

HP StorageWorks XP Data Shredder user guide

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XP Data Shredder user guide

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About this guide

This guide provides information about:

- "Overview of Shredding operations" on page 9
- "Target volumes for Shredding operations" on page 10
- "Preparing to use Data Shredder" on page 10
- "Starting Data Shredder" on page 10
- "Shredding Param pane" on page 11
- "Confirmation pane for completing Shredding operations" on page 12
- "Shredding Data Output pane" on page 13
- "Shredding operations" on page 13

Intended audience

This guide is intended for customers and HP authorized service providers experienced with the following:

- Disk array hardware and software
- Storage systems

Prerequisites

Prerequisites for using this product include:

- XP12000 firmware version
 - Minimum: 50-04-31-00/00
 - Recommended: 50-04-41-00/00 or later
- XP10000 firmware version
 - Minimum: 50-04-31-00/00
 - Recommended: 50-04-41-00/00 or later
- XP1024/XP128 firmware version
 - Minimum: 21-13-02-00/00
 - Recommended: 21-14-10-00/00 or later
- Set up the HP StorageWorks XP disk arrays
- See the `readme.txt` file on the product CD for last-minute announcements

Related documentation

In addition to this guide, please refer to other documents for this product:

- *HP StorageWorks Command View XP User Guide for XP Disk Arrays*
- *HP StorageWorks XP Remote Web Console User Guide for XP12000/XP10000*
- *HP StorageWorks XP Remote Web Console User Guide for 1024/XP128*
- *HP StorageWorks LUN Configuration and Security Manager XP User Guide for the XP10000/XP12000*
- *HP StorageWorks LUN Configuration and Security Manager XP User Guide for the XP128/XP1024*

These and other HP documents can be found on an HP web site: <http://www.hp.com/support/>.

Document conventions and symbols

Table 1 Document conventions

Convention	Element
Medium blue text: Figure 1	Cross-reference links and e-mail addresses
Medium blue, underlined text (http://www.hp.com)	Web site addresses
Bold font	<ul style="list-style-type: none">• Key names• Text typed into a GUI element, such as into a box• GUI elements that are clicked or selected, such as menu and list items, buttons, and check boxes
<i>Italics font</i>	Text emphasis
Monospace font	<ul style="list-style-type: none">• File and directory names• System output• Code• Text typed at the command-line
<i>Monospace, italic font</i>	<ul style="list-style-type: none">• Code variables• Command-line variables
Monospace, bold font	Emphasis of file and directory names, system output, code, and text typed at the command-line

△ **CAUTION:** Indicates that failure to follow directions could result in damage to equipment or data.

📌 **IMPORTANT:** Provides clarifying information or specific instructions.

📖 **NOTE:** Provides additional information.

💡 **TIP:** Provides helpful hints and shortcuts.

HP technical support

Telephone numbers for worldwide technical support are listed on the HP web site:

<http://www.hp.com/support/>.

Collect the following information before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

For continuous quality improvement, calls may be recorded or monitored.

HP strongly recommends that customers sign-up online using the Subscriber's choice web site at <http://www.hp.com/go/e-updates>.

- Subscribing to this service provides you with email updates on the latest product enhancements, newest versions of drivers, and firmware documentation updates as well as instant access to numerous other product resources.
- After signing-up, you can quickly locate your products by selecting **Business support** and then **Storage** under Product Category.

HP-authorized reseller

For the name of your nearest HP-authorized reseller:

- In the United States, call 1-800-345-1518
- Elsewhere, visit <http://www.hp.com> and click **Contact HP** to find locations and telephone numbers

Helpful web sites

For third-party product information, see the following vendor web sites:

- <http://www.hp.com>
- <http://www.hp.com/go/storage>
- <http://www.hp.com/support>

1 XP Data Shredder for the XP128/XP1024/XP10000/XP12000

If you change the user for a volume, you should delete data stored by the previous user for security purposes. The Data Shredder feature deletes data on volumes and prevents deleted data from being restored. *Shredding operation* refers to the process of deleting all data on a volume by overwriting it with dummy data.

Data Shredder is based on DoD5220.22-M, which is the standard defined by the U.S. Department of Defense.

Data Shredder is used for both open and mainframe systems.

Overview of Shredding operations

The Shredding operation completely deletes data on a specified volume by repeatedly overwriting existing data with dummy data. You perform Shredding operations from the Command View XP management station or XP Remote Web Console. [Figure 1](#) shows an example of Shredding operations.

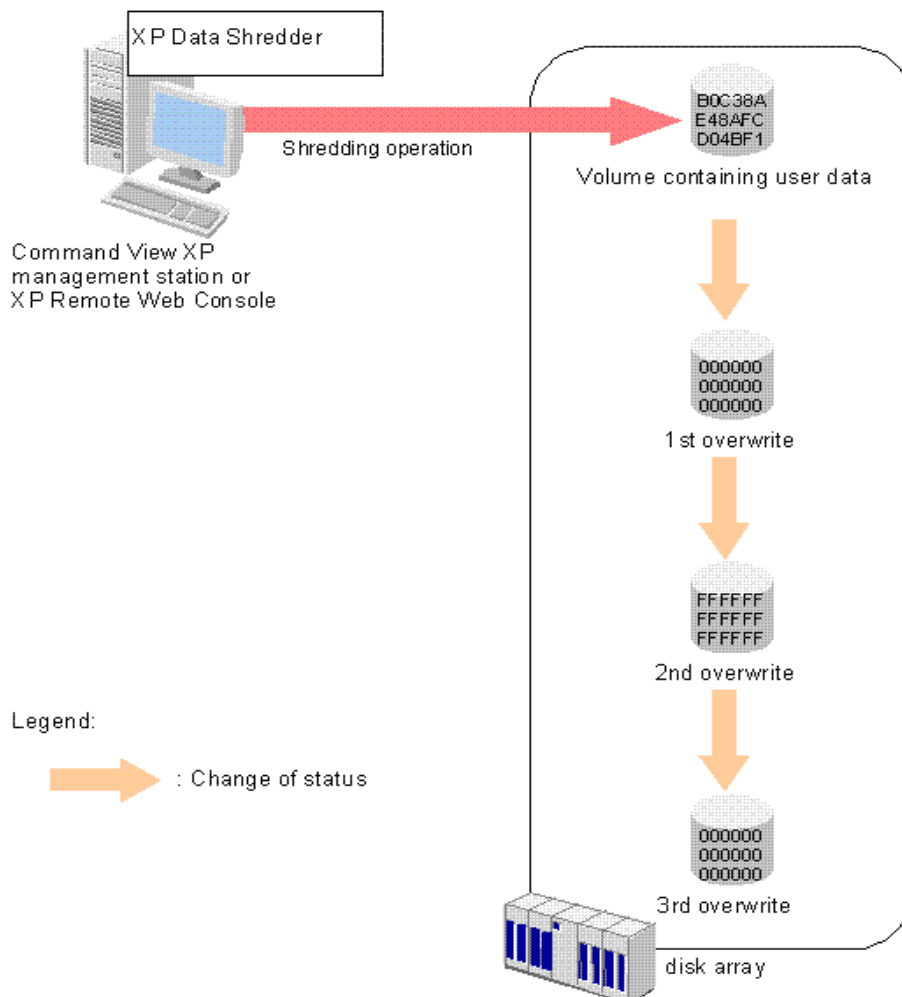


Figure 1 Overview of Shredding operations

Because of the nature of hard disks, overwriting a volume once is not enough to completely delete data, which means deleted data could be restored. Therefore, HP recommends you overwrite a volume with dummy data at least three times.

By default, Data Shredder overwrites volumes with dummy data three times. You can change the default and overwrite the volume up to eight times. For more information, see ["Defining Shredding operation settings"](#) on page 14.

Target volumes for Shredding operations

You can use the Shredding operation for any type of volume (for example, VDEV, LDEV, or custom volume) and emulation type, but the status of the volume must be **Blocked**. If the status is **Normal**, the volume cannot be the target of Shredding operations. For instructions to change the status of a volume to **Blocked**, see ["Preparing for Shredding operations"](#) on page 14.

NOTE: Select target volumes for Shredding operations in the Volume Management pane. You cannot perform Shredding operations on external volumes, pool volumes (pool-VOLs), and virtual volumes. For more information, see ["Deleting data on volumes \(Shredding\)"](#) on page 15.

Preparing to use Data Shredder

Before launching Data Shredder, install and enable Data Shredder on each disk array where you intend to use these options.

Starting Data Shredder

1. Click the **Volume Management** button (). The Volume Management pane appears.

NOTE: To change settings for Data Shredder, you must be in Modify mode.

2. Click the **Customized Volume** tab.

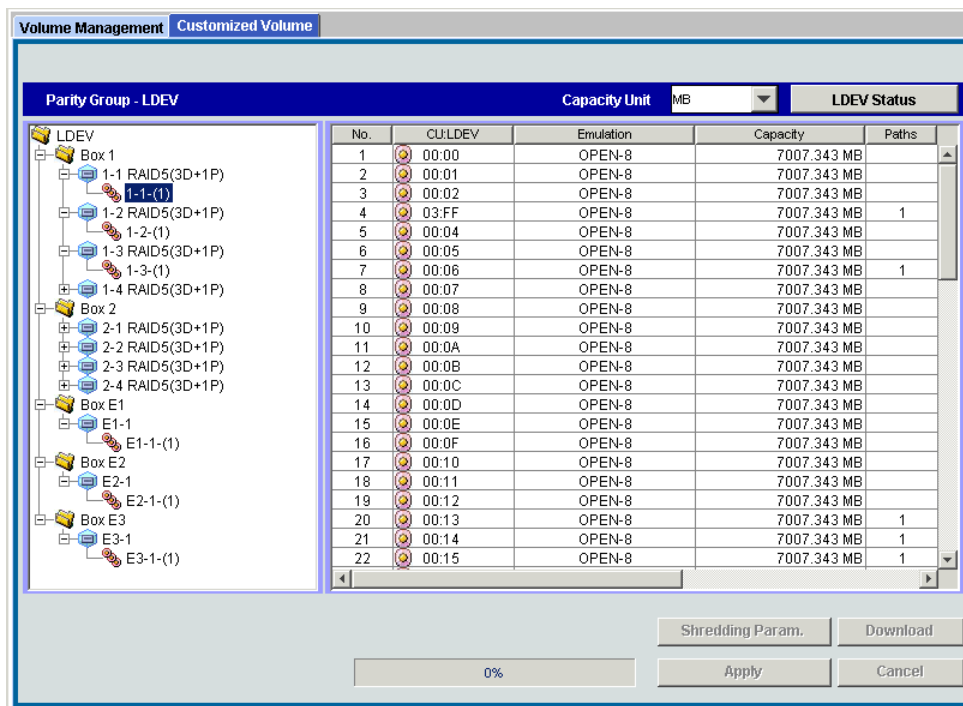


Figure 2 Customized Volume pane

Shredding Param pane


Use this pane to define settings for Shredding operations. To open this pane, click **Shredding Param** (Parameter) on the Customized Volume pane.

NO.	Data
1	00
2	FF
3	00

Figure 3 Shredding Param pane

The Shredding Param pane contains the following:

- **Write Data Type:** Settings for Shredding operations.
 - **Default (00-FF-00):** If selected, defaults are used for Shredding operations. Data on a volume is deleted by overwriting the volume with dummy data three times. When the volume is overwritten the first and third times, Data Shredder uses 00 (hexadecimal number) for the dummy data. When the volume is overwritten the second time, Data Shredder uses FF (hexadecimal number) for the dummy data.
 - **User:** If selected, you define the dummy data and how many times the volume is overwritten. For more information, see ["Defining Shredding operation settings"](#) on page 14.
- **Write Data:** Dummy data.
 - **Define:** Enter up to four numbers or characters for the dummy data. You can enter only hexadecimal numbers, including numbers 0 to 9, and alphabetic characters A to F. If you enter more than four digits, the entry is not accepted.

 **NOTE:** Dummy data is written two digits at a time. Therefore, enter an even number of digits in the text box. If you enter an odd number of digits (for example, 123) and click **Set**, an error message appears. If you enter more than four digits, the entry is not accepted.

- **Random:** Data Shredder randomly selects 4-digit hexadecimal numbers for the dummy data.
- **Format List:**
 - **NO.:** Number of times volume is overwritten.
If you select **User** in the **Write Data Type** field, and specify number of times volume is overwritten, **Last Data** appears in this column.
 - **Data:** Contents of the dummy data. Dummy data is shown in sets of two digits with a space between each set of digits. If **Last Data** appears in the **NO.** column, the dummy data is always 00.
- **Set:** Adds dummy data defined in the **Write Data** field to the **Format List**. You can add dummy data a maximum of seven times.

If you select **Define** in the **Write Data** field, and click **Set** without entering anything in the text box, an error message appears.

The **Set** button is not available when you select **Default** in the **Write Data Type** field.

- **Delete**: Deletes the selected row in the **Format List** field.

If you select a row with **Last Data**, and click **Delete**, an error message appears.

The **Delete** button is not available when you select **Default** in the **Write Data Type** field.

- **OK**: Registers settings in the **Format List** field, and closes the Shredding Param. pane.
- **Cancel**: Cancels all settings, and closes the Shredding Param. pane.

Confirmation pane for completing Shredding operations


When the Shredding operation is finished, a confirmation pane appears. This pane displays how often the volume was overwritten and the dummy data used each time the volume was overwritten.

If the Shredding operation finishes normally, use the following buttons:

- **OK**: Closes the confirmation pane.
- **Download**: Downloads the file containing the results of the shredding operation. The name of the file is shown in **Output File Name**.

Table 2 Ending status of Shredding operations

Ending status appearing in the confirmation pane	Description
Normal	Shredding operation ended normally.
Not Execute	Shredding operation did not perform according to specified parameters.
Discontinuation end	Shredding operation was canceled.
Shredding failed	Shredding operation ended abnormally.
Shredding data transfer error	Result of Shredding operation could not be output to a file.
Shredding data verify error	An error was detected while verifying the file containing the result of the Shredding operation.

 **NOTE:** The results file is compressed. Use the appropriate software to decompress the file.

If the Shredding operation fails, contact your HP account support representative.

Shredding Data Output pane

When you specify volumes in the Shredding Data Output pane during a Shredding operation, the results of the operation are saved in files.

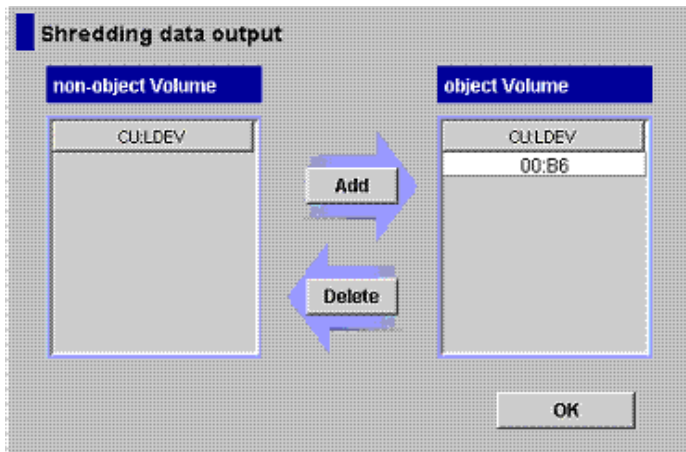


Figure 4 Shredding Data Output pane

The Shredding Data Output pane contains the following:

- **non-object Volume**
Results of shredding volumes in this list are *not* saved in files.
- **object Volume**
Results of shredding volumes in this list are saved in files.
Each row represents one volume. Each volume is represented by a CU number (left of the colon) and LDEV number (right of the colon).
- **Add**
Moves volumes selected in the **non-object Volume** list to the **object Volume** list.
- **Delete**
Moves volumes selected in the **object Volume** list to the **non-object Volume** list.
- **OK**
Save the settings and close the Shredding data output pane.

Shredding operations


Shredding operations proceed as follows:


- Display the Volume Management pane (see ["Starting Data Shredder"](#) on page 10 and the *HP StorageWorks LUN Configuration and Security Manager XP User Guide* for the specific disk array).
- Prepare for Shredding operations (see ["Preparing for Shredding operations"](#) on page 14).
- Define Shredding operation settings (see ["Shredding Param pane"](#) on page 11 and ["Defining Shredding operation settings"](#) on page 14).
- Perform Shredding operations (see ["Deleting data on volumes \(Shredding\)"](#) on page 15).


 **NOTE:** To quit shredding operations, see ["Canceling Shredding operations"](#) on page 16.

Preparing for Shredding operations


Before performing shredding operations, change the status of the target volume to **Blocked**.

 **NOTE:** When you change the status of a volume to **Blocked**, I/O operations cannot be performed on the volume. By specifying write permissions, you can limit who is allowed to perform shredding operations.

1. In the Command View XP or XP Remote Web Console main pane, change to **Modify** mode by clicking the button (). A message pane appears asking if you want to change the mode.
 2. Click **OK**. The operation mode changes.
 3. In the Volume Management pane, click **LDEV Status**. The status of volumes is displayed in the **Status** column in the **LDEV Information** table.
-


 **NOTE:** If hyphens appear in the **Status** column, click **LDEV Status** in the Volume Management pane to display the status of volumes (for example, **Normal** or **Blocked**).

4. Select the target volume in the **LDEV Information** table.
 5. Right click the target volume, and select **Blockade**. Information about the target volume is shown in blue and italics.
 6. Click **Apply**. A message pane appears asking if you want to apply the settings.
 7. Click **OK**. The status of the volume changes to **Blocked**.
-

 **NOTE:** If you select **Restore** and click **Apply**, you can change the status of the volume from **Blocked** to **Normal** again. However, you cannot perform this operation on virtual volumes (V-VOLs).

Defining Shredding operation settings


Use the Shredding Param pane to define the settings used for Shredding operations.

 **NOTE:** When you change the status of a volume to **Blocked**, I/O operations cannot be performed on the volume. By specifying write permissions, you can limit who is allowed to perform shredding operations.

1. In the Customized Volume pane, click **Shredding Param**. The Shredding Param pane appears.
 2. Select **Default** or **User** in the **Write Data Type** field.
If you selected **User**, go to [step 3](#).
If you selected **Default**, go to [step 7](#).
 3. Select **Define** or **Random** in the **Write Data** field.
If you selected **Define**, go to [step 4](#).
If you selected **Random**, go to [step 5](#).
 4. Enter dummy data in the text box.
 5. Click **Set**. A row is added to the **Format List**.
 6. If you selected **Define** in the **Write Data** field, repeat [step 4](#) and [step 5](#) until there are three or more rows in the **Format List**, including the **Last Data** row.
If you selected **Random** in the **Write Data** field, repeat [step 5](#) until there are three or more rows in the **Format List**, including the **Last Data** row.
-

△ **CAUTION:** Although you can execute Shredding operations when there are less than three rows in the **Format List**, you might not be able to completely delete data from the volume. Therefore, HP recommends you define three or more rows in the **Format List**.


7. Click **OK**. The Shredding Param pane closes.

 **NOTE:** To delete a row from the **Format List**, select the row, and click **Delete**. You cannot delete the row defined as **Last Data**.

Deleting data on volumes (Shredding)

You can perform the Shredding operation on any given volume as many times and as often as you want.

1. In the Volume Management pane, check the **LDEV Information** table, and verify that the status of the target volume is **Blocked**.

 **NOTE:** If the status of the volume is not shown in the **LDEV Information** table, click **LDEV Status**. If the status of the volume is not **Blocked**, see “[Preparing for Shredding operations](#)” on page 14 for instructions on changing the status to **Blocked**.

2. Select the target volume in the **LDEV Information** table, and right click.
3. Select **Shredding**. A message appears.
4. Click **OK** to close the message. Information about the target volume is shown in blue and italics.
5. Click **Apply**. The Shredding Data Output pane appears. Data has not been deleted from the volumes.
6. Use the Shredding Data Output pane to specify how to save the Shredding Operation results.
To save the results, ensure that the volume appears in the **object Volume** list. If the volume does not appear in the **object Volume** list, select it in the **non-object Volume** list, and click **Add**. Note that the **object Volume** list can contain only three volumes.
If you do not want to save the results, ensure that the volume appears in the **non-object Volume** list. If the volume does not appear in the **non-object Volume** list, select it in the **object Volume** list, and click **Delete**.
7. Click **OK**. A message appears asking if want to apply the settings.
8. Click **OK** to apply the settings and begin the Shredding operation. During the Shredding operation, a status message appears.

△ **CAUTION:** If you click **Cancel** on the message panel to quit the Shredding operation, you cannot restart the Shredding operation. For instructions on canceling Shredding operations, see “[Canceling Shredding operations](#)” on page 16.

9. When the shredding operation is finished, a confirmation pane appears.
To download the file containing the results of the shredding operation, go to [step 10](#).
If you do not need to download the file, go to [step 12](#).

10. Click **Download**.


11. Select the folder where you want to download the file.

12. Click **OK**.

If you downloaded the file, the file is downloaded to the specified folder.

If you did not download the file, the confirmation pane closes.

When the Shredding operation is finished, the status of the previously shredded volume automatically changes from **Blocked** to **Normal**.

 **NOTE:** You can also click the **Download** button in the Volume Management pane to download the file containing the results of the Shredding operation. If you click **Download** in the Volume Management pane, all results of shredding operations are in the file to be downloaded. If you have not performed any shredding operations, an error occurs when you click **Download**.

Canceling Shredding operations

During the shredding operation, a message pane appears. To cancel Shredding during the operation, click **Cancel** in the message pane.

△ **CAUTION:** If you cancel shredding, you cannot restart the Shredding operation, and data on the volume cannot be assured.

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