



**D-Link System, Inc.™**

**xStack Storage DSN Series SAN Arrays**

**Recommended Information and Tips for Troubleshooting**

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## Introduction

Customers purchasing xStack Storage DSN Series SAN arrays may encounter unexpected issues when configuring them within their network. In order to better serve these customers, please provide the following information to allow D-Link's support team to better understand, recreate and analyze the specific scenario.

## Quick Pre-check – Things to check before calling

- 1) Upgrading to the latest firmware version can solve many problems. Please check the [www.dlink.com](http://www.dlink.com) website for the latest version. Select your product from the pull-down list, select Support Resources and then Firmware.
- 2) If VLANs are configured, be sure the switch, NIC and xStack Storage ports are all configured for the same VLAN#.
- 3) Be sure to verify the VLAN configuration on each NIC and switch port attached to the xStack Storage array.
- 4) Enable flow control on each NIC and switch port.
- 5) Jumbo frames are supported, but with the following limitations:  
  
8-port controllers are limited to a Jumbo Frame size of 4088 bytes.  
4-port (including the DSN-1100-10) and 10GbE controllers can support 9014 bytes.  
  
All networking components used in the xStack Storage data path must be configured with the same frame size. i.e. The switch itself and NIC card(s) used in the server(s).  
  
Also, be sure to reboot your switch after configuring it for a different frame size. This will enable the new frame size.
- 6) If using a single controller product (DSN-1000/2000/3000 Series) or a dual-controller product with one controller installed (DSN-5000 Series), have you tried directly attaching the SAN array to the host server? There may be a switch or cable issue.
- 7) Are you using a single controller product (DSN-1000/2000/3000 Series) with a SAS drive? This will not work. Please use only SATA drives.
- 8) For DSN-5000 Series arrays with dual-controllers installed: Are both controllers running the same firmware version?
- 9) For DSN-5000 Series arrays with dual-controllers installed: Are you using SATA drives? You must use SAS drives when dual-controllers are installed. SATA drives may only be used when a single controller is installed.
- 10) Is your SAN array operating slowly? This may be caused by:

- a. A dead or charging battery will cause the unit to change from write-back cache to write-through. This is a safety precaution to protect your data.
  - b. The initialization of a parity volume (RAID-5) takes time. When completed the volume will operate at full speed.
- 11) Has each volume been connected to its own dedicated host machine? Multiple hosts cannot normally share an iSCSI target/volume. This is not true if using special software (such as clustering or Melio's Sanbolic) that allows multiple hosts to access the same volume.

## Troubleshooting Checklist – Items for Analysis

- 1) What model of xStack Storage SAN array are you using? (DSN-1100-10, DSN-2100-10, DSN-3200-XX, DSN-3400-XX, DSN-5110-10, DSN-5210-10, DSN-5400-10)
- 2) What firmware version is installed on your xStack Storage SAN array?
- 3) What were you doing with the SAN when the failure occurred? Is there a pattern to when any errors may occur? Does the failure happen under heavy I/O loading?
- 4) A diagram of the Storage Area Network (SAN) showing the switches and the servers/hosts that access the xStack Storage unit(s). (This does not have to be a Visio-level diagram. A legible hand-drawn outline would help us greatly.)
- 5) The server/host model numbers and the Operating System (OS) installed. What service packs have been installed?
- 6) The brand and model number of any NIC(s) in each server that accesses the xStack Storage unit(s).
- 7) The NIC settings including flow control, TOE features, MTU size.
- 8) The switch settings. Is flow control enabled?
- 9) What firmware version is the xStack Storage unit using? Have you updated to the latest version? Did an older version work correctly, but a newer version does not?
- 10) Have any LAGs been configured? Please provide details.
- 11) What volume type has been configured? RAID-0, RAID-1, RAID-10, RAID-5?
- 12) Is your xStack Storage SAN array operating in write-back or write-through mode?
- 13) Is your xStack Storage SAN array's battery fully charged?
- 14) For DSN-5000 Series arrays with dual-controllers installed: Can you confirm that both controllers are bound?

- 15) If the problematic controller can be accessed during the boot process, please use the serial/diagnostic cable to capture the boot-up information. Save this to a text file for analysis.

16) Have you experienced a bug check? If possible, please provide a copy of the Event History log file. (refer to Figure 1) This requires that the xStack Storage unit be operating when the failure occurs, and is afterwards able to be accessed through the management GUI.

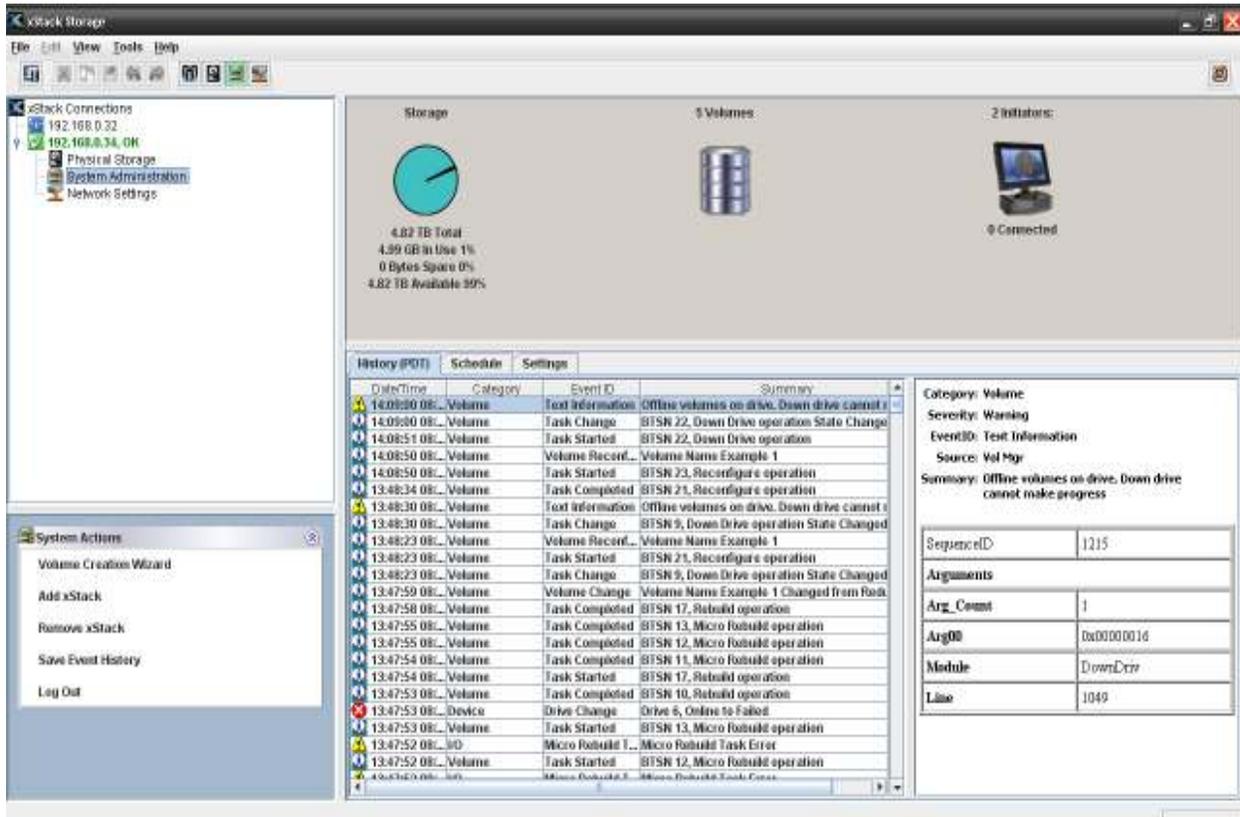


Figure 1. Example of the System Administration View

- From the System Administration View, use the View Menu panel in the upper left-hand corner to select your xStack Storage array from the list.
- From the Action Panel in the lower left-hand corner, select “Save Event History.” Then choose a destination for the file and save it.
- Please return this file to D-Link Technical Support.

- 17) If you have experienced a bug check and the controller is resetting, you may not be able to access the xStack Storage management GUI. In this situation, D-Link will require a diagnostic core dump to allow analysis of the error. The system will automatically capture all of its operating parameters and status information, and allow you to download it to your local host system. You can then forward this system capture to D-Link for subsequent analysis of the problem.

After a system failure occurs, the system will automatically reboot and you can click on a link on the Default Web Page that displays the Support Web Page.



[Click here](#) to run the xStack Storage Management Center now.

If you are having problems starting the xStack Storage Management Center, [Click here](#).

[Click here](#) to install the integraStor Advanced Features for Windows.

If you have been asked to submit a Diagnostic Capture to D-Link Technical Support, [click here](#).

**Figure 2. Default Web Page with Diagnostic Capture Link**

Click on the bottom-most link on the Default Web Page to display the Support page.



The xStack Storage Management Center includes a Customer Support feature that allows you to capture and send support information about your storage controller to the D-Link Support Team. This information is stored at D-Link Networks, Inc. in a secure server and is used strictly for diagnostic purposes. None of the data from the hard disks of your system will be included in the diagnostic information that is captured.

[Click here](#) to download the diagnostic capture(s).

**Figure 3. Support Web Page**

Click on the link at the bottom of the Support Web Page page to download the Diagnostic Capture file(s).



<b>Fetch Controller Diagnostics</b>
<a href="#">Diagnostics for Controller 0</a>
<a href="#">Diagnostics for Controller 1</a>

**Figure 4. Diagnostic Capture Download Page**

Click on each link to download the diagnostic capture file(s) to your local host system. You can then send the file(s) to the Technical Support staff at D-Link.

18) Would it be possible for D-Link's Support Team to log in remotely to your SAN?

Before calling D-Link Technical Support, please be sure to have your serial/diagnostic console cable available. This cable came with your xStack Storage SAN array.

- a. DSN-2000 and 3000 Series: Straight-Through Female DB-9 to Female DB-9 (please see cable A in Figure 5)
- b. DSN-1000 Series: Straight-Through Female DB-9 to Male DB-9 (please see cable B in Figure 5)
- c. DSN-5000 Series: Female DB-9 to RS-232 Stereo Mini-Jack (please see cable C in Figure 5)



**Figure 5. Example of the System Administration View**

Please prepare a running PC with Internet access, and a terminal program open and ready. Also, please load a program such as ShowmyPC.com that can allow our D-Link support engineer to gain access. Finally, connect the serial/diagnostic console cable from an available serial port to the xStack Storage SAN array.