



Hitachi Data Instance Director

Disaster Recovery Reference

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Preface

This document describes how you can create an ISO image for disaster recovery, and how to use the image to restore a designated destination machine from an existing backup.

This preface includes the following information:

- [Intended Audience](#)
- [Software Version](#)
- [Related Documents](#)
- [Document Revision Level](#)
- [Document Conventions](#)
- [Accessing Product Documentation](#)
- [Getting Help](#)
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Intended audience

This document is intended for system administrators and other users who are responsible for operating Hitachi Data Instance Director, and providing data recovery support.

Software version

This document revision applies to Data Instance Director version 5.0.0 or later.

Related documents




- *Hitachi Data Instance Director Software Version 5.0.0 Release Notes*, RN-93HDIM00
- *Hitachi Data Instance Director User's Guide*, MK-93HDIM001

Document conventions

This document uses the following typographic conventions:

Convention	Description
Bold	Indicates text on a window, other than the window title, including menus, menu options, buttons, fields, and labels. Example: Click OK .
<i>Italic</i>	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: <i>copy source-file target-file</i> Note: Angled brackets (< >) are also used to indicate variables.
screen/code	Indicates text that is displayed on screen or entered by the user. Example: # <code>pairdisplay -g oradb</code>
< > angled brackets	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: # <code>pairdisplay -g <group></code> Note: Italic font is also used to indicate variables.
[] square brackets	Indicates optional values. Example: [a b] indicates that you can choose a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a b } indicates that you must choose either a or b.
vertical bar	Indicates that you have a choice between two or more options or arguments. Examples: [a b] indicates that you can choose a, b, or nothing. { a b } indicates that you must choose either a or b.

This document uses the following icons to draw attention to information:

Icon	Label	Description
	Note	Calls attention to important and/or additional information.
	Tip	Provides helpful information, guidelines, or suggestions for performing tasks more effectively.
	Caution	Warns the user of adverse conditions and/or consequences (e.g., disruptive operations).

Accessing product documentation

The Data Instance Director user documentation is available on the Hitachi Data Systems Portal: <https://portal.hds.com>. Check this site for the most current documentation, including important updates that may have been made after the release of the product.

Getting help

The Hitachi Data Systems Support Center staff is available 24 hours a day, seven days a week. If you need technical support, log on to the Hitachi Data Systems Portal for contact information: <https://portal.hds.com>.

Before calling the Hitachi Data Systems Support Center, please provide as much information about the problem as possible, including:

- The circumstances surrounding the error or failure.
- The exact content of any error messages displayed on the host systems.

Comments

Please send us your comments on this document: doc.comments@hds.com. Include the document title and number, including the revision level (for example, -07), and refer to specific sections and paragraphs whenever possible. All comments become the property of Hitachi Data Systems Corporation.

Thank you!

Getting started

This chapter introduces the disaster recovery process and reviews the preparation requirements.

- [Overview](#)
- [Understanding terminology](#)
- [Before You Begin](#)

Overview

The Hitachi Data Instance Director disaster recovery software, which is built using the **Hitachi Data Instance Director Bare Metal Recovery ISO Creator Package**, lets you restore a full machine backup. You can use the software to rebuild a machine which previously had a damaged operating system, without requiring the existing installation of Data Instance Director, in order to perform the restore.

If needed, you can restore a backed-up system to a destination machine other than the one from which it was backed up.

The disaster recovery procedure involves the following main tasks:

1. Creating an ISO image from which to recover the down machine.
This procedure is described in Chapter 2.
2. Restoring the backup to a destination machine using the ISO image.
This procedure is described in Chapter 3.
3. Removing the disaster recovery node within Data Instance Director and using the recovered system.
This procedure is described in Chapter 4.

Understanding terminology

In this document, there are references to different machine types. Please familiarize yourself with the following machine designations before starting the restore process:

- **Destination machine:** This is the machine on which you will perform the restore. This is either the machine that failed, or a different machine.
- **Master machine:** This is the master Data Instance Director node. You will install both the **Windows Automated Installation Kit** and the **Hitachi Data Instance Director Bare Metal Recovery ISO Creator Package** on this machine. This is also the machine on which the ISO image is created.

Before you begin

Before creating the ISO image, verify that the **Windows Automated Installation Kit** is installed on the Master machine. If needed, you can download this kit from Microsoft:

<http://www.microsoft.com/en-gb/download/details.aspx?id=5753>

Creating an ISO image

This chapter describes the usage of the **HDID Bare Metal Recovery ISO Creator Wizard**, which will be used to create an ISO image.

- [Overview](#)
- [Creating an ISO Image](#)

Overview

To create the ISO image, you need to install the **Hitachi Data Instance Director Bare Metal Recovery ISO Creator Package** in the installation location of Data Instance Director of the Master machine.

After you install the software package, you can launch the **HDID Bare Metal Recovery ISO Creator Wizard**, as shown in Figure 1-1. You will use this wizard to create the HDID Bare Metal Recovery ISO image.

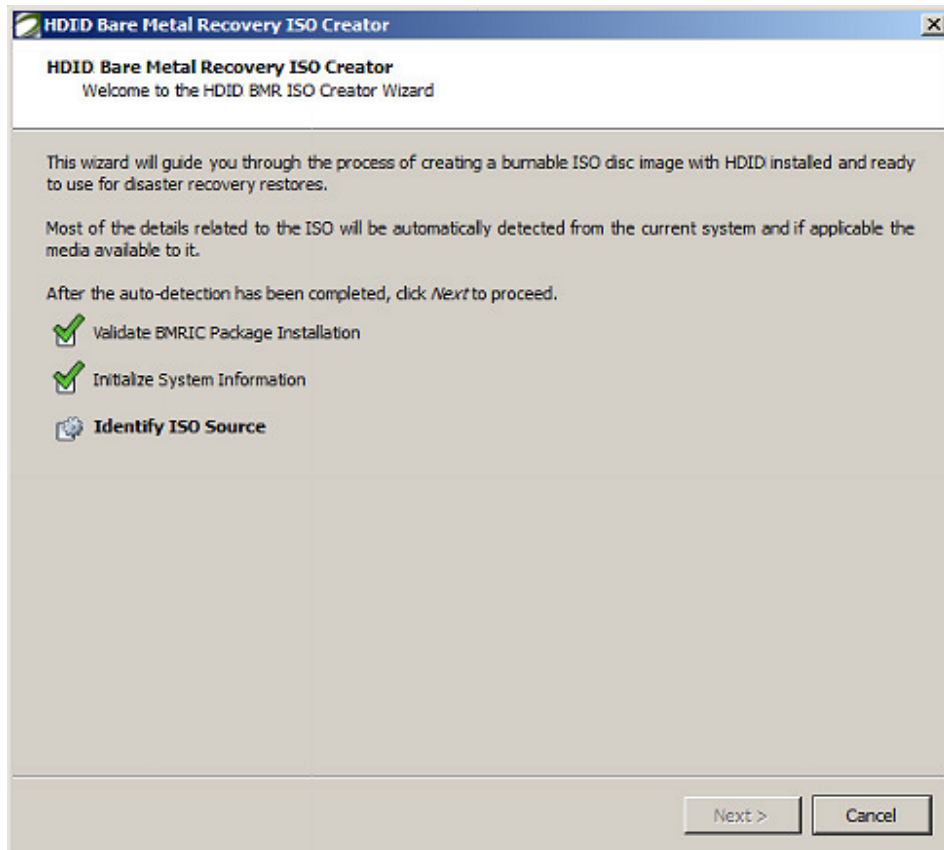


Figure 1-1 HDID Bare Metal Recovery ISO Creator wizard indicating task progress

Notes:



- Ensure that you have either installed or confirmed the installation of the **Windows Automated Installation Kit (AIK)**, as described in Chapter 1.
 - If you plan to specify particular drivers that will need to be installed on the Master machine, then ensure that the folder for the drivers contains the associated System File (.sys), Security Catalog (.cat) and the Setup Information (.inf) files. The folder can contain multiple drivers and those drivers can be contained in separate sub-folders. The drivers must be Microsoft Windows 7 compatible, as the Windows boot environment used to perform the restore is based on Windows 7.
 - Administrator privileges are required to complete the installation.
-

Creating an ISO image

To create an ISO image:

1. On the Master machine, open a command prompt in the **\bin** directory where Data Instance Director is installed. For example:
C:\Program Files (x86)\Hitachi\HDID\bin

2. Enter the following command, then press **Enter**:
aimpkg -i bmrlic

You are prompted to confirm the installation of the **Hitachi Data Instance Director Bare Metal Recovery ISO Creator Package**.

3. Type **Y**, then press **Enter**.

The package will be installed on the Master machine. When the installation is successful, the message, **Installation of package 'bmrlic' completed successfully** displays.

4. Use **Windows Explorer** to navigate to the **\bin** directory you referenced at step 1.
5. Double-click **bmrcreatorwizard.exe**.

The **HDID Bare Metal Recovery ISO Creator Wizard** launches. Proceed to step 6 after green check marks are indicated for all three items:

- Validate BMRIC Package Installation
- Initialize System Information
- Identify ISO Source



Note: If you did not install the **Windows Automated Installation Kit (AIK)** as described in Chapter 1, then the **Identify ISO Source** step will fail and a red cross displays next to that task. The **Next** button is disabled. If this occurs, cancel the wizard, install the AIK, then double-click **bmrcreatorwizard.exe** to launch the **HDID Bare Metal Recovery ISO Creator Wizard** (step 5, above).

6. Click **Next**.

The wizard displays confirmation of the installation location of the **Windows Automated Installation Kit (AIK)**.

7. Confirm the location information by clicking **Commit**.

The **Customize configuration and options** panel of the **HDID Bare Metal Recovery ISO Creator** wizard displays.

8. If needed, complete the following tasks:
 - Change or specify the location of the temporary files used to create the ISO and the destination for the ISO created. (All temporary files will be deleted upon completion of the ISO creation task.)
 - Specify additional drivers: Within the **Additional Driver Details** group box, click the ellipsis button, [...]. Browse to and select the folder containing the drivers you want to install.



Note: This folder must contain the System File (.sys), Security Catalog (.cat) and the Setup Information (.inf) files of the driver to be installed. Also, the driver must be Microsoft Windows 7 compatible.

After your settings are reflected, click **Commit**.

The **Creation of BMR ISO** panel of the **HDID Bare Metal Recovery ISO Creator** wizard displays.

After each task is completed, a green checkmark displays next to it. The **Mount WIM Images** task will take several minutes to complete.



Note: If the installation of any or all of the additional drivers fail, the ISO creation process will continue, and a warning that the process did not complete correctly will be displayed. Additional information about the error will be provided in the referenced log file. Driver installation failures are most likely the result of driver incompatibility with Windows 7.

9. After the **Creation of BMR ISO** panel displays an indication stating that all tasks are completed, click **Next**.

The **ISO Finalization** panel of the **HDID Bare Metal Recovery ISO Creator** wizard displays. After each task is completed, a green checkmark displays.

10. After the **ISO Finalization** panel indicates that all tasks are completed, click **Finish**.

The wizard will close. The newly created ISO image is located in the path that was indicated in the **Customize configuration and options** panel of the **HDID Bare Metal Recovery ISO Creator** wizard.

Restoring a system backup

This chapter describes how to restore a system backup from a Data Instance Director repository to a disk on the destination machine.

- [Overview](#)
- [Restoring the System Backup](#)
- [Completing Additional Customization](#)

Overview

After the ISO image has been created, you can copy it to a CD or load it remotely from a network share. When you boot the Disaster Recovery ISO, the **HDID Disaster Recovery** wizard launches, as shown in Figure 3-1.

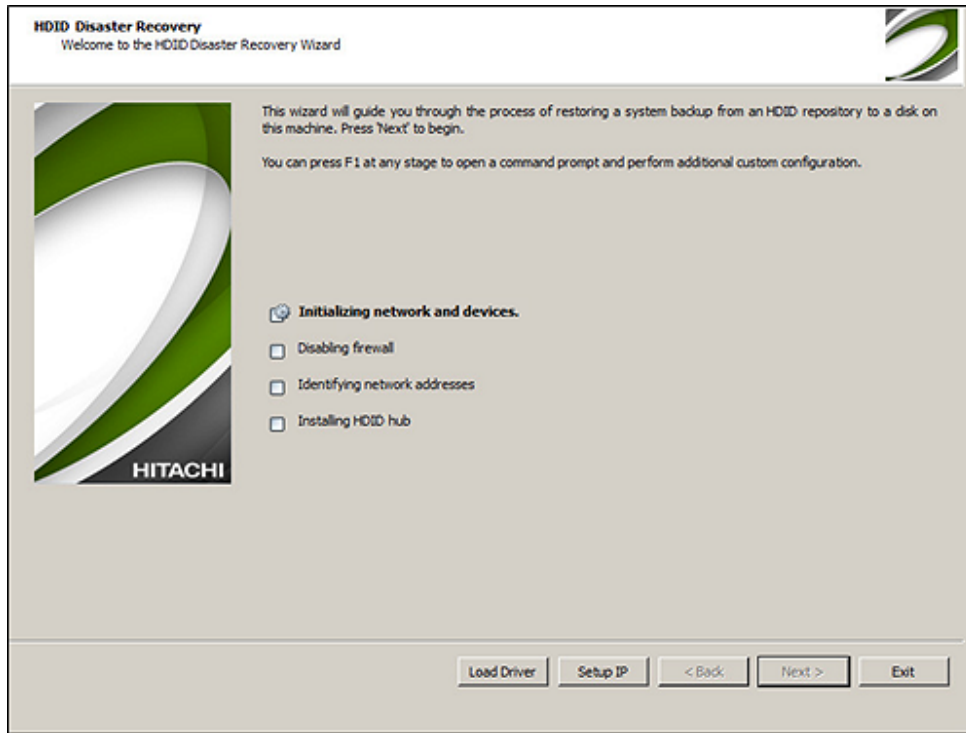


Figure 3-1 HDID Disaster Recovery wizard

The wizard performs steps that are required in order to prepare the environment for the restoration. The restoration tasks that you will complete with the wizard include the following:

1. Preparing the destination disk.
2. Selecting the restore destination.
3. Specifying a name for the restoration-target machine.
4. Specifying the hostname or IP address of the master node.
5. Preparing for the restore.
6. Initiating the restore.
7. Fixing the restore.

Depending on the network connectivity and disk types, additional steps might be required. Those tasks are described in the [Completing Additional Customization](#) section at the end of this chapter.

Before you begin

Before running the Disaster Recovery software, ensure that the destination machine has network access. For virtual machines, this may involve confirming that the correct network connection type is configured for your network.



Caution: Although you can restore a backed-up system to a destination machine that is different than the backup source machine (you are working with dissimilar hardware), there are some important considerations to review and apply before you begin:

- In some circumstances, on Microsoft XP and 2003 Server systems, the restored system cannot be booted: A blue screen may be displayed when attempting to boot a disk. There is no known workaround.
 - If the original backup source machine is still running, then the name of that machine and the name of the restored system will be in conflict, and network connectivity of one or the other will be affected. To ensure network connectivity, modify the name of the restored system, then restart it.
 - For the Windows operating system, XP versions prior to Service Pack 3 can be sensitive to hardware changes. Restoring to dissimilar hardware on these systems could require activation with no grace period. You will not be able to login until after you contact Microsoft to activate.
-

Restoring the system backup

Booting the ISO image

To boot the ISO image:

1. On the destination machine, boot the Disaster Recovery ISO image.

After booting the Disaster Recovery ISO image, a sequence of windows will display, such as the OS startup window for Microsoft Windows. Afterward, a Data Instance Director loading window might temporarily display, while the Disaster Recovery components are initialized.

Afterward, the **HDID Disaster Recovery** wizard launches and completes environment preparation tasks, which include checking for network connectivity.

If the tasks complete successfully, then the wizard lists the network interface addresses it detected in **bold text** at the bottom of the panel, as shown in Figure 3-3.

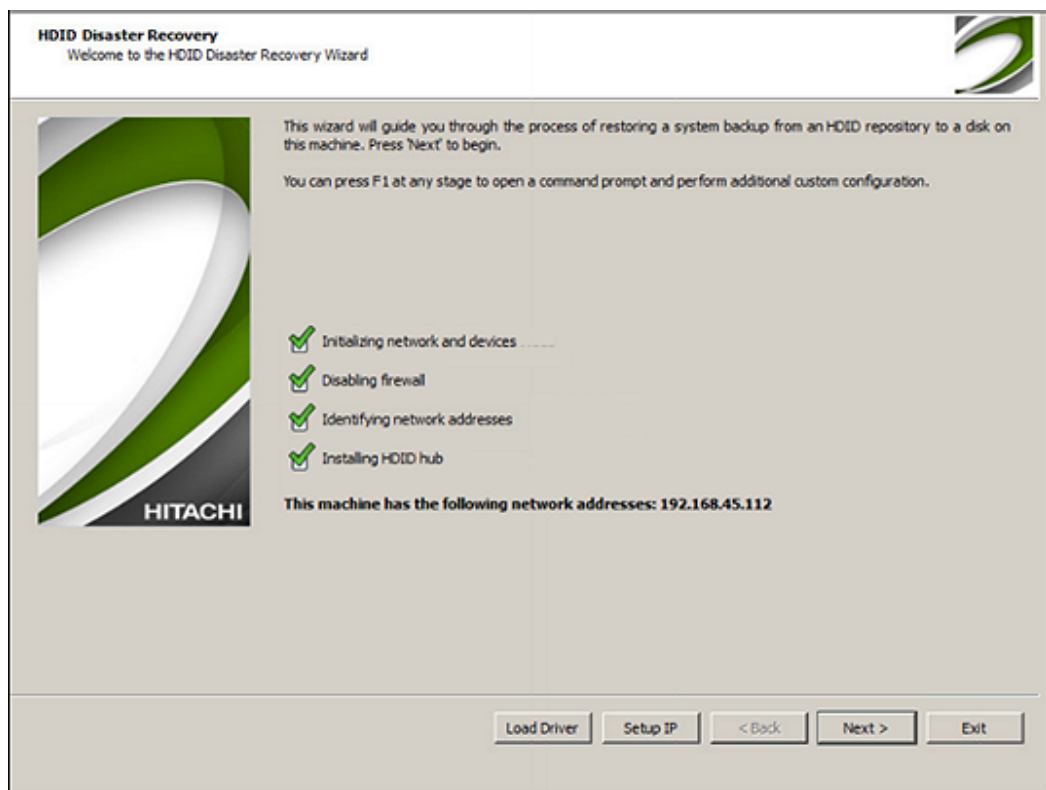


Figure 3-3 HDID Disaster Recovery wizard confirming identified IP address



Note: If the network interface address that you want to use to connect to the Master machine is not present, then some additional configuration may be required. Following are some of the common reasons why the wizard may be unable to obtain connectivity:

- A network cable or other type of cable is not properly connected. Check all connections and then restart the wizard.
 - Your local network requires additional configuration in order to connect that is not provided by the wizard. In this case, you can launch the command-line interface in order to configure settings by pressing the **F1** key within the wizard.
 - Your network interface requires a driver that is not provided with the software. Either use a different, supported hardware adapter, or load a driver for your current adapter. At the end of this chapter, see the section, [Completing Additional Customization](#) and refer to the task, “Installing third-party drivers”.
 - A static IP address is required for your local network. At the end of this chapter, see the section, [Completing Additional Customization](#), and refer to the task, “Specifying IP settings”.
-

2. Click **Next**.

The **Prepare Destination Disk** panel displays. Proceed to the section, [Preparing the destination disk](#).

Preparing the destination disk

The **Prepare Destination Disk** panel of the wizard lets you optionally format, partition, and prepare any disk that will be the destination location of the restore.



Note: If no modifications to the existing disk structure are required, you can click **Next** to continue to the next step of the wizard. Proceed to the section, [Selecting the restore destination](#).

The **Prepare Destination Disk** panel numbers all devices that are connected to the destination machine and checks them for partitions and volumes. The duration of the check process depends on the number of devices that are connected to the destination machine. The wizard is temporarily disabled during the check process.

After the initialization, the **Prepare Destination Disk** panel will display as depicted in the following example, Figure 3-4.

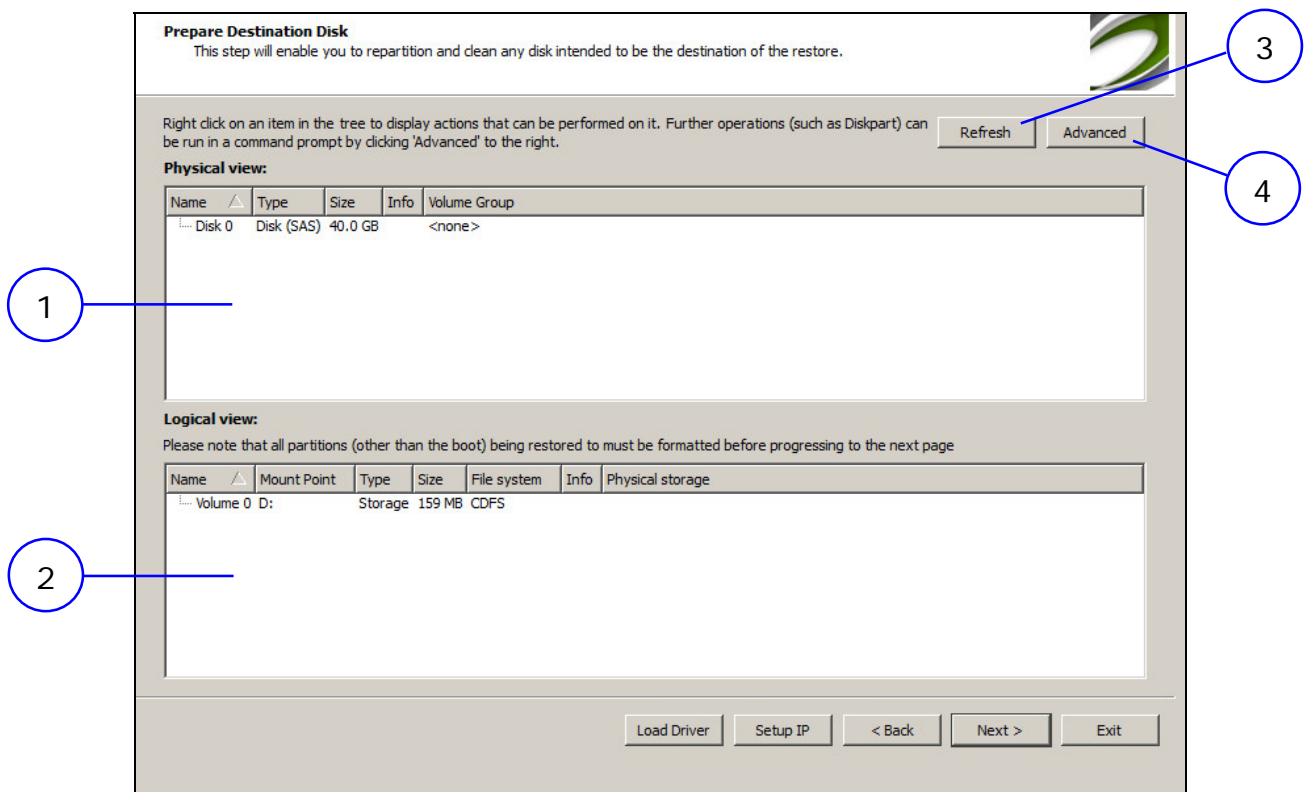


Figure 3-4 Prepare Destination Disk panel



Note: If a disk you were expecting to see on this panel is not listed, it may be because the disk uses an unsupported disk interface, and a driver is required to support it. See the section, [Completing Additional Customization](#) and refer to the task, “Installing third-party drivers”.

1

Physical view

The physical view displays a hierarchy of devices and partitions. The top-level items are devices connected to the machine. Each device may have been partitioned into separate storage units and these partitions are displayed as children of the device.

Information about each item is displayed across multiple columns:

- **Name** – An identifying name for the item. For devices, a hardware identifier may be displayed in brackets after the name, if available.
- **Type** – The type of item – either Disk or Partition. Disks will also have their connection interface (for example, ATA, IDE) displayed after them in brackets.
- **Size** – The total size capacity of the item.
- **Info** – Displays various attributes regarding item status. For

2

instance, if it is marked as a swap partition, or hidden partition.

- **Volume Group** – The volume group to which the item is assigned.

Logical view

The logical view displays all logical volumes detected on the system. If the logical volume is within a volume group, then it is shown as a child of the volume group.

Information about each item is displayed across multiple columns:

- **Name** – An identifying name for the item.
- **Mount Point** – The location the volume is mounted at, or **<none>** if it is un-mounted.
- **Type** – Whether the volume's primary function is either **Storage** or **Swap**.
- **Size** – The size of the volume.
- **File System** – The file system contained on the volume. If the file system cannot be determined then **<unknown>** will be displayed. Mounting the volume will reveal what file system, if any, is contained on the volume. If no file system is present on the volume, then **<none>** is indicated.
- **Info** – Indicates whether the volume is a **System** volume. A system volume is a Windows volume that contains the operating system.
- **Physical Storage** – The identifying names of the physical storage on which the volume is located.

3

Refresh

Clicking **Refresh** will check all attached devices and rescan for partitions and volumes. Use this feature when:

1. A new device is connected.
2. Disk configuration occurred independent of the **Disk Partitioning** panel; for example, in a terminal window. Click **Refresh** to make the Disk Partitioning view of the disk configuration consistent with the actual configuration.

4

Advanced

If a storage entity needs to be modified in a way that is not provided by the Disk Partitioning context menus, click **Advanced** to access the **Microsoft DiskPart** command-line utility. This provides a command-line interface to a complete array of disk management options. Documentation is available at the following Web site:

<http://support.microsoft.com/kb/300415>.

About operations

You can perform operations on any storage entity by right-clicking on the entity in either of the two list views and then selecting an item from the context menu.

Item	Operation	Description
Disk	Create Partition	Creates a partition that can either use all the remaining space of the disk or be set to a specific size, this size cannot exceed the size of the disk.
	Bring Online	Brings an offline disk online. This option will be disabled if the disk is already online.
	Clean	Removes all partitions present on the disk.
Partition	Toggle Boot Status	Sets the partition to a boot partition.
	Delete	Deletes the current partition. A partition cannot be deleted if it is in a Volume Group.
Volume	Mount	Mounts the volume to a specified location.
	Unmount	Unmounts the volume.
	Resize	(Not implemented)
	Format	Formats the current volume. Formats to NTFS for Windows.
	Delete	(Disabled for Windows)

Selecting the restore destination

The **Restore Options** panel lets you select the destination of the restore. Windows boot information is usually stored on the same volume as the main system. Figure 3-5 provides an example of the **Restore Options** panel.

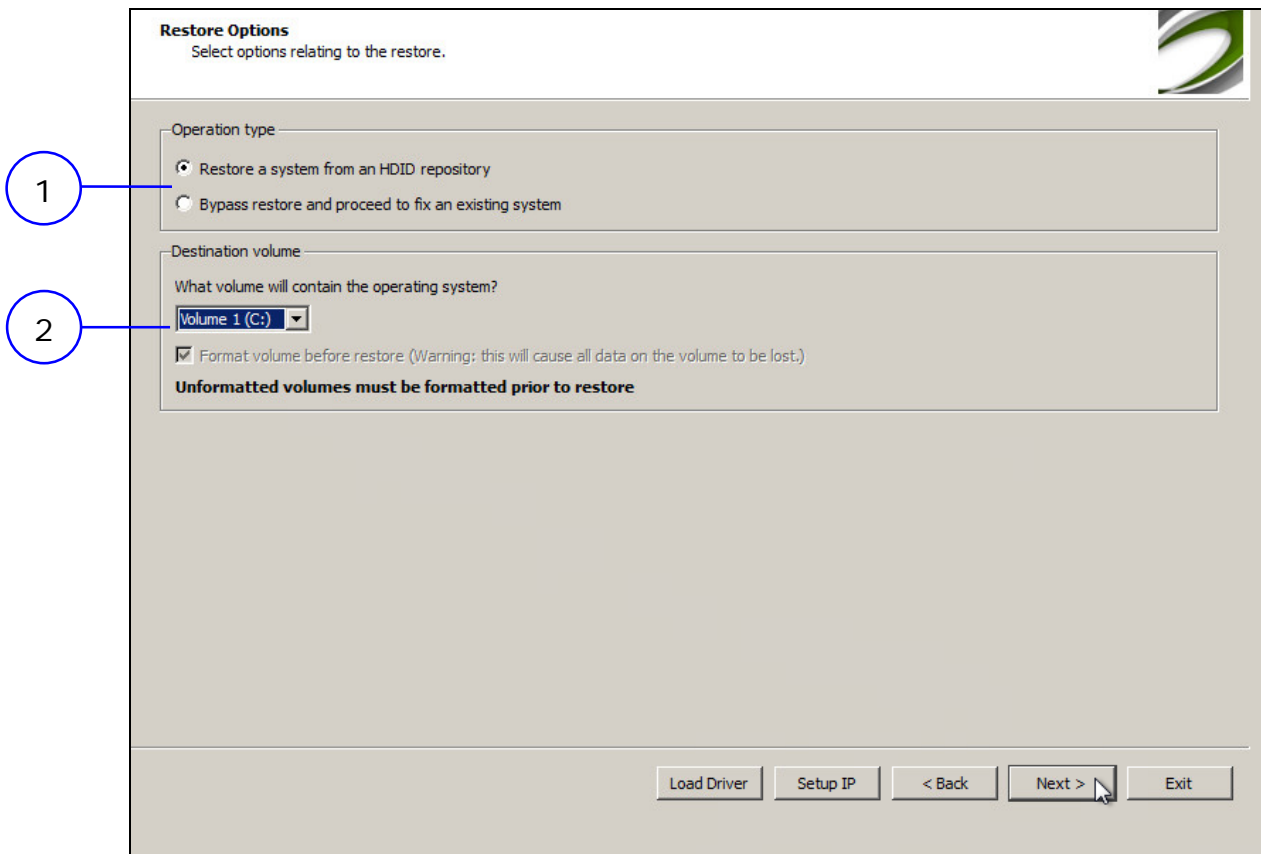


Figure 3-5 Restore Options panel

1

Operation type

Usually the operation type does not need to be changed and can remain as the default – **Restore a system from an HDID repository**. In some circumstances, a restored system may already exist. Selecting **Bypass restore and proceed to fix an existing system**, then clicking **Next** will skip to the **Fix-Up** panel of the wizard so that the indicated destination can be fixed.

If **Bypass restore** is selected, then **Format volume** will be dimmed in the **Destination volume** section.

2

Destination volume

This is the volume that will contain the operating system.

If **Format volume** is selected, then the selected volume will be formatted with a default empty file system prior to restore. (This is NTFS for Windows.)

Ensure that the specified volume is large enough to contain the restored data, and that the data already contained in it (if any) does not cause filename clashes with the restored data.

Click **Next** to continue to the next step of the wizard. Proceed to the section, [Naming the restoration-target machine](#).

Naming the restoration-target machine

The **Choose Machine Name** panel of the wizard prompts you to enter a name for the machine to restore to. This is the name by which the machine will be recognized by Data Instance Director, and the name that will display in the Node Management lists within the master Data Instance Director interface. Note that the machine will not yet appear on the master—that occurs later on.

After you specify a name, click **Next** to continue to the next step of the wizard. Proceed to the section, [Naming the Master machine](#).

Naming the Master machine

The **Select Master** panel of the wizard lets you select the Master machine. You can enter the hostname of the machine on which it is installed (which might not be the name of the machine as it is known to Data Instance Director) or the IP address of the machine.

After you specify a name, click **Next** to continue to the next step of the wizard. Proceed to the section, [Preparing for the restore](#).

Preparing for the restore

The **Preparing Environment** panel of the wizard indicates that the wizard has all the information it needs to prepare the system for a restore. The wizard will prepare the destination volume and configure and start the Data Instance Director services.

Once preparations are completed, the wizard will pause on the last step: **Please authorize this node on the master. Awaiting authorization.**

Now, you can authorize the machine from the Master machine.



Note: You will not be able to perform a restore until you authorize the destination machine from the Node Manager on the master. After the authorization is done, it can take several minutes for the disaster recovery node to recognize that it has been authorized.

After the disaster recovery node has been authorized, the **Restore Progress** panel provides a confirmation, as shown in the following example, Figure 3-6.

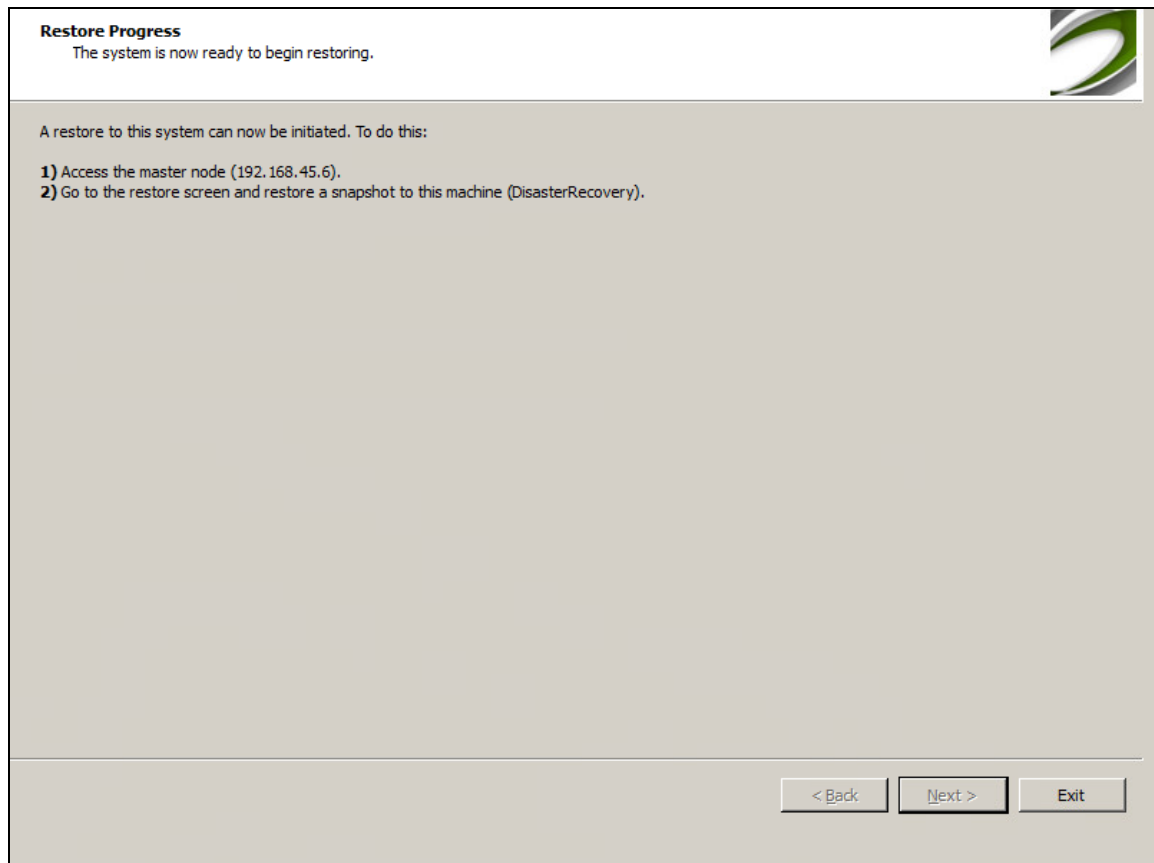



Figure 3-6 Restore Progress panel confirming an authorized node



Note: The disaster recovery node should display in the **Unauthorized Nodes** list on the master **Node Manager** window, within Data Instance Director.

It will have the same name that was specified on the **Choose Machine Name**

panel of the wizard, and an icon: 

If the node is not displayed, then following are the possible causes:

- It can take some time for new node information to propagate to the master. Wait a few minutes for the disaster recovery node to display.
 - The disaster recovery node may need to be manually detected. You can do this by entering its IP address in the **Discover Node** section of the master's **Node Manager** window, clicking **Discover**, and waiting a few minutes.
 - The master hostname or IP address might have been entered incorrectly. If they are incorrect, you can go back in the wizard and correct them by clicking the **Back** button. Ensure the name entered is the hostname of the master, and not the Data Instance Director node name.
 - The disaster recovery machine might not be able to connect to the master machine. Connectivity can be tested by pinging (ping <IP address>) the disaster recovery machine from a command prompt on the master. If there are problems, then the disaster recovery machine's network configuration may need to be adjusted. See the section, [Completing Additional Customization](#), and refer to the task, "Specifying IP settings".
-

Click **Next** to continue to the next step of the wizard. Proceed to the section, [Initiating the restore](#).

Initiating the restore

After the disaster recovery machine is authorized, the actual disaster recovery restore can be initiated. This is done from the Master machine, and the procedure is similar to a normal restore.



Note: You cannot restore a snapshot to an original location that includes drives within it that are not present on the destination machine. When you set up the restore on the Master machine, make sure that applicable drives are unselected.

To initiate the restore:

1. On the Master machine, access the **Restore** window.
2. Select the data to be restored, then click **Restore**.
The **Restore Options** dialog displays.
3. Within the **Destination** group box, select the disaster recovery machine from the **Machine** list
4. Within the **Destination** group box, select **Save files to original locations**.
5. Click **Perform Restore**.

A **Restore Progress** dialog indicates the restore progress of the Master machine and the recovery node. Figure 3-7 shows the **Restore progress** dialog.

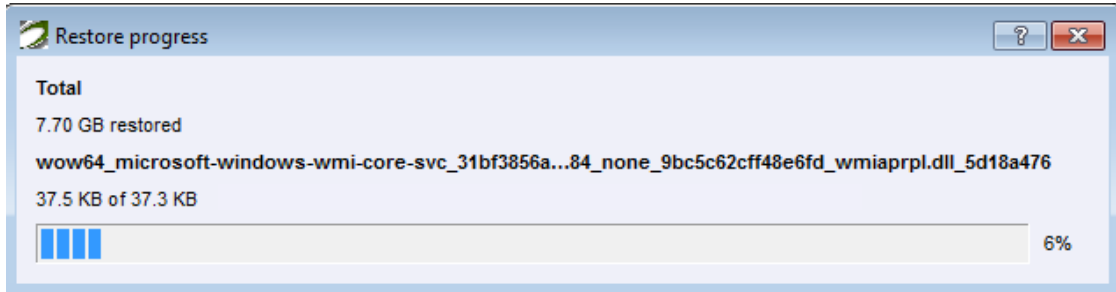


Figure 3-7 Restore progress panel on the Master machine

6. Optionally, close the dialog.

If you closed the dialog, and if needed, you can check on the progress of the restore by clicking **Show progress**. In the meantime, you can continue to work on the Master machine while performing a restore, however, only one restore can take place at a time.



Tip: The **Show Progress** button is located on the **Restore** window of the Master machine.

7. If there are no restore issues, proceed to the section, [Fixing the restore](#).



Note: If the restore is not successful, then following are the possible causes:

- An inconsistent network connection exists between the disaster recovery machine and the Master machine. This can be solved by switching to a reliable network, such as a wired Ethernet connection (instead of wireless).
 - There is not enough disk space on the destination volumes.
 - One of the destination volumes has not been formatted. This must be done manually on the **Disk partitioning** panel or automatically during preparation by selecting **Format volume** on the **Restore Options** panel (see the section, [Selecting the restore destination](#)).
-

Fixing the restore

After the restore has completed, the **Fix-up options** panel of the wizard displays. By providing some details, the wizard can determine whether additional fixes need to be applied to the restored system.

Table 3-1 describes the information in the **Fix-up options** panel.

Table 3-1 Fix-up options fields

Field	Description
The operating system that was restored	The specific operating system that you restored.
Architecture of restored operating system	Indicates whether the restored OS uses an x86 or x64 architecture.
Hardware compatibility of the machine	Indicates whether the disaster recovery system's hardware is compatible with the source system's hardware. We recommend selecting Dissimilar hardware unless the disaster recovery machine is actually the same machine as the source machine.
Fix boot configuration	Indicates whether the boot entry should be fixed. This selection is required for Windows operating systems from Vista onwards that have been restored to a disk with a different disk identifier.
Fix operating system	Indicates whether operating system and driver incompatibilities should be fixed. If a dissimilar hardware restore was done then this is selected, by default.
Operating system directory	The directory in which Microsoft Windows is installed, relative to the destination volume root directory. This is used when Fix operating system is selected and is typically Windows , by default. If, however, your operating system is installed in a different directory, you should enter it here so that the wizard can find the applicable files to fix the operating system.

Click **Next** to continue to the next step of the wizard.

- If you selected either the **Fix boot** or **Fix operating system** options, then the wizard continues to the **Fix-up** panel and completes those steps. When it has finished, click **Commit** to continue to final panel of the wizard.
- If neither the **Fix boot** nor **Fix operating system** options are selected, then the wizard continues to the final panel, and you can either shut down or reboot into the recovered and fixed system.

Completing additional customization

Installing third-party drivers

Refer to the hardware manufacturer's website for the drivers that are specific to your model of hardware. For the Microsoft Windows operating system, ensure that any additional drivers that are installed are compatible with Windows 7.

After you have located the driver, place it on a generic USB drive or similar portable media, and connect this to the disaster recovery machine. Then, click the **Load Driver** button at the bottom panel within the wizard and navigate to the folder in which you placed the driver files. Select the driver installation file that came with the driver install, and load it.

For Microsoft Windows, the driver installation file is an **INF** type. The driver will be installed and the wizard can be restarted, if necessary.

Specifying IP settings

The machines in your local network might require specific IP settings in order to connect, such as static IP addresses. You can modify certain settings by clicking the **Setup IP** button at the bottom panel of the wizard.

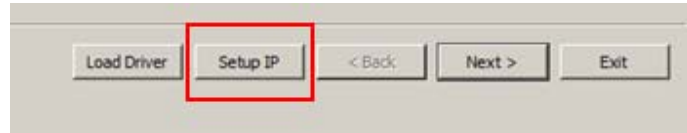


Figure 3-4 HDID Disaster Recovery wizard with Setup IP option

Clicking **Setup IP** launches a **Configure IP settings** dialog. From the **Local Area Connection** (LAN) drop-down list, you can make a selection from all detected network interfaces.

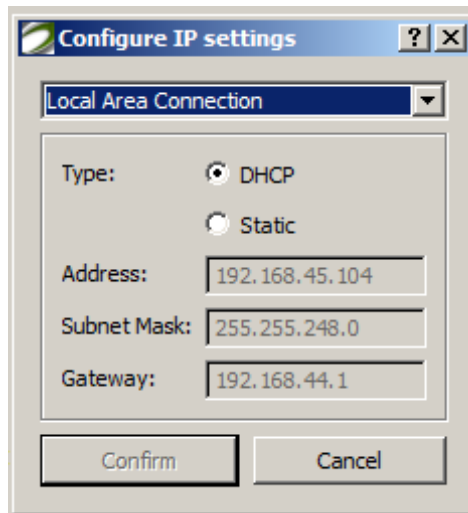


Figure 3-5 Configure IP settings dialog with LAN menu

Select a LAN, then choose the **Type** of connection. For **Static** connections, enter the relevant IP address, subnet, and gateway details for your network. Afterward, click **Confirm**. You will be prompted to restart the destination machine so that the new network configuration can be used.

Completing final checks

This chapter reviews the final recovery tasks: Unauthorizing then removing the disaster recovery node, and using the recovered system.

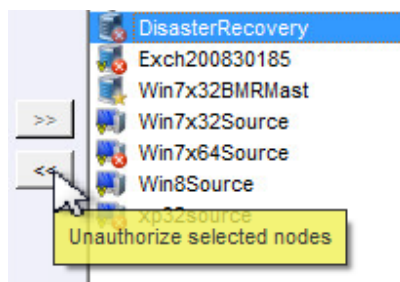
- [Removing the Disaster Recovery Node](#)
- [Using the Recovered System](#)

Removing the disaster recovery node

Once the disaster recovery node has been restored, it will show as being down in the **Node Manager** window. This is indicated by an icon next to the node's name:

To unauthorize the node on the master:

1. On the **Node Manager** panel, select the disaster recovery node from the **Authorized Nodes** column.
2. Click the left << button to unauthorize the node.



3. After it is unauthorized, right-click on the node in the **Unauthorized Nodes** column and select **Remove Node(s)**.

Using the recovered system

Depending on the similarity of the target hardware, the operating system may initialize its drivers and may prompt for the installation of drivers for unrecognized hardware. You might also be required to reactivate your Windows license if there are significant hardware differences.

Also, the initial boot can take some time as the operating system detects and configures hardware. On Windows operating systems, this can occur without any visual indication of the progress. It is possible that backups of this machine will fail while this process is taking place, but they will resume after the process has completed.

After the process has completed, the system might need to be rebooted.

Troubleshooting

This chapter provides guidelines for resolving issues that your site might experience with the recovery process.

- [Resolving Issues With ISO Image Creation](#)
- [Resolving Issues With Restoring the Backup System](#)

Resolving issues with ISO image creation

To help you identify the issue you might have encountered while creating an ISO image, refer to the following list of issues, then review the Possible causes and Workarounds columns for the troubleshooting guidelines.

Table 5-1 Troubleshooting the creation of an ISO image

Issue	Possible causes	Workarounds
When I'm creating an ISO image, a red cross displays next to the Identify ISO Source step.	The Windows Automated Installation Kit (AIK) is not installed on the Master machine.	Cancel the wizard, install the AIK, then double-click bmrcreatorwizard.exe to launch the wizard.
After I have selected the folder containing the extra drivers that I want to use, the driver installation step fails.	The drivers contained in the folder are not compatible with the Microsoft Windows 7 operating system.	Ensure that the folder for the drivers contains the associated System File (.sys), Security Catalog (.cat) and the Setup Information (.inf) files. The folder can contain multiple drivers and those drivers can be contained in separate sub-folders. The drivers must be Microsoft Windows 7 compatible, as the Windows boot environment used to perform the restore is based on Windows 7.

Resolving issues with restoring the backup system

To help you identify the issue you might have encountered while restoring the backup system, refer to the following list of issues, then review the Possible Causes and Workarounds columns for the troubleshooting guidelines.

Table 5-2 Troubleshooting the restoration of the backup system

Issue	Possible Causes	Workarounds
<p>When I run the HDID Disaster Recovery Wizard, I don't get confirmation that a network interface address that I need to use was found.</p>	<ul style="list-style-type: none"> ▪ An issue exists with one or more cables. ▪ Your local network requires additional, specific configuration in order to connect that is not provided by the wizard interface. ▪ A static IP address is required. ▪ Your network interface requires a driver that is not provided with the software. 	<ul style="list-style-type: none"> ▪ Check all connections and then restart the wizard. ▪ Access the command-line interface by pressing the F1 key within the wizard. ▪ See Specifying IP settings. ▪ Use a different, supported hardware adapter, or load a driver for your current adapter. See Installing third-party drivers.
<p>When I run the HDID Disaster Recovery Wizard, I don't see a particular disk I wanted to use, within the Prepare Destination Disk panel.</p>	<p>The disk you want to use uses an unsupported disk interface, and a driver is required to support it.</p>	<p>You might need to install a new driver. See Installing third-party drivers.</p>

Issue	Possible Causes	Workarounds
<p>On the master Node Manager window, I don't see the disaster recovery node in the Unauthorized Nodes list.</p>	<ul style="list-style-type: none"> ▪ It might take a while for new node information to be reflected to the master. ▪ The disaster recovery node might need to be manually detected. ▪ The master hostname or IP address might have been entered incorrectly. ▪ The disaster recovery machine cannot connect to the master machine. 	<ul style="list-style-type: none"> ▪ Wait a few minutes for the disaster recovery node to appear. ▪ Enter the node's IP address in the Discover Node section of the master's Node Management window, then wait a few minutes. ▪ Go back in the wizard by clicking the Back button, then make corrections. Ensure the name entered is the hostname of the master, and not the Data Instance Director node name. ▪ Ping the disaster recovery machine from a command prompt on the master. If there are problems, then the disaster recovery machine's network configuration might need to be adjusted. See Specifying IP settings.
<p>The restore has failed.</p>	<p>There might be a number of causes.</p>	<p>First, check the log files on the master machine.</p> <p>Following are some additional checks:</p> <ul style="list-style-type: none"> ▪ Check the network connection between the disaster recovery machine and the master. If needed, switch to a more reliable network medium. ▪ Check that there is enough disk space on the destination volumes. ▪ Confirm whether any of the destination volumes require formatting. ▪ Confirm whether you attempted to restore a snapshot to an original location that includes drives that are not present on the destination system. Make sure those drives were not selected. See Selecting the restore destination.

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