

StorageWorks One Button Disaster Recovery (OBDR) for ProLiant Servers

User's Guide



GENERAL INFORMATION

Compatibility

HP StorageWorks One-Button Disaster Recovery (OBDR) for ProLiant servers is a standard feature on all HP tape drives and HP DAT autoloaders. However, it can only be used with specific configurations and will only recover your ProLiant server to which the HP tape device is directly connected.

To check whether your ProLiant system (hardware, operating system and backup software) is OBDR compatible, please refer to our World Wide Web site www.hp.com/go/connect.

If your system does not support OBDR, you can still use your HP tape device to back up and restore data. However, you must remember to create a separate set of emergency recovery disks for your operating system whenever you change your system configuration.

For more specific information concerning the benefits of OBDR and the latest new features please refer to our World Wide Web site www.hp.com/go/obdr.

What does OBDR do?

Using just the HP tape drive or DAT autoloader and the most recent backup cartridge, OBDR allows you to recover from the following types of system disaster:

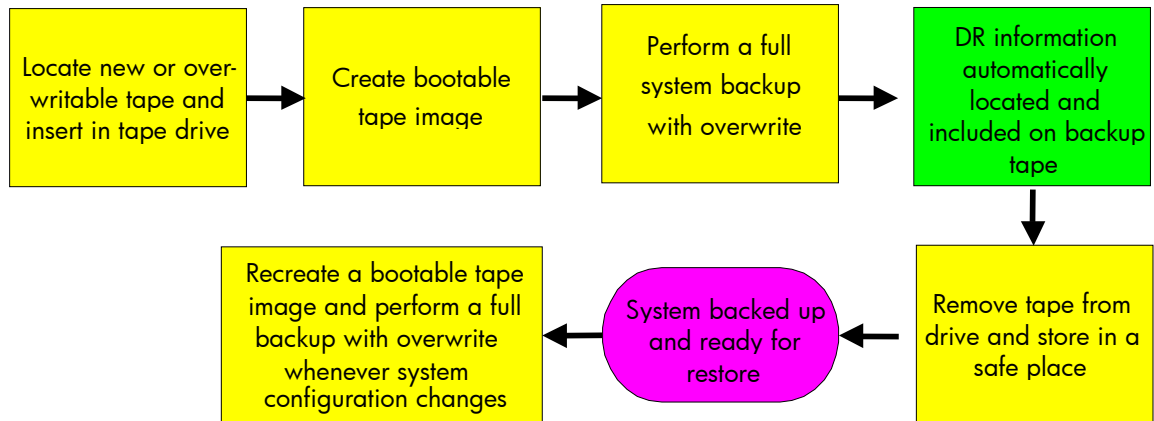
- Hard disk failures, as long as the replacement hard disk is the same size or larger than the original and uses the same interface (for example, replace a SCSI hard disk with another SCSI disk)
- Hardware failures where the server is replaced by an **identical** component
- File corruption because of an operating system error
- File corruption because of an application software error
- Viruses that prevent you from booting your system correctly
- User errors that stop you from booting your system correctly

When you run OBDR, your tape device goes through the following sequence:

1. It goes into a special disaster recovery mode that enables it to restore your operating system and reboot. It acts like a bootable CD-ROM. (Your system's ability to boot from CD-ROM is normally enabled by default. If you have changed this setting, you will need to enable it again. Refer to your system BIOS manual for further details.)
2. It returns to normal tape device mode and restores the data.

Creating the OBDR tape:

The procedure for creating an OBDR tape is simple. Once the ISV's Disaster Recovery option is installed (if required), every full backup with overwrite that is performed will create an OBDR disaster recovery tape. No additional work is required.



User operation

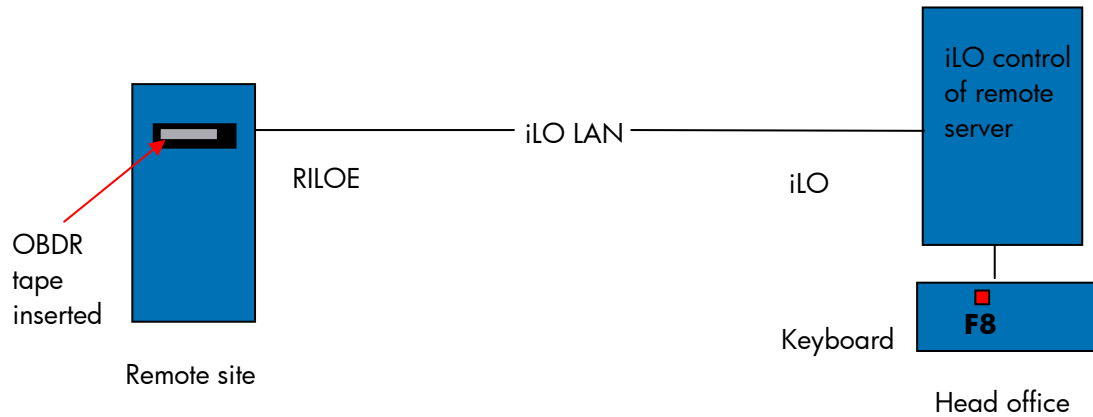
Automatic operation

Running OBDR

1. Repair or replace the defective hardware
2. If hard disks are replaced, run Option ROM Configuration for Arrays (ORCA) Utility to recreate RAID on Smart Arrays
3. Insert OBDR tape into the tape drive
4. Power on the server
5. Invoke OBDR on tape drive
6. Tape drive boots the tape in CD-ROM mode
7. Bootable mini OS is loaded into memory
8. User must choose one of the following:
 - Proceed with the recovery
 - Exit process
9. Mini OS and backup application files are copied to hard disk
10. Server reboots into mini OS, and tape drive switches back to normal tape mode
11. ISV wizard performs recovery at tape speed (streaming)
12. System reboots and recovery is complete

New simple keyboard shortcut for remotely located ProLiant servers:

- Insert the disaster recovery tape into the drive
- Restart the server and press the <F8> function key at the HP HBA BIOS prompt
- Follow the on-screen instructions to switch the tape drive into OBDR mode
- To perform this function remotely, it requires the HP Integrated Lights-Out (iLo) or Remote Insight Lights Out Edition (RILOE) board

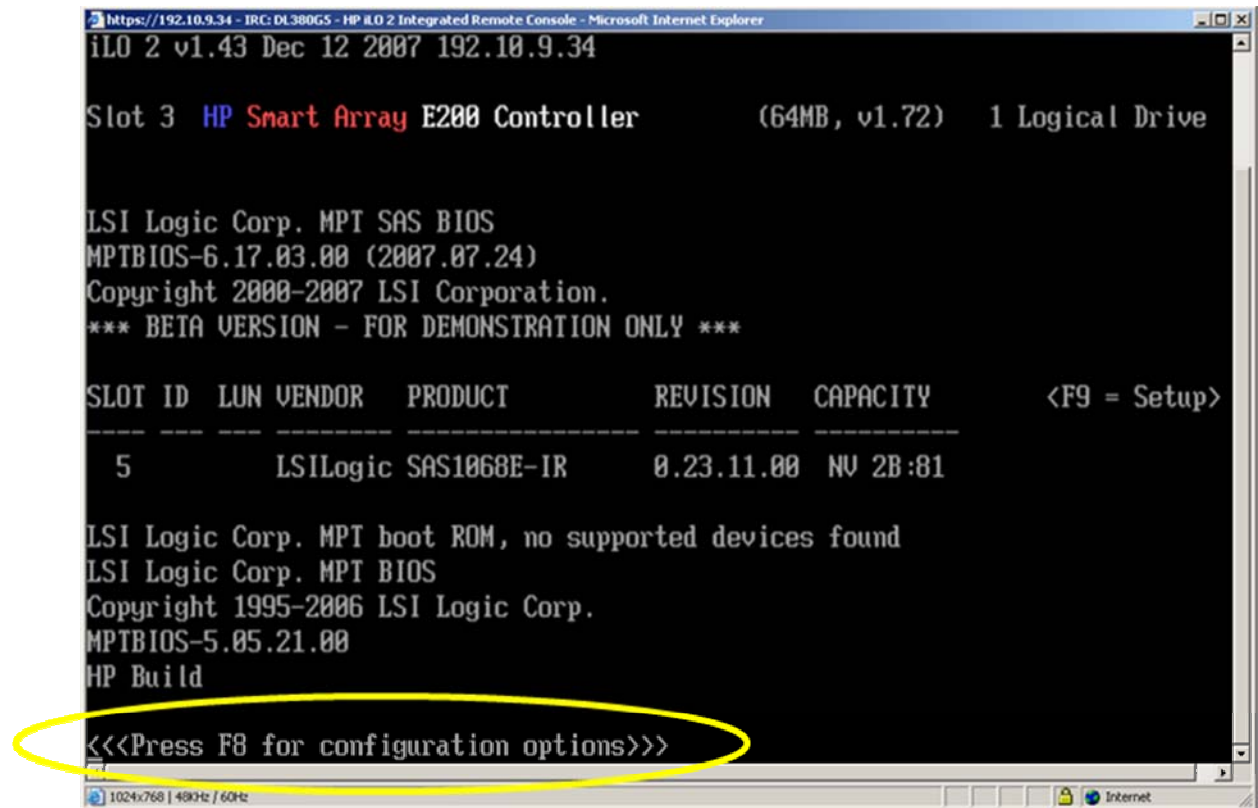


Initiating OBDR at POST; Tape device is connected to an U320 controller

Insert the OBDR tape media into the tape device

Turn on the ProLiant Server

Press the <F8> function key when prompted during POST



Select the tape drive to place into OBDR mode

```
5          LSILogic SAS1068E-IR      0.23.11.00  NV 2B:81

LSI Logic Corp. MPT boot ROM, no supported devices found
LSI Logic Corp. MPT BIOS
Copyright 1995-2006 LSI Logic Corp.
MPTBIOS-5.05.21.00
HP Build

Select a configuration option:
1. Tape-based One Button Disaster Recovery (OBDR).
2. Multi Initiator Configuration.
3. Exit.

compatible tape drives found      ->
NUM  HBA  SCSI ID  Drive information
0    0    3      - HP      Ultrium 2-SCSI

Please choose the NUM of the tape drive to place into OBDR mode.
```

The ProLiant server will reboot to place the tape drive into OBDR mode.
The tape drive now becomes a bootable device

```
*** BETA VERSION - FOR DEMONSTRATION ONLY ***

SLOT ID  LUN  VENDOR  PRODUCT          REVISION  CAPACITY  <F9 = Setup>
-----
5        LSILogic SAS1068E-IR  0.23.11.00  NV 2B:81

LSI Logic Corp. MPT boot ROM, no supported devices found
LSI Logic Corp. MPT BIOS
Copyright 1995-2006 LSI Logic Corp.
MPTBIOS-5.05.21.00
HP Build

*** Bootable media located, Emulating CD-ROM as Hard Disk C: ***

HBA ID  LUN  VENDOR  PRODUCT          REV  SYNC  WIDE  CAPACITY
-----
0    3    0    HP      Ultrium 2-SCSI    S63D
0    7    0    LSILogic LSI1030-IT      1032700 320.0 16
```

Initiating OBDR at POST; Tape device is connected to a Smart Array 6i controller

Insert the OBDR tape media into the tape device.

Turn on the ProLiant Server.

Press the <F8> function key at POST to run the Option ROM Configuration for Arrays Utility (ORCA).

```
1024 MB Initialized / 1024 MB Detected

ProLiant System BIOS - P51 (08/26/2004)
Copyright 1982, 2004 Hewlett-Packard Development Group, L.P.

Processor 1 initialized at 3.20 GHz/800 MHz(1 Mbyte L2)

Advanced Memory Protection Mode: Advanced ECC Support
Redundant ROM Detected - This system contains a valid backup system ROM.
No Legacy Floppy Drive Present

Integrated Lights-Out Advanced 1.62 Aug 05 2004 192.10.10.20

Slot 0  HP Smart Array 6i Controller          (64MB, v2.32)   1 Logical Drive
Tape or CD-ROM Drive(s) Detected:
        SCSI Port 1:  SCSI ID 3

Press <F8> to run the Option ROM Configuration for Arrays Utility
Press <ESC> to skip configuration and continue
```

Select the "Delete Logical Drive" option

```
Option Rom Configuration for Arrays, version 2.44
Copyright 2003 Hewlett-Packard Development Company, L.P.

Controller: HP Smart Array 6i, slot 0
Direct-Attached Storage

Main Menu
Create Logical Drive
View Logical Drive
Delete Logical Drive
Configure OBDR

<Enter> to delete an existing logical drive
<UP/DOWN ARROW> to select main menu option; <ESC> to exit
Note: For more configuration options use the HP Array Configuration Utility
```

Press <F8> to delete the logical drive

```
Option Rom Configuration for Arrays, version 2.44
Copyright 2003 Hewlett-Packard Development Company, L.P.

Controller: HP Smart Array 6i, slot 0
Direct-Attached Storage

-----Available Logical Drives-----
Logical Drive # 1, RAID 1, 33.9 GB, OK

<F8> to delete the logical drive
<UP/DOWN ARROW> to scroll; <ESC> to return
Note: For more configuration options use the HP Array Configuration Utility
```

Press <F3> to continue

```
Option Rom Configuration for Arrays, version 2.44
Copyright 2003 Hewlett-Packard Development Company, L.P.

Controller: HP Smart Array 6i, slot 0
Direct-Attached Storage

Warning
This will result in complete data loss
for this logical drive.

You have selected to delete logical drive
# 1, RAID 1, 33.9GB with 2 physical drive(s)

Press <F3> to delete the logical drive
Press <ESC> to cancel

<F3> to delete the logical drive
<ESC> to cancel
Note: For more configuration options use the HP Array Configuration Utility
```

Create a new logical drive

```
Option Rom Configuration for Arrays, version 2.44
Copyright 2003 Hewlett-Packard Development Company, L.P.

Controller: HP Smart Array 6i, slot 0
Direct-Attached Storage

-----Main Menu-----
Create Logical Drive
View Logical Drive
Delete Logical Drive
Configure OEDR

<Enter> to create a new logical drive
<UP/DOWN ARROW> to select main menu option; <ESC> to exit
Note: For more configuration options use the HP Array Configuration Utility
```

(Example)

```
Option Rom Configuration for Arrays, version 2.44
Copyright 2003 Hewlett-Packard Development Company, L.P.

Controller: HP Smart Array 6i, slot 0
Direct-Attached Storage

--Available Physical Drives--
[X] SCSI Port 2, ID 0, COMPAQ 36.4 GB
[X] SCSI Port 2, ID 1, COMPAQ 36.4 GB

--Raid Configurations--
[ ] RAID 5
[X] RAID 1 (1+0)
[ ] RAID 0

--Spare--
[ ] Use one drive as spare

--Maximum Boot partition--
[X] Disable (4GB maximum)
[ ] Enable (8GB maximum)

<Enter> to create a logical drive; <Tab> to navigate
<UP/DOWN ARROW> to scroll; <ESC> to return; <Space Bar> to select
Note: For more configuration options use the HP Array Configuration Utility
```

Save the configuration

```
Option Rom Configuration for Arrays, version 2.44
Copyright 2003 Hewlett-Packard Development Company, L.P.

Controller: HP Smart Array 6i, slot 0
Direct-Attached Storage

You have selected a logical drive with a total
data size of 33.9 GB and RAID 1 fault tolerance.

Press <F8> to save the configuration
Press <ESC> to cancel

--<F8> to save the configuration
--<ESC> to cancel

Note: For more configuration options use the HP Array Configuration Utility
```


Select the "Configure OBDR" option

```
Option Rom Configuration for Arrays, version 2.44
Copyright 2003 Hewlett-Packard Development Company, L.P.

Controller: HP Smart Array 6i, slot 0
Direct-Attached Storage

Main Menu
Create Logical Drive
View Logical Drive
Delete Logical Drive
Configure OBDR

<Enter> to configure Tape Drive for Disaster Recovery
<UP/DOWN ARROW> to select main menu option; <ESC> to exit
Note: For more configuration options use the HP Array Configuration Utility
```

Accept the setting

(Example)

```
Option Rom Configuration for Arrays, version 2.44
Copyright 2003 Hewlett-Packard Development Company, L.P.

Controller: HP Smart Array 6i, slot 0
Direct-Attached Storage

DR Tape Drives
[X] SCSI Port 1, ID 3, HP Ultrium 3-SCSI

<Enter> to accept setting
<UP/DOWN ARROW> to scroll; <ESC> to return
Note: For more configuration options use the HP Array Configuration Utility
```

Press <F8> to place the tape drive into OBDR mode

```
Option Rom Configuration for Arrays, version 2.44
Copyright 2003 Hewlett-Packard Development Company, L.P.

Controller: HP Smart Array 6i, slot 0
Direct-Attached Storage

Press <F8> to set Tape Drive to OBDR mode
Press <ESC> to cancel

<F8> to set Tape Drive to OBDR mode
<ESC> to cancel
Note: For more configuration options use the HP Array Configuration Utility
```

The tape drive is now in OBDR mode

```
1024 MB Initialized / 1024 MB Detected

ProLiant System BIOS - P51 (08/26/2004)
Copyright 1982, 2004 Hewlett-Packard Development Group, L.P.

Processor 1 initialized at 3.20 GHz/800 MHz(1 Mbyte L2)

Advanced Memory Protection Mode: Advanced ECC Support
Redundant ROM Detected - This system contains a valid backup system ROM.
No Legacy Floppy Drive Present

Integrated Lights-Out Advanced 1.62 Aug 05 2004 192.10.10.20

Slot 0  HP Smart Array 6i Controller          (64MB, v2.32)   1 Logical Drive
Tape or CD-ROM Drive(s) Detected:
SCSI Port 1:  SCSI ID 3

*** System will boot from Tape/CD/OBDR device attached to Smart Array.
LSI Logic Corp. HP BIOS
Copyright 1995-2005 LSI Logic Corp.
MPTBIOS-5.05.18.03
HP Build
```

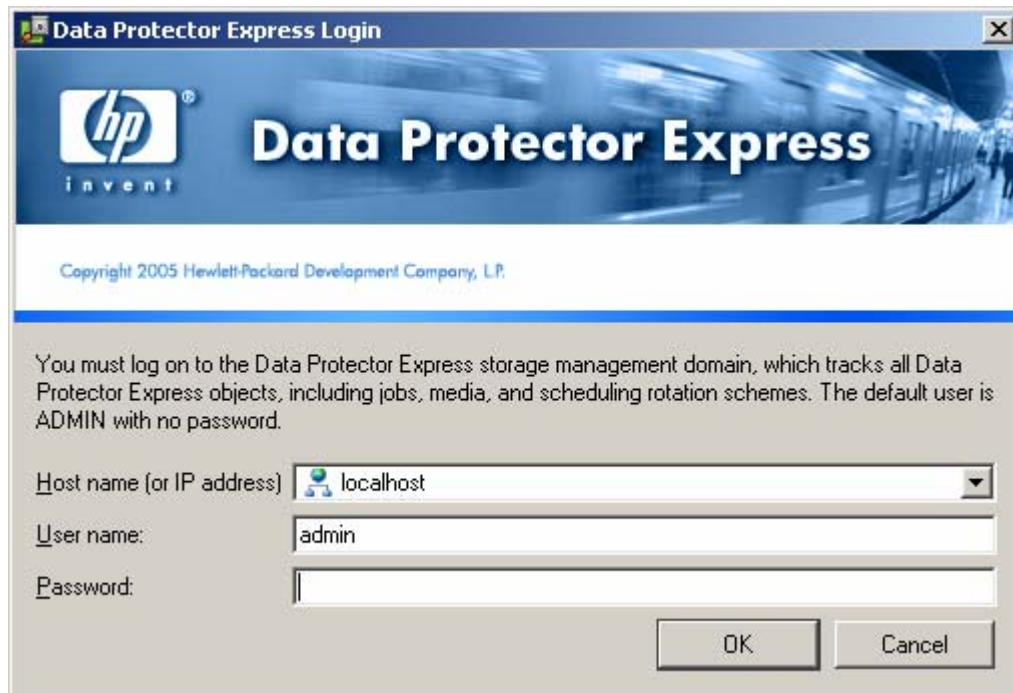
Using OBDR with HP StorageWorks Data Protector Express (DPX) Standard or Single Server Edition

General Information:

- DPX Standard Edition is available at www.hp.com/go/dataprotectorexpress
- DPX Single Server Edition ships free with all HP DAT and Ultrium tape drives and DAT autoloaders.
- Both editions have a free evaluation period of 60 days.
- A permanent license key can be obtained after registering DPX

Creating the OBDR Backup Tape

Log into the DPX Domain



The image shows a Windows-style dialog box titled "Data Protector Express Login". The dialog has a blue header bar with the HP logo and the text "Data Protector Express". Below the header, it says "Copyright 2005 Hewlett-Packard Development Company, L.P.". The main body of the dialog contains the following text: "You must log on to the Data Protector Express storage management domain, which tracks all Data Protector Express objects, including jobs, media, and scheduling rotation schemes. The default user is ADMIN with no password." Below this text are three input fields: "Host name (or IP address)" with a dropdown menu showing "localhost", "User name:" with a text box containing "admin", and "Password:" with an empty text box. At the bottom right are "OK" and "Cancel" buttons.

Data Protector Express Login

hp invent Data Protector Express

Copyright 2005 Hewlett-Packard Development Company, L.P.

You must log on to the Data Protector Express storage management domain, which tracks all Data Protector Express objects, including jobs, media, and scheduling rotation schemes. The default user is ADMIN with no password.

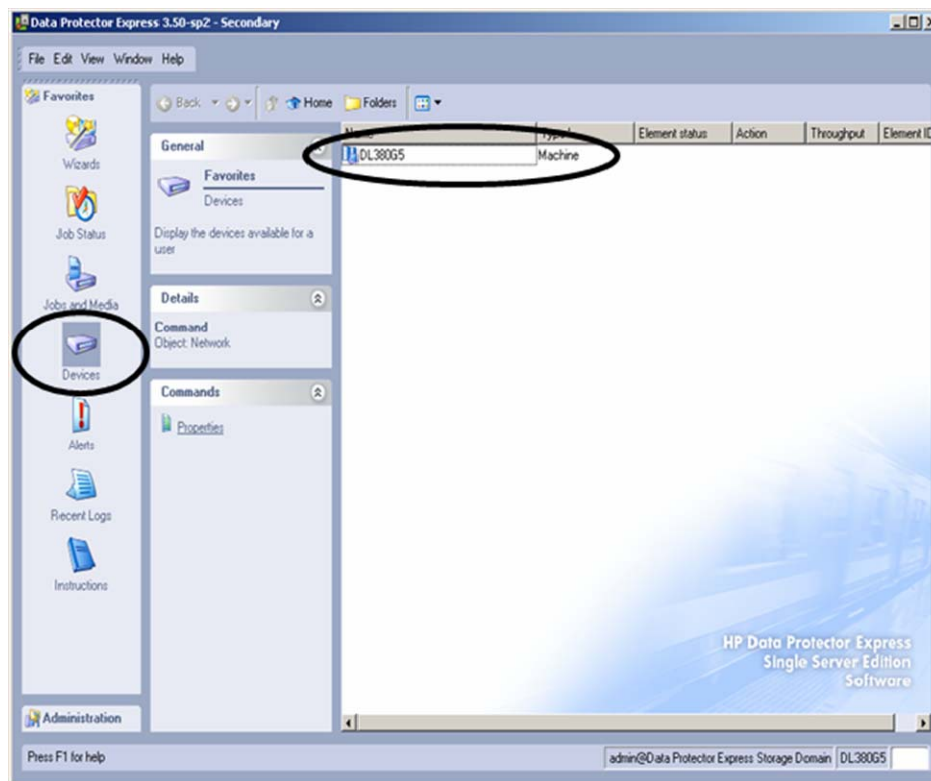
Host name (or IP address)

User name:

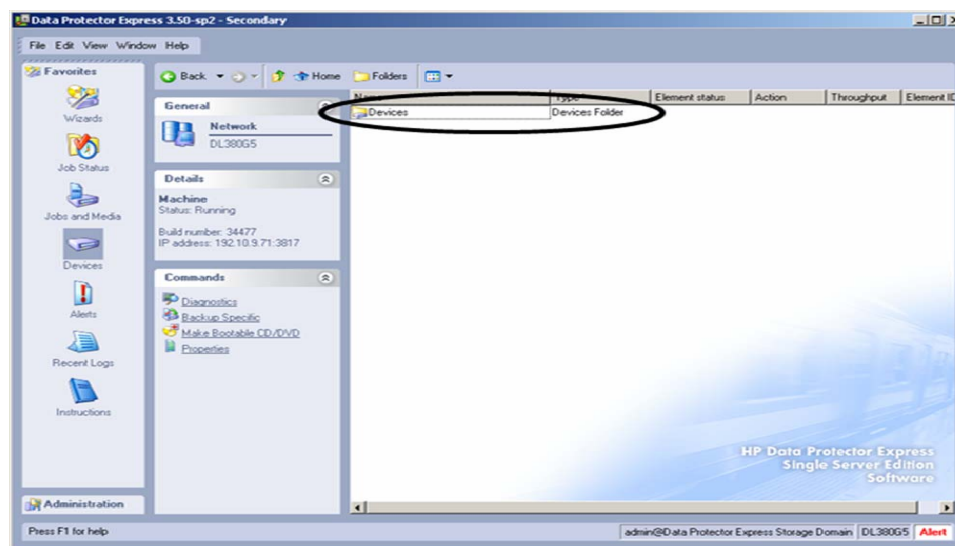
Password:

OK Cancel

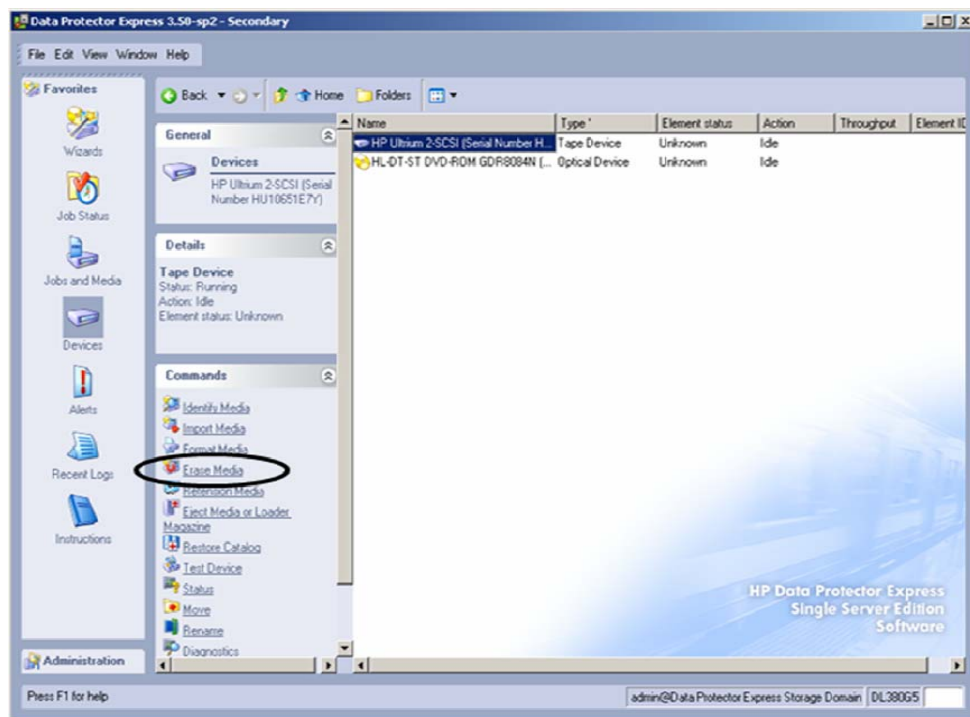
Select Devices and Double-click "Server"



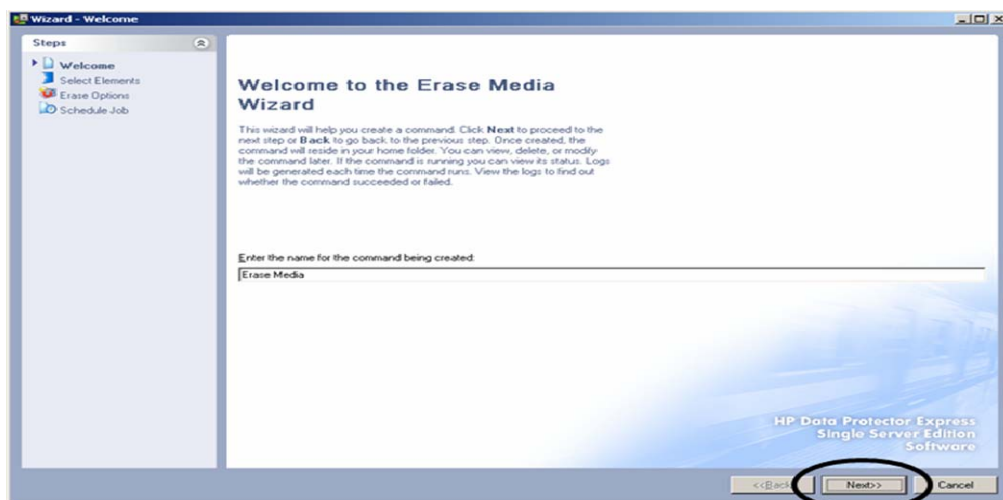
Double-Click "Devices"



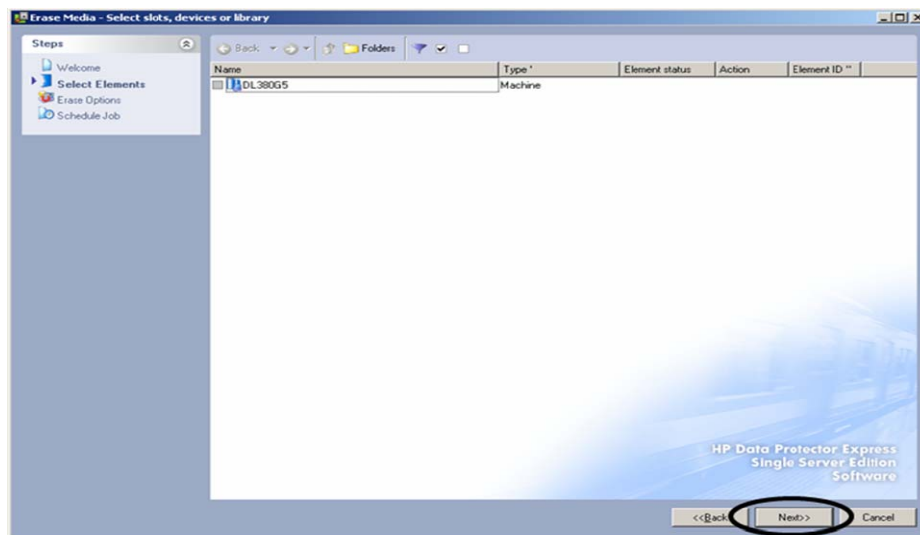
Select the tape drive you want to create the OBDR tape with and Erase Media



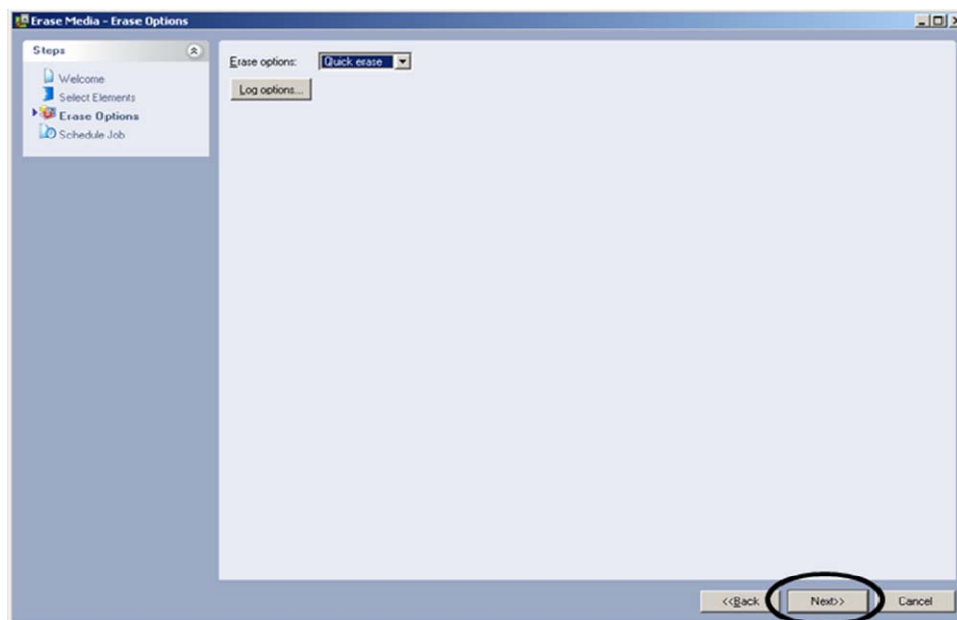
Click "Next"



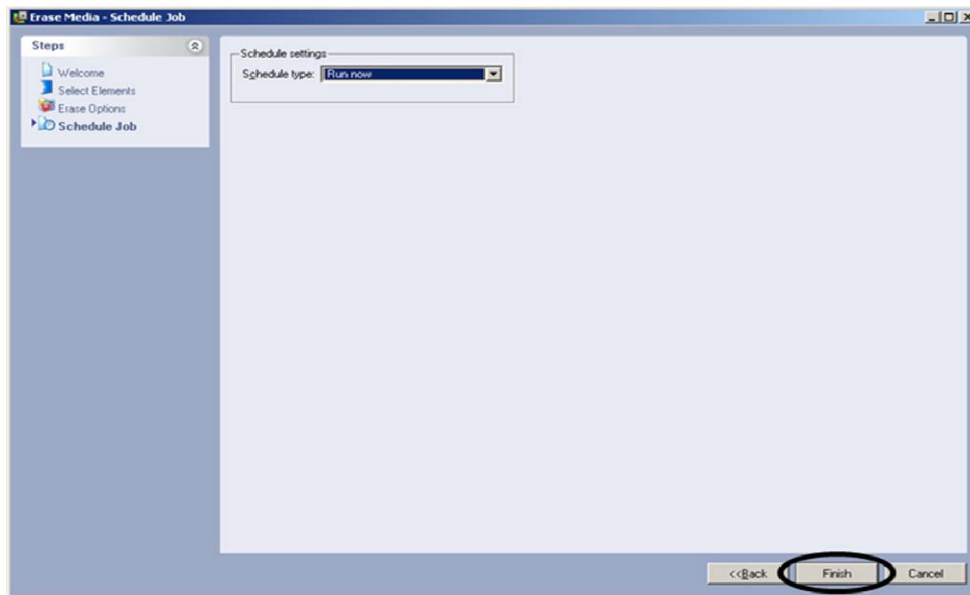
Select Elements, Click "Next"



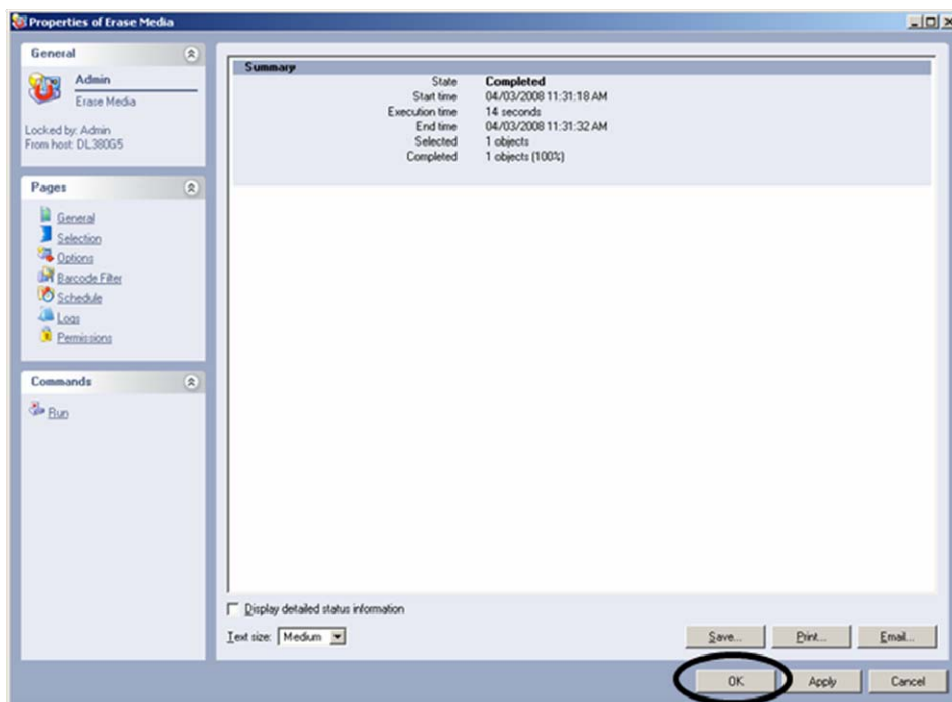
Erase Options, Click "Next"



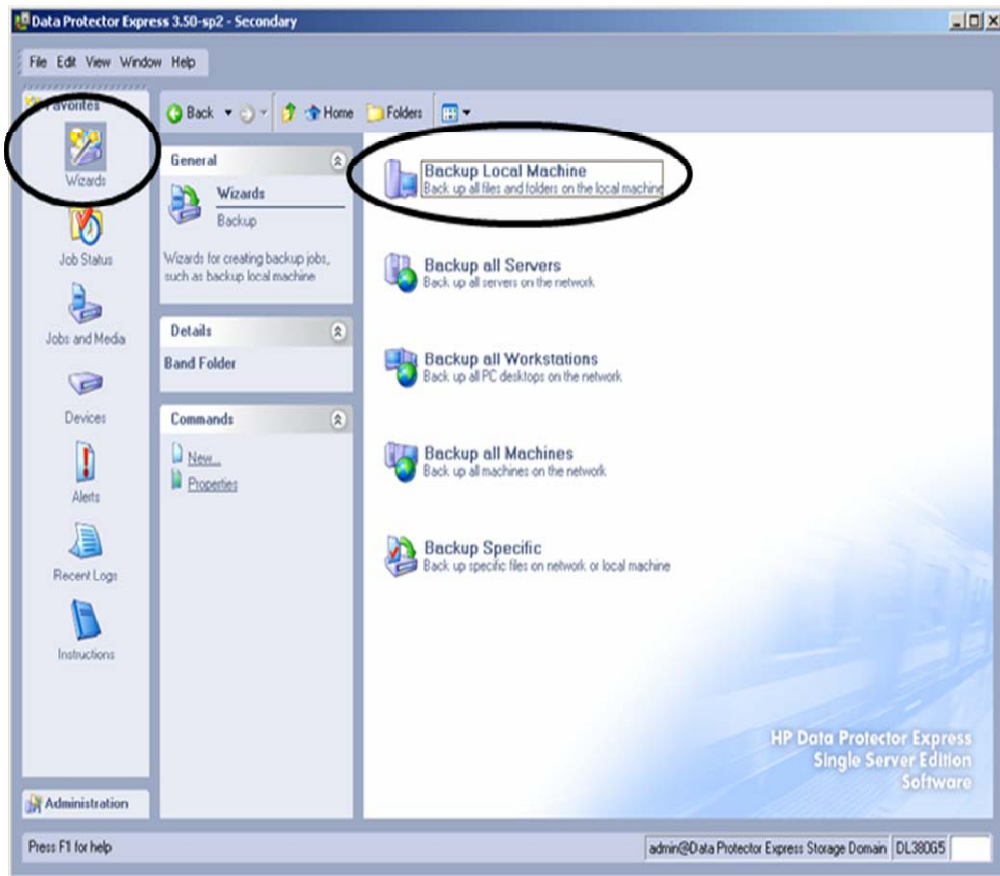
Schedule Job, Click “Next”



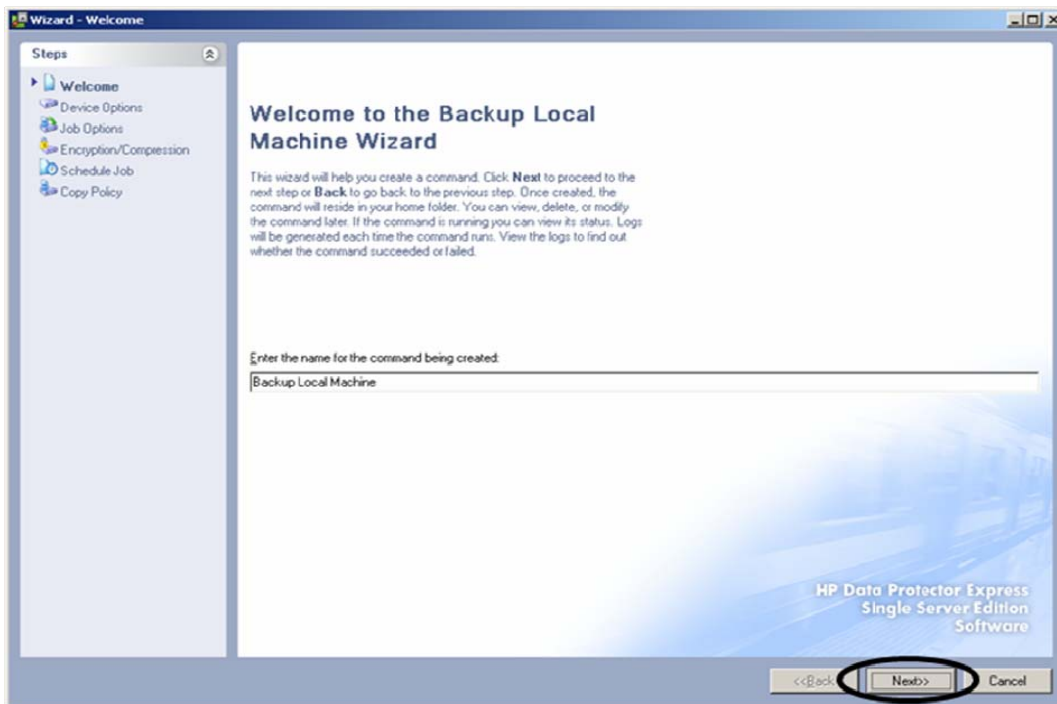
Job Completed, Click “OK”



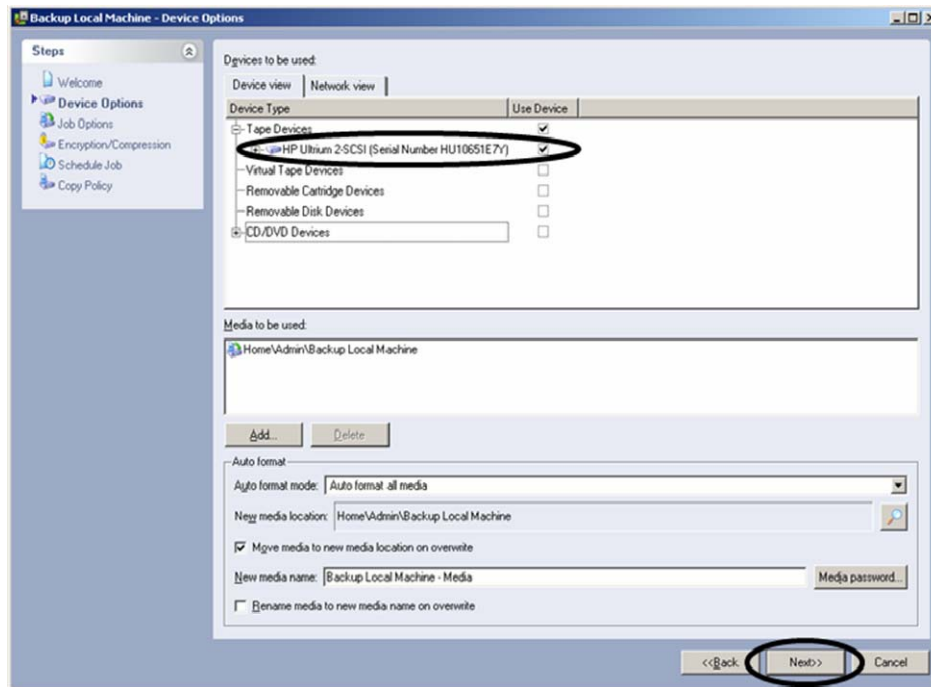
Select the "Backup" wizard, Double-Click "Backup Local Machine"



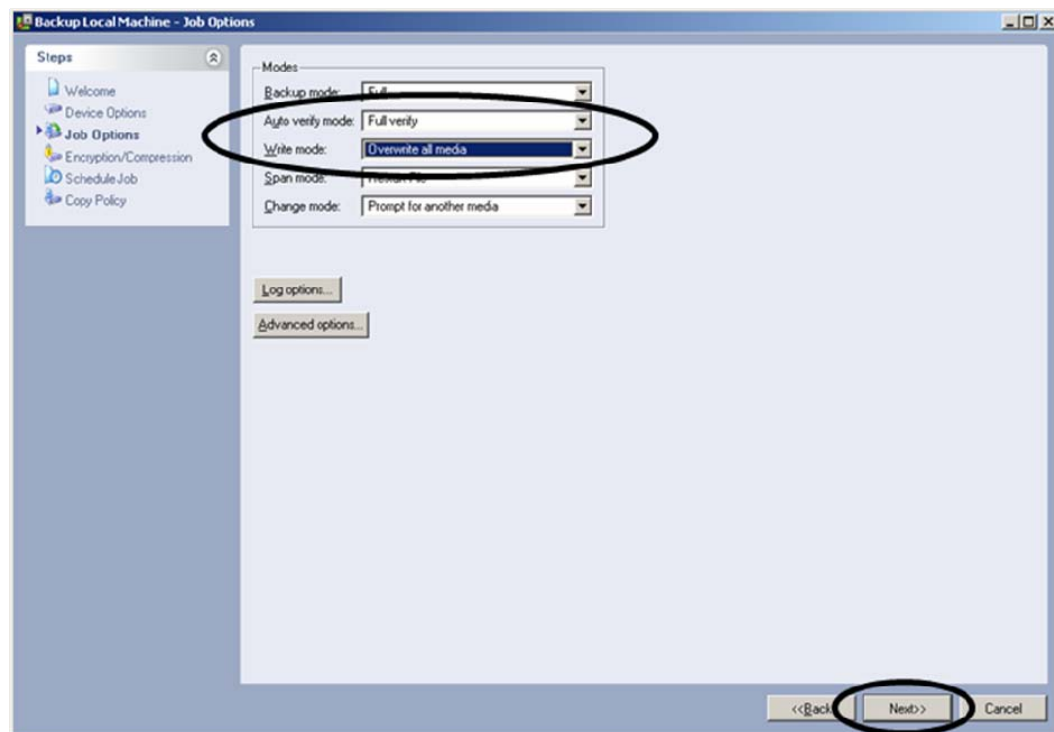
"Backup Local Machine Wizard" appears



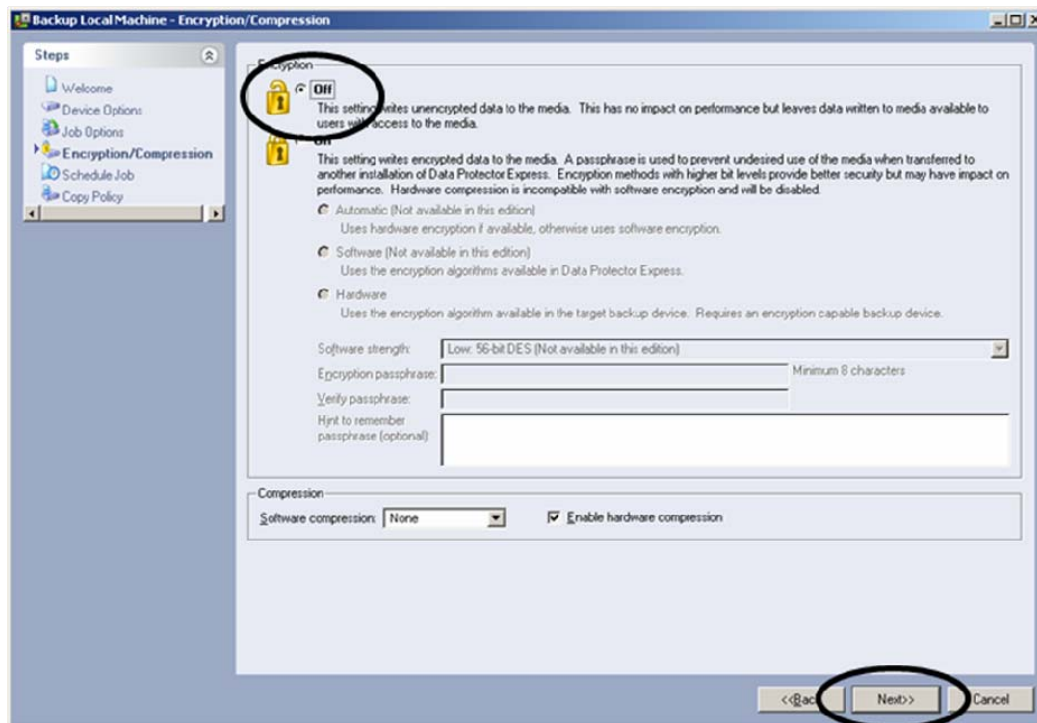
“Device Options” (Ensure tape device is checked), Click “Next”



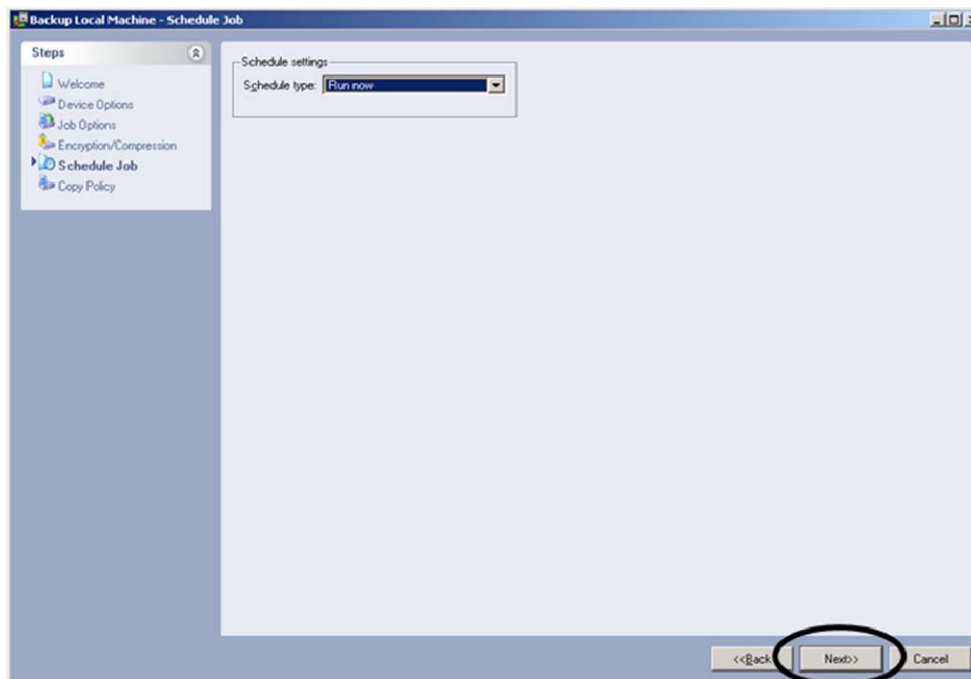
Make sure the Backup mode is “full” and the Write mode is “Overwrite all media”



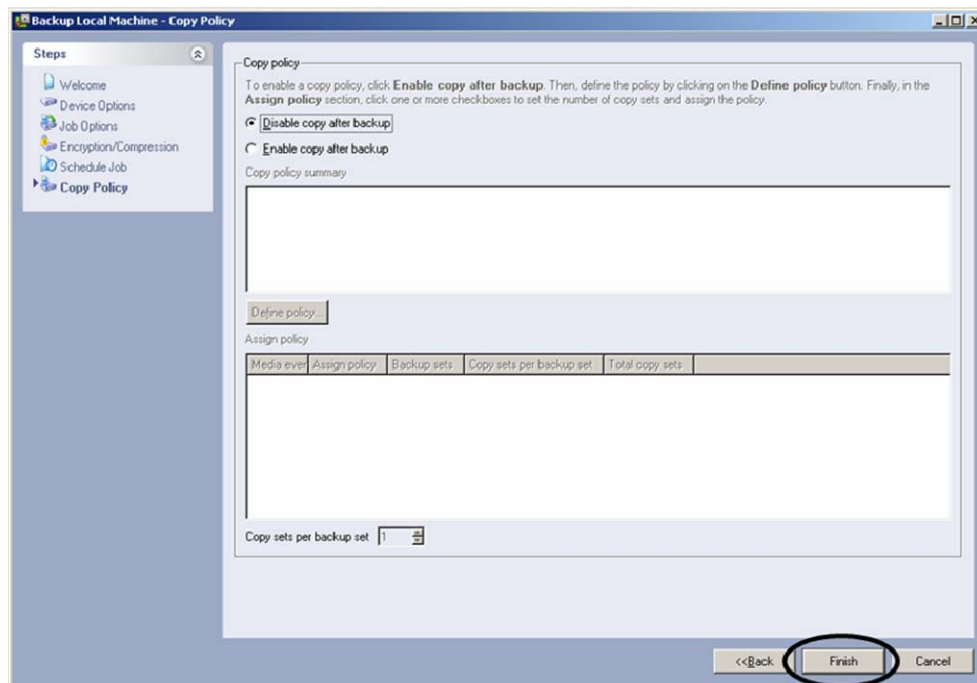
Encryption/Decryption (Select “Off” and Click “Next”)



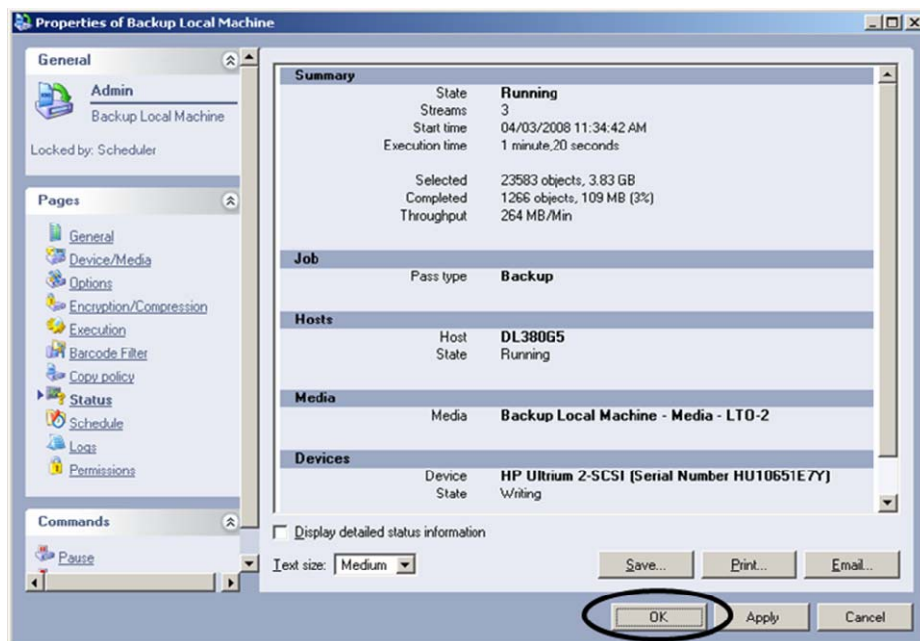
Schedule Job to Run Now and Click “Next”



Copy Policy (Leave as Default, Click "Finish")



Job Status (Once State shows Completed, Click OK then Shutdown server to prepare for OBDR recovery).



Once the OBDR tape has been created, it should be stored in a safe and secure location in case it is needed to restore your ProLiant server

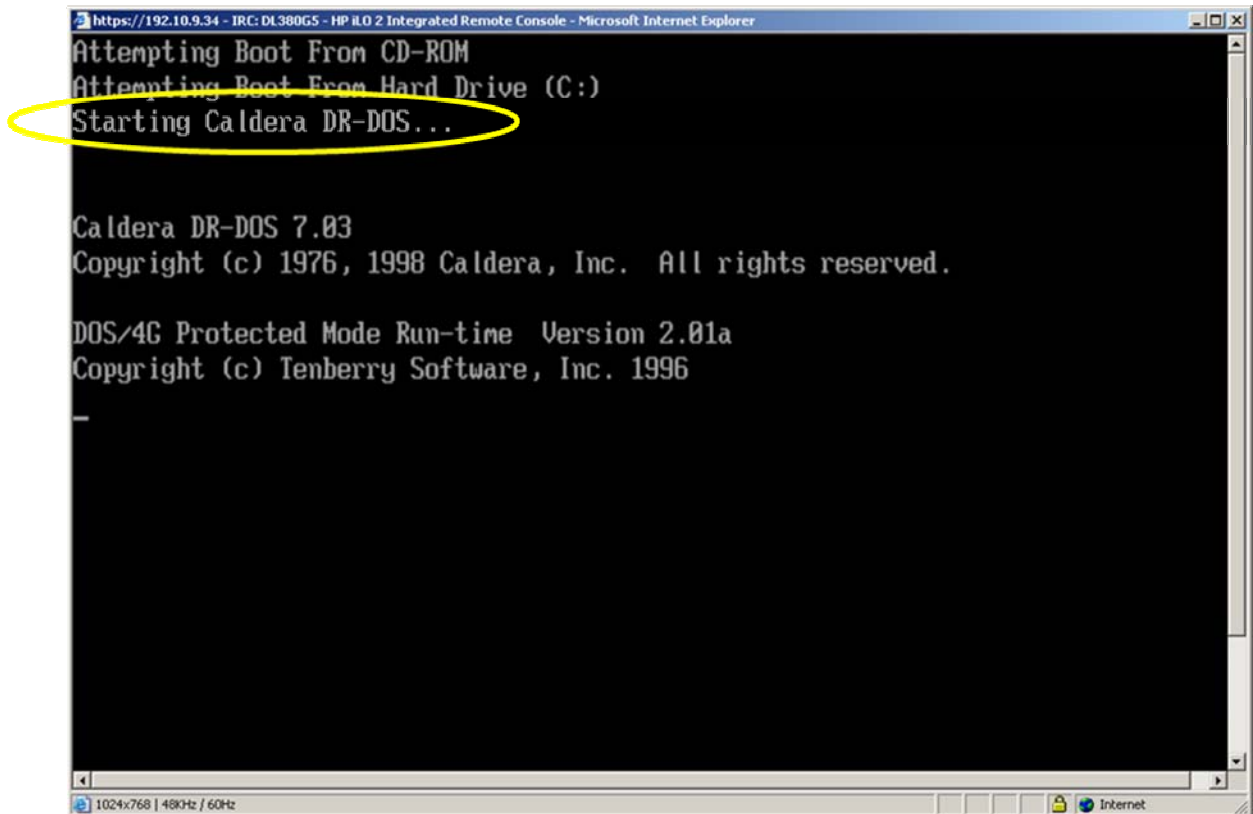
Performing an OBDR restore

Insert the OBDR tape media into the HP tape drive or DAT autoloader

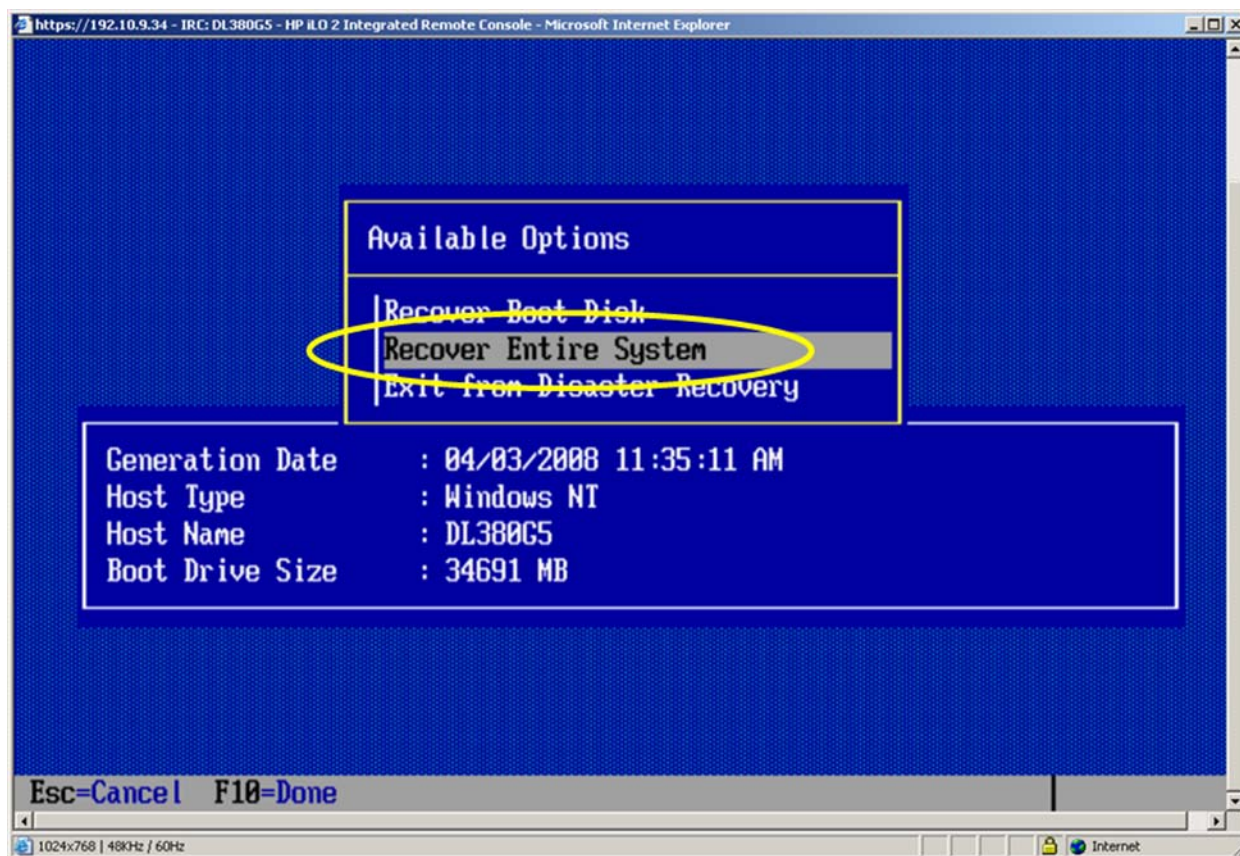
Place the HP tape drive or DAT autoloader into OBDR mode using one of the following methods:

1. Hold the eject button and power cycle the tape device if it is externally connected to your ProLiant server
2. Hold the eject button and power cycle the ProLiant server if the tape device is internally connected
3. Press the <F8> function key at POST and follow the on-screen prompts

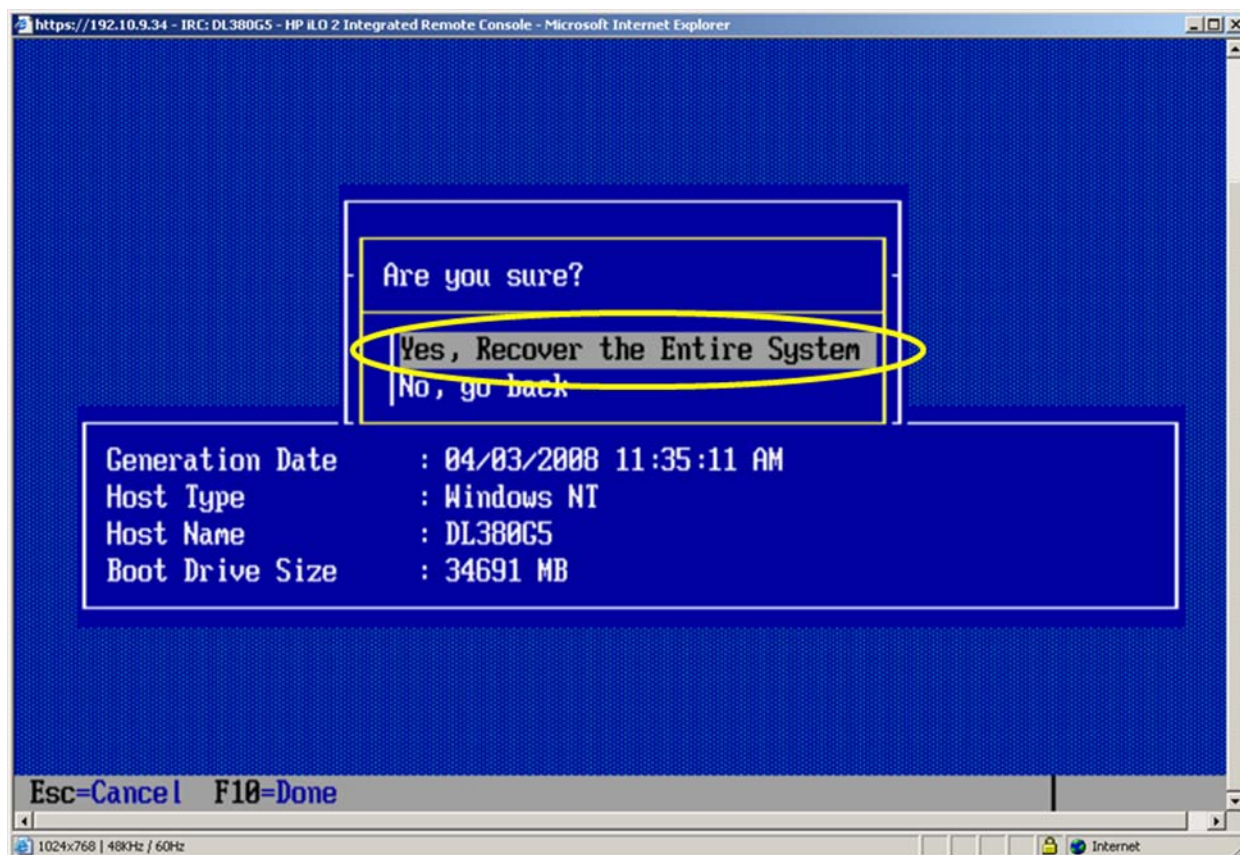
The tape device has been successfully placed into OBDR mode, and the restore process started when the following screen appears:



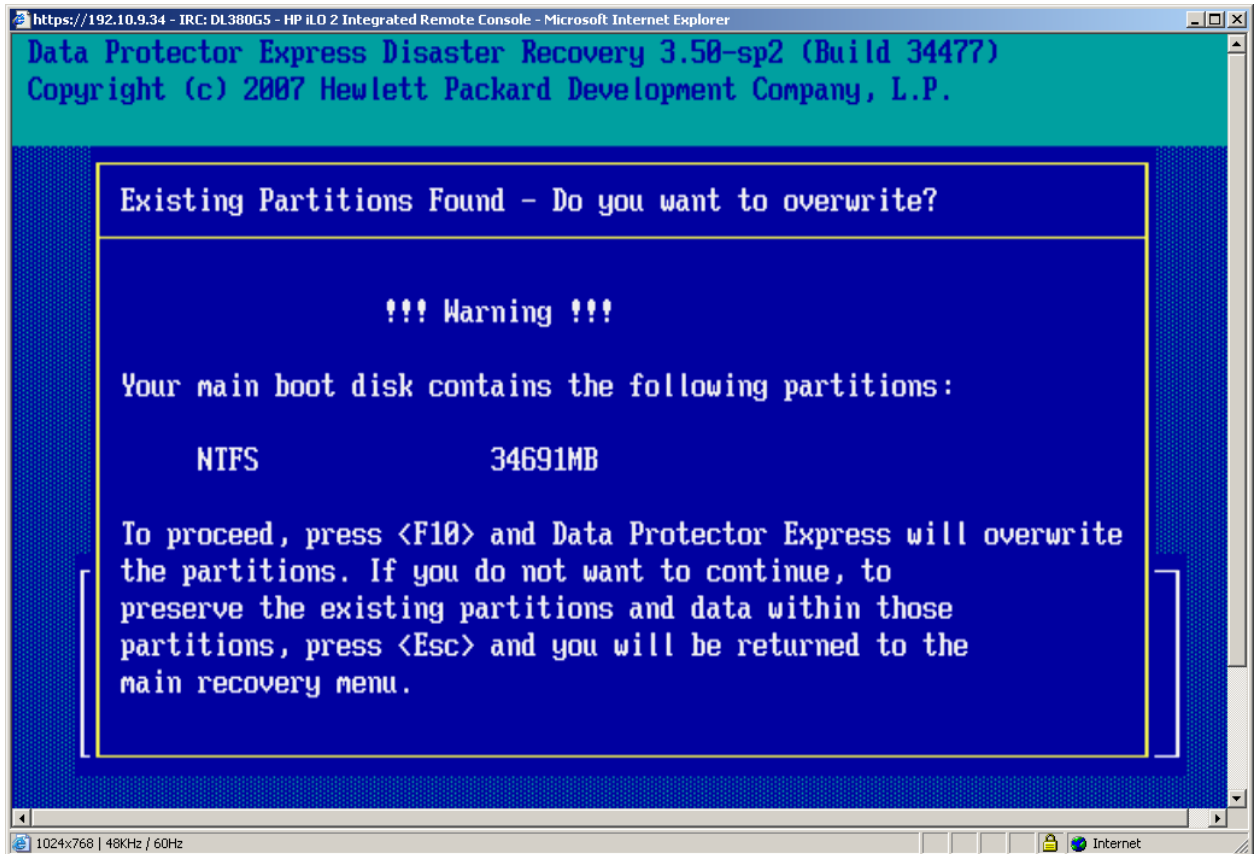
Recover Entire System



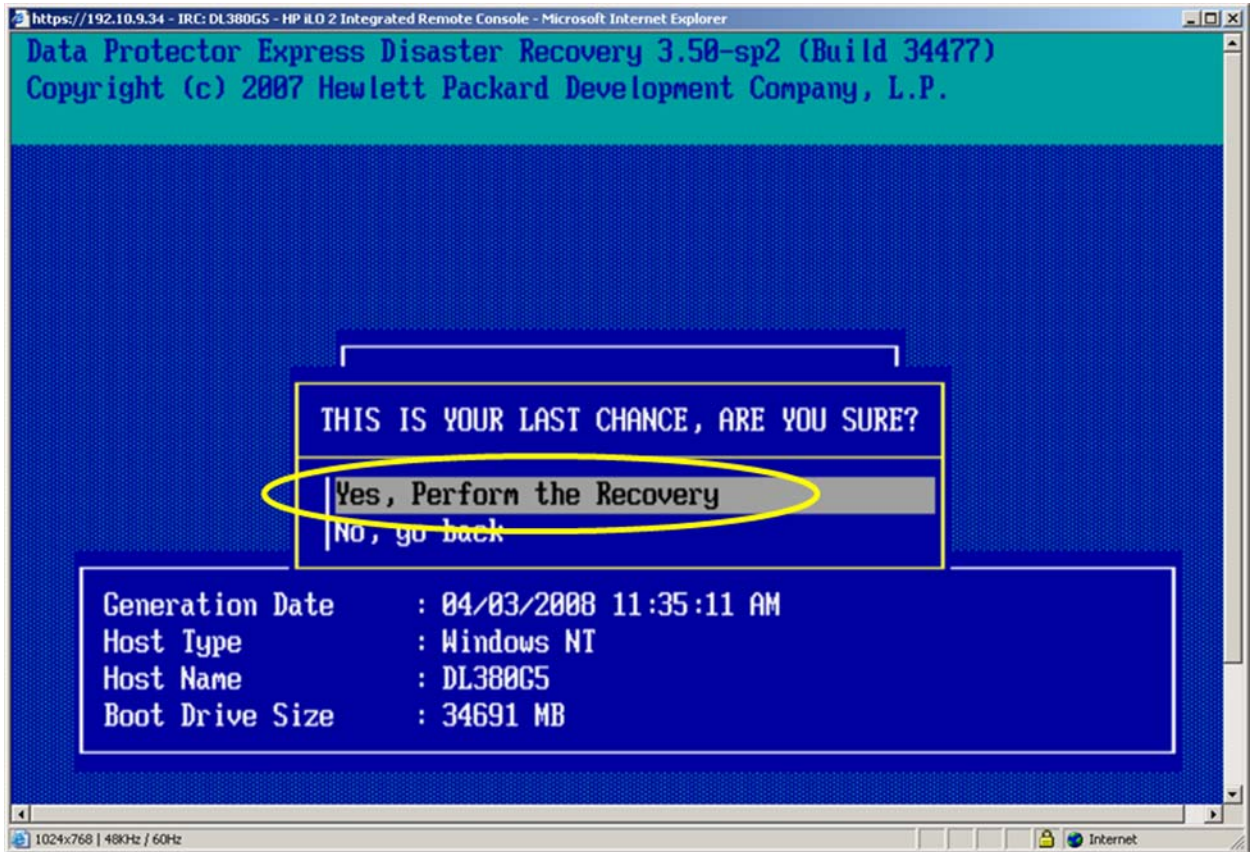
Yes, Recover the Entire System



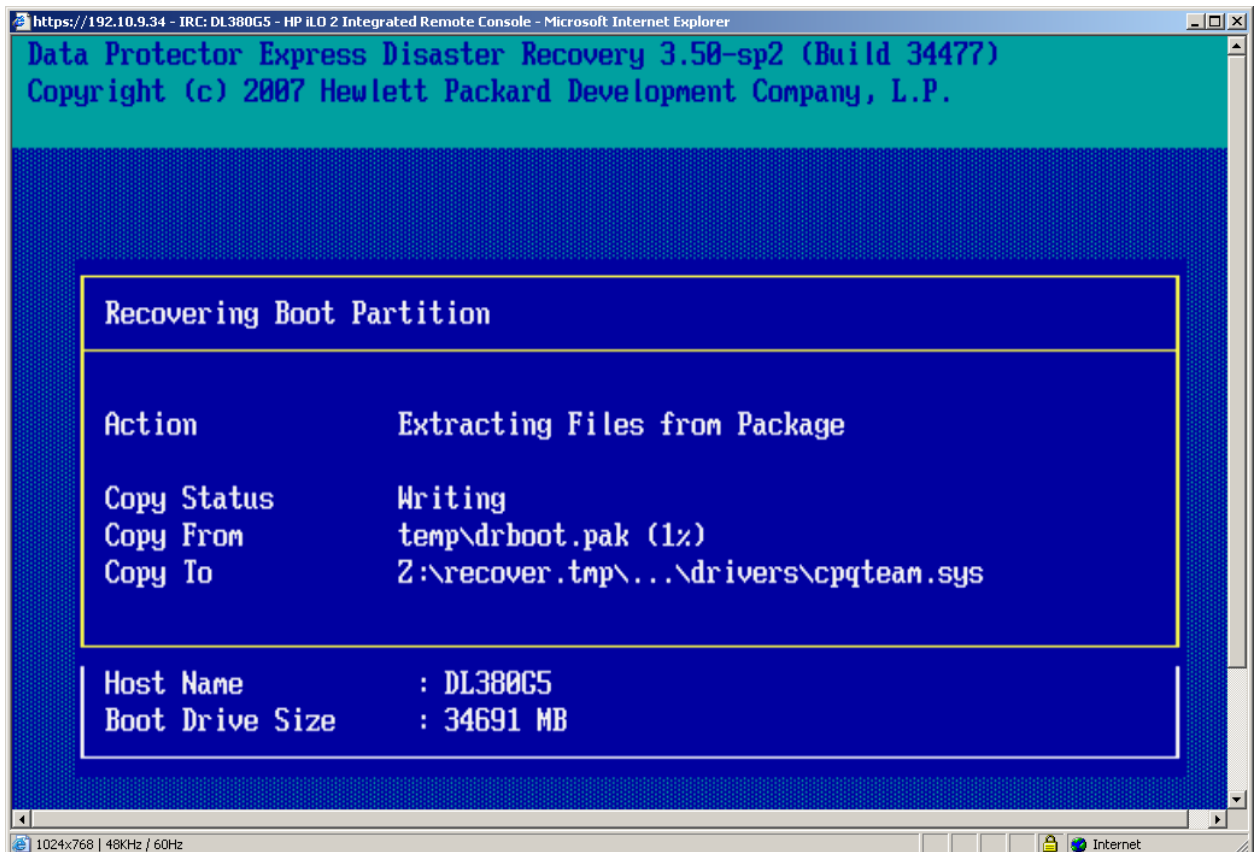
Overwrite Partitions, Click "F10"



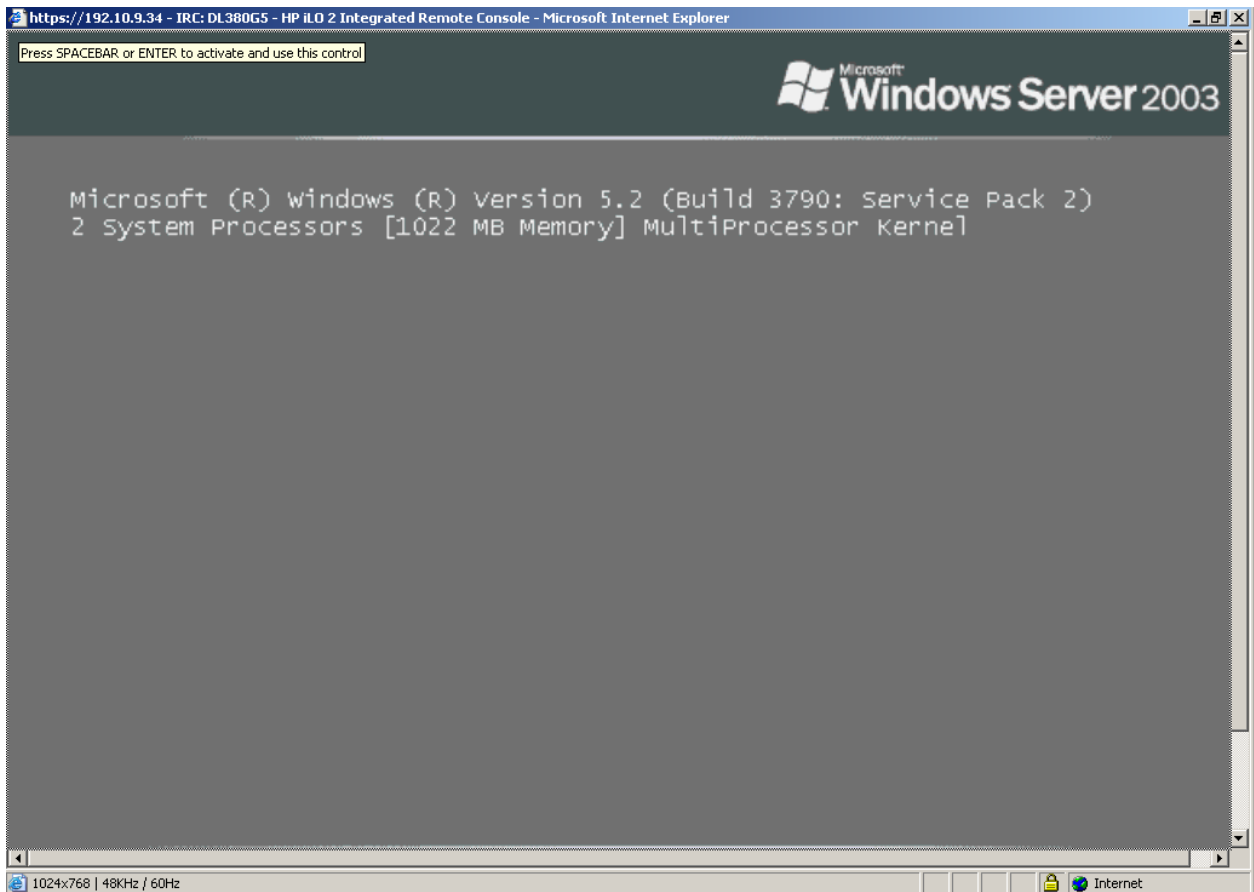
Last Chance, Are you Sure?



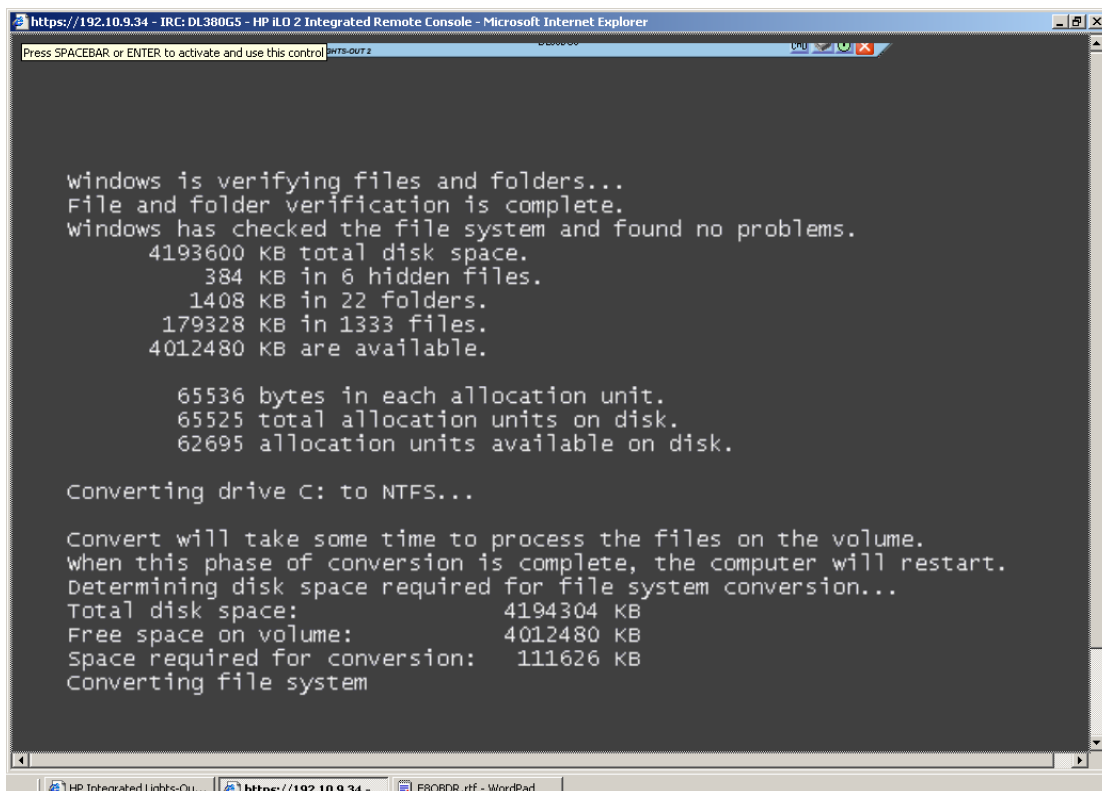
Mini-OS Installation from Tape (No user intervention required)



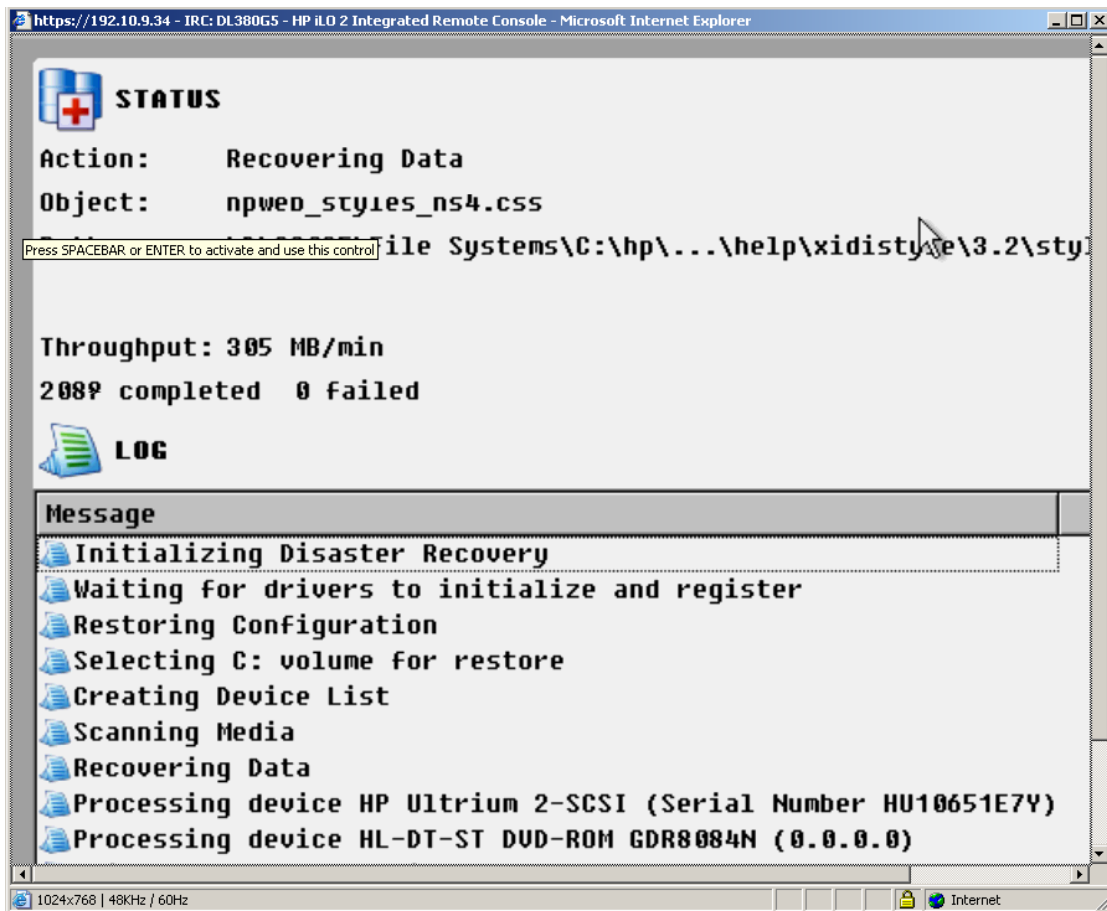
No user intervention required



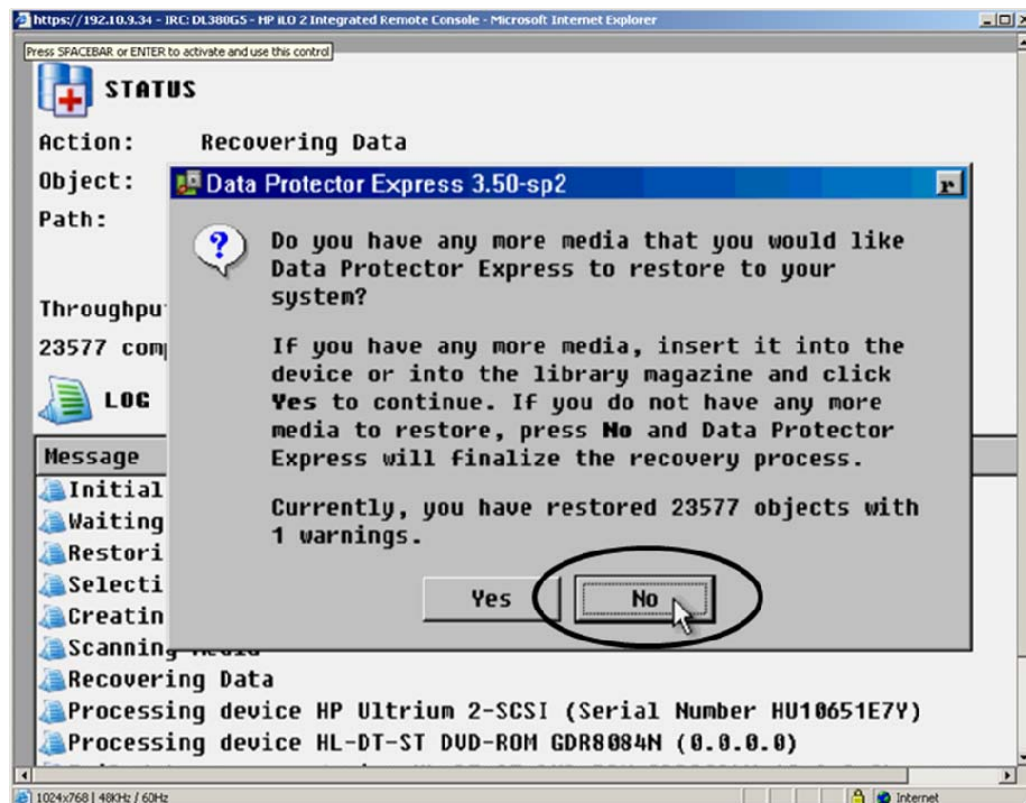
No user intervention required



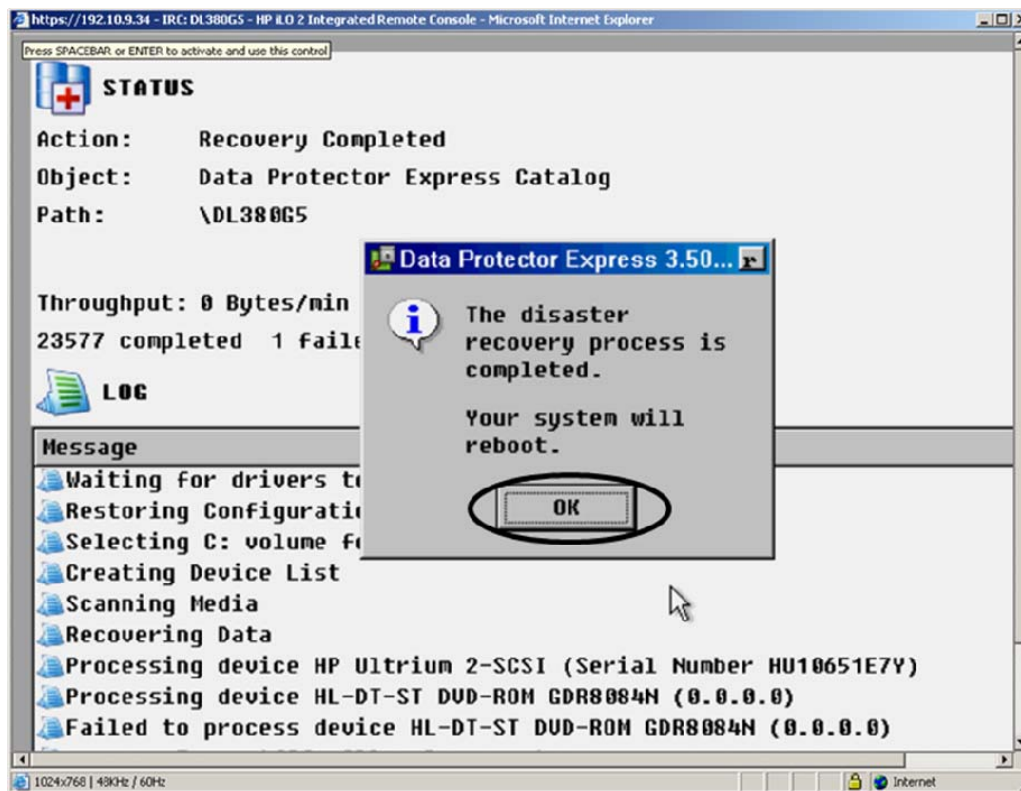
No user intervention required



More Media to Recover? Click "No"



OBDR Completed, Click "OK." Server will automatically reboot.



Server has now been recovered.

