



esXpress 3.6

Getting Started with esXpress

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www.espress.com www.phdvirtual.com



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Documentation Changes

Table 1 Document Changes

Chapter	Version	Changes
All	3.6	Updated guide formatting and editing
2	3.6	Installation Overview: added note about DeDup storage.

Support Sales, Renewals, and Licensing

For information on new sales, licensing and support renewals you can email sales@phdvirtual.com or info@phdvirtual.com.

For additional information about PHD products and services, go to:

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For customers and partners with an active support agreement, you can use the esXpress support web board or <http://phdvirtual.com> or email support@phdvirtual.com for information about software patches, technical documentation, and support programs.

Note: A valid support agreement is necessary to receive new esXpress release and software updates.

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1 Introduction

esXpress 3.6 provides high-availability data protection for your virtual machines. This is done using virtual backup appliances (VBAs) running on each of your hosts performing the backup process. Backups can be stored on a number of different targets including FTP servers, samba shares, SSH servers, shared and local VMFS partitions, and beginning with version 3.5, our new Data DeDuplication Appliance. With esXpress' restoration capability, you can restore entire virtual machines or single files using the File Level Restore interface.

New Features in 3.5 and 3.6

- **Virtual Full Backups using Data DeDuplication** – using the new PHDD appliance as your backup target, esXpress provides Data DeDuplication across VMs, across all backups.
- **Multi-User Instant File Level Restore** – a web-based GUI interface using the PHDD appliance to restore specific files or folders from Linux and Windows Virtual Machines.
- **Advanced Replication** – esXpress replicates just the changed blocks and injects them directly to the replicate VM without the need to do a full restore for replication. This requires PHDD backups.
- **Central GUI esXpress Installation and Configuration** – The Configuration and Deployment GUI appliance can be integrated within Virtual Center or accessed from a standard web browser. From here, you can:
 - Deploy esXpress installations to all hosts directly from the Configuration and Deployment GUI appliance.
 - Assign hosts to configuration groups to use the same standard configuration.
 - Determine Host Level overrides for esXpress configuration.
 - Create central backup Target Teams – backup targets are created one time and then are grouped into target teams which can be assigned to groups and hosts.
- **Global Configuration Policies** – Provides standardization for configuration across all of your hosts. You can automate your global configuration deployment with hosts inheriting their configuration from global and host policies.
- **Export Share from the DeDup Appliance** – enable taking DeDup backups and make them available as uncompressed VMDKs that can be copied to disk or tape.
- **vSphere support** – esXpress 3.6 introduces support for vSphere.

Refer to the Change Log and Release Notes for additional information about each product update.

esXpress Installation Components

When you download esXpress, you will be downloading a zip file which contains the esXpress appliances OVF, related documentation, and the esXpress rpm files.

There are 3 main components necessary to run esXpress in your environment. Each can be downloaded separately from the PHD Virtual web site (www.phdvirtual.com). However, if you will be running the esXpress GUI, you need only download the esXpress appliance OVF. The RPMs will be installed to your host automatically from the GUI appliance.

- **phdd-3.6.x.ovf** – esXpress appliances OVF. The esXpress Virtual Machine for both the DeDup and the Configuration and Deployment GUI appliances—this file is used to deploy either appliance. If you plan to run both the GUI and DeDup, you will need to deploy the OVF twice, configuring one as the GUI and one as the DeDup, the same OVF is used for both. The zip file also includes the VMDK file required by the esXpress OVF (**phdd-3.6-x.vmdk**).
- **esxpress-3.6-x.esx.i386.rpm** – the esXpress management code for each host.
- **esxpressVBA-3.1-1.esx.i386.rpm** – the esXpress VBA.

Note *If you are deploying the esXpress Configuration and Deployment GUI, you do not need to install the two RPMs on your hosts. They will be installed directly from the GUI appliance. They are only required if you choose to run esXpress without the GUI appliance. The RPMs are also available for download directly from the web site page under **Support > Updates**. (<http://phdvirtual.com/download?task=viewcategory&catid=5>)*

Documentation

There are 7 documents available for the esXpress 3.6 release. These documents are available for download on the Knowledge Center page of the PHD Virtual web site:

<http://www.phdvirtual.com/support/knowledge-center>

- **Getting Started with esXpress 3.6** – This Guide.
- **DeDuplication Appliance Guide** – installation and configuration for the DeDup appliance as well as a review of reviewing its GUI interface which includes File Level Restores
- **Configuration and Deployment GUI Guide** – installation and configuration of the Configuration and Deployment GUI appliance and esXpress Quorum configuration.
- **Reference Manual** – reference manual reviewing the PHD menu options including explanations of the esXpress configuration, reporting and maintenance options.
- **DR and Restoration Manual** – configuration and review of the esXpress available restore processes and configuring replication for esXpress (simple and advanced replication).
- **Installing esXpress 3.6 Without the GUI** – a quick start guide for installing esXpress 3.6 directly on each host if you will not be using the 3.6 GUI virtual machine.
- **Change Log** – Running log of the changes for the 3.5/3.6 releases. Changes are shown for each of the 3 main esXpress components (GUI, DeDup and Host rpm).

In addition to the Change Log document, which tracks updates made for each maintenance release, Release Notes are available beginning with version 3.6-3.

2 Implementation Planning

Before implementing esXpress 3.6, you should consider the following:

1 **Will you be running the 3.6 GUI appliance for deployment and configuration, or will you run your hosts stand-alone?**

esXpress 3.6 introduces a GUI appliance which is simply a Virtual Machine running in your environment providing a simplified method to set your esXpress configuration policies and distribute them to your hosts from a single interface. Currently, the appliance is for esXpress configuration and deployment only—running, monitoring, and restoring backups are not supported from the GUI appliance. If you choose to run the GUI appliance, it will also handle the installation of the esXpress RPMs to your hosts—no manual esXpress installation is then required at a host level.

The 3.6 GUI appliance is not mandatory for running esXpress—it does not need to be installed or running to run backups or restore backups. If you have a small number of ESX hosts that will run esXpress, you may want to consider not running esXpress with the GUI appliance and install and configure esXpress locally on each host.

If you choose to run esXpress without the GUI, then you will have to install the 2 esXpress RPMs manually on each host as well as configure each host individually using the esXpress text menu. (the 3.1 GUI helper is no longer available).

For detailed information on installing, configuring and running the GUI appliance please refer the Configuration and Deployment GUI Appliance Guide.

For detailed information on installing and configuring esXpress directly on each ESX host without the GUI, see the following two manuals: *Installing esXpress 3.6 Without the GUI* and *esXpress v3.5/3.6 Reference Manual*.

2 **If you plan to run the esXpress GUI appliance, the following information should be considered for the esXpress Quorum.**

The esXpress Quorum is the mechanism that the GUI uses to communicate with your ESX hosts. It was created to have native ESX services handle the connection and communication to esXpress Data without the need to have SSH connections from the GUI to each host.

The Quorum does this using NFS where each ESX host will mount the esXpress Quorum as a VMFS partition. Then esXpress uses that NFS share to pass configuration changes from the GUI and each host, as well as keep track of each host's status.

Certain configurations are required to make this communication work. The esXpress Quorum requires a VMKernel IP address to be created on each host. Additionally, the GUI VM needs to be located on the same network with the same VLAN ID as the VMKernel. You should review your network configuration on each ESX host to be managed by the GUI before installing the VM and adding hosts to make sure the configuration is in place for the Quorum.

For additional information on the esXpress Quorum, as well as setting up a VMKernel IP, refer to the Configuration and Deployment GUI Guide.

3 What type of esXpress backups will you run?

esXpress 3.6 offers a number of different backup types:

- Delta
- Full
- Data-DeDuplication (PHDD)

If you choose to run PHDD backups then you will have to install and configure the esXpress DeDup appliance. Please refer to the DeDup Guide for additional information. If you will be running Delta/Full backups then the DeDup appliance is not required. You cannot create DeDup backups running Delta/Full.

Delta/Full mode will create Full VMDK backups and then Delta backups (all changes from the Full). PHDD mode will create Virtual Full backups that are DeDup backups. Also, running PHDD backups will enable the Instant File Level Restore (FLR) ability of esXpress. FLRs are not available for Delta/Full backups.

It is important to note that for the DeDup backups, the initial load of your Virtual Machine backups will be slow as the DeDup appliance is seeded with your backups. This is because on the first backup run, each Virtual Machine must write out most of its blocks as they won't exist on the appliance. In addition, each block is verified after writing to ensure the block is good.

Once you finish the initial backup of each Virtual Machine, you will start to see the benefits of using DeDup backups in terms of speed and the amount of data written to the appliance.

4 What type of backup target will you use for esXpress backups?

One of the key decisions to make when getting started with esXpress is, where will you send your backups? If you are running DeDup backups, then your backup target will be the esXpress DeDup appliance. This is the only target that can be used for DeDup backups.

If you are running Delta/Full backups, then your target options can be an FTP server, SMB share, SSH connection, or directly to VMFS (shared or local). For FTP servers on Windows, we recommend using Filezilla.

5 If you will run the DeDup appliance, which type of storage will be used (NFS or VMDK)?

The esXpress DeDup appliance supports two main types of storage; you can either attach an external NFS mount or attach a VMDK residing on a VMFS partition. When you deploy the DeDup appliance will need to indicate which type of disk you are attaching.

The space requirement depends on your actual data being sent to the appliance. A good rule of thumb is to start with a 10 to 1 ratio. The disk can be extended if necessary.

6 If I plan to run DeDup backups, how many DeDup appliances should I install?

You do not need to install the DeDup appliance on every host running esXpress backups. We recommend starting with just one DeDup appliance and pointing your hosts to that appliance as their DeDup backup target (we will be developing additional recommendations on scaling for DeDup and when you should look at running additional appliances).

7 How many concurrent backups per host (# of VBAs) will you run to meet your backup window requirements?

By using VBAs, esXpress can scale quickly within your infrastructure. It does this by allowing multiple concurrent backups (VBAs) to run on each of your hosts. How many VBAs should be allowed to run depends on your backup window requirements, your infrastructure (hosts, network, etc.) and also your esXpress license. Contact your PHD Virtual sales representative for licensing information.

8 What archive retention policies do you have?

esXpress can manage the backup archives it creates and automatically purge them based on configuration rules you determine. If you are running Delta/Full backups, these settings are maintained at a host level using the auto-delete settings. If you are running DeDup backups, this is managed at the DeDup appliance using the **Trim the Herd** settings.

System Requirements

Table 2 *esXpress system requirements*

VMware version	ESX Server Version 3.x, vSphere (ESX4)
DeDup/GUI VM Memory	1GB of memory allocated to each VM
GUI VM Storage Requirements	A Minimum of 8GB of disk space is required on the VMFS partition of the ESX host to import the compressed GUI VMDK file.
DeDup VM Storage Requirements	A Minimum of 8GB of disk space is required on the VMS partition of the ESX host for the DeDup system data VMDK. Additional storage (NFS or VMDK) is required for your data disk.
VBA Memory Requirements	256 MB of memory allocated to each VBA
VBA Storage Requirements	3GB minimum of VMFS space for each running VBA during backups.
Minimum supported browsers for GUI Interface	Internet Explorer 7, Firefox 3.0.7
Other Requirements	VMware Virtual Infrastructure Client 3 (VI3)
GUI Quorum Requirements	VMKernel IP assigned to each host. The GUI VM must be on the same network as the VMKernel with the same VLAN ID or the network traffic must be routable between the VMKernel IP and the assigned GUI IP for SSH and NFS connections.

Licensing

You do not need new licenses to run esXpress 3.6. As long as you have a valid esXpress 3.1 license and you are current with your support and maintenance contract, you can use the current license for 3.6.

If your support and maintenance has expired, you will need to contact sales about renewing your support or purchasing new licenses (sales@phdvirtual.com).

Installation Overview

There are a number of different components associated with esXpress that must be considered when you are ready to install the product. Below is an overview of the installation steps required for installing and running all of the esXpress components (GUI and DeDup). For detailed information on installing and configuring these appliances, refer to the specific GUI and DeDup manuals.

- 1 Download the latest esXpress zip file which contains the OVF. The GUI and the DeDup VMs can be deployed from the same OVF file.
- 2 Review the esXpress Quorum information and network requirements in the Configuration and Deployment GUI manual.
- 3 Import the GUI appliance using the OVF.
- 4 Power on the GUI VM, set its role as a GUI, then configure its networking and host name (do not use localhost).
- 5 Run the **Check for Updates** to download the current esXpress RPMs and look for any new updated releases of the GUI VM. If you deployed the GUI from the 3.6-2 OVF or above, this step is not required. The RPMs are included in the OVF.
- 6 Launch the GUI appliance and connect to the web interface using its assigned IP address.
- 7 Add your current esXpress License to the GUI.
- 8 Define Target Teams, Backup Targets, Host Groups, Email Servers, etc.
- 9 Review the Global Configuration Settings.
- 10 Add the hosts that will run esXpress to the GUI. Make sure you have reviewed the Quorum prerequisites before adding any hosts.
- 11 Go to each host defined and modify the host specific options (this includes VBA VMFS location, VBA network settings, Target Team and any other host specific setting you may have). Save these changes for each host.
- 12 Publish your License and Configuration Settings.
- 13 Import the DeDup appliance from the downloaded OVF. This is the same file you used to create the GUI appliance.
- 14 Determine the storage you will attach to the DeDup VM (VMDK or NFS). If you are using a VMDK, add that disk to the DeDup VM.
- 15 Power on the DeDup VM, set its role as DeDup, and configure its Network settings.
- 16 Run the **Check for Updates** to download and install the latest DeDup VM updates.
- 17 From the text menu, configure the storage for DeDup (connect to external NFS Share, SMB, or Use Attached VMDK).
- 18 If you have not previously defined the DeDup target in the GUI, add the new target and assign it to the appropriate target teams.

Note *The esXpress 3.6 GUI and DeDup Virtual Machines are optional features. You can install esXpress manually on each host without using the GUI.*

For additional information on installing and configuring each appliance, refer to their specific manuals. For detailed information on running backups and doing restores, refer to the 3.5/3.6 Reference Manual and the 3.5/3.6 DR and Restoration Manual.

Note *The DeDup appliance is designed to work optimally on your best hardware and best storage equipment. If you attach older or slower hardware to the DeDup appliance you may experience performance degradation on backups.*

The suggested optimal performance configuration for DeDup is to use an NFS or SMB share with by-pass mode.

Using the attached VMDK storage or using NFS or SMB without by-pass mode is not preferred and may result in performance degradation.

Uninstalling esXpress

To uninstall esXpress from an individual host there are two methods:

- 1 If you are using the Configuration and Deployment GUI appliance, delete the host from the GUI. This will remove the esXpress RPMs from that host.
- 2 If you are running a stand-alone host, run the following commands:

```
rpm -e espressVBA
rpm -e espress
```

Upgrading from version 3.1

There are two methods for upgrading from esXpress version 3.1 to version 3.6:

1 Using the esXpress GUI Appliance

If you are using the esXpress GUI appliance, it will automatically upgrade your hosts to 3.6 when you add your hosts to the 3.6 GUI. You do not need to uninstall esXpress 3.1 from each of your hosts first.

However, there is no built-in GUI function to import your current esXpress configuration settings into the GUI. Currently, you must re-enter your configuration settings for any host that is currently running esXpress.

When you add an existing esXpress host to the GUI appliance **do not *Enable the host or Publish the configuration*** until you have reviewed and updated the configuration settings for the host. When you Enable the host or Publish configurations, the settings are overridden with what is currently in the GUI appliance.

The new esXpress 3.6 RPM is automatically installed to each host when you add them to the GUI. You do not have to manually install the RPMs as was the case with the 3.1 release. However, make sure after you install the GUI appliance that you run **Check for Updates** to download the RPMs to the GUI appliance.

2 Stand-Alone Mode (No GUI Appliance)

If you are upgrading esXpress directly on your hosts and not using the GUI appliance, the upgrade to 3.6 is the same process as with prior esXpress upgrades.

After downloading the 3.6 RPM and copying it to your host, run the following 3 commands as root (su – to root):

```
rpm -e espress
rpm -i espress-3.6-1.esx.i386.rpm
phd import
```

Running Backups

All of the backup processing occurs in the Virtual Backup Appliances (VBAs) which will run on each of your hosts. With esXpress, it scales with your environment as you can run multiple VBAs concurrently on each host. Since the VBAs are just virtual machines they can be controlled in resource pools if needed.

By default, once esXpress is installed and managing your host, all of the Virtual Machines registered to that host will be backed up automatically during the nightly backup window. With esXpress, all of your virtual machines will be backed up unless you indicate otherwise.

You can also initiate manual backups in a few different ways.

- From the PHD text menu on each host, for example, using the **Backup One VM Now** option.
- Using esXpress X commands from Virtual Center. These are special esXpress commands you can append to a Virtual Machine's display name to tell esXpress to carry out a specific action. For example, if you have Virtual machine named 'Windows VM,' you can change the display name to 'Windows VM [xNOW]' to initiate a backup. When esXpress recognizes the X command, it will automatically remove the command from the VM Display Name.

For detailed information on running backups, X Commands and the configuration options available, refer to the 3.5/3.6 Reference Manual.

Restores/Replication

With esXpress you have the freedom to Restore your data at the file level, by individual VMDK, or restore an entire Virtual Machine and reregister it automatically with the host or Virtual Center. For the entire VM, each VMDK does not need to be restored separately.

Instant file level restore for Linux and Windows VMs is an esXpress 3.6 feature and is easily performed right from the DeDup GUI interface.

esXpress 3.6 leverages its powerful backup engine to provide VMDK replication (simple and incremental). Replication gives you exact copies of your backed up VM at a remote ready to be registered and powered on.

esXpress 3.6 leverages its power

Methods of Restoration available:

- Text Menu Restore (VMDK and VMX).
- Restores without esXpress installed, our Delta backup archives are self-executing.
- Instant File Level Restore for DeDup backups.

For detailed information on restoring esXpress backups, doing File Level Restores, and configuring and running esXpress replication, refer to the 3.5/3.6 DR and Restore Guide.

Support File

When working with the PHD virtual support staff for issue resolution, it is normally requested that you send a support file. These support files gather all the important log and configuration information from your server which will enable the support engineers to troubleshoot the problem.

Depending on where your issue is occurring (ESX host, GUI or DeDup Appliance), log into the console of the affected device and run the following command:

```
phd-support
```

A script will guide you through an automated process collecting the data needed by our support engineers. This data is automatically transmitted to our support site provided that Internet access is available. Otherwise, support data can be transmitted manually via the process below.

The support file is created in the /tmp directory and will have a .tgz extension

To send support files manually

Run the following commands:

```
ftp www.esxpress.com
login: anonymous
password: your_email_address
cd /pub/upload
bin
put the_file
```

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