1. **About your HP StorageWorks D2D Backup System**

The HP StorageWorks D2D Backup System is a disk-based storage appliance for backing up host network servers or PCs to target devices on the appliance. These devices are configured as either NAS or Virtual Tape Library target for backup applications. This allows the HP D2D Backup System to seamlessly integrate into your network backup environment.

NAS targets for backup applications:

Support for both CIFS and NFS protocols means that NAS targets can be accessed by both Windows and UNIX/Linux servers, and can be used with most backup applications that support backup to disk. NAS targets on an HP D2D Backup System provide network file shares access that is optimized for backup to disk. They should not be used for general-purpose file storage.

Virtual Tape Library targets for backup applications:

The backup target appears to the host as an Ultrium Tape library and requires a backup application that supports backup to tape. Tape Library emulation type is selected during initial configuration and cannot be changed once the system is in use. Tape Library targets that can be configured for the device. Virtual Tape Libraries provide considerable flexibility for a variety of backup rotation schemes.

The HP D2D Backup System may be configured as an iSCSI or Fibre Channel (FC) device. Libraries on the HP D2D Backup System may be configured as iSCSI or Fibre Channel (FC) target devices. (Note: The HP D2D4106i model does not support FC.)

**Virtual Tape Library targets for backup applications:**

TIP: To find out more about NAS targets devices, libraries, example backup applications, FC, or iSCSI, see the "User Guide" on the CD-ROM.

2. **IMPORTANT – Retrieve your license entitlement certificates (if purchased)**

Licensing is used to enable optional product functionality, such as extra disk capacity, replication or other future features. If you have purchased any of these features, you will receive the appropriate License Entitlement Certificate with your product. This is a paper document that contains all the information you need to obtain your unique License To Use key, which you can then enter into the Web Management Interface.

The Entitlement Certificates are shipped in clearly marked card envelopes with your D2D device. Libraries on the HP D2D Backup System may be configured as iSCSI or Fibre Channel (FC) target devices. (Note: The HP D2D4106i model does not support FC.)

3. **Install the rack rails and unit(s)**

The supplied rail kits allow you to install the HP D2D Backup System and Capacity Upgrade Kit into square and round hole racks for 1U and 2U servers. If mounting the appliance into threaded hole or telco racks, please see www.racksolutions.com for more information.

**Important Safety Information**

Use extreme caution when installing and pulling the unit out from the rack; it can slip and fall, causing damage to the HP D2D Backup System or injury. HP is not responsible for any damage or injury caused by the mishandling of the HP D2D Backup System. Always refer to the Safety Guide and the User Guide on the HP StorageWorks CD-ROM for detailed safety information.

1. Install the rails in the rack, as required. Follow the instructions provided separately with the rail kit.
2. Slide the HP D2D Backup System into position in the rack and secure it to the rails rails using thumbscrews on the HP D2D front panel.

4. **Connect the hardware**

1. Always use the supplied power cords to connect the HP D2D Backup System to the mains power supply. For detailed safety information, see the Safety Guide on the CD-ROM.
2. Use any CAT-5e network cable (also supplied with the product) to connect the LAN Port 1 to a Gigabit Ethernet network.

There are two LAN ports on the rear of the unit. *Part 1*: Port 1; *Part 2*: Port 2; this allows the HP D2D to be connected to two separate Ethernet networks and used to back up the targets on both networks. Alternatively, the two network ports may be bonded together to gain bandwidth and failover benefits when on a single network.

LAN Port 1 (the lower port) must always be connected, because the Web Management Interface requires an Ethernet connection to set up devices.

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**TIP:** To find out more about NAS targets devices, libraries, example backup applications, FC, or iSCSI, see the "User Guide" on the CD-ROM.

**NOTE:** The HP D2D supports the IPv6 protocol, but it is factory-configured to recognize both IPv4 and IPv6 protocols and will use either, for example if the internet service provider uses an IPv4 network.

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For further information please refer to the "User Guide" on the CD-ROM.

**Connecting to a Fibre Channel SAN**

The HP D2D4106i and HP D2D4104i are supplied with the correct FC card pre-installed (the HP D2D4106i does not support FC). However, you must still connect the HP D2D to an Ethernet network in order to use the Installation Wizard and use the Web Management Interface, as described over the page.

**The main differences to be aware of are:**

- The wizard cannot create library targets for devices on the HP D2D, you must do that after installation from the Web Management Interface.
- Devices created on the HP D2D can be accessed by all hosts on the SAN unless you configure different sub-nets.
- The two physical network ports provide three network configuration modes:
  - **Single port configuration** is the default mode, but it may be easily changed during the software installation, discovery and configuration process or subsequently from the Web Management Interface. If dual port configuration is required, the networks must be on different sub-nets.
  - **High Availability (Port Failover) Configuration:** This creates a bonded network port and provides failover benefits when on a single network.
  - **High Availability (link Aggregation):** Two network ports may be bonded together to gain bandwidth and failover benefits when on a single network.

For further information please refer to the "User Guide" on the CD-ROM.

To ensure that the HP D2D Backup System is discovered successfully, install it on the same subnet as the host machine that will access it. To gain optimum performance, connect the HP D2D Backup System to the same Gigabit network switch as the host machine that is accessing it. To ensure that the HP D2D Backup System is discovered successfully, install it on the same subnet as the host machine that will access it. To gain optimum performance, connect the HP D2D Backup System to the same Gigabit network switch as the host machine that is accessing it.

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6 Web Management Interface

To run the Web Management Interface:
- From a Windows host server or PC: Use the desktop shortcut created by the Installation wizard.
- From any machine connected to the network: Enter https:// followed by the IPv-4 or IPv-6 address or name (fully qualified domain name) of the HP D2D Backup System into the web browser.

The default Sign On is Administrator with a password of Admin. Both names are case sensitive. (The password can be changed after installation.)

The iSCSI device created during installation will appear to the backup software on your host server or PC as a locally-attached backup device. This backup device can be seen by the host and not by any other device on the network.

Use the Web Management Interface to:
- Monitor the status and health of the HP D2D Backup System and all configured backup devices.
- Create NAS shares as targets for data backup.
- If you have created a Virtual Tape device as the backup target, change the number of cartridge slots or create additional library devices for a host.
- Create and configure Fibre Channel devices, if required.
- Create disk mappings and configure replication, if required.

5 Software installation, discovery and configuration

There are three possible stages to installation. You may not need to complete all of them.
1. Optional: If you will be configuring Virtual Tape Devices, install all the required drivers. This step is not required if you intend to use only NAS shares.
2. Mandatory: Discover and configure the HP D2D Backup System on the network.
3. Optional: Create a base iSCSI library configuration to get started. This step is not required if you intend to use only NAS shares or only FC devices on the HP D2D.

For networks using the IPv4 protocol (most networks), Dynamic (DHCP) network addressing is enabled by default on the HP D2D. If your network supports DHCP, all the required network parameters will be set automatically. If your network uses static IP addressing, you will need to manually assign network settings to the HP D2D.

NOTE: For networks using the IPv4 protocol (most networks), Dynamic (DHCP) network addressing is enabled by default on the HP D2D. If your network supports DHCP, all the required network parameters will be set automatically. If your network uses static IP addressing, you will need to manually assign network settings to the HP D2D.

Windows users:
The recommended way to set up your HP D2D Backup System is to run the installation wizard from the HP StorageWorks CD-ROM supplied with your product. The installation wizard should be run on all hosts that are to be backed up to the HP D2D Backup System.

1. Insert the CD-ROM into the host machine and let the installation wizard run. In most instances, the installation completes all three stages detailed above successfully. For more detailed information about what happens during each stage and about FC and iSCSI, please refer to the “User Guide” on the HP StorageWorks CD-ROM.

2. Run the installation wizard on the other hosts that are to be backed up.

Linux and UNIX users:
Download the latest patches for your operating system. For configuration instructions, please refer to the “Linux and UNIX Configuration Guide” on the HP StorageWorks CD-ROM.

Power On

1. If you have installed the Capacity Upgrade Kit, power it on first. You may need to hold down the power on button (on the rear of the unit) for a few seconds.
2. Power on the HP D2D Backup System (the power button is on the front of the unit).

Power Off

To power off your HP D2D Backup System always use the Web Management Interface, as described in the “User Guide” on the HP StorageWorks CD-ROM.

CAUTION: If you need to power down the Capacity Upgrade Kit, make sure the HP D2D Backup System is powered down first. This ensures that the system does not erroneously mark the drives as failed when the HP D2D Backup System is powered up again.

NOTE: When installing or replacing a hot-plug device, it is not necessary to power down the unit.

7 Using your D2D

Backup Software

If you are backing up to NAS shares on the HP D2D Backup System you need software that supports backup to disk. You must configure a new backup job in your application.

If you are backing up to Virtual Tape Libraries on the HP D2D, you need software that supports backup to tape libraries. You can incorporate the HP D2D into your existing tape rotation scheme. For example, some users see the “User Guide” on the HP StorageWorks CD-ROM.

Always refer to www.hp.com/go/connect, to ensure that you are running supported software and install any recommended updates.

Data deduplication

The HP D2D incorporates data deduplication technology. Deduplication is applied on a per device basis; it is always enabled for NAS shares, but may be disabled for Virtual Tape devices. As data is backed up to a device, the HP D2D analyzes the data at block (not file) level and stores only data that is unique, creating pointers to blocks that are already stored on that device. (It does not reference data stored on other devices.) This is an extremely efficient way of using the available storage space.

Replication

Replication allows users to replicate data from cartridges on one HP D2D to mapped slots on another HP D2D as a remote site. Once configured using the simple-to-use wizard, replication occurs automatically, ensuring data is mirrored on source and target HP D2Ds. Deduplication ensures that network traffic is minimized.

8 Troubleshooting

Detailed help is available while running the Installation wizard. If you encounter problems during any of the installation phases, it will advise you what steps to take.

For more troubleshooting information, refer to the “User Guide” on the HP StorageWorks CD-ROM. This guide also contains reference information about iSCSI and RAID. If you cannot resolve problems, contact HP Support at www.hp.com/support.

For the latest information about computers, OS and software compatibility, see www.hp.com/go/connect or www.hp.com/go/sla.