

ATTO XstreamCORE® 8200 Troubleshooting Guide



The Power Behind the Storage

155 CrossPoint Parkway
Amherst, NY 14068

P. +1.716.691.1999
atto.com

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Table of Contents

| | | |
|----------|---|----------|
| 1 | Overview | 2 |
| 2 | Troubleshooting Techniques | 3 |
| | Observations | 3 |
| | Problems during initial setup | 4 |
| | XstreamCORE ET 8200 fails to power on or become Ready | 4 |
| | Cannot find XstreamCORE ET 8200 in QuickNAV | 4 |
| | Cannot connect to XstreamCORE ET 8200 via Serial port | 5 |
| | XstreamVIEW issues | 5 |
| | SAS Devices | 5 |
| | XstreamCORE Configuration | 7 |
| | SAS Device Mapping | 7 |
| | XstreamCORE Ethernet Connectivity | 7 |
| | XstreamCORE TCP/IP Connectivity (for iSCSI) | 8 |
| | Switch Configuration | 9 |
| | Ethernet NIC Configuration | 9 |
| | Problems flashing firmware | 9 |
| | XstreamCORE ET 8200 'fault' led is illuminated | 9 |
| | XstreamCORE ET 8200 spontaneously rebooted | 9 |
| | Forcing XstreamCORE ET 8200 to 'coredump' | 10 |
| | Obtaining XstreamCORE ET 8200 'coredump' file | 10 |
| | Obtaining XstreamCORE ET 8200 eventlog | 10 |

1 Overview

This document describes troubleshooting techniques that can be used to identify and resolve issues associated with the ATTO XstreamCORE ET 8200.

Before continuing with this guide, verify that the latest firmware is installed. If you are experiencing an interoperability or protocol issue, chances are that other users have already reported the same thing. ATTO releases firmware updates numerous times a year and there is a good chance your issue has already been resolved. The latest firmware can be obtained from the “Download” section of the ATTO web site.

Also verify that you are using the latest versions of third-party applications and storage devices.

In addition to the steps listed below, we highly recommend you explore the following additional technical resources:

- Read the information posted in the [support section](#) of the ATTO web site.
- The known issues and workarounds are listed. The known issues section of the Product Release Notes document may also be helpful in identifying a potential issue. Product Release Notes can be obtained in the [Download](#) section of the ATTO web site.
- The [Installation and Operations Manual](#) explains proper techniques and tips used for installation, operation, and configuration of the controller. It also explains how the ATTO XstreamVIEW™ management GUI can be used to monitor operation of the XstreamCORE and the connections to your storage targets.
- ATTO spends a great deal of time testing third party applications and products. This testing ensures that each supported configuration performs as indicated and operates successfully. [Interoperability](#) matrices are available in the support section of the ATTO web site. While these are not all inclusive, the listed products are a good baseline for assuring that they have been tested and should work in your system. Storage and system providers’ web sites are the best sources for detailed configuration information including hardware and firmware/drivers/software for each component supported.

XstreamVIEW is a useful utility for monitoring the connections between the host and the XstreamCORE and between the XstreamCORE and your storage. It will list and provide details on each connected device. It will also allow you to configure the XstreamCORE for specific modes of operation. However, changing these settings can have adverse effects. ATTO recommends you leave the settings at their default values unless instructed to change them by an ATTO Technical Support representative or you have advanced knowledge of the Ethernet and SAS protocols.

2 Troubleshooting Techniques

There are a few categories that failures can be placed in:

- **Hardware:** A component completely or intermittently fails.
- **Interoperability:** One or more devices in the system interpret the protocol specification different than the others resulting in undesirable behavior.
- **Design:** There is an error in the implementation of the software or firmware that prevents or limits functionality.
- **User Error:** The system is unable to achieve expected behavior due to improper installation or configuration or the desired behavior is simply not achievable due to unrealistic expectations.

Troubleshooting steps need to be taken to isolate hardware failures and user errors, which can easily be remedied by replacing a piece of hardware or changing something, from interoperability or design errors which could require code changes and take considerable time to resolve.

Some of the following techniques may seem simplistic or overly obvious, but these are the ones that are commonly overlooked and can take several hours of frustration to locate. It is important to try only one technique at a time. While changing multiple variables may seem to be a time saver, it usually complicates the troubleshooting process. The goal is to observe the issue and systematically isolate it to identify the least common factors that cause it to occur. If the problem goes away, there is no sure way of knowing what actually resolved it. If the problem does re-occur, you may have actually fixed it with one change, but another change may have caused a similar symptom.

Observations

Take a step back and think about what is being observed. Ask the following questions:

1. **Has the configuration been working and all of a sudden now fails?** If you can absolutely ensure that nothing has changed, the issue is most likely due to a hardware failure. However, there are some very subtle changes that could have been made (maybe by a colleague) that could affect overall system behavior. What has changed? Has the switch or storage firmware been upgraded? Has something been added or taken away? Even something as seemingly innocuous as an upgrade to disk drive firmware in a storage system can have unexpected effects.
2. **What is the observed behavior compared to the expected behavior?** When reporting an issue to ATTO, try to observe and report the overall “high level” problem as well as the details. For example, an overall problem may be that drives disappear during heavy I/O. The details would include if the XstreamCORE reported or logged an error when this occurred. Providing enough detail is important towards achieving a quick resolution.
3. **Is the problem repeatable?** If yes, can it be repeated on a non-production test system? Collecting information such as system error logs is often needed. Since production systems are not generally set up to collect this information in normal operation, it is important to be able to configure the system to collect data and recreate the problem on a non-production test system.
4. **What do the status LEDs indicate?** Refer to the appropriate product manuals to gain an understanding of what the LEDs indicate, but they are usually a good source of information towards identifying root cause.

Once the problem is observed, attempt to determine where the problem originates. Begin by eliminating problem sources at a high level.

Problems during initial setup

XstreamCORE ET 8200 fails to power on or become Ready

When the XstreamCORE ET 8200 is powered on, the power LED on the front panel should illuminate. The controller begins a series of system checks and auto configuration before becoming ready. These processes take approximately 160 seconds after power up. After this time, the controller 'Ready' LED should light.

If either the 'Power' or 'Ready' LEDs fail to illuminate, power off the unit and connect a serial cable to the XstreamCORE ET 8200 serial port. Attach the other end of the serial cable to a PC. Open a serial port connection to the controller and begin 'logging' the serial port output. Power on the XstreamCORE ET 8200 and observe the controller POST (Power On Self Test) messages for any errors.

- If the controller appears to hang during POST and you do not see the 'Ready' prompt, wait 5 minutes to see if the controller automatically reboots. If the controller does reboot but continually fails POST after each reboot, stop logging the serial port output and contact ATTO Technical Support for an RMA to return the controller for repair. Be prepared to provide the output from the serial port logging to ATTO support.
- If the controller appears to hang during POST, the 'Fault' LED is illuminated, and the controller does not reboot after the 5 minute timeout period, then the controller may be faulty. Contact ATTO Tech Support and request an RMA to return the controller for repair. Be prepared to provide the output from the serial port logging to ATTO support.
- If the controller successfully boots and you see the 'Ready' prompt on the serial connection, issue the 'coredumpinfo' CLI command to verify the coredump occurred recently (use 'Date/Time' field to determine if coredump is current).
- If the coredump is current, continue to the section on Obtaining XstreamCORE ET 8200 'coredump' file.
- If the coredump is not current, continue to the section on Forcing XstreamCORE ET 8200 to 'coredump'

Cannot find XstreamCORE ET 8200 in QuickNAV

- If your configuration PC is directly attached to one of the XstreamCORE ET 8200 management ports, verify the controller Ethernet LEDs are lit and blinking.
- If your configuration is connected through a switch (or more than 1 switch), verify that both the configuration PC and the XstreamCORE ET 8200 have a valid link with the switch. Also if the PC and XstreamCORE ET 8200 are not on the same switch, verify that each switch has a valid path to the other switch.
- Reseat the Ethernet cable, then power cycle the controller to force the controller Ethernet port to auto-sense the cable type.
- Verify your cable is good. Replace with known good Ethernet cable.
- QuickNAV requires broadcasts to be enabled on the network. Check with your network administrator.
- Verify all VPNs are disabled on the configuration PC.

Cannot connect to XstreamCORE ET 8200 via Serial port

- Verify you are using a Cisco type serial port management cable (refer to XstreamCORE ET 8200 Installation and Operation Manual for wiring table). Verify your terminal session is connecting to the correct COM port on your configuration PC.
- Verify your serial port settings are set to the following settings:
 - Baud Rate = 115200
 - Data = 8 bits
 - Parity = none
 - Stop = 1 bit
 - Flow Control = none
 - Echo = On
- Using XstreamVIEW GUI Advanced page or an ssh session, verify the XstreamCORE ET 8200 serial port baud rate is set to 115200 using the “get serialportbaudrate’ CLI command.

XstreamVIEW issues

1. Cannot connect to XstreamVIEW configuration GUI

If you have a good link between two ports, but are unable to communicate directly between them or with other devices on the IP subnet, verify the following.

- IP address is correct
- Netmask is correct
- Default gateway (if any) is configured and can be pinged

Verify you are using the proper security settings within your operating system and web browser.

2. MY HOST DOES NOT SEE ANY OF MY DEVICES

When troubleshooting this kind of problem, the best approach is to troubleshoot using the inside-out method. You begin with the SAS device(s) connected to the controller first and work your way out to the Ethernet nodes connected on the SAN.

SAS Devices

1. Use XstreamCORE ET 8200 “sastargets” command in the “Advanced” page in XstreamVIEW or via ssh or serial port CLI to confirm that the XstreamCORE ET 8200 can see all SAS Devices. If all SAS devices appear in the “sastargets” output, proceed to the XstreamCORE Configuration section below.
2. If you are missing SAS devices in the “sastargets” list try power cycling drive enclosure. Sometimes the SAS expanders or the drives could be in a hung state. Watch the LED indicators on the SAS devices before, during, and after startup. Drive lights should also flash at startup as the SAS topology is scanned. This may give a clue as to the root cause of the issue.
3. Verify the SAS devices or enclosures are powered on.
4. Check the cables for solid connections. Make sure they are securely fastened to the SAS device(s). Use one of the following CLI commands to verify that the cables are properly detected by the XstreamCORE ET 8200. If the connector displays “N/A”, no cable was detected.
 - Use “get sasconnectorinfo”
 - Sample output shows there is a SAS cable plugged into both SAS Port A and B

```
get sasconnectorinfo all
```

```
Connector  Type /      Vendor /      Rev Length
Serial Number  Product
-----
A      Passive Copper  THE MATE COMPANY 00  1m
282300000001  C555X4-1M
B      Passive Copper  THE MATE COMPANY 00  1m
282300000002  C555X4-1M
C      N/A
D      N/A
```

Use “sasportlist” CLI command to verify you have a valid link between the XstreamCORE ET 8200 and the SAS storage devices.

Sample output shows all of the phys on both SAS Port A and B are up and running at 6g SAS Speed.

```
sasportlist
;Connector  PHY  Link      Speed  SAS Address
;=====
Device      A    1    Up      6Gb    5001086000a59380
Device      A    2    Up      6Gb    5001086000a59380
Device      A    3    Up      6Gb    5001086000a59380
Device      A    4    Up      6Gb    5001086000a59380
Device      B    1    Up      6Gb    5001086000a59380
Device      B    2    Up      6Gb    5001086000a59380
Device      B    3    Up      6Gb    5001086000a59380
Device      B    4    Up      6Gb    5001086000a59380
Device      C    1    Down    12Gb   5001086000a59388
Device      C    2    Down    12Gb   5001086000a59388
Device      C    3    Down    12Gb   5001086000a59388
Device      C    4    Down    12Gb   5001086000a59388
Device      D    1    Down    12Gb   5001086000a59388
Device      D    2    Down    12Gb   5001086000a59388
Device      D    3    Down    12Gb   5001086000a59388
Device      D    4    Down    12Gb   5001086000a59388
```

5. If there is an expander, the “sasenclosures” CLI command will interrogate the SAS expander(s) and will list out what the expander(s) it has discovered.
6. Check cable integrity.
 - Cables are the number one cause of problem in any SAS system.
 - Cables that work on one SAS system may not necessarily work on all SAS systems. There are many low cost, but low quality cables that will not work well with the high speed signaling of the XstreamCORE ET 8200.
 - Try swapping the cables with known good ones.
 - Verify the length of the cable is appropriate for the signal type and speed. Cables that are too long may result in intermittent drive issues.
7. Try updating the firmware on the XstreamCORE ET 8200 as described in the “Installation and Operations” manual.
8. If the XstreamCORE ET 8200 continues to not see SAS devices, you may have a faulty controller. Before swapping the controller for a new one, follow instructions in section: Forcing XstreamCORE ET 8200 to ‘coredump’. This procedure will do two things:
 - It will force the controller to reboot and force rediscovery of devices. When the controller completes the reboot, check ‘sastargets’ output to verify all devices are seen.
 - It will log the state of the controller at the time of the issue to a file. The coredump file can help ATTO support determine why the controller was not seeing all devices. Follow instructions in the section on Obtaining XstreamCORE ET 8200 ‘coredump’ file for instructions on how to obtain the file and send it to ATTO support.
9. If the SAS devices appear to be in working order and the SAS devices are all listed in the ‘sastargets’ CLI output, then move on to the XstreamCORE Configuration section.

XstreamCORE Configuration

SAS Device Mapping

1. Verify that the SAS devices are mapped properly. Use the ‘routedisplay iSCSI’ CLI command to show mappings or under “Manual Target Mapping” in XstreamVIEW.
2. Verify that iSCSI CHAP secrets are disabled (if not being used on the host). Use the ‘iSCSICHAP’ CLI command or under “Manual Target Mapping” in XstreamVIEW. If iSCSI CHAP is configured, then each host connecting to that target will need the CHAP secret.
3. Verify the Access Controls are set properly. Use ‘AccessControl’ and ‘AccessEntry’ CLI commands to check or under “Manual Target Mapping” in XstreamVIEW. If Access Controls are enabled for an iSCSI target, then the host needing access must be added to the allowed initiator list.

XstreamCORE Ethernet Connectivity

1. Check XstreamCORE ET 8200 Ethernet Link LEDs are illuminated. If you do not see the link lights, check the following items:
2. Check if the Ethernet ports are up, under the Status page in XstreamVIEW. Alternatively, issue “get ethernetport all” CLI command to verify each Ethernet port is enabled.

Sample output

```
get ethernetport all
```


EthernetPort

DP1 = enabled

DP2 = enabled

MP1 = enabled

MP2 = enabled

3. Check for solid Ethernet connection. Issue “get ethdpconnectorinfo all” .

Sample output

```
get ethdpconnectorinfo all
```

Ethernet Data Port Connector DP1 Information

Vendor: Mellanox

Part Number: MC2207130-0A1

Serial Number: MT1521VS05727

Link Speed: 40 Gb/s

Ethernet Data Port Connector DP2 Information

Vendor: Mellanox

Part Number: MC2210130-001

Serial Number: MT1539VS04927

Link Speed: 40 Gb/s

4. Check Ethernet cable integrity. Try swapping cables.
5. Issue ‘get ethernetspeed all’ to verify that the XstreamCORE ET 8200 is set to ‘auto’.
 - Auto-negotiation between the XstreamCORE ET 8200 and switch at the desired speed may not work properly on poor quality cables and some older switches. Many times this issue can be resolved by either forcing the host/switch or XstreamCORE ET 8200 to the desired speed using ‘ethernetspeed’ CLI command.
6. Check for faulty QSFP modules by installing a known good QSFP in the XstreamCORE ET 8200.



Note

When changing any setting on the XstreamCORE, the configuration must be saved by using ‘saveconfiguration restart’ CLI command. The XstreamCORE ET 8200 will notify you if the system needs to be rebooted to initiate a change.

XstreamCORE TCP/IP Connectivity (for iSCSI)

1. Verify using XstreamView or CLI commands (ipaddress, ipsubnetmask, ipgateway) that the IP addresses for each port in use is configured correctly.
 - Best practice is to have each data port on its own subnet. Placing both data ports on the same subnet may cause issues for some clients.
2. Verify that XstreamCORE ET 8200 can ping to host NICs. On Advanced page of XstreamView or using CLI command via ssh, use the ping command. If the ping command fails, verify that the network is not blocking ICMP packets.

Switch Configuration

1. Verify that the switch can see the XstreamCORE ET 8200 on the port(s) in question. See switch vendor's user's guide for more information.
2. Verify that the switch port is set for auto detection of the data rate.

Ethernet NIC Configuration

1. Configuration of Ethernet NICs is usually done using standard OS tools, though some vendors may provide their own toolsets to configure the NIC. See vendors' documentation for more details.
2. Check cable integrity.
3. Verify that the hosts are running the recommended driver and firmware level the NIC.
4. Verify that the host can ping the XstreamCORE ET 8200.
 - Make sure your network and OS firewall will allow ICMP.
 - Verify that the host NIC is on the same subnet as the XstreamCORE ET 8200 or has a valid route to the XstreamCORE ET 8200.

Problems flashing firmware

1. The XstreamCORE ET 8200 performs validations on the structure of the file. If it does not pass these validations, the file is rejected. The image file may be corrupted. Try downloading the image file again.
2. The SFTP session may have timed out during transfer due to a slow network connection, bad network cable, or high network traffic. Retry the transfer until successful in these cases. Sometimes using a different SFTP client can help too.

XstreamCORE ET 8200 'fault' led is illuminated

If the XstreamCORE ET 8200 'Fault' LED is illuminated, it means that the controller is in 'critical mode'. Wait 5 minutes. If the 'Fault' is caused because the controller is stuck in a loop, then the XstreamCORE ET 8200 will automatically reboot itself.

- If the controller reboots, wait for it to become 'Ready' then issue 'coredumpinfo' CLI command to verify the coredump occurred recently (use 'Date/Time' field to determine if coredump is current).
 - If coredump is current, continue to the section on Obtaining XstreamCORE ET 8200 'coredump' file.
 - If coredump is not current, continue to the section on Forcing XstreamCORE ET 8200 to 'coredump'.
- If the controller does not reboot after the 5 minute timeout period, then the controller may be faulty. Contact ATTO Technical Support and be prepared to give a detailed description of the issue and provide the appropriate coredump or event log files.

XstreamCORE ET 8200 spontaneously rebooted

If you noticed that the XstreamCORE ET 8200 has unexpectedly rebooted, issue "dumpeventlog" CLI command and search for the latest instance of: 'INFO Reset. Reason:'

- If the reason code states "Power Cycle", "FirmwareRestart Command" or "Extended POST Complete" then there is no problem with the controller. You can continue operation.
- If the reason code does not state "Power Cycle", "FirmwareRestart Command" or "Extended POST Complete" and it is preceded by 'INFO Exception occurred' then issue the 'coredumpinfo' CLI

command to verify coredump occurred recently (use 'Date/Time' field to determine if coredump is current).

- If coredump is current, continue to the section on Obtaining XstreamCORE ET 8200 'coredump' file.
- If coredump is not current, continue to the section on Forcing XstreamCORE ET 8200 to 'coredump'

Forcing XstreamCORE ET 8200 to 'coredump'

⚠ CAUTION *If the XstreamCORE ET 8200 has spontaneously rebooted or 'Faulted', DO NOT force a coredump. If you do, you will overwrite all information about the reboot or 'Fault' event. Therefore, if you encounter a controller reboot or 'Fault' condition, wait for the controller to complete the reboot.*

1. Using a terminal emulation program with logging capabilities, connect to the controller via serial port or ssh.
2. Issue 'info' CLI command. Note the XstreamCORE ET 8200 serial number which will be needed in the section on Obtaining XstreamCORE ET 8200 'coredump' file.
3. In CLI type 'coredumpgenerate' command. The system will fault and reboot. This process may take up to 3 minutes.
4. Continue to the section on Obtaining XstreamCORE ET 8200 'coredump' file.

Obtaining XstreamCORE ET 8200 'coredump' file

1. SFTP to the XstreamCORE IP address.
2. Type 'dir' command.
3. In the directory list, find the file with the extension MEM. The filename should be based off the serial number of the controller. Use SFTP 'get' command to save the MEM file to your local system. For example: 'get ON1000172.mem'
4. Type 'bye' to exit the SFTP session.
5. Include the coredump file when sending issue information to ATTO support.
6. Continue to the section on Obtaining XstreamCORE ET 8200 eventlog to gather the controller eventlog.

Obtaining XstreamCORE ET 8200 eventlog

1. Using a terminal emulation program with logging capabilities, connect to the controller via serial port or ssh and begin a logging session to capture the terminal screen output to a file.
2. If connected via ssh, wait for 'Ready' LED to illuminate and reconnect to the XstreamCORE ET 8200. If connected via serial port, wait for the 'Ready' prompt.
3. Issue 'dumpconfiguration' CLI command. Wait for 'Ready' prompt.
4. Issue 'dumpeventlog all' CLI command. Wait for 'Ready' prompt.
5. Stop the logging session in your terminal.
6. Include the terminal output log and coredump file when sending issue information to ATTO support.
7. Contact ATTO Technical Support and be prepared to give a detailed description of the issue and provide the appropriate coredump or event log files.