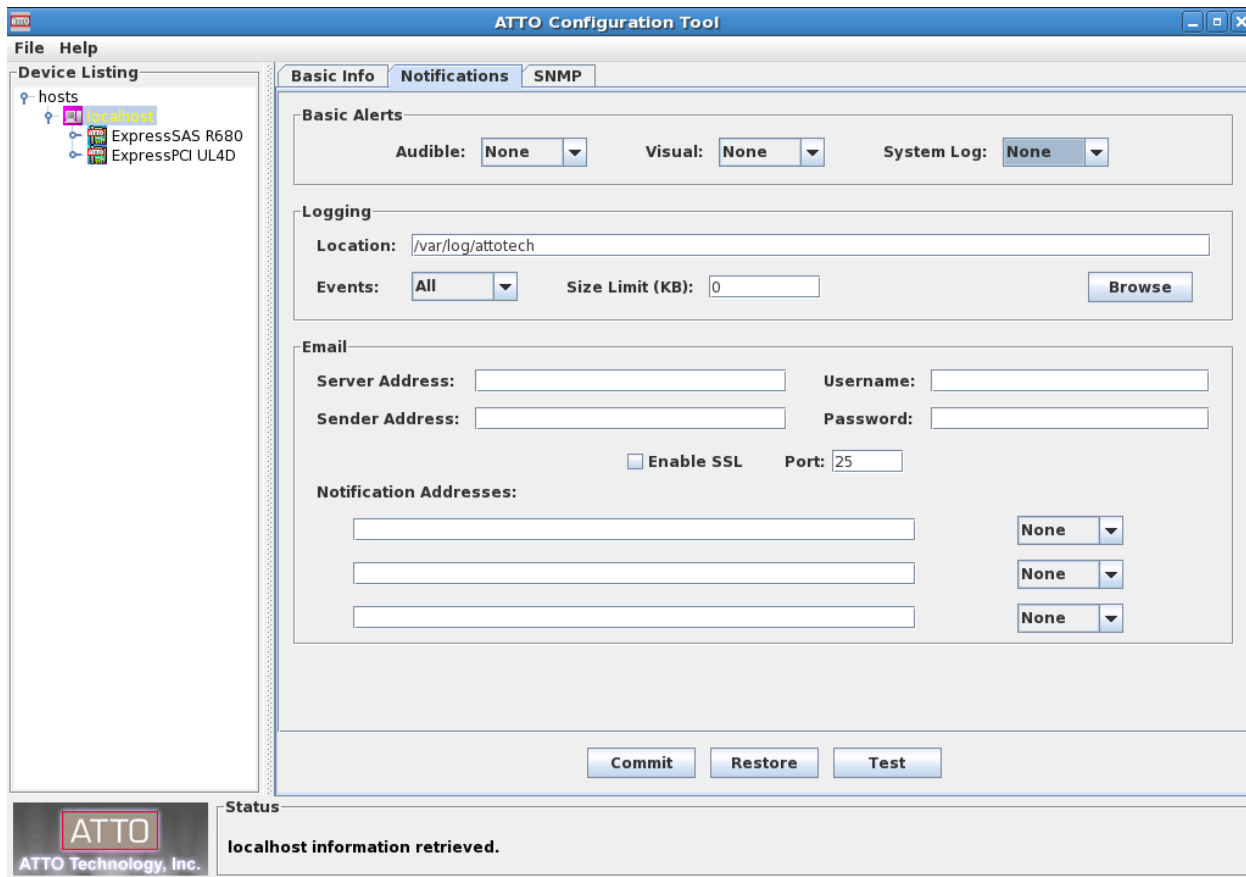


Figure 1

3. Even you see an error on this page, you will need to reboot the system first before proceeding.
4. Record the current settings for the Basic Alerts for future reference.
5. Change Audible and Visual to 'None'.
6. For ATTO Configuration Tool 3.38, change System Log to 'None'. For ATTO Config Tool 4.01, change the System Log to 'ALL'.
7. Under Logging, make Events are set to 'ALL' and the Size Limit is set to '0'.
8. Under Email, for Notification Address, record the level for address for future reference.
9. Change each Email Notification Level to 'None'.
10. Press the 'Commit' button once changes are made.

For ATTO Configuration Tool 3.38 ONLY

11. Click on the SNMP tab (Figure 2).

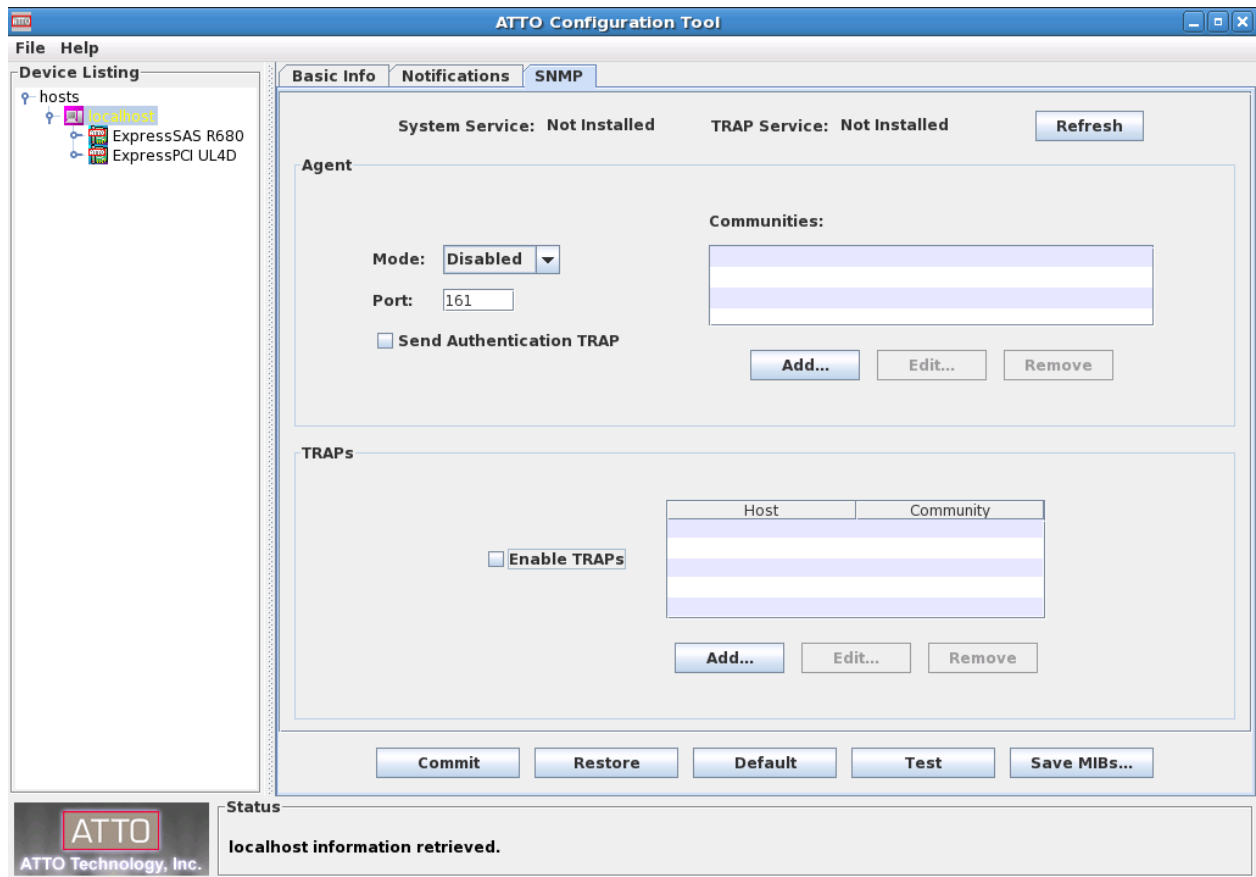


Figure 2

12. For the Agent Mode setting and the Enable Trap setting, record the current setting for future reference.
13. Under Agent Mode, change the Mode to 'Disabled'.
14. For the Enable Trap checkbox, uncheck this box.
15. Press Commit to save the settings.

Step 4 – Update Flash Bundle

Please download FlashBundle file 'fls_bios_esasraid2_2012_01_24' or later.

OR if your PC uses EFI, use 'fls_efi32_esasraid2_2012_01_24' or later.

OR if your PC uses EFI64, use 'fls_efi64_esasraid2_2012_01_24' or later.

1. In the left window pane, expand the device tree until you see the ExpressSAS R680, R644, R608, or R60F.
2. Click on the 'Flash' tab in the right pane and you should see a screen similar to Figure 3.

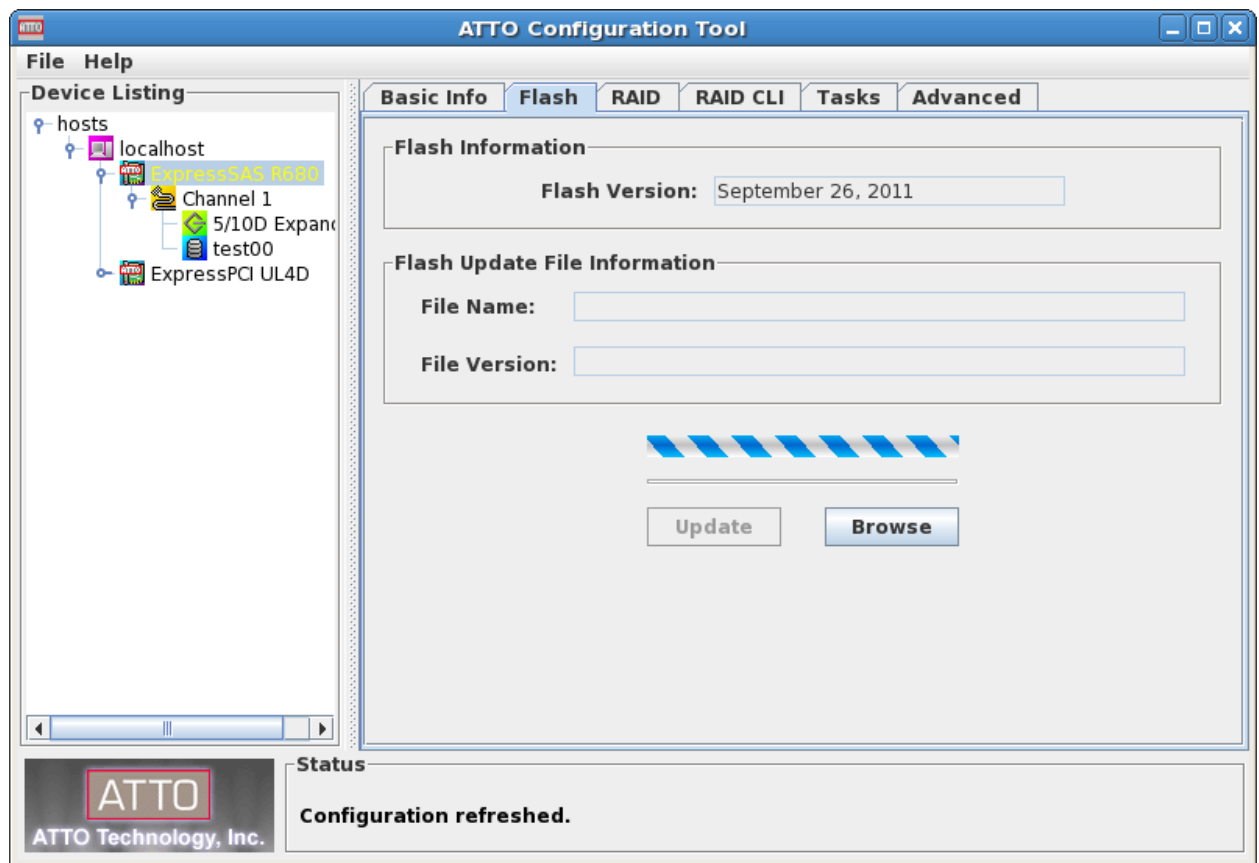


Figure 3

3. Browse to the downloaded flash bundle and click the 'Update' button. The flashing process may take several minutes.
4. You will need to repeat these steps for each ExpressSAS RAID R680, R644, R608, and R60F install in the system.

Step 5 - Quit ATTO Configuration Tool and Restart Your PC

Restarting the Operating System is a necessary step for the new driver and flash bundle to be loaded. Restart your system now.

Step 6 – Launch the ATTO ESASRAID Maintenance application

If you have not already, please download the ATTO ESAS RAID Maintenance application.

1. Unzip and double-click the ATTO ESAS RAID Maintenance application (Figure 4).

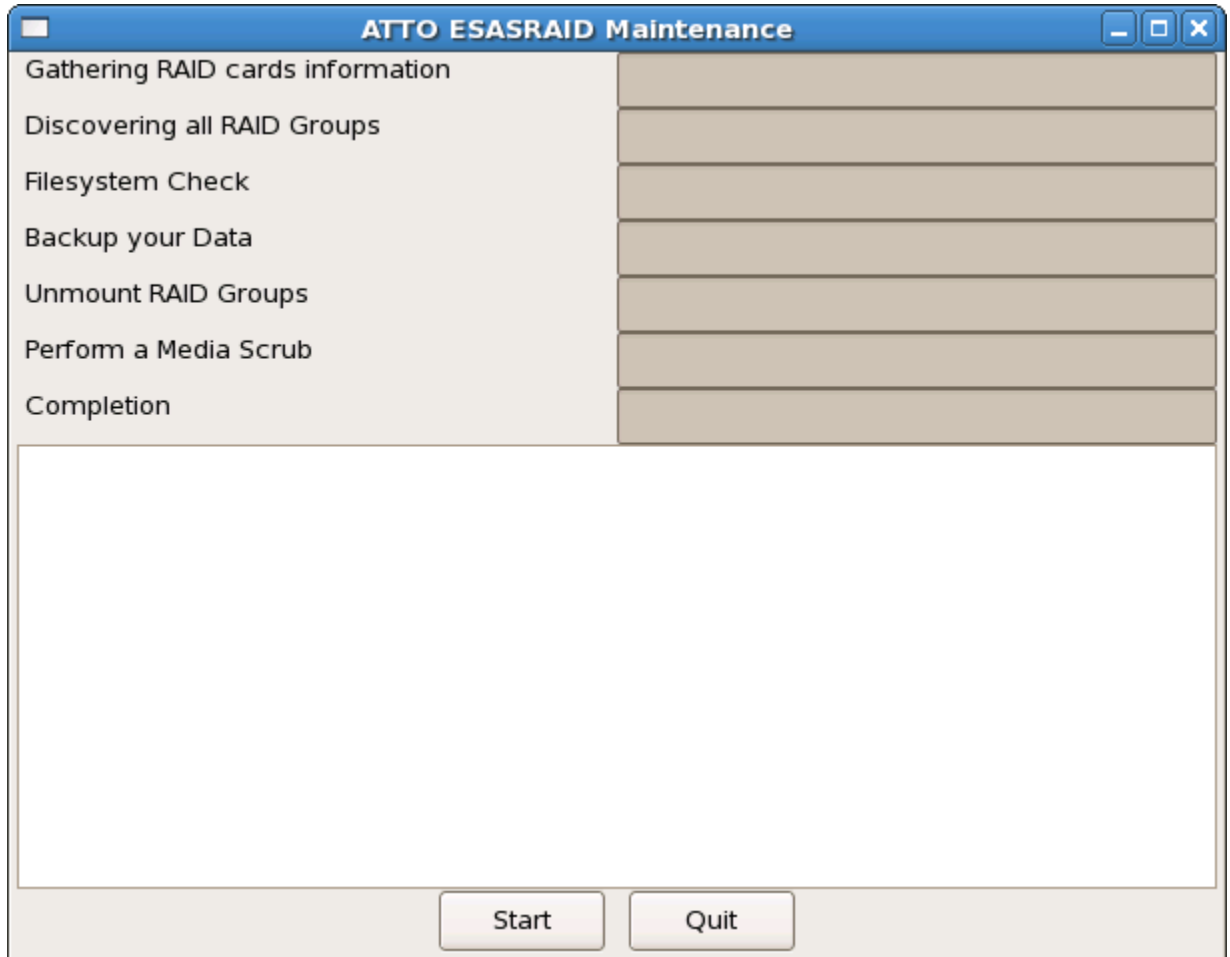


Figure 4

2. Click the 'Start' button to begin.
3. "Gathering RAID card information"
The application will first gather information about all of the RAID cards installed in the system and this information in the console window. If it finds old flash bundles or old drivers installed, it will give you a message and quit.
4. "Discovering All RAID Groups"
The application will discover all RAID groups and display these RAID groups in the console.

5. “Filesystem Check” - improper system reboots, drive hardware problems, viruses, power surges or brown outs, etc, all can contribute to a file system becoming damaged. Routinely running a file system check is a crucial part of best practices to maximize the safety of your data.

We HIGHLY recommend that you run a file system check to identify and fix any file system errors. This check will minimize the chance of a problem later in this process.

Linux File System Check

- a. Open a terminal window.
 - b. Use the ‘sudo’ to gain root permissions.
 - c. Type ‘dmesg | grep –A 5 ATTO’
 - d. This will give a list of every ATTO RAID Group and its associated device name.
 - e. Type ‘mount’ to get a list of mount points.
 - f. Correlate mount points to the ATTO device names.
 - g. type ‘umount <mount point>’
 - h. Then type ‘fsck /dev/<device name>’
 - i. Repeat these steps for each RAID Group.
 - j. Re-mount all ATTO mount points using the ‘mount’ command.
 - k. Once all file system checks have run, enter ‘PROCEED’ in the pop-up window.
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6. “Backup your Data”

Backing up your data is vital to maximize the safety of your data. Computer systems are not perfect. CPUs, motherboards, and peripherals fail and operating systems crash. File systems can become corrupt and viruses could cause data to loss. A loss of data can cause a major crisis or even a business failure. If your data is valuable, you should have back up plan implemented.

We HIGHLY recommend that you run a back up at this time to maximize the safety of your data.

- a. Once your data has been backed up, enter ‘PROCEED’ in the pop-up window.
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7. “Unmount RAID Groups”

The RAID group need to un-mounted to minimize the time to complete the Media Scrub.

Un-mounting Linux Volumes

- a. Before un-mounting the volumes, please close any application or file that may be using these volumes.
- b. Open a terminal window.
- c. Use the ‘sudo’ to gain root permissions.
- d. Type ‘dmesg | grep –A 5 ATTO’

- e. This will give a list of every ATTO RAID Group and its associated device name. Record these mount points for future reference.
 - f. Type 'mount' to get a list of mount points.
 - g. Correlate mount points to the ATTO device names.
 - h. Type 'umount <mount point>'
 - i. Repeat these steps for every RAID group.
 - j. Once all partitions have been un-mounted, type 'PROCEED' in the application pop-up window.
8. "Perform a Media Scrub"

Performing a Media Scrub is another crucial part of maximizing the safety of your data. Drives over time can develop areas where blocks can become inaccessible even when not routinely accessed. Running a Media scan should be a regular aspect of your data protection plan.

This scans will find the unprotected areas of your RAID group and fix them.

Do NOT launch the ATTO Configuration Tool and alter any processes and settings during this scan.
9. "Completion"

The application will report the final findings. If all discovered RAID groups passed, proceed to Step 7.

If a failure is noted, please proceed to Appendix A for further instructions.

Step 7 – Enable Notifications

1. Click on the 'localhost' in the left window pane, labeled 'Device Listing'
2. You will see a tab called 'Notifications' in right window pane (Figure 5).

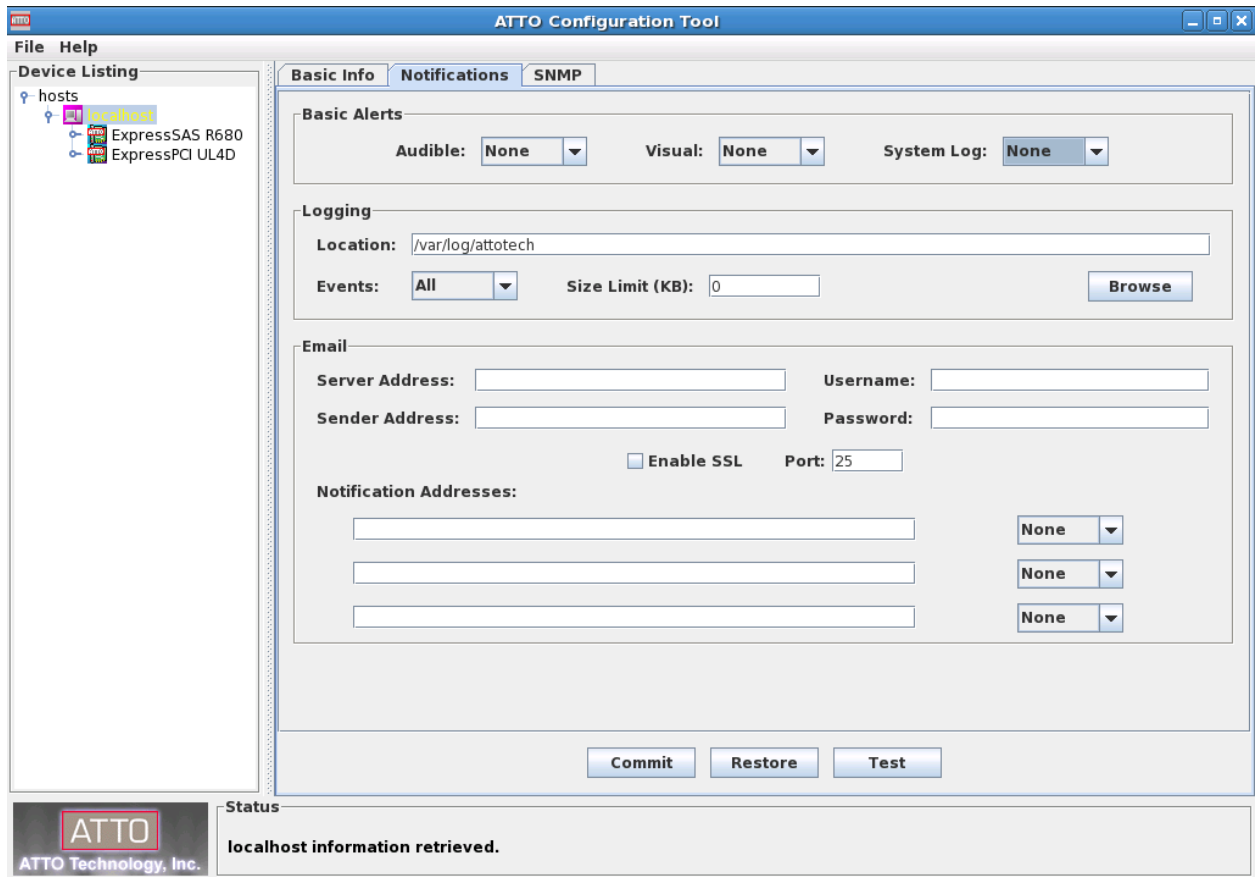


Figure 5

3. Change the Basic Alerts back to your recorded settings.
4. Under Logging, make Events are set to 'ALL' and the Size Limit is set to '0'.
5. Change your Email Notification Addresses back to your recorded settings.
6. Press the 'Commit' button once changes are made.
7. Quit the ATTO Configuration Tool.

For ATTO Configuration Tool 3.38 ONLY

8. Click on the SNMP tab (Figure 6).

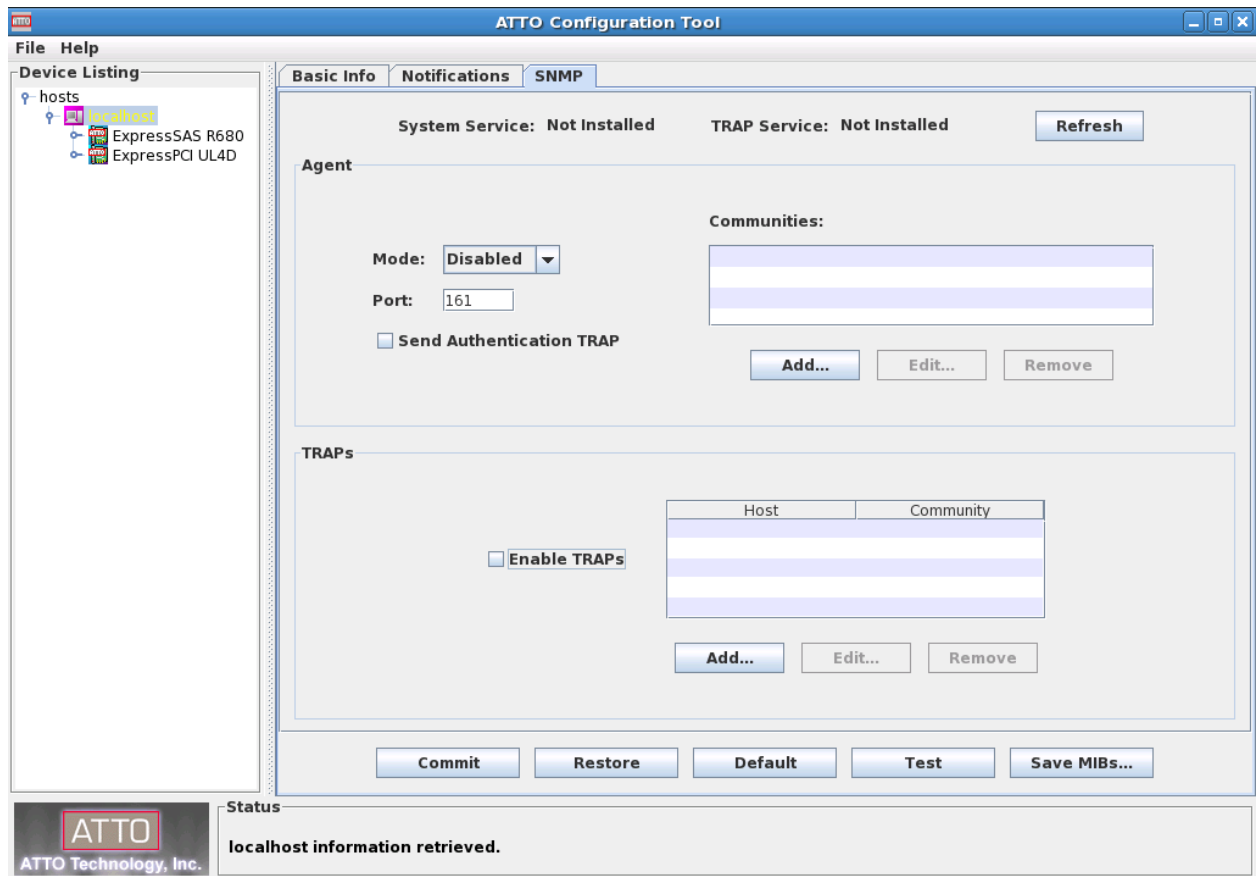


Figure 6

9. For the Agent Mode setting and the Enable Trap setting, change these back to your record the current settings
10. Press Commit to save the settings.

Step 8 – Mount your volumes

Mounting Linux Volumes

- a. Open a terminal window.
- b. Use the 'sudo' to gain root permissions.
- c. Type 'mount <mount point>' using the mounts that you recorded.
- d. Repeat these steps for every RAID group.

Appendix A

1. If a failure is noted, there will be a file called “ATTO.log” in the same directory as the application. There are additional logs /var/log/atto.
2. *For ATTO Configuration Tool 3.38 users:* There are additional logs /var/log/atto
3. *For ATTO Configuration Tool 4.01 users:* Launch the ATTO Config Tool 4.01. Log into the localhost and then click the 'Notification' tab. Press the 'Save' button to save the log.

Please gather these logs and contact ATTO for technical support:

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