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Configuration & Deployment

Configuration & Deployment

Quantum esXpress 3.6

VMware Based Backup and Recovery



6-66737-02 Rev B

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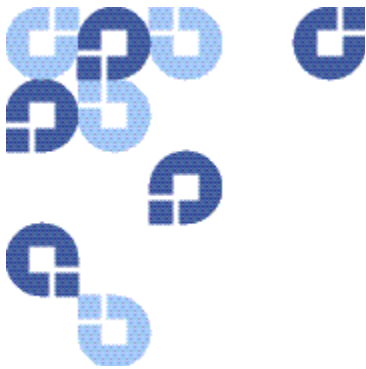
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About Quantum esXpress

Product Overview

Quantum esXpress Backup Software provides high-availability virtual appliances for protecting VMware virtual infrastructures and data to Quantum's DXi-series deduplication systems. Quantum esXpress Backup software combined with Quantum DXi-series deduplication and replication appliances provides a comprehensive, scalable but simple and complete data protection solution for a VMware environment. esXpress 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.

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 Backup 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" or "customer".

Quantum Branding

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 has intentionally removed the encryption, compression, and source deduplication features of the esXpress software product. For best results the DXi performs optimal deduplication and compression from the DXi itself. When the DXi replicates data to another DXi device it 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.

Documentation

These documents are available for download from the www.Quantum.com/esXpress Web site.

Document Number	Document Title
6-66583-02	Quantum esXpress VMware Based Backup and Recovery User's Guide
6-66625-02	Quantum esXpress VMware Based Backup and Recovery Restoration and Disaster Recovery Guide
6-66895-01	Quantum esXpress VMware Based Backup and Recovery Release Notes
6-66896-01	Quantum esXpress VMware Based Backup and Recovery Getting Started Guide
6-66897-01	Quantum esXpress VMware Based Backup and Recovery "X" Commands
6-66899-01	Quantum esXpress VMware Based Backup and Recovery Backup 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

Contacts

Quantum company contacts are listed below.

Documentation

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

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http://www.Quantum.com/pdf/Quantum_Global_Services.pdf

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- **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)

About Quantum esXpress

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:

<http://esxpress.quantum.com/>

Request More Information:

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

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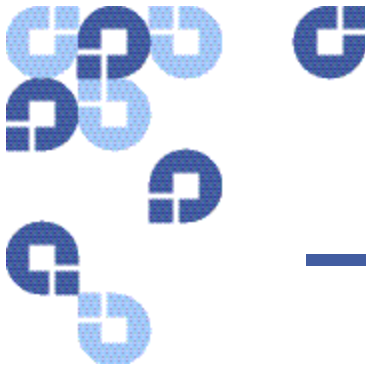
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1 System Introduction

The esXpress 3.6 Configuration and Deployment GUI Appliance is a multi-user web-based system that can be used for esXpress configuration and deployment only. The GUI uses a hierarchal method to configuration options using global, group, and host-level settings, to provide a quick and easy method for maintaining esXpress configuration across your entire farm and all of your hosts. In addition to configuration, the GUI will automate the installation of esXpress to each of your hosts.

Note: The GUI is an optional feature of esXpress and is not required order to perform backups or restores. The ability to run backups, do restores, or managed backups are not handled from within the GUI at this time.

The esXpress 3.6 GUI is delivered as an OVF and is a self-contained Virtual Machine that can be accessed from either a standard web browser or from within VMware vCenter as a standard plug-in.

Note: If you are not familiar with what an OVF file is please visit <http://www.vmware.com/appliances/getting-started/learn/ovf.html>

In short an OVF is a platform independent, efficient, extensible, and open packaging and distribution format for virtual machines

Note: Helper VMs are the name given to the esXpress VMs that perform the actual backup function. They are also referred to as VBA's.

esXpress Quorum

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

Using the NFS protocol (Network File System), each ESX host running esXpress will mount the Quorum as a VMFS partition. Then esXpress uses that NFS share to pass the configuration changes and updates from the GUI Virtual Machine to each host as well as keep track of each host's status.

When you add a host to the esXpress GUI, the Quorum will be configured automatically on that host. Before you add any hosts to the GUI, make sure you have reviewed the requirements listed in the Installation Checklist on page as well as the notes below. It is important that the VMKernel IP is created and the GUI is placed on the same network with the same VLAN ID as the VMKernel. Once the host is added, you will then see the mounted NFS share to the esXpress GUI VM as a VMFS volume.

This is a sample quorum volume of a host managed by the esXpress GUI VM:

```
/vmfs/volumes/547341ee-7c46c115      2.4G 1.6G 738M 69%  
/vmfs/volumes/esxpress-quorum
```

Prerequisites to Adding a Host

Review the following items before adding hosts to your appliance:

- A VMKernel IP must be assigned on each host managed by the esXpress GUI. This is required for NFS to connect to the esXpress Quorum.
- The GUI must be on the same VLAN as the VMKernel IP assigned to each host or the network traffic must be routable between the VMKernel IP and the assigned GUI IP for SSH and NFS connections.
- 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

Quorum Folder Structure

The esXpress Quorum consists of six folders:

- **Config** - esXpress configuration files that are created from the GUI are written here.
- **Hosts** - Host Check-In status updates.
- **Logs** - (for future use).
- **Mpath** - This is a utility process that can be used track LUN path changes.
- **Run** - Locks are processed here.
- **Update** - Contains the software updates and RPM packages downloaded from the Internet.



2 Installing and Configuring GUI Appliance

Before installing and configuring the esXpress Configuration and Deployment GUI appliance, review the system requirements and installation checklist in this chapter.

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 Backup for VMware Release Notes (6-66895-01) for the most current system and VMware requirements

Installation Checklist

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

	Task	Status
	Have your DXi Serial number written down. You will need this to register the product.	
	<p>If you have not already done so, register you esXpress software by visiting www.Quantum.com/esXpress/activation</p> <p>You will need to have your DXi serial number and esXpress Certification number to complete the registration process.</p> <p>Once you have registered your esXpress software, an esXpress activation key will be emailed to you.</p>	
	<p>Ensure your DXi has an active NAS license.</p> <p>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.</p>	
	<p>Do you have a previously installed copy of esXpress on any VMware ESX servers that will be within your VLAN?</p> <p>If yes, was the demo / production copy downloaded from the PHD site or Quantum site?</p> <p>If you have a PHD version installed you will need to completely un-install this version of esXpress.</p> <p>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.</p>	
	Have your esXpress License Key ready. This should have been emailed to you as a result of completing the registration.	

	Task	Status
	<p>The following files must be imported onto the ESX server as described below: qtm-3.6-x.ovf qtm-3.6-x-disk1.vmdk</p> <p>These files can be imported by downloading them to a local machine from www.Quantum.com/esXpress/download 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.</p> <p>The 2 import files will be contained in the esXpress 3.6 zip file downloaded from the Web site.</p>	
	<p>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.</p> <p>Note: For optimum performance CIFS shares are the preferred method to connect a DXi to the esXpress backup software.</p>	
	IP address of the ESX server that the Global GUI will be installed on.	
	<p>Each host to be managed by the Global GUI must have a VMKernel IP address assigned.</p> <p>This is required for NFS to connect to the esXpress-quorum. For additional information on configuring a VMKernel IP see the <i>VMware iSCSI SAN Configuration Guide</i>.</p>	
	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.	
	<p>The ESX Server should be connected to the internet to download current rpm files.</p> <p>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.</p>	
	Note: Quantum recommends that you assign DHCP addresses for esXpress VBA's.	
	<p>Are you installing multiple hosts? Yes/No</p> <ol style="list-style-type: none"> a. If yes, record the number of hosts you want to deploy esXpress on. b. Record the networking information for each host. <ol style="list-style-type: none"> 1. Do you want multiple target teams? Yes/no <ol style="list-style-type: none"> a. If yes, record the number if different target teams needed 2. Do you want multiple host groups? Yes/No <ol style="list-style-type: none"> a. If yes, record the number if different host groups needed 	

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 VMKernel 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.

Installing the Configuration and Deployment GUI

The following sections describe how to install the GUI appliance using a vSphere or VI3 client. Be sure to follow the steps for the VMware client you are using.

- 1 Unzip the esXpress zip files you downloaded.
- 2 Using a VMware client, log in to your ESX host.
- 3 Import the GUI appliance OVF:

If you are using a VI3 client, select **File > Virtual Appliance > Import**.

If you are using a vSphere client, select **File > Deploy OVF Template...**

Note: If you are not familiar with an OVF file, visit <http://www.vmware.com/appliances/getting-started/learn/ovf.html>

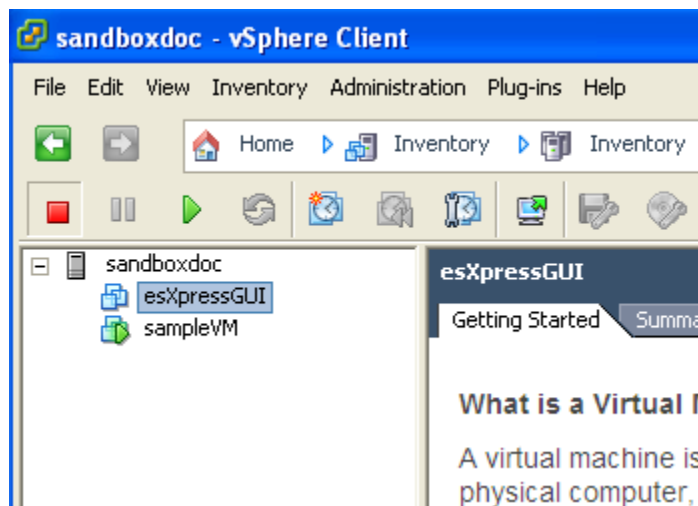
- 4 Browse to the location you stored the extracted OVF, select the file, and click **Next**.
- 5 Follow the remaining steps to import the file and accept the End User License Agreement.

When you are finished, a progress indicator opens and the GUI appliance is added to your ESX host.

Note: Use local data shares for the VBAs. This action prevents the esXpress VBA's from migrating to another server if vMotion occurs. esXpress VBA's cannot be vMotioned.

- 6 When the process completes, click **Close** in the progress indicator.

The new appliance is displayed in the client window.



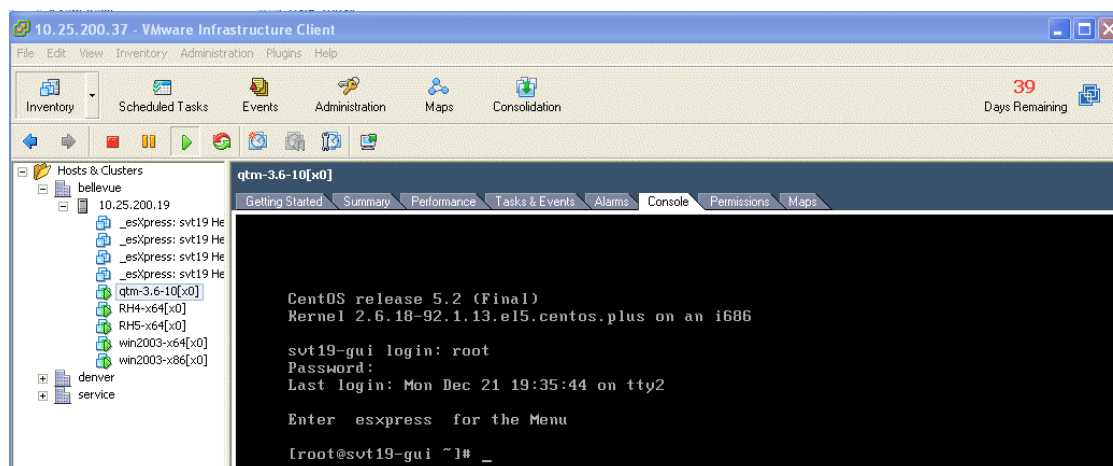
- 7 When you are finished installing the GUI appliance, follow the steps in the next section to complete the required configuration tasks.

Configuring the GUI

This section details the set of options that must be configured to allow the GUI appliance to function. Print out your Installation Checklist from page for reference. In summary, the required steps are:

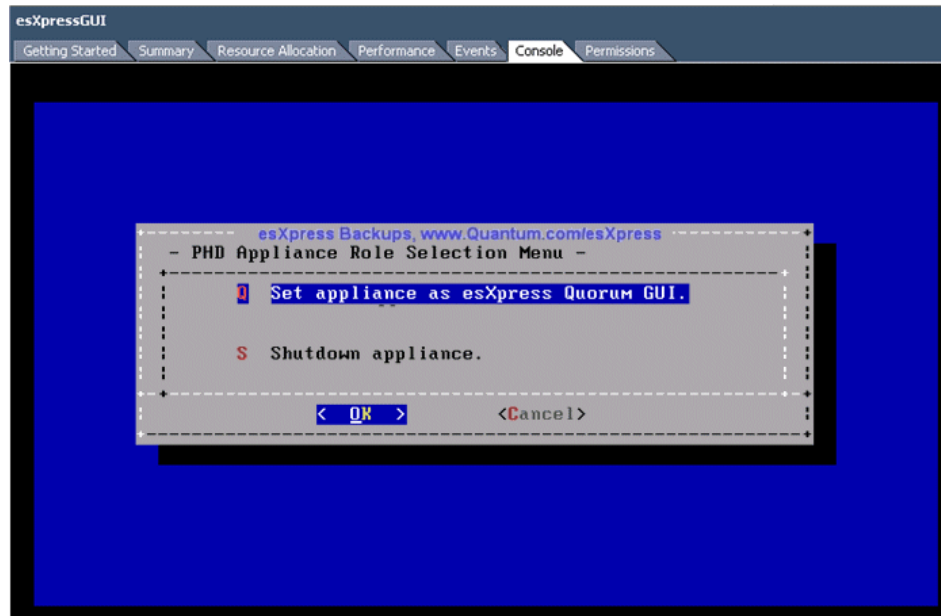
- 1 Set the Appliance Role as an esXpress Quorum GUI.
- 2 Define the network configuration.
- 3 From the VMware client, start the newly installed GUI appliance virtual machine.
- 4 Click the **Console** tab.

When the machine is finished booting, the main menu for the appliance is displayed.



- 5 Logon to the system.
 - a. Click **Alt+F2** to enter the console login prompt.
 - b. Login as root with password `espress`.
 - c. At the command prompt, type `quantum` or `espress` and press **Enter**.

The esXpress GUI menu opens.



- 6 Select **Q Set appliance as esXpress Quorum GUI.**
- 7 Select **Yes** to confirm.

The appliance is set as esXpress Quorum GUI.

- 8 Select **OK** to open the appliance menu.

```

-----Quantum Corporation (c) 2009-----+
- Quantum Global GUI Setup Quick Menu -
vers: phdq-3.6-10      Thu Dec 31 19:44:14 EST 2009
+-----+
:      D  Daemon Status - Running
:      A  Lock Status - Clear
:      W  See Whats Happening
:      T  Show Status from TTY1
:      0  Show Status from TTY10
:      1  Show Status from TTY11
:
:      C  Configure GUI Appliance settings
:      O  System Config Settings
:      L  View Logs
:      U  Check for Updates
:      V  Verify/Repair Appliance database
:      E  Restart Web Services
:      P  Shutdown/Reboot GUI Appliance
:      R  Please change the ROOT Password
:      Q  Quit
:
+-----+
:      < OK >      <Cancel>
+-----+

```

- 9 Select **C**, **Configure GUI Appliance settings**.

The Ethernet adapter menu opens.

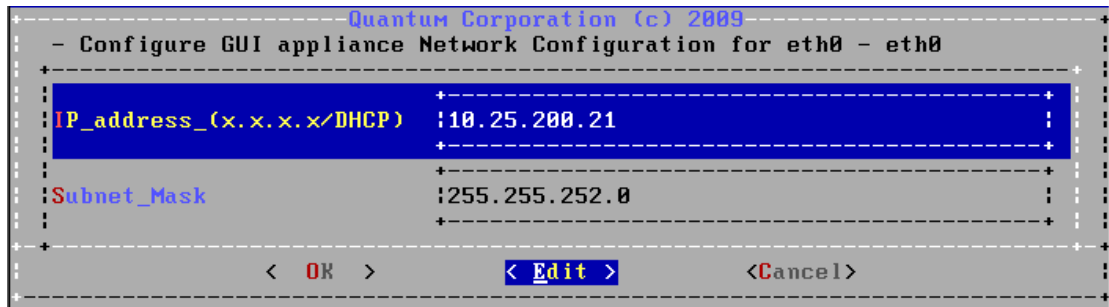
```

-----Quantum Corporation (c) 2009-----+
- Select an ethernet adapter to configure:
+-----+
:      1  Network Adapter 1 - 10.25.200.21
:
:      G  Global Network Settings
:
:      Q  Quit
:
+-----+
:      < OK >      <Cancel>
+-----+

```

- 10 Select **1, Network Adapter 1** –.

The GUI appliance Network Configuration menu opens.



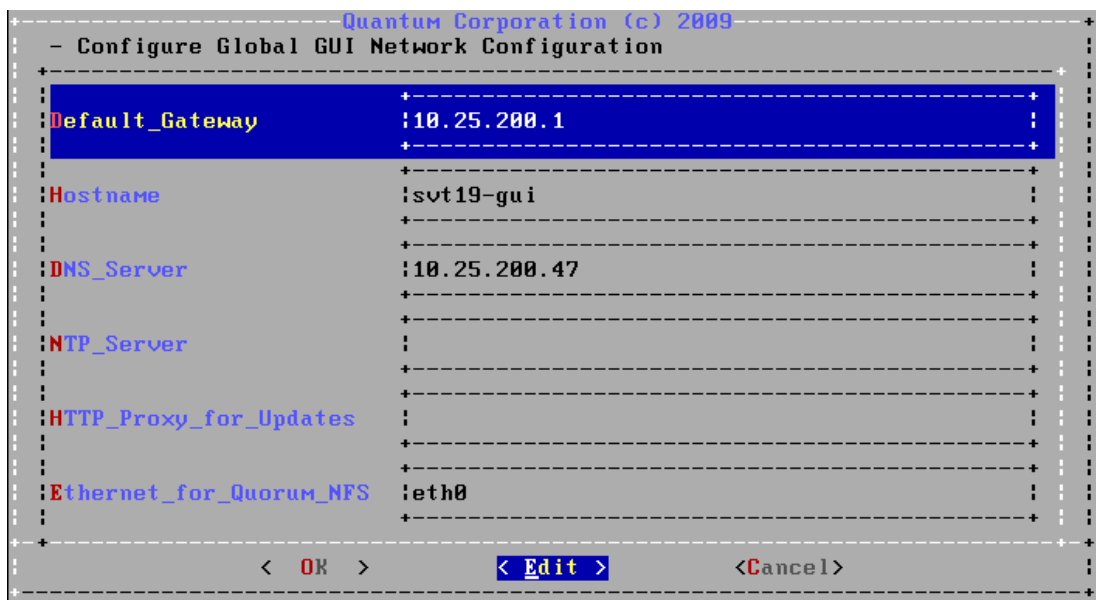
- 11 Enter the IP address and subnet mask for the GUI appliance. Edit the fields by selecting **Edit** and pressing **Enter**.
- 12 Select **OK**.
- 13 Select **Yes** to confirm the changes.

A window opens alerting you that you must define a hostname and default gateway.

- 14 Select **OK**.

Note: Use fully-qualified hostnames.

The Global GUI Network Configuration menu opens.



15 Enter the following information:

- Hostname (must be a fully qualified domain name, do not use localhost)
- Default Gateway
- DNS Server. If required, enter multiple DNS servers separated by a comma.

The GUI appliance must be on the same VLAN as the VMKernel IP address assigned to each of your hosts.

- If required, also define the value for your proxy server. The GUI appliance must be able to connect to the internet to receive updates. You must define server name and port for the proxy server, for example,
`http://proxy.example.com:8080/`
 If your proxy server requires authentication, use the following syntax:
`http://username:password@proxy.example.com:8080/`
- If you have assigned multiple IPs to the GUI appliance, you can indicate which Ethernet adapter should be used for the quorum using the **Ethernet_for_Quorum_NFS** option.

Note: Ensure that the IP Address configured above is **unique** i.e. is not the IP Address of either the ESX server, or the NFS share (If configured). This IP will be used to access the GUI menu through a Web browser.

16 When finished defining network settings, select **OK**.

17 Select **Yes** to confirm the changes.

18 Select **OK** to configure the network settings.

19 When complete, select **OK** again.

20 Select **Quit** to return to the main menu.

The GUI has been configured.

21 Optionally, check for any software updates.

Note: If you have downloaded and installed the latest esXpress files, you can skip this step.

a. Select **U, Check for Updates**.

b. Follow the steps to download the latest software.

When the updates are complete, you are prompted to restart the appliance.

The Configuration and Deployment GUI appliance is now configured.

- 22 Log in to the GUI appliance Web page to complete your configuration by adding licenses and hosts, defining your backup targets, target teams, host groups, and then publish your configuration settings to your hosts.

Refer to Chapter 3, Using the Configuration and Deployment GUI for details.

Checking for Updates

If you installed the GUI appliance from the latest esXpress OVF, you *do not* need to initially check for update to download the host rpms.

To apply future esXpress updates for the GUI Appliance and the host RPMs, you will need to check for updates using the Check for Updates option on the GUI Setup Quick Menu. The updates will be downloaded from an esXpress server using HTTP using `wget`, so the appliance must be able to access the internet. Follow the instructions to apply the updates to the appliance.

As new updates and versions are released for the esXpress GUI and also the esXpress RPMs the Check for Updates process will be the method for obtaining those updates and applying them.

The latest RPMs are necessary to be able to deploy esXpress to all of your ESX hosts.

If you are using a proxy server make sure you have configured the `HTTP_PROXY` option in the Network Settings as described earlier.

Note: If you are running **esXpress 3.5-4** or above, the Check for Updates option will *automatically prompt* you to run and install the updates.

After applying updates, it is recommended that you reboot the GUI appliance. The update process will provide an option to reboot the appliance.

If you do not reboot, you will need to manually run the update command to apply the updates to the appliance.

To install this update, go to:

```
/home/phd/updates/phdq-20090508-3.5-4
```

(The folder name shown is just an example. As new updates are released, the folder will always start with `phdq` followed by the date and version of the update)

Run `'./run_update'`

Manually Downloading RPMs

Tip This section should be for completed as necessary for upgrades *only*. Fresh installs already contain the RPM's in the quorum update directory.

If you are having difficulty downloading the RPMs from using **Check for Updates**, or your GUI appliance does not have Internet access, you can manually copy the RPMs to the appliance.

- 1 Copy both RPMs to your GUI appliance. They can be downloaded from the from the Quantum website <http://esXpress.Quantum.com/download/> and they are also included in the 3.6 zip file.
 - o esxpressVBA-3.1-1.esx.i386.rpm
 - o esxpress-3.6-x.esx.i386.rpm
- 2 Copy both files to the following folder `/.quorum/esXpress_Quorum/Update`
- 3 Run the following command: `phdq_update -rpms`

The GUI appliance should be able to deploy the RPMs to your hosts.

Removing esXpress GUI Appliance

The esXpress GUI appliance is just a virtual machine—to remove it, simply delete the VM.

- 1 If you are removing esXpress *completely*, first delete all of your hosts from the GUI appliance.

This action uninstalls the esXpress RPMs and removes the host from the quorum.

Note: This process may take several minutes to remove the quorum from the host. Within the VI client ensure that the quorum is removed by hitting the refresh button under the storage section.

- 2 Remove the VBA (helper VM's) from the host disk. Also verify that the process has completed but running the following command from the host command line

Type: `rpm -qa |grep esXpress`

If it is not removed from the host run the following command to remove the rpm's from the host

Type: `rpm -e esxpress` and press **Enter** to remove the rpm file

Type `rpm -e espressVBA` and press **Enter** to remove the VBA files

Type `rpm -qa | grep .espress` and press **Enter** to confirm rpm files are deleted.

Removing esXpress Residual Files including Logs and Config Files via CLI

- 1 Locate residual esXpress files using either of the following commands from the root prompt:

```
find / -print | grep espress
```

```
find / -name espress -print
```

- 2 Delete found files using the `rm` command.

For example:

```
rm -rf /var/log/espress*
```

```
rm -rf /etc/phd*
```

- 3 If you plan to run the esXpress hosts standalone, delete only the GUI appliance VM. Then go to each host and remove them from the quorum.

To perform this action, on each host from the esXpress menu, select **Configuration Options > Quorum Configuration > Configure Quorum Options** and set Enable esXpress Quorum to **No**.

GUI Setup Quick Menu Options

Table 1: Configuration and Deployment GUI Quick Menu Options

Menu Option	Description
Daemon Status (D)	Shows the status of the Daemon running in the background.
Lock Status (A)	Set the GUI VM lock Clear the GUI VM lock
See Whats Happening (W)	Shows the current status of the esXpress GUIDaemons. Hit Ctl-C to exit.
Show status from TTY1, TTY10, TTY11 (T,0,1)	TTY1 – shows gui appliance main screen TTY10 – shows outbound daemon messages TTY11 – shows inbound daemon messages

Menu Option	Description
Configure GUI Appliance settings (C)	Configure the GUI Appliance Network Settings
System Config Settings (O)	Set the GUI Appliance Global Settings
View Logs (L)	View /var/log/messages
Check for Updates (U)	Check for Updates and install if any
Shutdown/Reboot the GUI Appliance (P)	Option to Shutdown or Reboot the appliance
Verify/Repair Appliance database	Run a check to verify the GUI appliance database and repair errors
Restart Web Services	Restart the GUI appliance Web services
Please change the ROOT Password (R)	Change the ROOT Password, it is recommended to change the Root password after installing the GUI appliance
Quit (Q)	Quit the menu



3 Using the Configuration and Deployment GUI

The esXpress Global GUI is a Web application that can be accessed from your Web browser, or it can be integrated directly into Virtual Center.

Initially, you need to connect to the GUI from your Web browser.

Note: All esXpress configuration fields have “mouse-over help”—move your mouse over any text field to view the **help**.


Accessing the GUI Web Page

- 1 Open a Web browser and type the IP address assigned to the GUI appliance.
- 2 At the login page, enter your credentials.

By default, you can use User `admin` and password `admin`. Or, you can log in with User `root` and Password `esxpress`.

The first time you log in to the GUI appliance, the Using esXpress Setup Wizard opens and guides you through additional configuration tasks.

Using esXpress Setup Wizard

The esXpress Setup Wizard contains eleven steps that will help you configure your GUI appliance. You can access the wizard at any time from the GUI appliance Web page by clicking  Setup Wizard

As you work through each step in the wizard, a help message provides an explanation of the step and lets you know if the step is required or optional. You must complete each required step to move on to the next.

Click  to display the help message again for the current step.

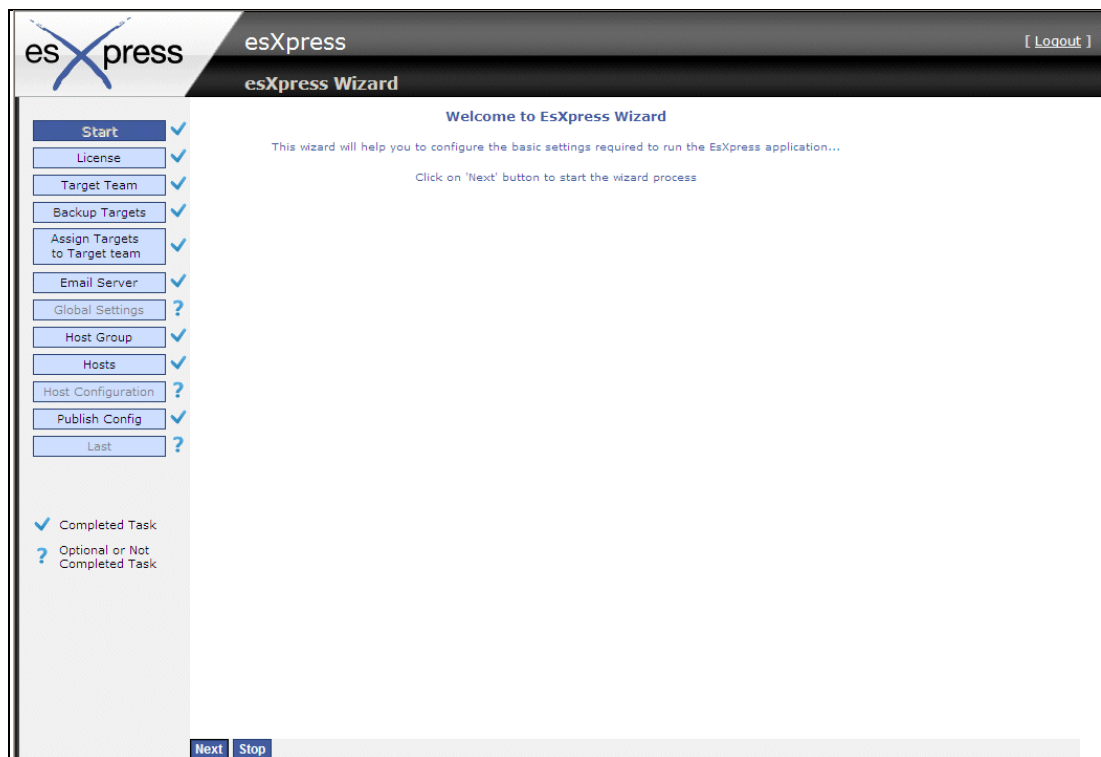
You can click any completed step in the left column to jump directly to that page. After completing a step, click **Next**. For optional steps, you can click **Skip**. To exit the wizard at any time, click **Stop**.

Note: If you are installing esXpress on multiple hosts, you may need to specify additional target teams and host groups for each additional host.


Configuring the GUI using Setup Wizard

- 1 Log in to the GUI appliance Web page.

The first time you log in to the GUI appliance, the Setup Wizard opens.



- 2 Click **Next**.
- 3 At the Licensing page, click **New License**.

- 4 Enter your license information and click **OK**. For each additional license you want to enter, click **New License** and enter the information for each. At least one license is required.
- 5 Click **Next**.
- 6 At the Target Team page, the default target team should already be added. Change the name or use the default name. To add another target team, enter a name in the Target Team dialog box and click . Add any additional target teams you may need.

At least one target team is required. Target teams are used in configuring esXpress backups.

Note: A target team is a group of backup targets that define which targets will be used for esXpress backups on each host. For example, you might create a "prod" target team and assign all of your backup targets you will use for production, to that team. There is a limit of nine targets per target team.

- 7 Click **Next**.
- 8 At the Backup Target page, click **New Backup Target** and enter the information for the backup targets you will be using. Click **OK** when you are finished entering the target information.

Troubleshooting Tip Before you add a New Backup Target, It's a good idea to ensure that you can write to the DXi share from a host using the DXi share name and login credentials to validate that you can not only log into the DXi but you can read and write from the share as well.

Note: For DXi connectivity, do the following:
 Set the Transport Type to SMB.
 Select the Target Type to Both.
 Ensure that the use the DXi share name and not the entire path.
For example: //10.251.201.189/esxpress-cifs

For additional information about Backup Targets see Adding Backup Targets on page 41.


If you want to add multiple hosts via the configuration wizard you may need to add additional backup targets here to be assigned to the additional hosts later in this wizard process.

- 9 Click **Next**.
- 10 Assign a **Backup Target** to a target team and click **Save**. (right hand side of the screen)

Note: A target team is a group of backup targets that define which targets will be used for esXpress backups on each host.

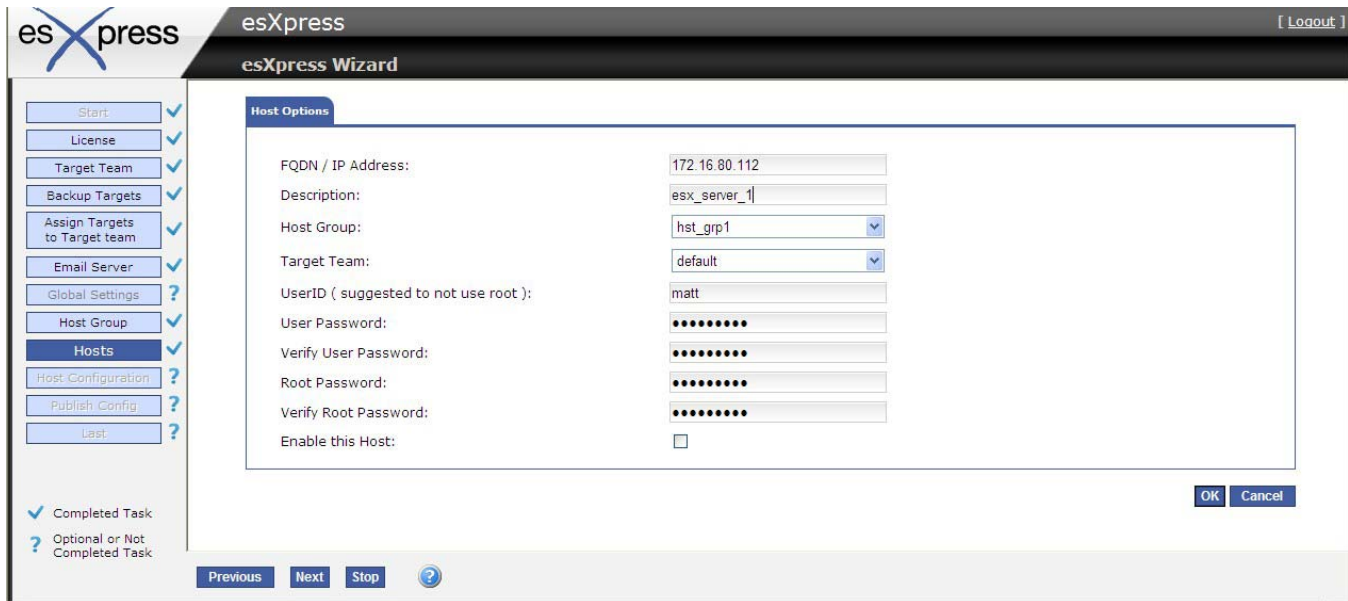
For example, you might create a “prod” target team and assign all of your backup targets you will use for production, to that team.

- a. Select a **Target Name** that was defined above using the dropdown box.
 - b. Select the team that was defined above.
 - c. The **Select Number** field is the priority of the targets within the target team used for target failover. The Select Number is the priority number [1-9] that can assign a target to a target team. There is a limit of nine targets per target team.
- 11 When you are finished, click **Next**.
 - 12 Optionally, on the Email Server page, define an email server to receive email updates from esXpress. Click **New Email Server**. Enter the email server information and click **OK**.
 - 13 Click **Next**.
 - 14 Verify the Global Setting page. You can review these settings now and make any changes, or you can accept the defaults and make any changes later. Ensure you verify the VBA network Settings.

Note: In the Target Type and Location section ensure **Type** is selected to **Net Only**. For more information about the Global Settings, see Global Settings on page 50.
 - 15 If you made any Global Settings changes, click **Save**.
 - 16 Click **Next**.
 - 17 Enter a name in the Host Group dialog box and click . Add any additional Host Groups you may need.

Hosts added to a Host Group inherit configuration settings applied at the group level.
 - 18 Click **Next**.
 - 19 At the Hosts page, define the ESX or vSphere hosts that will be running backups. At least one host is required to complete this step. To add a host, click **New Host**.
 - 20 Define the Host options.
 - a. Enter the IP address and description.
 - b. Assign the host to a target team and host group. During the first host installation a target team is required. Subsequent host installations can use the initial target team that was defined. Host groups are optional.
 - c. Enter the host credentials.

- d. **MUST** select the check box - **Enable this Host** to allow esXpress daemon and cron jobs to run on the device.



21 Click **OK**.

The host is added to the list and the esXpress RPM files are installed on the host. This may take a few moments.

When the esXpress files are installed and the host is ready when the **Last Message** column displays the message, **Install Completed**.


For additional hosts click add "New Host" and repeat for each new host.

Last Message

[2009-08-14 15:52:39 - INSTALL - Completed](#)

- 22 Click **Next**.
- 23 On the Host Configuration page, do the following:
 - Define any additional settings or accept the defaults and click **Save**.
 - Verify the storage location of the VBA. It is recommended that the VBA location is located on internal data storage.
- 24 Click **Next**.

Note: Publish is not optional. You must click on the Publish button to promote your esXpress configuration settings.

- 25 Click  .
Configuration settings are promoted to your hosts.

Note: The publish button is functioning but the user does not get a response. There is no notification of Publish completion or button click. This has been reported and will be address in the next release.

- 26 Click **Next**.
- 27 Click **Finish** to exit the wizard.

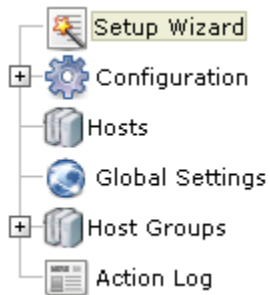
Special Notes

- Backup targets such as the DXi MUST have static IP addresses assigned. If DHCP is require you must use Reserved DHCP addressing.
- It is important to validate the backup target path to ensure successful backups.
- Quantum recommends that the SMB path is defined as “\\IP address\share name”.
- To test a backup and recovery, create a small 10MB VM to backup. Call it VM_test, for example. Start a backup, and then tail the logs to ensure that the DXi properly authenticated and that the backup succeeded.
- To perform a quick test, rename the VM created in step 4 to test [xNOW]. This will tell esXpress to perform a backup of the VM now. esXpress will specifically look for VM’s with the [xcommand] commands. Once the command is executed, esXpress will rename the VM back to its original name.

Using Configuration and Deployment GUI Web Page

The GUI appliance Web page is used to define all of your esXpress configuration settings and to deploy the esXpress software to hosts in your environment.

The tree on the left of the page contains the available configuration areas.



The following sections describe each configuration area and the options available within each.


- Configuration on page 38.
- Working with Hosts on page 43.
- Global Settings on page 50.
- Host Groups on page 66.
- Action Log on page 69.

Note: The Setup Wizard opens automatically the first time you log in to the GUI appliance Web page. The wizard guides you through the required and optional configuration tasks you need to begin running backups on your hosts. See *Using esXpress Setup Wizard* on page 31 for details.

Configuration

The Configuration tree contains the following configuration pages:

- Maintaining Licenses
- Working with Target Teams
- Adding Backup Targets
- Configuring Email Server
- Managing Users
- VC Plug-in

Any time you save configuration changes, they are not available to your hosts until you click  Publish

Maintaining Licenses

You can maintain multiple esXpress licenses from within the GUI appliance and then assign specific licenses to individual hosts or have all hosts use your default license. You must enter at least one valid license or you will not be able to add hosts.

When a license is added or updated it is automatically validated. Click Refresh to display updated status.

In the license list, **red** text indicates an Invalid license, **grey** text indicates a license that has not been validated, and **black** text indicates a valid license.

Entering a New License

- 1 In the navigation tree, expand Configuration and click **License**.
- 2 On the License page, click **New License**.
- 3 Enter the esXpress license key information and click **OK**.

You can designate one license as the default license. Any host added to the GUI appliance is automatically assigned the default license unless you specifically assign a different license.




Assigning a License to a Specific Host

- 1 In the navigation tree, expand Configuration and click **License**.
- 2 On the License page, click **Assign License to Host**.
- 3 Use the License drop-down boxes to change the license assigned to each host. The default license is displayed in green.
- 4 Click **Publish Licenses** to assign the new licenses to your hosts. If you do not publish your license, you will not be able to run backups on your host and esXpress will not function properly. Each host must be properly licensed.



Working with Target Teams

A target team is a group of backup targets that define which targets will be used for esXpress backups on each host. For example, you might create a “prod” target team and assign all of your backup targets you will use for production, to that team. There is a limit of nine targets per target team.

Adding a New Target Team

- 1 In the navigation tree, expand Configuration and click **Target Teams**.
- 2 On the Target Team page, enter a name for the team and click  .
The team is added to the list.
- 3 Edit the team name at anytime by clicking  . To remove a team, click .
- 4 After a team is created, assign backup targets to the team.

Assigning Backup Targets to a Target Team


- 1 In the navigation tree, expand Configuration and then expand Target Teams to display the available teams.
- 2 Click the name of the team where you want to add backup targets.
The Team page opens.
- 3 Click **Assign Target to Target Team**.
- 4 Use the dropdown boxes to select the backup target you want to add.
- 5 Select a number for the target and click **Save**.
Note: Only available numbers are displayed.
The backup targets assigned to the team are displayed.
- 6 To remove a backup target from the team, click .
- 7 Click  to publish changes.

After a target team has been created and targets have been added, you can assign the team to a host making it available for esXpress backups.

Target teams can be assigned to the Global Settings or to a Host Group.

- Assigning a target team to Global Settings makes that team available to all of your hosts.
- Assigning the team to a host group will make the team available only to those hosts that belong to that group.

Assigning a Target Team to your Hosts

- 1 In the navigation tree, click either **Global Settings** or expand Host Groups and click the name of a Host Group.
- 2 On the settings page, in the **Target Type and Location** section, select the Target Team from the dropdown box.
- 3 Click Save.
- 4 Click  to publish changes to your hosts.

Adding Backup Targets

Use the Backup Targets page to configure and assign backup targets. A Backup Target can be an FTP server, SSH server, or an SMB server. Connection to the DXi is performed over SMB.

- 1 In the navigation tree, expand Configuration and click **Backup Targets**.
- 2 Click **New Backup Target**.
- 3 Enter the backup target details. Depending on the transport type you select, different configuration options are displayed.
 - Click **Enable** as Roll-Over Target.
 - The backup target can be assigned to a Target team on this page or you can leave it unassigned and assign it later on.
 - Enter the user options required to connect to the target device; these options will vary depending on the transport type.
- 4 Click **OK**.
- 5 After you've added a backup target, assign the target to a target team. Backup Targets can be assigned to multiple teams.

See *Working with Target Teams* on page 39 for details on assigning backup targets to target teams.


Configuring Email Server

You can configure esXpress to send email notifications by configuring an email server. You only need to configure your Email server once, and then it can be assigned to each of your hosts. You can configure multiple email servers and then choose which server will be assigned to each host running esXpress for email notifications.

Each host can have only one email server assigned.

- 1 In the navigation tree, expand Configuration and click **Email Server**.
- 2 Click **New Email Server**.
- 3 Enter the credentials for your email server.

If you have the requirement where in order to relay mail, you have to authenticate, select **Enable Email Server Authentication** and provide the appropriate credentials.

- 4 Click **OK**.
- 5 Click  to publish changes to your hosts.

Managing Users

Use the User Management page to manage GUI appliance users and assign user roles.

Note: Currently, the only available role is Admin.

- 1 In the navigation tree, expand Configuration and click **User Management**.
- 2 Click **New User**.
- 3 Enter the new user credentials and click **OK**.

VC Plug-in

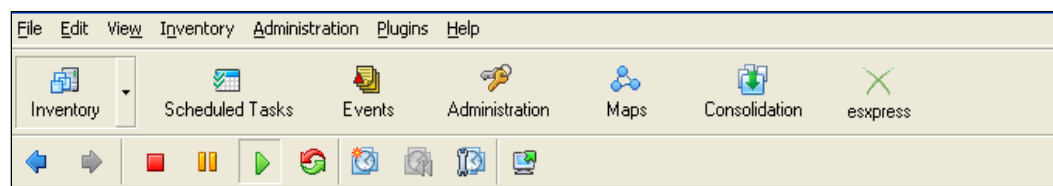
The VC plug-in is an optional feature of the GUI appliance. You only need to install the VC plug-in if you want to be able to access the GUI appliance web page from within Virtual Center.

Enabling VC Plug-in

- 1 In the navigation tree, expand Configuration and click **VC**.
- 2 Enter your Virtual Center IP or its DNS Fully Qualified Domain Name (FQDN).
- 3 Enter the required credentials. The username should have Admin rights in Virtual Center.
- 4 Click **Save Changes**.
- 5 Click **Install**.

If the plug in was successfully installed, the message vCenter plug-in is registered with host ... is displayed. You can then access the GUI appliance Web page from within Virtual Center.

- 6 Restart your client program.
- 7 After a successful installation, access the appliance by selecting the esXpress icon as shown below.



Removing VC Plug-in

- 1 In the navigation tree, expand Configuration and click **VC**.
- 2 Click **Remove**.

Working with Hosts

To enable esXpress to run backups on each of your hosts you must first define them in the GUI appliance. Before adding hosts it is recommended to first create your backup targets and target teams and review the Global Configuration settings. Hosts will inherit esXpress settings automatically from the global settings page.

Note: Before adding hosts, be sure you have reviewed the esXpress Quorum on page 13 and reviewed the prerequisites.

Adding a New Host

- 1 In the navigation tree, click **Hosts**.
- 2 Click **New Host**.
- 3 Enter the host details.
 - For host name, enter a Fully Qualified Domain Name. Name is case-sensitive and it must exactly match your ESX server's hostname. There is a maximum of 50 characters allowed for this field.
 - The User ID and root password are required so esXpress can install the VBA and management RPMs to your host as well as run the backup operations.
 - User ID cannot be root, it must be a separate user created on the host.
 - When adding a new host you can optionally assign it to a Host Group and provide a Target Team or choose to assign them later.
 - Enabling the host will allow the esXpress daemon and cron jobs to run on your host.
 - Once you add the host, the esXpress RPMs are automatically installed on the host.
- 4 Click **OK**.

The host is added to the list and the esXpress RPM files are installed. This may take a few moments. The esXpress files are installed and the host is ready when the Last Message column displays the message, **Install Completed**.

Last Message

[2009-08-14 15:52:39 - INSTALL - Completed](#)

Note: When you add an **existing 3.1 esXpress** host to the GUI it will *automatically upgrade* that host to version 3.6. You do not need to uninstall esXpress 3.1 from your host prior to the adding the host to the GUI.

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 **do not enable** your hosts or publish the configuration until you have reviewed and updated the configuration settings for each host you are adding.

Review and configure the Global Settings first, and then add your hosts so they inherit the correct global settings. Then make any necessary changes at each host level if you require any overrides that are host specific.

When you enable the host or publish the configuration settings from the GUI, the updated configuration will be pushed to your host and override the original host values. Publish will send the configuration settings to all of your hosts at the same time.

esXpress version 3.5 hosts will be upgraded automatically to version 3.6 by running the **Check for Updates**.

All available hosts are displayed on the Hosts page. If the host is enabled, then the esXpress daemon and backups are set to run.

To disable esXpress on a host, uncheck **Enabled**.


Status	Info	Quick Config	Locks	Host Name	Check-IN	Host Group	TargetTeam	Last Message	Modify	Enabled
				svt46	00h:01m	hostGroup1	svt46	2009-12-30 17:51:47 - REFRESH - Completed		<input checked="" type="checkbox"/>
				Quorum						<input type="checkbox"/>

Deleting a Host

- 1 In the navigation tree, click **Hosts**.
- 2 Find the host you want to delete, and click .
- 3 Click **Delete Host**.
- 4 Click **OK**.

esXpress is removed from the host—the RPMS are uninstalled and the host is removed from the esXpress quorum.

Editing Host Options

- 1 In the navigation tree, click **Hosts**.
- 2 Find the host you want to edit, and click .

The Host Options page allows you to enable or disable the host, modify the host description, modify host group, target team, and user ID and passwords. The buttons at the bottom of the page offer additional options:

Retry Install: reinstall the esXpress software.

Delete Host: Remove the esXpress software from the host and remove the host from the GUI. This option will completely remove the host and any setting associated with it.

- 3 When finished editing host options, click **OK**.

Understanding Host Page

The Hosts Page contains three tabs described below.

- Status Tab on page 46.
- Info Tab on page 47.
- Quick Config Tab on page 47.

Status Tab

The Status tab is the default view of your hosts defined for esXpress with their current state.

- Locks – show the current esXpress lock status and also allows for setting a new esXpress lock.
- Host Name – the short name for the Host defined. Clicking on the host name will bring you directly to the esXpress configuration Settings tab.
- Check-IN – indicates how long it has been since the host has checked into the quorum. Normally, each host will do so every hour. If the time since the last check in is greater than two hours, the time will be shown in red. This situation would indicate there may be an issue with that host that would need investigation.
- Host Group – Displays the host group to which that host belongs.
- Target Team – Displays the assigned target team.

- **Last Message** – Shows the last action log message for any activity for the host. The type of messages logged includes install and lock messages. Clicking on the message will bring you to the full action log messages for the host.
- **Modify** – Click to edit any of the specific host values you defined when you added the host to the esXpress GUI.
- **Enabled** – Use this check box to control if the esXpress daemon, cron jobs and automatic backups. If you need to stop esXpress from running backups on a specific host uncheck this box.

Info Tab


The info tab shows additional information about each host managed by the GUI appliance.

These options include the host name, its description, the current esXpress version each host is running, and the license name.

Quick Config Tab

The Quick Config tab provides a simplified screen for maintaining the primary esXpress options required to for each host. The tab shows all of the hosts defined with options indicated for each host. When you click Save on this page it will save the options to all of your hosts in a single step.

Note:

Be sure to click  to publish saved changes to your hosts.

The following quick Config options are available:

- **Backup Mode** - defines the type of backup you wish to run on this host (Delta/Full).
- **Backup Window Start**– sets the time your daily backups to begin at (0 – 23).
- **Backup Window End Time** – defines the end of your backup window when daily esXpress backups will be allowed to start.
- **VBAs Total** –the total number of Virtual Backup Appliances (VBA) you will allow to run on this host at any one time.
- **VBAs Daily Backups** – the total number of VBAs (concurrent backups) to be allocated for your Daily Backups.
- **VBA Location** – Defines the VMFS location where the VBAs are located. This value is required.
- **Network** – Defines the network that the VBAs will use. This value is required.

Setting Locks

On the Host page, you can set the locks for each host. esXpress has four different lock statuses that can be set. To change the lock, move your cursor over the currently set Lock icon in the Locks column and then choose the lock you wish to set by clicking on the icon from the dropdown list.



Clear –Normal setting. For backups to run, lock must be set to Clear.



Abort–All running backups will be aborted. Setting this lock will cause all backups to cease immediately.



Stop–Current running backup will be aborted after the current VMDK is finished.



Pause–Current running backup will be paused after the current VMDK is finished.

Click **Update Status** to refresh and confirm the lock status of any host.

Viewing Host Settings

From the Hosts page, click the host name to view the settings assigned to that host. Settings inherited from the host group or from the global settings are highlighted in blue. The following figure shows the VBA Options section where the setting for Backup Multi disk VM in Parallel is inherited.

VBA Options	
Total VBAs	4
Total VBAs For Daily Backups	2
# CPU's Per VBA	1
Backup Multi disk VM in Parallel	<input type="checkbox"/>
VBA Location	Storage1

For detailed information about each of the tabs on the host settings page, refer to Global Settings on page 50.

Maintaining Host Specific Settings

You can override any inherited esXpress configuration at the host level. To maintain host level options, expand the tree under Host Groups and click on the host you want to modify. You can also access the host level configuration from the Hosts page by clicking on the Host Name link.

There are a few esXpress configuration options that can only be maintained at the host level. These are required options that you need to set for each host.

- **Automation Controls** - In the Basic options tab, these three options determine whether esXpress Daily Backups are run as well as the back-end management processes.
- **VBA Location** – in the Basic options tab, under VBA Options area. This defines on which VMFS on the host the esXpress VBAs will exist. Each concurrent running VBA requires 3 GB of VMFS space.
- **Network** – in the Basic options tab, under VBA Network Settings. Defines the host network that will be assigned to the VBAs.

For any new host added, you will need to review and assign these host specific settings. Make sure you save the settings before doing a Publish to send the configuration settings to each host.

Configuration Tab Buttons



- **ReLoad** – Request an updated list of VMFS and network values. This process will run automatically every hour to refresh the GUI appliance for each host.
- **Undo** – Repost the page and reload the variables from the database. Use this option to undo a change you don't want to save or to check for an updated VMFS or network setting options.
- **Save** – saves your configuration settings for the configuration tab you are working on to the GUI appliance database.

Publish



For the configuration settings to be sent to your hosts running esXpress, you must click **Publish**. If you do not publish your changes, any configuration changes made will not be reflected on your hosts, they will only be saved in the GUI appliance.

If any saved configuration changes have been made and were not published to the host, the following message is displayed at the top of the Web page:

***** CHANGES NOT PUBLISHED *****

Global Settings

The Global Settings page contains all of the settings for your hosts. The settings page has the following configuration areas. Click any tab on the page to move to the next configuration area.

- Basic Tab on page 51
- Scheduling Tab on page 53
- Selection Tab on page 55
- Replication Tab on page 57
- Destination Tab on page 58
- Email Tab on page 60
- Advanced Tab on page 62

Before applying settings, you should understand how settings are applied to each host. Review the information in the section Configuration Inheritance on page 50.

Configuration Inheritance

The Configuration and Deployment GUI appliance uses inheritance to apply configuration settings to your hosts. Inheritance is applied in the following order:

Global Settings > Host Group > Host

For example, configuration settings applied to the Global Settings page are applied to all hosts defined in the GUI appliance. Settings applied at the Host Group level apply only to those hosts in the group, and settings applied directly to an individual host apply only to that host. Any hosts that you add inherit settings from the Global Settings, by default. You can then add the host to a host group or configure host settings individually on that hosts settings page.

Defining configuration settings at the global level allows for simplified deployment of esXpress, allowing you to define your configuration settings once.

To change a configuration option to indicate that you wish the value to be inherited depends on the type of option box the setting uses.

- **Check boxes:** Setting a check box to Light Blue indicates the value will be inherited from the parent object(Host Group or Global settings).
 - Unselected
 - Use inherited value from parent
 - Selected

- **Drop Down boxes:** Blank indicates the setting will be inherited from the parent object.
- **Text boxes:** Blank indicates the is inherited from the parent object. Putting Spaces in the text box will set the value to Spaces
- **Numeric Spin Boxes:** deleting the number value assigned and setting the value to NULL indicates the value will be inherited from its parent object.

Basic Tab

The Basic tab contains the main configuration settings that must be defined to run esXpress.

Table 2: **Basic Tab Options**

Configuration Setting	Description
VBA Options	
Total VBAs	Defines the maximum number of concurrent backups that will run (how many VBAs you will allow to run at once). You cannot run more VBAs than number of processors + 1. For example, if you host has four processors, you can run up to five VBAs on that host. Note, the GUI appliance does not count toward the total number of VBAs.
Total VBAs for Daily Backups	When esXpress runs the Automatic Backup or the Backup All VMs command, this is the maximum number of VBAs what will run. For example, if you set this number to four and the total number of backups was set to 3, you would still be able to run a manual backup while the automatic backups are still running.
# CPUs Per VBA	Set the number of CPUs the VBA will use. Changing the number of CPUs will cause the VBA to be unregistered and re-registered on the host. <i>Note:</i> For ESX 3.5 hosts, this value can only be set to 1 CPU.
Backup Multi disk in Parallel	Enabling this option will allow multiple VBAs to back up a Virtual Machine with multiple VMDKs at the same time. Each VBA will back up a single VMDK. If you do not enable this option, each VMDK is backed up sequentially, one at a time. When you run esXpress in parallel mode, the high # VBAs (15, 14, 13 etc.) will be selected for use first so make sure you have networking defined, static IP or DHCP for those VBAs.

Configuration Setting	Description
VBA Location	This option is available at the Host level, only. Since VBAs are small VMs, they must exist on the VMFS. Use this option to select which VMFS you want to use. esXpress requires the VMFS to have a defined name, not the UUID long name. If you do not have any VMFS configured, you will not be able to select one here. It is recommended that you put the VBAs on local storage so you are not using SAN resources. This option must be configured in order for esXpress to run on your host.
VBA Network Settings	
Network	This option is available at the Host level, only. This is the virtual network defined on your ESX host that the VBA will use. This option is required and must be defined in order for the backup function properly.
Netmask	Default Netmask for VBAs
Gateway	Default gateway on the virtual network that the VBAs will use.
DNS	Default DNS servers used by the VBAs.
VBA Network Configuration	
Virtual Backup Appliance #	Defined at the host level. Set to DHCP or static. The number of VBAs displayed in this section depend on the total VBAs you allow for each host.
Target Type and Location	
Type	VMFS Only - Only backup to the VMFS. NET Only - Do not backup to the VMFS and send the backups to a Network target. Both - backup to the VMFS while backing up to the Network targets. esXpress can backup to Network targets, to the VMFS, or it can send backups to both at once. When doing esXpress restores, the VMFS is only indexed if the VMFS is set for backups. When backing up to the VMFS, it is all done in the VBA, which means all the Disk I/O is happening in the virtual space. To backup a 10 GB VMDK, a new empty 10 GB VMDK will be created on the VMFS. After the backup is complete, the backup VMDK will be resized to the actual backup size. When set to Both, the data stream is split and sent to both places simultaneously.
Target Team	Use this option to assign the target team. This option is required. Target teams are used to assign backup targets to your hosts.

Scheduling Tab

The Scheduling tab provides the primary scheduling options for backups. This includes setting backup start times, backup mode, and the backup window.

Table 3: Scheduling Tab Options

Configuration Setting	Description
Backup Frequency	
Automatic Backup Frequency	Set your backups to run daily or weekly.
System Backup Mode	This setting indicates which types of backups esXpress will run (Delta/Full).
Backup Window	
Backup Window Starts	Defines when the daily backups will begin. The default is 0 (midnight).
Backup Window Ends	Latest time when a backup can begin.
Backup Start Delay	<p>You should configure all your hosts to start backups at the same time. For some sites, this can be too much of a load on your environment, especially on your backup targets. The Backup Start Delay option allows you to address this by avoiding the need to stagger the Start Time on your different hosts. You should only use this option if you are having load issues in your environment.</p> <p>When esXpress runs a Backup All, the backup archives all have the same timestamp of when the backup started, even though they do not all run at the start time. By using the delay, all the archives on all the hosts will have the same time stamp. This is important because when a VM is moved to another host via vMotion, the date-stamp is checked on the last time that VM was backed up. If it matches the current backup run, then the VM is marked as backed up. If the timestamp is not the same, then the VM is backed up again.</p>

Configuration Setting	Description
Backup Window Hard Limit	<p>Setting this option will cause esXpress to set a hard backup window for the daily automatic backups. The automatic backup window start and end times define the window. When a Hard Window is set, no backups will start beginning within 1 hour of the window end time setting. For example, if the End Time is set to 7 and then Hard Limit is enabled, then no backups will start after 6 AM.</p> <p>None - The backup window hard limit is off or not enabled and will not be used.</p> <p>Both - The backup window is enabled and will apply to all backups (Both Fulls and Deltas) in the automatic backup run.</p> <p>Delta - The backup window is enabled but will only apply to Delta backups started during the window. For Full backups, the hard window is ignored.</p> <p>Full - The backup window is enabled but will only apply to Full backups started during the window. For Delta backups, the hard window is ignored.</p>
Retry Backups	
Retry Failed Backups	<p>Indicates how esXpress will handle backups that ended with errors during the automatic backup.</p> <p>BEFORE BACKUP ENDS – retry If the current time is before the NOT_AFTER time. This applies to the Daily Backup All. If selected, esXpress will always retry a failed backup during the Daily Backup All if the current time is less than the Do Not Start Automatic Backup After value</p> <p>NO, DO NOT RETRY – Do not retry the failed backups when running the automatic Daily Backup All.</p> <p>YES, AFTER DAILYS – esXpress will run the retry of failed backups after the Daily Backup All, regardless of the time.</p> <p>ALWAYS RETRY – esXpress will always retry failed backups on the Daily Backup All, and then you can manually run a BACKUP ALL from the VMware client or from the PHD menu. Anytime all VMs are backed up, the failed VMs will be tried again.</p>

Selection Tab

The Selection options further define which virtual machines will be backed up. For example, options to select or skip VMs based on search strings as well as enabling special backups, templates, and file level backups.

Table 4: Selection Tab Options

Configuration Setting	Description
Backup VMs that Display Names Match or Do Not Match	
Matches	When backup runs, VMs matching this text string will be backed up.
Does Not Match	When backup runs, VMs that match this text string will <i>not</i> be backed up.
Backup Machine If	
Powered Off	Enable this option to backup VMS that are powered off (by default, esXpress will not backup VMs that are powered off). A snapshot will still be applied before the backup, and removed afterwards. The default for this option is No.
Duplicated VMDK Names	If you built a VM that has multiple VMDKs, and they are the same name but on different data-stores, VMware has a problem when committing the snapshots. The VM will need to be shut down for the snapshots to be committed. By default, esXpress will not backup these virtual machines. You can enable this option when this issue is fixed or if you know it will not be an issue in your environment.
Special Backups	
Enable Special One-Up Backup	esXpress has the ability to make special backups that are done outside the daily backup runs. When making a special backup, it can be sent to a different backup target from the daily backups. For special backups you can default them to be either Full or Delta backups. esXpress will also create and maintain a separate index map for special backups.
Templates	
Auto Backup Registered	Enable this option to backup templates registered to the host. When templates are backed up, the VM name will be pre-pended with <code>_TP_</code> on the backup target folders.
Auto Backup All Found	When enabled, the entire VMFS will be searched for template VMs with the <code>.vmtx</code> extension. These template VMs will be backed up without a snapshot. This option is called after the regular backup run is complete and should not be enabled on

Configuration Setting	Description
	more than one or two hosts.
Templates Backup Target	Defines to which backup target you want to send template backups.
File Level Backup	
Enable	Enable file level backups.
VM Backup Commands	
Check VM Note for [x?] [0?]	Enable this option to tell esXpress to look at the Virtual Machines Notes fields for valid [x] commands to process.
Allow [x] Commands	Enable this option to allow [x] commands from within the VMware client. [x] commands are a key feature of esXpress. They allow special esXpress commands to be appended to a virtual machine's display name to run backup commands. Some examples are [xNOW], [xABORT], [xALL].
VM Local Override	
Skip Delta If VM unchanged	<p>When making a Delta backup, the VMDK file can be checked to make sure it has changed. This allows you to skip VMDKs that have not changed since the last Delta backup. This may be beneficial in saving space on your backup target where you are not creating the same Delta backup each day if the VM is not changing. For Full backups, this option will be ignored.</p> <p>Yes - Do not Delta backup a VMDK if it has not changed since the last backup. Skip It.</p> <p>No - Always do the Delta backup.</p> <p>This option applies only to normal VM backups. For template backups, if it is unchanged it will always skip the Delta backup.</p>
Enable Local VM Configuration	When enabled, this option allows esXpress to override certain configuration settings at a virtual machine level. The configuration has to be done for each virtual machine and is currently done from the esXpress menu. It is not available in the GUI. See the User's Guide for details.

Replication Tab

This tab provides host-level restore and replication options.

Table 5: Replication Tab Options

Configuration Setting	Description
VBA Restores	
Use VBAs for restores	Setting this option enables restores through the VBA (Virtual Backup Appliance) instead of doing a restore through the service console.
Threshold before using VBAs for restore (MB)	This value determines the threshold for when to do a VBA restore. This setting is in megabytes and determines the level of blocks to restore before using the VBA. The default is 2000 MB (2GB). Do not set this value too low as there is overhead to start and stop the VBA—so for restoring a small amount of data, going through the console will be faster.
Simple Replication Options	
Enable Auto Mass Restores	This is defined at the host-level only. This option must be enabled for any host which is running esXpress simple or advanced replication.
Background	
Background Restores	Enabling this option will cause the esXpress restores to run as a background process. This will allow you to do multiple restores or replications at the same time.
Maximum Allowed Restores Jobs	Defines the number of background restore processes that can run concurrently.
Advanced Replication Options	
Use Quick Restore	When enabled, Null blocks are skipped during a restore and only actual data blocks are restored.
Use Incremental Replication Only	This option indicates to only do incremental replication. However, if you enable this option and esXpress can not do the incremental replication, the restore will be skipped.
Restore Options	
Check VMFS for Backup Archives	Enabling this option will check the VMFS for backup archives when looking to restore.

Configuration Setting	Description
Index entire VMFS when making restore DB	When esXpress indexes the VMFS, it is running the command, <code>du -a /vmfs</code> and stores the results in its database. This provides the names of the existing files. If you are having issues, try disabling this option. For large shares like NFS mounted in VMFS, it may cause problems.
Enable In Place Restores	n/a
Force In Place Restores	n/a

Destination Tab

This tab provides options about where and how backups are stored—for example, folder definitions, Compression, and Auto delete options.

Note: Compression is set to **no zip** with the exception of file level restores.

Table 6: **Destination Tab Options**

Configuration Setting	Description
Maximum VMFS Free Space Requirements	
To Start (GBs)	When esXpress starts to backup a VM, some free space is required on the VMFS where the VMX file for the VM is stored. By default, VMware will put the snapshot in the same folder as the VMX. This applies to all disks in the VM. This option is the minimum amount of space required to be free on a VMFS for esXpress to backup a VM. <i>Note:</i> If you have set the snapshot pathing parameters in the VMX to store your snapshots on a different VMFS location, esXpress will not recognize this and will still check space where the VMX is. Unregister and move the VMX to the other location and re-register to solve this issue.
To Abort (GBs)	While a VM is being backed up, if the free space on the VMFS where the VMX is stored falls below this value, then the running backup will be aborted. This is a very important option to set correctly because if you run out of space for a snapshot, the VM will lock up, and this could result in snapshot corruption.

Configuration Setting	Description
Throttle Read I/O per VBA	
Enable	<p>esXpress backups contain a feature that allows you to slow down the speed of the VBA I/O while running your backups. Normally, software contains options to make it run faster, but esXpress also gives you the option of applying a speed limit, a throttle, to slow down the backup speed. Since esXpress runs in a VBA, just like any other VM on the host, the CPU resources can be limited by the VI3 Resource Pools, but there is no easy way to limit disk I/O.</p> <p>Yes - Run with the Throttle enabled. This applies to Full Backups, and the Indexing phase of Delta Backups.</p> <p>No - Do not use the Throttle. Let the VBAs run as fast as they can.</p> <p>By Time - Only use the throttle between the specified times. This way you can have any backups that run during working hours, to be set at a speed limit, without affecting the environment.</p>
Network Backup Folder Name	
Top Level FULL/DELTA	When creating the folders on the Net backup targets, enabling this option will create a TOP level folder, based on whether the backup is a Full or Delta. It will create a folder called FULL or DELTA, unless the VM Name options is set. This does not apply to VMFS backups.
Top Level VM	When creating the folders on the Net and VMFS backup targets, enabling this option will create a top-level folder based on the VM Name and the UUID. Enabling this option will override the previous Dirs option.
Top Level Date	When enabled, a folder will be created based on the date. This is YEAR.MM.DD and is the date from when the backup started.
VM FULL/DELTA	When enabled, the VM Name folder will be appended with the backup mode. This could be Full or Delta. If you enabled the Top level Full and Delta folder, this option is ignored. This does not apply to VMFS backups
VMFS Auto-Delete	
Enable	When enabled, each backup target is indexed after a successful backup, and then the backup archives are selected to be deleted.

Configuration Setting	Description
NET Auto-Delete	
Enable	When this option is enabled, each backup target is indexed after a successful backup and then the backup archives are selected to be deleted.
Trim Setting	
User Trim Mode for Auto Delete	When enabled, esXpress will perform backup archive deletions in Trim mode. This mode will run hourly from the console and also relies on having the Automatic backups enabled. When set to No, the normal deletion method is used, checking after each backup, from the VBA. Yes - Run backups in Trim mode, once an hour from this host. No - Do not use Trim mode, run traditional deletes from the VBA after each VMDK backup.

Email Tab

The Email tab includes email and notification options for esXpress.

Table 7: **Email Tab Options**

Configuration Setting	Description
Email Notification Method	
Select SMTP Server	Define which email server you wish to use. Only email servers you have configured in the GUI appliance are displayed.
From Console (instead of VBA)	Enabling this option will send the email notifications from the service console instead of using a VBA.
Separate Network for Email Helper	If you are using an email helper and want to use a separate virtual network from the default network defined for the VBAs, then set this value to Yes . If you wish to use the VBA default network then set this option to No .
Email Notification	
Reports Layout	When you attach the backup log as a PDF, this option allows you to set the report layout to either portrait or landscape mode.
If Backup still running after	Set the time (hour of day) for when, if the automatic backups are still running, an email will be generated and sent to the defined accounts alerting you that backups are still running.

Configuration Setting	Description
Host Name in Email Subject	When the esXpress emails are sent, you can configure the From and To variables for the email. In addition, you can also include the first part of the host name in the subject of the email.
Attach Backup Log as a PDF Report	Enabling this option will send your backup report as a pdf attachment. If this option is set to No then the report will be included as text within the body of the email.
Send 'Nothing to Backup' Email	<p>Each day, the esXpress cron job runs and selects the VMs to backup. Sometimes you might not have any VMs to backup. When this happens, esXpress will send an email with the subject 'Nothing to Backup' to let you know. By default this option is set to Yes, and this notice email will be sent when there is nothing selected to be backed up.</p> <p>Set to No if you do not want to receive this email notification.</p>
Backup Target Report after Backup All	<p>After the daily backup runs, or after running the Backup All command, esXpress will send an email with the stats from the backup targets. This is based on the backup archives found on the backup targets when selected for restore. The Backup Target report is run from the same database that you use when doing a restore. If the backup archives are not shown in the restore menus then they will not be included in this report.</p> <p>Yes - Send the Backup Target report after a Backup All. No - Do not send the Backup Target report. This is the default.</p> <p>Normally you would only set one or two hosts for this report. Enable this option on the slowest host you have, to get the Backup Target report after all the backups are done for the day.</p> <p>The subject for this report is Backup Target Report. This report package is made up of six basic reports.</p> <ul style="list-style-type: none"> • Archive Summary per Backup Target • Summary report by each Date, sorted by Date Descending • Delta backups that do not have a matching Full backup • Summary report for each VM by VMDK. Sorted by VM NAME / VMDK File • Summary report for each VM, sorted by VM NAME • Summary report for each VMDK, sorted by the VMDK name

Configuration Setting	Description
Restore Queue Status Emails	When you are doing restores through the background backup queue, you will get an email notification at the end of the restore process. You only get the email on restores run through the queue. You will not get an email for restores that you do in the foreground. This report is the summary of who and when the restore job was submitted and the complete output from the restore process. This is the same as what you see when running a restore in the foreground.
Email for One-Up Backups (Console Only)	When this option is set to Yes , an email notification will be sent when a special one-up backup is run. This email is sent from the console only and cannot be sent from the VBA
Email on ERROR Backup (Console Only)	This is similar to the previous option for one-up email notifications. When enabled, a VM backup status email—like in the previous option—will be sent if a VM backup has an ERROR status. Yes - Send one-up emails if a VM backup gets an error. No - Do not force sending a one-up email on errors.
Emailed Status Reports after Backup All	This option indicates when to send an email report for the daily backups. Setting to On Errors Only will send the report only if there was a backup error.
Email Notification Address	
Maximum items allowed: 5	Enter the email addresses for the users to receive the esXpress notifications.

Advanced Tab

The Advanced tab includes additional configuration options. Most esXpress installations will not require any advanced options to be set.

Table 8: **Advanced Tab Options**

Configuration Setting	Description
Snapshot Options	
Snapshot on Snapshots	This option enables esXpress to backup virtual machines with existing snapshots. If you are enabling this for a vSphere 4 host, you do not need to configure the additional settings that open after you select to enable this option. The additional Snap on Snap configuration options are required for previous versions of ESX, only.

Configuration Setting	Description
Commit 'esXpress' Snapshots on Backup	When esXpress begins to backup a VM, the snapshots are checked. If any esXpress snapshots are found, they will be removed by default. If you disable (No) this option, then remaining esXpress snapshots will not be deleted before a backup is started. This may cause a backup to fail.
Quiesce for Novell Virtual Machines	Enabling this option will force all Novell VMs to be quiesced when adding a Snapshot before backups start. Some Novell virtual machines require it to be quiesced to successfully add a snapshot. If you Novell VMs require this, then set this option to Yes . If not, then set this option to No and the Novell virtual machines will not be quiesced.
Quiesce for All Virtual Machines	Runs the VMware quiesce function when creating snapshots.
VM Notes Settings	
Update VM Notes with Backup Status	Indicate when and if you want esXpress backup statuses for your virtual machines to be updated in its VM notes.
Set the VM Notes Detail Level	<p>These options define the level of detail in which esXpress will update the VM notes with backup information. The default setting is Medium (Med).</p> <p>Tiny - Shows the basic information when the last backup completed and the backup status. Example - <code>_esXpress; 2007-11-05 15;00 - OK - 15% ON</code></p> <p>Small - Additionally shows the number of disks in the notes. Example - <code>_esXpress; 2007-11-05 15;29 - OK - 2/2/2 disks, (0.0%) ON</code></p> <p>Med - Medium will also show disk sizes for the backup including delta. Example - <code>_esXpress; 2007-11-05 15;57 - OK - 1/1/1 disks, (2.3%) 96m/4g/4g (49% Data), 02;57s ON</code></p> <p>Large - This will show the full backup information notes messages just like was added in previous esXpress versions. Example - <code>esXpress; 2007-11-05 16;13 - OK - 2/2/2 disks, (0.0%) 0m/2g/2g (0% Data), 02;44s, 12mb/s (42gb/hr), sent 8m ON</code></p>

Configuration Setting	Description
Use manual firewall rules (Do not open hole in firewall)	<p>Though esXpress uses VBAs, and all backup processing is done in the virtual machines, some processing still occurs in the console space. By default, esXpress will open outbound holes in the host firewall when needed. These holes are not closed, but are there temporarily, until the host is rebooted or the firewall is restarted.</p> <p>Yes - Run in secure mode. esXpress will not open any holes in the host firewall, you must do this manually in the VIB configuration.</p> <p>No - Do not run in secure mode, open holes in the firewall when needed. This is the default option.</p> <p>esXpress needs to communicate from the console for the following reasons:</p> <ul style="list-style-type: none"> • If you opted to send mail from the console, it needs to be able to communicate with the SMTP server. • Currently the restore process is in the console, so to do a restore, the Net backup targets need to be indexed and files pulled through FTP or SSH. • If you enabled Trim mode, it again needs to index the Net targets and connect to perform the actual deletes
VBA Connection Settings	
Force VBA Re-Register on Power On	<p>This will cause esXpress to re-register the VBA each time it powers itself on.</p> <p>For ESX 3.5 hosts that are running DRS, you must set this value to Yes. If you are running an ESX 3.5 host without DRS, then set this value to No. For 3.0.x hosts, it is recommended to leave this option set to No.</p>
Do Extreme Network Fix on Power On	<p>If the VBA experiences problems connecting to the network after powering on, setting this to Yes will attempt to re-synch the host with Virtual Center.</p> <p>This option is not recommended unless you are experiencing network connection issues and have been instructed to do so by support.</p>
Start VBA With Network Connected	<p>Enable this option to set the VBA to start the network connected. Only set this if you are running esXpress version 3.5 Update 3 or above.</p>
Delay Options	
VM Delay	<p>Time (in minutes) to wait before beginning a new VM backup. This should be changed only if instructed by support.</p>

Configuration Setting	Description
Index Timeout	Time (in minutes) to force indexing to timeout. This time should be changed only if instructed by support.
Advanced Settings	
Globally SKIP VMDKs that match SCSI ID (ex: scsi0:5 scsi1:2 scsi1:9)	This option applies to all backups. You can have esXpress globally skip certain SCSI IDs for backups. List the SCSI IDs here, separated by a space. This field is not case sensitive.
Run this script after backups	You can define a custom script that will run after the esXpress backup all job is complete—for example, a script to initiate sending backups to tape.
Error if VM has independent disk	When esXpress backs up a VM, it will add a snapshot to it first. When a VM has an Independent Mode disk, a snapshot is not applied to it. esXpress will still backup the other disks and skip the independent disks. This feature is useful for RDMs. Yes - When encountering an Independent Mode disk, treat as a WARNING (in emails). No - Do not treat an independent mode disk as an error, just note it and continue.
Error if VM has snapshot	When esXpress backs up a VM, it decides if it was a <i>good</i> backup, a <i>warning</i> , or an <i>error</i> . By default, VMs with snapshots are not backed up, and are treated as a warning (in the emails). Yes - Treat VMs with existing snapshots as a warning (in emails) in the daily backup log / email. No - Do not treat them as warnings (errors). This option will not cause a warning in the emails. Take caution when setting this option to No, as you will no longer receive the emails as warnings and could lose track of a VM that is not being backed up due to an existing snapshot error.

Configuration Setting	Description
Ignore UUID on Auto-Deletes	<p>When performing deletes for a particular VM name and VMDK, the UUID of the VM is taken into account. This VM name and UUID make each folder on the backup targets unique.</p> <p>Yes - The UUID of the VM folder name is ignored. This should not be a problem, assuming that you created different folders names for each of your virtual machines.</p> <p>No - All VMs are unique. Recommended.</p> <p>If you notice old VM backups that are not trimmed when it appears they should, check the UUIDs to see if they are different. If so, then enable the (Ignore UUID) option to resolve the issue.</p>
PHD Menu Editor	Sets the default editor to either NANO or VI.
Delegate User	Define the Delegate User to use (default is root). This is the user VMware uses to access virtual machine files. If you have changed this user in VMware, use this option to make esXpress aware of the Delegate User to use.
VBA SCSI Device	Select the SCSI driver to use with the esXpress VBA. The default is BUSLOGIC. Normally, you should not change this value unless directed to by support.
Helper Attitude	<p>This option controls how aggressive the VBA will run.</p> <p>Less - The VBA will run single threaded and consume less CPU. Also when FLB is enabled, they will run after the image level backup is done. If the VBA only has 1 CPU or a speed throttle is set, Less will be forced.</p> <p>More - The VBA will be more aggressive. It will run multi-threaded in the VBA, but the VBA must have more the 1 CPU, or setting this to More will do nothing.</p> <p>One-Ups – Run multi-threaded during One-Up backups, such as running [xNOW]. This only applies if the VBA has more than 1 CPU.</p>


Host Groups



By using host groups, you can assign similar configuration values to a number of hosts without having to do define settings individually for each host. Then, when a host is assigned to a host group, it inherits the settings of that host group. All host groups inherit their settings from the Global Settings.

Host groups are optional. If a host is not assigned to a group, it will inherit settings from the Global Settings.

Adding a Host Group

1 In the navigation tree, click **Host Groups**.

2 On the Host Groups page, enter a name for the group and click .

The group is added to the list. You can edit the team name at anytime by clicking . To remove a team, click .

Configuring a Host Group

- 1 In the navigation tree, expand Host Groups to display all host groups you've created.
- 2 Click the name of the host group you want to configure.

The Host Group settings page opens. Values inherited from the Global settings will be highlighted in blue text.

BASIC		SCHEDULING	SELECTION	REPLICATION	DESTINATION	EMAIL	ADVANCED	Reload	Undo	Save
<p>* Move mouse over field text for help * Inherited values highlighted in Blue</p>										
Automation Controls										
Enable Scheduled Tasks		<input checked="" type="checkbox"/>								
Daily Backups		<input checked="" type="checkbox"/>								
Enable Dynamic Tasks		<input checked="" type="checkbox"/>								
VBA Options										
Total VBAs		<input type="text" value="4"/>								
Total VBAs For Daily Backups		<input type="text" value="2"/>								
# CPU's Per VBA		<input type="text" value="1"/>								
Backup Multi disk VM in Parallel		<input checked="" type="checkbox"/>								
VBA Location		<input type="text" value="SANdisk"/>								
VBA Network Settings										
Network		<input type="text" value="VM Network"/>								
Netmask		<input type="text" value="255.255.255.0"/>								
Gateway		<input type="text" value="100.125.200.1"/>								
DNS		<input type="text" value="100.125.200.47"/>								
VBA Network Configuration										
Virtual Backup Appliance 1		<input type="text" value="DHCP"/>								
Virtual Backup Appliance 2		<input type="text" value="DHCP"/>								
Virtual Backup Appliance 3		<input type="text" value="DHCP"/>								
Virtual Backup Appliance 4		<input type="text" value="DHCP"/>								
Target Type and Location										
Type		<input type="text" value="Net Only"/>								
Special Backup is disabled		<input type="checkbox"/>								
VMFS Backup Target Location		<input type="text" value="SANdisk"/>								
VMFS Owner		<input type="text" value="root"/>								
File Permissions		<input type="text" value="755"/>								
Target Team		<input type="text" value="svt46"/>								

For details about the settings available, refer to Global Settings on page 50.

Action Log

The action log can be used to view the various esXpress log messages for activities run from within the GUI appliance, including messages when installing and removing ESX hosts and setting locks.

Use the filter to search for specific messages. This is a text search across all of the message fields.

Messages include an Action ID, timestamp, status, the action performed, host name, and a descriptive message.

Some messages can be expanded using the + at the beginning of the message row. Expanding a message shows the detailed transaction log for the action. This detailed log can be very useful for debugging problems, especially host install errors. This log is also useful when working with esXpress support.



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