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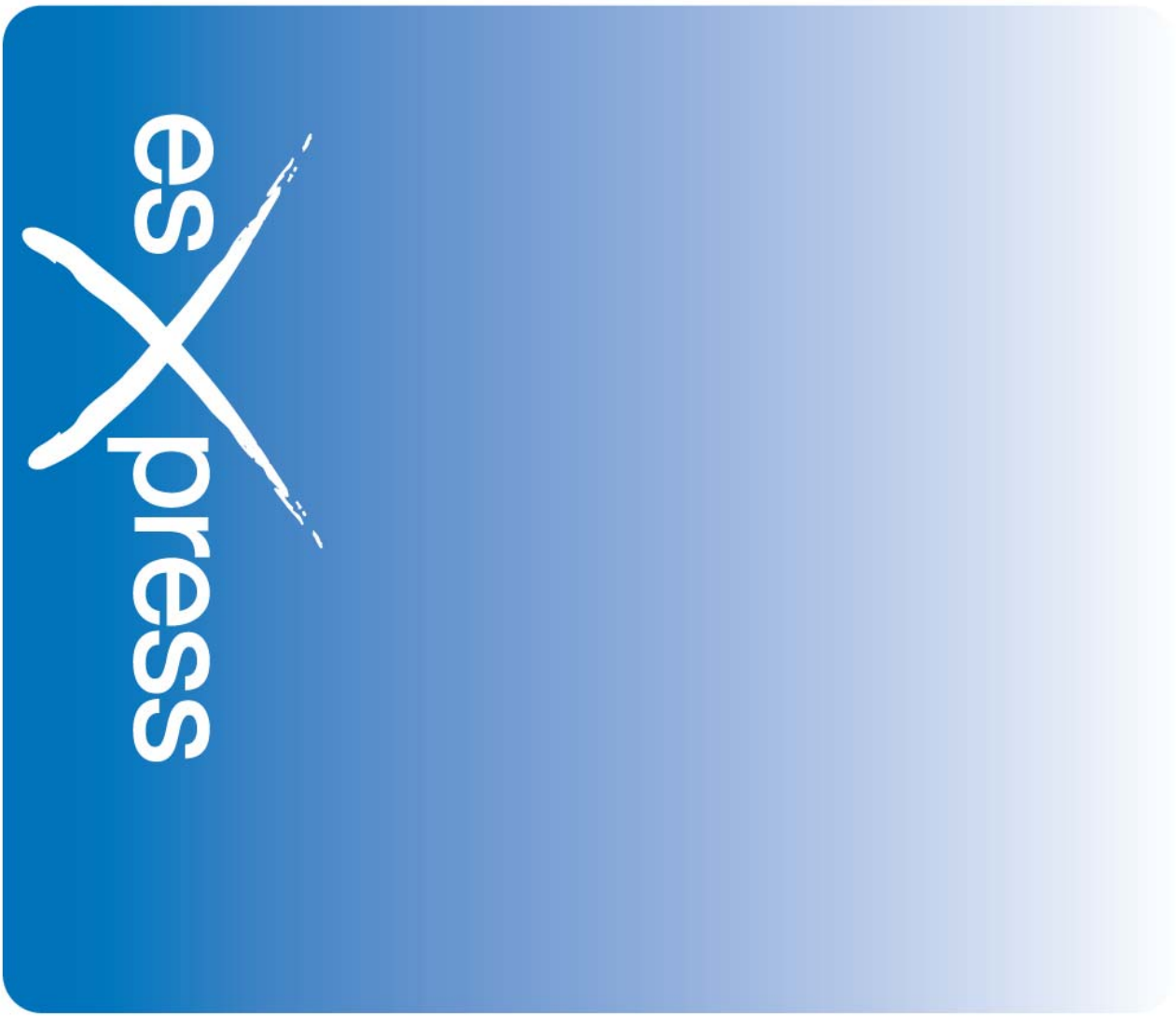
Quantum esXpress 3.6
VMware Based Backup and Recovery



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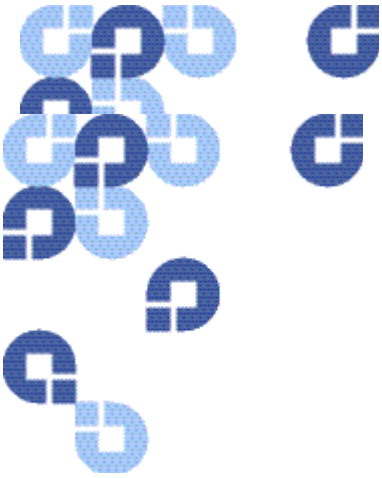


About This Guide

The purpose of this guide is to detail the configuration options available from the esXpress text menu that is accessible on each host where esXpress is installed.

This guide also covers configuration options and topographies supported by esXpress. This guide does not cover the Configuration and Deployment GUI Appliance. If you are using the GUI Appliance to configure esXpress on your hosts, refer to the *Configuration and Deployment GUI Appliance Guide*.

Who Should Read This Guide

esXpress is designed for use by VMware administrator. Installation and administration of esXpress requires that you have a basic understanding of configuring ESX servers, virtual machines, basic networking, and using Virtual Center.

With esXpress you are not limited to the number of hosts, CPUs or virtual machines that can be backed up. esXpress does ship with a 30 day trial of Intelligent Deltas and archive management plug-ins and will run up to 16 Virtual Backup Appliances (VBAs). After 30 days, a license key is needed to continue to run esXpress. Contact Quantum sale for additional license keys.

Quantum Branding

Quantum's version of esXpress has been modified specifically to work in an optimized fashion with the DXi Deduplication appliance. In order for the Quantum DXi data deduplication and replication appliance to function most efficiently, it has been designed to process data that is unencrypted and uncompressed. As a result Quantum esXpress passes data images and deltas directly and unaltered to the DXi-Series system. For best results the DXi performs optimal deduplication and compression within DXi itself. When replication is in use the DXI performs encryption during the

data transfer. To ensure economy of scale the DXi is designed to be the central repository for all your virtualized and traditional data center needs. esXpress as delivered by Quantum is intended for use with the DXi family of products as the intended target storage device. Optional storage targets are not supported.

Note: esXpress is installed on a VMware ESX server or host. The esXpress software does NOT get installed on the DXi itself. The DXi is a CIFS or NFS storage target to esXpress.

Contacts

Quantum company contacts are listed below.

To order documentation for esXpress or other products contact:

Quantum Corporation
P.O. Box 57100
Irvine, CA 92619-7100

(949) 856-7800
(800) 284-5101

Quantum Home Page

Visit the Quantum home page at:

http://www.Quantum.com

Quantum Support

To contact Quantum Global Services please visit:
http://www.Quantum.com/pdf/Quantum_Global_Services.pdf

We offer two convenient methods to get the support you need, anytime:

- Knowledge Database - An interactive database of the most frequently asked questions: **http://www.Quantum.com/faqs**
- **eSupport -** A Web-based, self-service application that allows registered users to create and track service requests: **http://www.Quantum.com/eSupport**
- **Live Support:** To contact our world-class support representatives, please refer to the information below:

  Americas:
  1-800-284-5101 (toll-free) or 949-725-2100 (local)

  Europe, Middle East and Africa:
  United Kingdom: +44 (0) 1256-848748 (local)
  France: +44 (0) 1256-848748 (local)
  Germany: +44 (0) 1256-848748 (local)

Asia Pacific:
Australia: 1-800 285 435 (toll-free)
China: +86 (10) 8519 2099 (local)
India: +91 (98) 4400 6600 (local)
Asia, Pacific and Japan: +61 (7) 3839 0988 or +1 (949) 725 2100

Technical Publications

To comment on existing documentation send e-mail to:

doc-comments@quantum.com

esXpress Product Information

You can register your esXpress software at:

www.Quantum.com/esXpress/activation

Request More Information:

http://Quantum.mv.treehousei.com/Surveys/06/1BE8BC76ECC42185/RequestMoreInfo.aspx

Service and Support Web site

Register products, license software, browse Quantum Learning courses, check backup software and operating system support, and locate manuals, FAQs, firmware downloads, product updates and more in one convenient location.

Benefit today at:

http://www.Quantum.com/ServiceandSupport/Index.aspx

eSupport

Submit online service requests, update contact information, add attachments, and receive status updates via e-mail. Online Service accounts are free from Quantum. That account can also be used to access Quantum's Knowledge, a comprehensive repository of product support information.

Sign up today at:

http://www.Quantum.com/ServiceandSupport/eSupport/Index.aspx.

Documentation

The following documents are available for esXpress:

Document Number	Document Title
6-66737-02	Quantum esXpress VMware Based Backup and Recovery Configuration and Deployment Guide
6-66625-02	Quantum esXpress VMware Based Backup and Recovery Restoration & Disaster Recovery Guide
6-66895-01	Quantum esXpress VMware Based Backup and Recovery Release Notes
6-66583-02	Quantum esXpress VMware Based Backup and Recovery User's Guide
6-66897-01	Quantum esXpress VMware Based Backup and Recovery "X" Commands
6-66899-01	Quantum esXpress VMware Based Backup and Recovery Reports Guide

Webpage URLs

- esXpress product page: **www.Quantum.com/esXpress**
- registration/activation: **www.Quantum.com/esXpress/activation**
- esXpress Quantum branded download: **www.Quantum.com/esXpress/download**

1 Introduction

esXpress Overview

Out of the box, esXpress provides automatic, daily backups of all running virtual machines. It can also perform individual backups that can be scheduled or initiated immediately. The easy installation ensures a simple but powerful backup solution for your virtual infrastructure.

Quantum esXpress software provides high-availability virtual appliances for protecting VMware virtual infrastructures and data to Quantum's DXi™-series deduplication systems. Quantum esXpress combined with Quantum DXi-series deduplication and replication appliances provides a comprehensive, scalable but simple and complete data protection solution for a VMware environment. The esXpress product has revolutionized data protection for virtual environments by using the virtual environment itself to back up more data in less time. esXpress uses "virtual backup appliances" (VBAs) – small virtual machines – to perform autonomous, fault-tolerant backup and restoration of your virtual environment directly to a DXi-series with no additional hardware or software required, and minimal impact to VMware servers, the service console or network performance. It scales easily across an enterprise's entire virtual infrastructure.

esXpress also provides in-depth reporting features including statuses, virtual machine name and size and the effective speed in both GB/hour and MB/second. esXpress can automatically compile and send these reports via email to systems administrators or managers.

This document is designed to provide a brief overview of the system requirements, installation check list and step by step instructions to install the esXpress software product.

Important:
esXpress is designed for the VMware administrator who has passed the VCP (VMware Certified Professional) exam or has equivalent experience. Installation and administration of the esXpress software requires that the administrator have a core understanding of ESX server configuration, virtual machines, basic networking and VMNET, and using VMware Virtual Center. This product is meant to be customer installable assuming the customer is a VMware administrator. The VMware administrator is for the purpose of this document the "user" and or "customer".

System Requirements

Operating Environment	ESX Server Version 3.5, vSphere 4.x esXpress Version 3.6-x **Note:** VMware Lab Manager and ESXi are not supported
Supported Browsers	IE 7.0 or greater Firefox 3.07 or greater *Other browsers such as Netscape, Safari, AOL or others are not supported

Hardware System Requirements

DXi Requirements

DXi6500 Series	Version 1.3-65 or greater
DXi7500, DXi7500 Express	Version 1.1.1 or greater
DXi3500, DXi5500	Version 1.7.1 or greater
DXi2500-D	Version 1.1.3_25 or greater

System / VMware Requirements

Memory	256 MB of memory allocated for each running VBA
Storage Requirements	A minimum of 8GB of disk space is required on a VMFS partition available to the ESX host to import the compressed GUI VMDK file
Other Requirements	VMware Virtual Infrastructure Client 3 (VI3) or greater
VMware version	ESX Server version 3.5 (ESX 3.5i is not supported) *. ESX 3.5 or vSphere 4.x versions are supported
VBA Storage Requirements	3 GB minimum of vmfs space for each running VBA during backups
Supported Browsers for GUI Interface	Minimum Internet Explorer 7, Firefox 3.0.7
Other Requirements	VMware Virtual Infrastructure Client 3 (VI3) ore greater
*Refer to the VMware ESX Server 3 or vSphere 4 Installation Guide for VMware ESX system requirements	
ESX Service Console Memory Requirement	Minimum requirement is 800MB, The default was 227MB – Require ESX reboot

* Always refer to the *Quantum esXpress VMware Based Backup and Recovery Release Notes* (6-66895-01) for the most current system and VMware requirements.

2 Features and Installation

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.

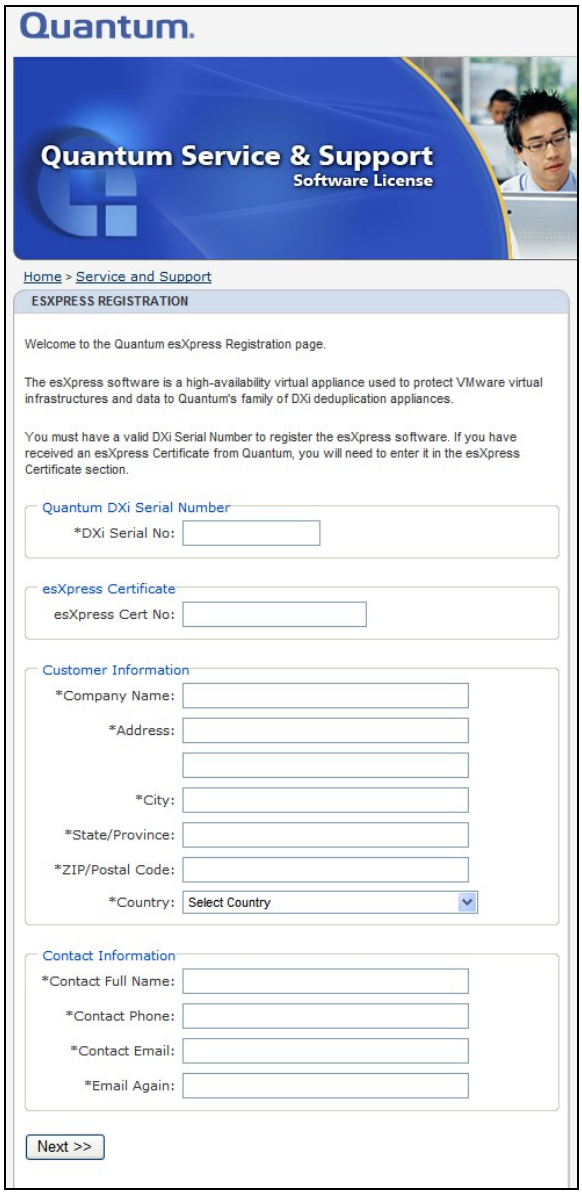
New Features in 3.6

- vSphere 4.0 support and 3.5 ESX support
- Configuration Wizard
- Built-in Incremental Replication
- New simpler to use GUI interface
- Improved documentation
- Registration and download Web site changes to accommodate the removal of support as part of the registration and download process
- Training videos
- Bug fixes and enhancements

esXpress Registration and Download Steps

The follow steps are required prior to installing esXpress.

1. **Customer Registration**
   The very first step in the process is customer registration. An activation key will be mailed to the customer. The esXpress product CANNOT be installed without an activation key. The activation key determines if the copy of esXpress is a 30 trial version or a production version (never expiring). The Service Level Agreement (SLA) time period is embedded into the activation key.



a. Navigate to the www.Quantum.com/esXpress/activation Web site and complete the registration process.

b. DXi Serial number is required.

c. esXpress Certificate number:

    i. For a free 30 day demo copy leave the esXpress Certificate blank.

        1. There is no difference between the production copy of esXpress and the demo copy. The demo copy will stop functioning after the 30 day trial period.

2. Each demo or Temp key is valid for use with 5 VMware ESX servers.
3. For extended trial periods contact your sales representative.
4. Demo activation keys will be displayed on the Web Site and emailed to the customer.
5. Below is an example of an esXpress license key. Enter this license key through the esXpress GUI Appliance. From the main menu select the Configuration option located on the left menu bar, then select License.

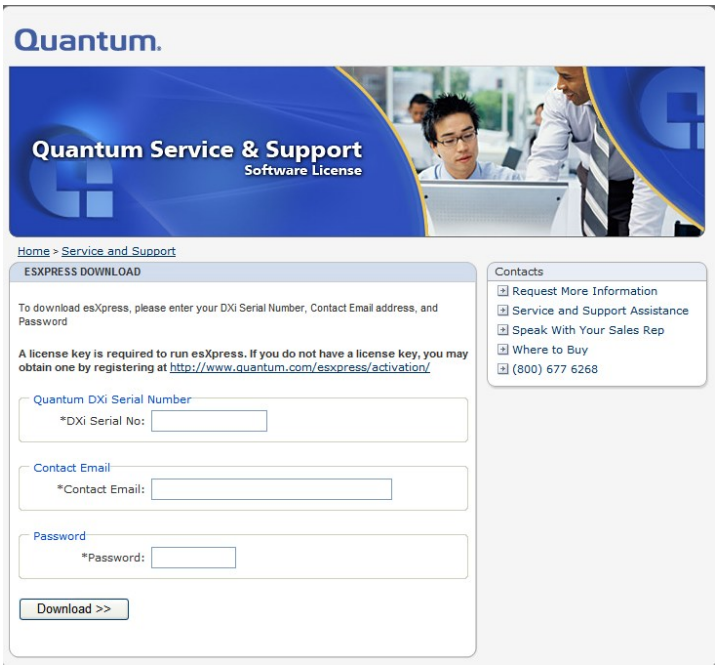
```
COMPANY NAME='ESXPRESS TEMP KEY'
DXI SERIAL NUMBER='CX12345678'
LICENSE ID='201003-5-ENT-TMP'
LICENSE CODE='CBA8-5761-C07A-02E9'
```

ii. For Production use, enter the esXpress Certificate.

1. Quantum has included an esXpress Certification number with your DXi system. If purchased separately, it will be delivered in an esXpress envelope.
2. Certification keys can only be used once.
   Note: If you have multiple certificates you must fill out the registration process for each certificate.
3. Certification keys have the following format:
   XXXX-XXXX-XXXX-XXXX
   Example: YAKD-KSTG-Z7YG-QFLN
4. Production keys do not expire with the exception of the SLA date. esXpress includes 1 year of 5x9 phone support. The SLA date is encoded into the activation key that will be emailed to you shortly.
5. After the 1 year SLA agreement the "Check for updates" feature will be disabled until a new SLA agreement has been ordered. Service will email the customer with a new activation key.
6. Retain the esXpress Certificate for your records.
7. esXpress license keys will be emailed to the customer and will not be displayed on the Web site.

2. **Download**

   The download page will ask for the DXi serial number, email and a password that we emailed directly to you after the registration process.



   a. Download the esXpress3.6-11 zip file to a location that the ESX server has access to.
   Note: This is a large file (394 MB) and will take time to download.

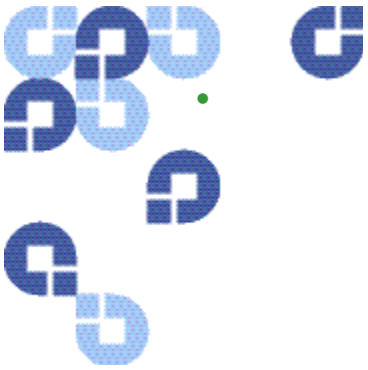
esXpress Installation Components

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

However, if you will be running the esXpress GUI, you need only download the esXpress appliance OVF. The RPMs will be installed to you host automatically from the GUI appliance.

- **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 run esXpress without the GUI appliance. **Visit www.Quantum.com/esXpress/download** to download a copy of the zip file.



3 Implementation Planning

Considerations

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 two esXpress RPMs manually on each host as well as configure each host individually using the esXpress text menu.

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

For detailed information on installing and configuring esXpress directly on each ESX host without the GUI, see *esXpress 3.6 User Guide*.

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

Delta/Full mode will create Full VMDK backups and then Delta backups (all changes from the Full).

4 **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 Quantum sales representative for licensing information.

5 **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.

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 Quantum sales about renewing your support or purchasing new licenses.

Installation Check List

To ensure proper installation please complete the Installation Check list as it will has you time and frustration during the installation process. If you need support help during the installation process Quantum support engineers will first as if you have completed the below Installation Check.

Ensure the following pre-requisites are met prior to installing the esXpress Backup software product on your VMware ESX servers:

	Task	**Status**
	Have your DXi Serial number written down. You will need this to register the product.	
	If you have not already done so, register you esXpress software by visiting **www.Quantum.com/esXpress/activation**. You will need to have your DXi serial number and esXpress Certification number to complete the registration process. Once you have registered your esXpress software, an esXpress activation key will be emailed to you.	
	Ensure your DXi has an active NAS license. *Note:* Not all DXi models come with a default NAS license. If you do not have a DXi NAS license, please contact your sales representative. A DXi NAS license is required for esXpress to communicate with the DXi.	

	Task	**Status**
	Do you have a previously installed copy of esXpress on any VMware ESX servers that will be within your VLAN? If yes, was the demo / production copy downloaded from the PHD site or Quantum site? If you have a PHD version installed you will need to completely un-install this version of esXpress. If you have the Quantum version install you do not need to un-install the software and all you configuration settings can remain the same.	
	Have your esXpress License Key ready. This should have been emailed to you as a result of completing the registration.	
	The following files must be imported onto the ESX server as described below: **qtm-3.6-x.ovf** **qtm-3.6-x-disk1.vmdk** These files can be imported by downloading them to a local machine from www.quantum.com/esXpress and subsequently importing them into ESX Server via the Import Virtual Appliance Wizard in the VMware Virtual Infrastructure 3 (VI3) or vSphere 4.x Client. The 2 import files will be contained in the esXpress 3.6 zip file downloaded from the Web site.	
	At least one DXi NAS share must be available for mounting to the ESX server. Export a CIFS or NFS NAS share from your DXi. This will be the target storage for esXpress. *Note:* For optimum performance CIFS shares are the preferred method to connect a DXi to the esXpress backup software.	
	IP address of the ESX server that the Global GUI will be installed on.	
	Each host to be managed by the Global GUI must have a VMKernel IP address assigned. This is required for NFS to connect to the esXpress-quorum. For additional information on configuring a VMKernel IP see the VMware iSCSI SAN Configuration Guide.	
	IP address to assign to the virtual machine of the GUI Appliance (esXpress GUI)	
	Default gateway and subnet mask addresses for the GUI virtual machine. If the host has more than 1 CPU, make sure to allocate only 1 virtual CPU to the appliance VM.	
	The ESX Server should be connected to the internet to download current rpm files. There is a documented procedure for sites that do not have internet access. Please contact Quantum support for assistance if you do not have internet access.	
	Note: Quantum recommends that you assign DHCP addresses for esXpress VBA's.	

Installation Prerequisites

Ensure the following prerequisites are met prior to installing the GUI.

- Download the latest esXpress zip file from Quantum Web site **www.quantum.com/esxpress/download**

  The following files contained within the zip file will be imported to the ESX server:

  - qtm-3.6-x.ovf
  - qtm-3.6-x-disk1.vmdk

  These files can be imported by downloading them to a local machine and then imported to the ESX Server using the Import Virtual Appliance Wizard in the VMware Virtual Infrastructure 3 (VI3)/4.x Client.

- The client must be logged on to your ESX 3.x.4.x Host.
- Before you begin with the installation, you must have the required network information, including an IP Address, DNS, Default Gateway, etc.
- If the Host is a Dual CPU host, make sure to allocate only 1 virtual CPU to the appliance VM.
- Each host to be managed by the GUI must have a VMKernel IP address assigned. This is required for NFS to connect to the esXpress-quorum.

  If you are not familiar with how to setup a VMKernal IP address, contact your VMware administrator for assistance. For additional information on configuring a VMKernel IP, see the Networking Configuration section of the *VMware iSCSI SAN Configuration Guide.*

  http://www.vmware.com/pdf/vi3_35/esx_3/r35u2/vi3_35_25_u2_iscsi_san_cfg.pdf

- The GUI appliance must be located on the same VLAN as the VMKernel IP address assigned 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.

Caution Quantum recommends that you *do not* perform any remote host management with the GUI—for example, adding a host that is across the WAN. When installing the GUI, you must perform a Virtual Appliance Import from the VI3 client as shown in the installation instructions—*do not* use the VMware Converter.

- Like many products, esXpress transfers the backup data over the network. In an environment with many ESX hosts, network delays could happen due to the volume of data being moved. It is suggested that you have a 2nd NIC attached to a dedicated backup network.

- Your DXi storage location should be, at minimum, equal to the total size of the VMDK files targeted for backup. This means that if you have 500GB of virtual machines, you should have at least 500GB of storage. This should allow, on average, a month worth of Delta backups online, but this can be less expensive 2nd and 3rd tier space instead of your prime SAN space.
- You must have root access to the VMware host to install and execute the esXpress software.

Installation Overview

There are a number of different components associated with esXpress that must be considered when you are ready to install the product. Listed below is an overview of the installation steps required for installing and running all of the esXpress components. For detailed information on installing and configuring these appliances, refer to the *Quantum esXpress VMware Based Backup and Recovery Configuration and Deployment Guide* and the *User's Guide*.

1. Download the latest esXpress zip file which contains the OVF.
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. Launch the GUI appliance and connect to the web interface using its assigned IP address.
6. Add your current esXpress License to the GUI. (The license key will have been emailed to you)
7. Define Target Teams, Backup Targets, Host Groups, Email Servers, etc.
8. Review the Global Configuration Settings.
9. Add the hosts that will run esXpress to the GUI. Make sure you have reviewed the Quorum pre-requisites before adding any hosts.
10. 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.
11. Publish your License and Configuration Settings.

Note: The esXpress 3.6 GUI Virtual Machine is an optional feature. 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 *3.6 DR and Restoration Manual*.

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 esxpressVBA
rpm –e esxpress
```

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 esXpress 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 to the esXpress User Guide .

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.

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.

Methods of Restoration available:

- esXpress Text Menu Restore (VMDK and VMX).
- Restores without esXpress installed, our Delta backup archives are self-executing.

For detailed information on restoring esXpress backups, doing File Level Restores, and configuring and running esXpress replication, refer to the *Quantum esXpress VMware Based Backup and Recovery Restoration & Disaster Recovery Guide*.

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