



esXpress 4.0
Management Appliance
Users Guide

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www.phdvirtual.com



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

Documentation Updates

The following table contains updates made to this document. To verify that you are using the latest edition of a document, check the PHD Virtual website.

Chapter	Version	Description
All	4.0	"esXpress Quorum" (on page 7): Updated information about using SSH.
1	4.0	"Management Appliance Passwords" (on page 9): Added new section. 4/12/10
2	3.6	Added info about adding multiple DNS servers.
2	4.0	"Manually Updating the Management Appliance" (on page 19): added new section. 5/27/10
3	3.6	"esXpress Setup Wizard" (on page 24): Added information for using the Setup Wizard.
3	4.0	"esXpress Setup Wizard" (on page 24): Updated Setup Wizard information to include new Quorum mode step.
3	4.0-4	"esXpress Setup Wizard" (on page 24): Section updated - the Setup Wizard now contains less required and optional steps.
3	3.6	"Global Settings" (on page 33): Added descriptions for additional Global Settings options.
3	4.0	"Selection" (on page 40): Updated description for Special Backup Target Types.
3	4.0-4	"Email" (on page 48): Added description for option: "Emailed Status Reports logs deleted after."
3	4.0-5	"Email" (on page 48): "Attach Backup Log as PDF Report" description updated to reflect additional functionality. Daily backup reports contain a link to the PDF report as well as an attachment.
3	3.6	"Hosts" (on page 55): Updated section to include host edit options, Delete Host, and Retry Install.
3	4.0	"Restore Now" (on page 62): Added new section describing the Management Appliance restore options.
3	4.0	"Advanced" (on page 51): Added details for enabling Change Block Tracking.
3	4.0-2	"Advanced" (on page 51): Added details for Reverify PHDD Blocks after write option.
3	4.0	"Hosts" (on page 55): Added section for importing hosts from vCenter. Updated text to reflect new option names (Scheduled Tasks, Enable scheduled backups).
3	4.0	"License" (on page 27): Updated to include license import.
3	4.0	"Basic" (on page 34): Updated Automation Controls section.
3	4.0	"System" (on page 66): Added new section that describes the System page.
3	4.0	"Quorum" (on page 31): Added new section to describe the Quorum Mode options.

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Chapter 1 - The esXpress Management Appliance

The esXpress Management Appliance is a multi-user, web-based interface for configuring and deploying esXpress and restoring VMs. The appliance uses a hierarchical method when applying configuration settings from the global, group, and host levels, to provide a quick and easy method for maintaining esXpress across all of your ESX hosts. In addition to configuration, the appliance automates the installation of esXpress to each of your hosts.

Note: The Management Appliance is an optional feature of esXpress and is not required in order to perform backups or restores. The ability to run and manage backups is not handled from within the appliance at this time.

The esXpress Management Appliance 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. Only one Management Appliance is required to manage and deploy esXpress across your entire ESX farm.

About This Guide

This guide describes how to install and configure the esXpress Management Appliance which is used to deploy and configure esXpress to the hosts in your environment. When installed, esXpress begins running backups based on the automatic schedule you set during the configuration process.

In addition to installation and configuration information, this guide describes all of the available options within the Management Appliance, both required and optional as well as how to use the features available to run restores and configure your backup targets.

esXpress Quorum

The esXpress Quorum is the mechanism the Management Appliance uses to communicate with your ESX hosts to allow native ESX services handle the connections and communication of esXpress data.

As of version 4.0, by default, this communication takes place using a single, restricted SSH user account that esXpress creates on each host (if required, NFS can be used instead). esXpress uses this account to pass configuration changes and updates from the Management Appliance and to track the status of each host, only. This account cannot be used to log in to the host device. For information on configuring the Quorum mode, see ["Quorum" \(on page 31\)](#).

When you add a host to the Management Appliance, the Quorum is configured automatically. Before adding hosts, be sure to read the ["Pre-Installation Steps" \(on page 12\)](#).

Quorum Folder Structure

The esXpress Quorum consists of the following folders within `/home/phd/esxpress-quorum` on the host:

- **Config** - esXpress configuration files that are created 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 from here.
- **Update** - Contains the software updates and RPM packages downloaded from the Internet.
- **Status** - (for future use).

If you've configured the esXpress Quorum to use NFS, these folders are stored within /vmfs/volumes/esxpress-quorum.

Management Appliance Passwords

The Management Appliance web page and text menu interfaces are shipped with the following default passwords:

Management Appliance web page

User	Default Password
admin	admin
root	esxpress

To change the Management Appliance web page default passwords, use the Configuration, User Management page. See ["User Management" \(on page 30\)](#).

Management Appliance console

User	Default Password
root	esxpress

To change the console login default password, use the console text menu. See ["Management Appliance Text Menu Options" \(on page 22\)](#).

Chapter 2 - Installing and Configuring the Management Appliance

Review the system requirements and pre-installation information in this section before installing and configuring the esXpress Management Appliance.

Note You can deploy the esXpress appliances using the esXpress deployment wizard (recommended). If you deployed the appliance using this method, you do not need to follow the steps in this section. Instead, skip to "[esXpress Setup Wizard](#)" (on page 24) and follow the steps to complete the post-deployment configuration steps.

- "[Management Appliance System Requirements](#)" (on page 11)
- "[Pre-Installation Steps](#)" (on page 12)
- "[Installing the Management Appliance](#)" (on page 13)
- "[Configuring the Management Appliance](#)" (on page 14)

Management Appliance System Requirements

The following table shows the minimum system requirements for running the esXpress Management Appliance.

Table 1 - Management Appliance System Requirements

VMware version	ESX Server Version 3.5x, vSphere (ESX4)
VM Memory	1GB of memory allocated to each VM
VM Storage Requirements	A Minimum of 8GB of disk space is required on the VMFS partition of the ESX host to import the compressed appliance VMDK file.
Minimum supported browsers for appliance web Interface	Internet Explorer 7, Firefox 3.0.7
Other Requirements	VMware Virtual Infrastructure Client 3 (VI3), or vSphere Client.

Pre-Installation Steps

Ensure the following pre-requisites are met prior to installing the Management Appliance.

1. Download the latest esXpress zip file from PHD Virtual's web site (www.phdvirtual.com).

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

- phd-x.x-x.ovf
- phd-x.x-x-disk1.vmdk

(where x.x-x represents the latest version of the file)

These files can be imported by downloading them to a local machine and then imported to the ESX Server using the VI3 or vSphere client.

2. The VI3 or vSphere client must be connected to your ESX host.
3. Before beginning with the installation, you must have the following network information ready:
 - a. an IP Address for the appliance
 - b. DNS
 - c. Default Gateway
 - d. Proxy Server information, if required
4. If the Host is a Dual CPU host, make sure to allocate only 1 virtual CPU to the appliance VM.
5. If you are using NFS as the communication mode for the Quorum (see "Quorum" (on page 31)), each host added to the Management Appliance must have a VMKernel IP address assigned. Also, the Management Appliance must be located on the same VLAN as each host's VMKernel IP with the same VLAN ID. For information on assigning a VMKernel IP, refer to the Networking Configuration section of the *VMware iSCSI Configuration Guide*.
6. Network traffic must be routable between the appliance and the hosts to be backed up.

Caution: It is **not** recommended that you perform remote host management with the Management Appliance, for example, adding a host that is across the WAN. When installing the appliance, you must do a Virtual Appliance Import from the VI3 client or Deploy the OVF Template from a vSphere Client as shown in the installation instructions. Do Not use VMware Converter.

Installing the Management Appliance

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

To install the Management Appliance

1. Extract the contents of the esXpress zip file you downloaded.
2. Using a VI3 or vSphere client, log in to your ESX host.
3. Import the esXpress appliance OVF:

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

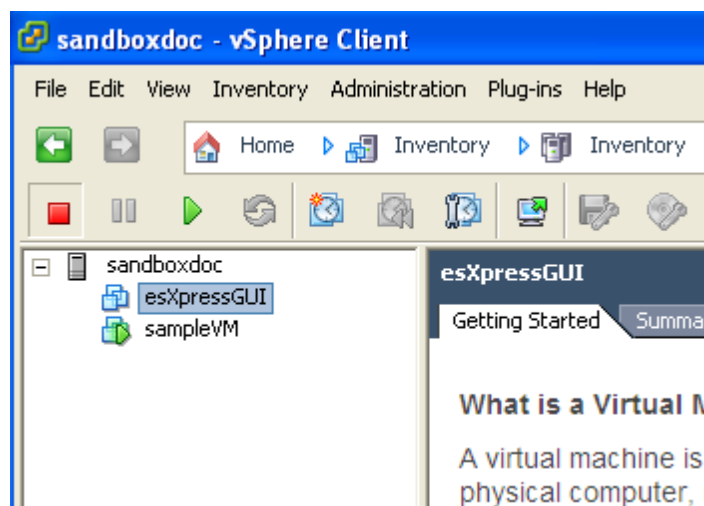
If you are using a vSphere client, select **File > Deploy OVF Template...**

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 window opens and the appliance is added to your ESX host.

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

The new appliance is displayed in the client window.



When you are finished installing the appliance, follow the steps in "Configuring the Management Appliance" (on page 14) to complete the required configuration tasks.

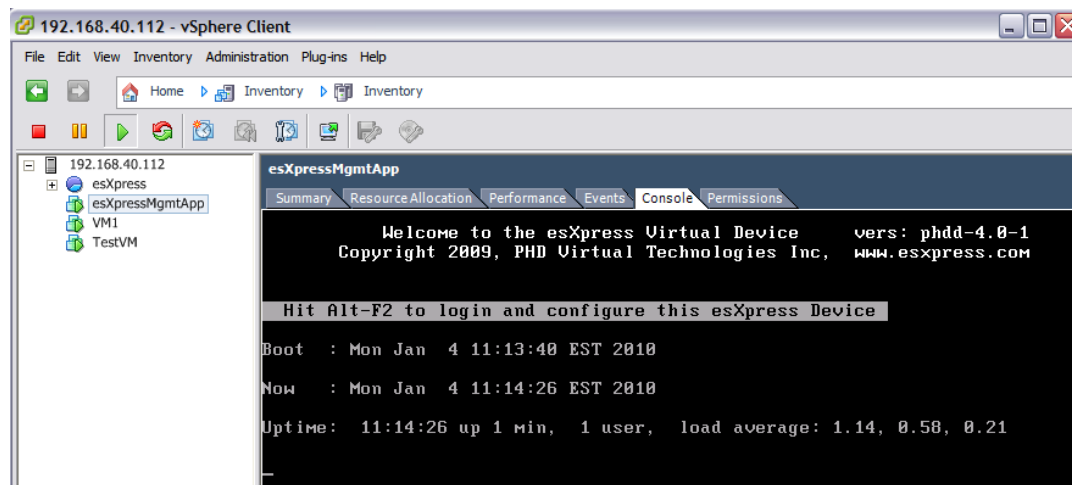
Configuring the Management Appliance

This section details the set of options that must be configured to allow the Management Appliance to function. The required steps are:

1. Set the Appliance Role as an esXpress Management Appliance.
2. Define the Network Configuration.
3. Check for Updates to download the latest code and the esXpress RPMs.

To configure the Management Appliance

1. From the vSphere or VI3 client, start the newly installed Management Appliance virtual machine.
2. Open a console (click the **Console** tab or right-click the VM name and select **Open Console**. To display status messages during the loading process, hit Alt+F2). When the machine is finished booting, you will see the main menu for the appliance.



3. Hit **Alt+F2** to enter the console login prompt.
4. Login as root with the default password (espress).
5. At the command prompt, type **espress** and hit **Enter**.

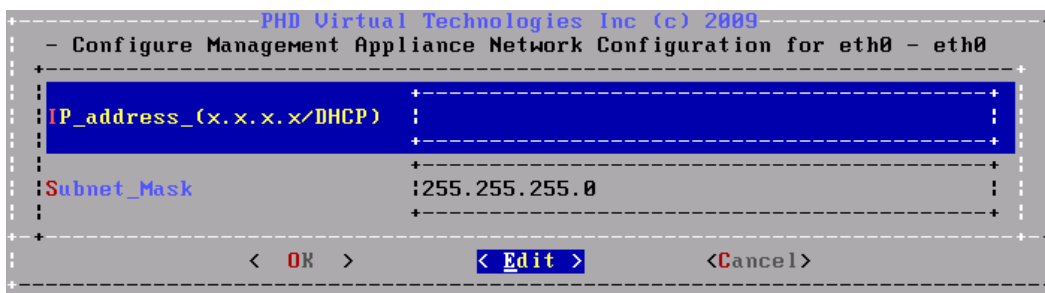
The PHD Appliance Role Selection menu opens.



10. Select a Network Adapter number to configure the IP address for each network adapter assigned to the appliance. Additional Network Adapters are displayed only if you have added them to the Management Appliance from the VMware client.

Note: Assign the appliance a unique IP Address - do not use the IP Address of the ESX server or the DeDupe Appliance (if configured). This IP will be used to access the Management Appliance web interface.

The Network Configuration for eth0 menu opens.

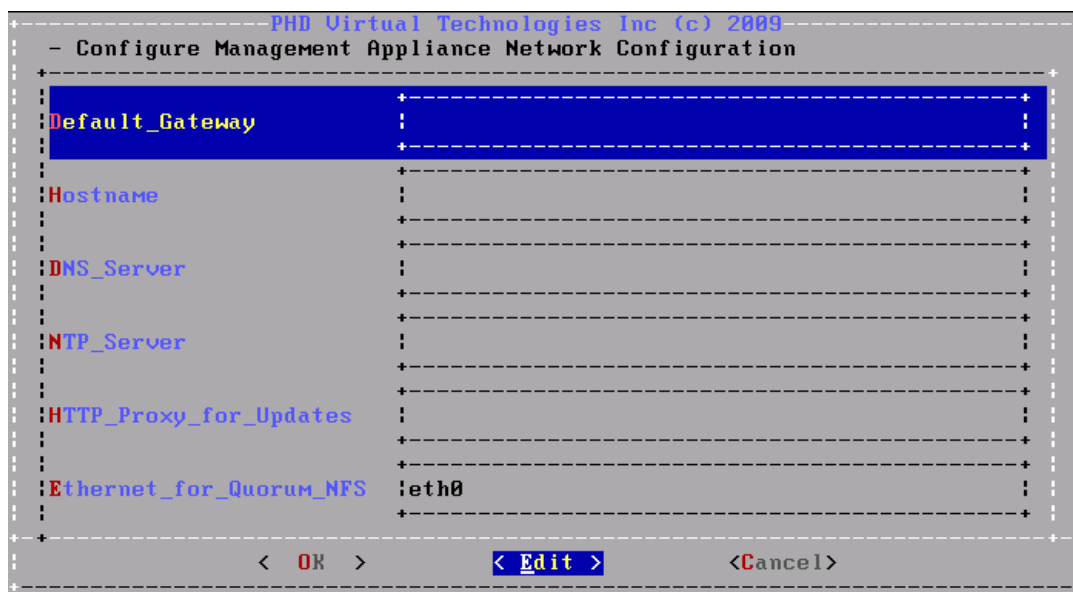


11. Enter the IP address and subnet mask for the appliance. Edit the fields by selecting **Edit** and hitting **Enter**.

Note: If you will be using NFS as the Quorum mode, the Management 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 Management Appliance IP for SSH and NFS connections.

12. Select **OK**.
13. Select **Yes** to confirm the changes.
14. A window opens alerting you that you must define a hostname and default gateway. Select **OK**.

The Network Configuration Menu opens.



The following information is required:

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

If required, also define the value for your proxy server. The 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 appliance, you can indicate which Ethernet adapter should be used for the quorum using the **Ethernet_for_Quorum_NFS** option.

Note: The appliance will not automatically synchronize its time with the host, you must either add an NTP server or manually synchronize the appliance from the command line after it is installed.

15. When finished defining network settings, select **OK**.
16. Select **Yes** to confirm the changes.
17. Select **OK** to configure the network settings.
18. When complete, select **OK** again.
19. Select **Quit** to return to the main menu.

Now that the appliance has been configured, check for any software updates.

20. Select **U, Check for Management Appliance Updates** and follow the steps to download the latest software. When the updates are complete, you are prompted to restart the appliance.

The esXpress Management Appliance appliance is now configured.

Next, log in to the appliance web page using a web browser and the IP address you assigned. If you used DHCP, you can find the appliance IP address by hitting Alt-F1 to return to the appliance home screen (as seen in the figure below) or use the summary tab in the VI3 or vSphere client.

```

esXpress Dedupe Appliance      vers: phdd-4.0-1
Copyright 2009 PHD Virtual Technologies Inc

This Host: doc_dedup_vmdk.esxpress.local (Master)

IP eth0: 192.168.40.251
Traffic: RX:      0.8 kb/Sec @ 24.2 kb          TX:      0.0 kb/Sec @ 0.7 kb

top - 15:53:51 up 3 days, 1:56, 0 users, load average: 0.08, 0.19, 0.18
Tasks: 80 total, 1 running, 79 sleeping, 0 stopped, 0 zombie
Cpu(s): 1.4%us, 8.6%sy, 0.9%ni, 88.8%id, 0.4%wa, 0.0%hi, 0.0%si, 0.0%st

VMDK Mount: /.data Size: 10G Used: 616M (7%) Free: 9.4G (93%)

alt-F2 Login alt-F1 This Screen alt-F11 DB Importer alt-F12 Daemon_

```

When logged in to the appliance web page, complete the configuration using the Setup Wizard. Refer to ["Using the Management Appliance"](#) (on page 23), for details.

Checking for Updates

To apply esXpress updates for the Management Appliance and the host RPMs, you will need to check for updates using the **Check for esXpress Updates** option on the Management Appliance Text Menu. The updates will be downloaded from an esXpress server via HTTP so the appliance must be able to access the Internet. Follow the instructions on screen to apply the updates to the appliance.

As new updates and versions are released, this is the process you will use for obtaining and applying them.

The latest RPMs are necessary to be able to deploy esXpress to all of your ESX hosts. After they are downloaded, the RPMs are sent to your hosts automatically at the top of the next hour.

If you are using a proxy server, make sure you have configured the HTTP_PROXY option in the Network Settings as described in ["Configuring the Management Appliance"](#) (on page 14).

If your appliance does not have access to the Internet, you can upgrade the appliance manually, see [Manually Updating the Management Appliance](#).

Manually Downloading RPMs

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

To manually download RPMs

1. You will need both RPMs copied to your Management Appliance. They can be downloaded from the PHD Virtual web site.

- a. `espressVBA-x.x-x.esx.i386.rpm`
 - b. `espress-x.x-x.esx.i386.rpm`
(where x.x-x is the current version of the component)
2. Copy both RPMs to the following folder:
 - a. If you are using Quorum mode NFS, copy the RPMs to `/.quorum/esXpress_Quorum/Update`.
 - b. If you are using Quorum mode SSH, copy the RPMs to `/home/phd/esXpress_Quorum/Update`
 3. Run the following command: `phdq_update -rpms`
The appliance should now be able to deploy the RPMs to your hosts.

Manually Updating the Management Appliance

If your Management Appliance is located behind a firewall or the appliance cannot access the Internet for another reason you will not be able to use the Check for Updates process to upgrade the appliance.

To manually upgrade the appliance, you will need to download the upgrade package using a machine with Internet access then copy the package to the appliance, manually.

To manually upgrade the Management Appliance

1. Use a web browser and navigate to:
http://www.espress.com/Documents/gui_updates/PHDQ_Server_Update.tgz
2. Download the update package.
3. Copy the files using WinSCP or another program to the `/home/phd/updates` directory on the Management Appliance.
4. Using PuTTY or another program, open an SSH window to the appliance.
5. Uncompress the copied update package using the following command:

```
tar -xzvf PHDQ_Server_Update.tgz
```
6. Change to the directory that was uncompressed (`phdq-20100520-4.0-3` for example).
7. Run the update:

```
./run_update
```

Adding VBAs to a Resource Pool

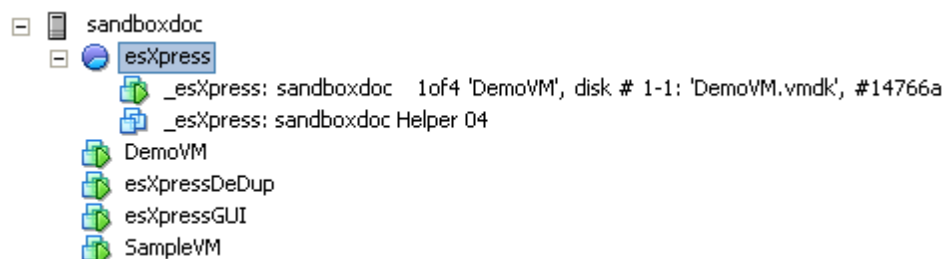
esXpress uses Virtual Backup Appliances (VBAs) on each host to run all of the backup processing. Since the VBAs are just virtual machines, they can be controlled, if needed, using resource pools within vCenter. Adding the esXpress VBAs to a resource pool is as simple as adding a new resource pool with the name **esXpress** - all VBAs that spawn will automatically join this pool.

To Add VBAs to a Resource Pool

1. Within vCenter, create a new resource pool with the name **esXpress**.



2. Within the resource pool settings (right-click the resource pool name and select **Edit Settings**), you can select to control the CPU or Memory resources. For example, a best practice is to set the CPU and Memory **Shares** to **Low** to allow higher priority processes to run before the VBAs.
3. The next time the esXpress backups run, the VBAs created will be added to the esXpress resource pool, automatically.



Note that if you've created a vApp with the name esXpress, the esXpress VBAs will spawn there automatically (if a resource pool was not previously created). In this case, the VBAs will be set to auto start - either edit the vApp and disable the auto start for each VBA or simply remove the VBAs and use a resource pool instead.

Removing the Management Appliance

The esXpress appliances are virtual machines, so to remove them, you can simply delete the VM file.

If you are removing esXpress completely, you should first delete all of your hosts from the Management Appliance, Hosts page (see ["Hosts" \(on page 55\)](#)). This will uninstall the esXpress RPMs and remove the host from the quorum.

Management Appliance Text Menu Options

The following table describes the Management Appliance text menu options. After initially configuring the appliance network settings, you do not need to use the text menu as all configuration is done from within the Management Appliance web interface. See ["Using the Management Appliance" \(on page 23\)](#) for details. For additional information on the text menu options, refer to the esXpress Reference Manual.

Table 2 - Management Appliance Text Menu Options

Menu Option	Description
Daemon Status (D)	Shows the status of the daemon running in the background.
Lock Status (A)	Set or Clear the locks.
See Whats Happening (W)	Shows the current status of the esXpress daemons. Hit Ctrl-C to exit.
Show status from TTY1, TTY10, TTY11 (T,0,1)	TTY1 – shows appliance main screen TTY10 – shows outbound daemon messages TTY11 – shows inbound daemon messages
Configure Management Appliance settings (C)	Configure the appliance Network Settings
System Config Settings (O)	Set the appliance Global Settings.
View Appliance Logs (L)	View <code>/var/log/messages</code> .
Check for esXpress Updates (U)	Check for and install Management Appliance and esXpress RPM updates.
Verify/Repair Appliance database	Run a check to verify the appliance database and repair errors.
Restart Web Services	Restart the appliance web services.
Shutdown/Reboot Appliance (P)	Shutdown or Reboot the appliance.
Please change the ROOT Password (R)	Change the ROOT Password. It is recommended that you change the root password after installing the appliance.
Quit (Q)	Quit the menu

Chapter 3 - Using the Management Appliance

The esXpress Management Appliance is a web application that can be accessed from a web browser or integrated directly into vCenter. Initially, you will need to connect to the Management Appliance from your web browser.

To access the Management Appliance web page

1. Open a web browser and type the IP address you assigned to the appliance.
2. At the log in page, enter your credentials. By default, these are user **admin** and password **admin**. Alternatively, you can log in with user **root** and password **esXpress**.

The first time you log in to the appliance web page, the [esXpress Setup Wizard](#) opens and guides you through additional configuration tasks.

esXpress Setup Wizard

The first time you log in to the Management Appliance web page, you are presented with the Setup Wizard which will guide you through the steps needed to finish the appliance configuration and install esXpress to your hosts.

You can click the link for any completed step to jump directly to that step's page. Optional steps can be bypassed by clicking **Skip**. To exit the wizard at any time, click **Stop**. You must complete each required step to move on.

Step 1 - License

1. At the Licensing page, click **New License**.
2. Enter your license information and click **OK**. For each additional license you want to enter, click **New License**. Use **Import License File** to add your license information automatically. At least one license is required.
3. When the license is validated (the text color will change from gray to black), click **Next**.

Step 2 - Backup Target

1. Backup Targets store the esXpress backup data. 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. All backup targets created during the Setup Wizard are automatically added to the default Target Team.

Note: If you plan to backup to VMFS only, a backup target is not required. However, you will need to create a placeholder backup target to advance past this step of the wizard.

2. Click **Next**.

Step 3 - Email

1. On the Email Server page, you can optionally define an email server to receive email updates from esXpress. Click **New Email Server**.
2. Enter the email server information and click **OK**. Use the Global Settings, Email "Email" (on page 48) tab to enter up to five email addresses where you would like to receive esXpress notifications
3. Click **Next**.

Step 4 - Global Settings

1. The **Global Settings** page is optional: you can review these settings now and make any changes, or you can accept the defaults and make changes later.
2. If you made any Global Settings changes, click **Save**.
3. Click **Next**.

Step 5 - Hosts

1. At the Hosts page, define all of the ESX or vSphere hosts that will be running backups. At least one host is required to complete the wizard. To add a single host, click **Add Host**. To add multiple hosts from vCenter, click **Add Hosts from vCenter**.
2. When adding a single host, enter the IP address and description, assign the host to a target team and host group (optional) and enter the host credentials. Be sure to select **Enable scheduled backups** to allow esXpress to run on the device. Click **OK** when complete. To add additional individual hosts,

Click **Add Host** again and enter the host's information.

If adding multiple hosts from vCenter, enter the vCenter information then select the hosts to install esXpress to, and enter the credentials to use, then click **Submit**.

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

Last Message

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

- Click **Next**.

Step 6 - Host Configuration

- On the Host Configuration page, define any additional settings or accept the defaults and click **Save**. The **VBA Location** is where the VBAs will be stored. Each VBA requires 3 GB of space. **Network** defines the network the VBAs will use when they are created to run backups. This network should be routable to the backup location.

Note: If the VBAs are stored on a VMFS volume with the default formatting of 1 MB block sizes, you will be able to backup VMDK files up to 256 GB, only. If you need to backup VMDK files larger than 256 GB, you will need to store them on a VMFS volume formatted with larger block sizes. The VBA Location displays the maximum VMDK size allowed for each storage volume available.

- 1MB block size = 256GB max file size
- 2MB block size = 512GB max file size
- 4MB block size = 1024GB max file size
- 8MB block size = 2048GB max file size

- Click **Next**.

Step 7 - Publish

- The configuration settings are automatically published to your hosts. When publishing completes, click **Next**.
- Click **Finish** to exit the wizard.

Automatic backups are configured and will begin based on the schedule and settings you defined.

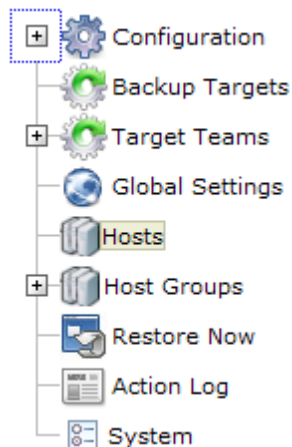
After completing the wizard, the Setup Wizard link is removed from the Management Appliance menu.

View the Global Settings page to see additional configuration options, add additional hosts, enter email addresses for esXpress notifications, or perform restores.

The Management Appliance Web Interface

The Management Appliance web interface 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.

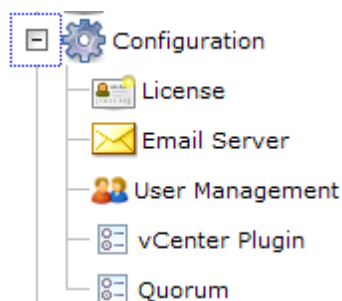


The following sections describe each configuration area and the options available within each.

- "Configuration" (on page 27)
- "Backup Targets" (on page 31)
- "Target Teams" (on page 32)
- "Global Settings" (on page 33)
- "Hosts" (on page 55)
- "Host Groups" (on page 61)
- "Restore Now" (on page 62)
- "Action Log" (on page 66)
- "System" (on page 66)

Note that the Setup Wizard launches automatically the first time you log in to the appliance web page and guides you through the required and optional configuration tasks you need to begin running backups on your hosts. See "esXpress Setup Wizard" (on page 24) for details. When you complete the Setup Wizard, the link will no longer appear in the menu tree.

Configuration



The Configuration tree contains the following configuration pages:

- "License" (on page 27)
- "Email Server" (on page 29)
- "User Management" (on page 30)
- "vCenter Plugin" (on page 30)
- "Quorum" (on page 31)

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



License

You can maintain multiple esXpress licenses from within the Management Appliance and then assign specific licenses to individual hosts or allow all hosts use the default. 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. The number of available hosts remaining (based on your license) is displayed above the license list.



License key will be validated in the background.

Total server licenses remaining = 9

Default	License Description	Company Name
	my license	ESXPRESS TE KEY

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

To enter 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**. To enter the license information automatically using the license file you received, click **Browse** to locate your license file and then click **Import License File**.
4. Click **Publish Licenses** to upload the license to each host. 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.

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

To assign 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.

Your esXpress license determines the number of hosts you can configure for backups. The license ID contains the following information:

- expiration date
- the number of licensed hosts
- license type
- unique ID.

For example, the license ID, **200912-10-ENT-SAMPLE** contains the following sections:

- **200912** = Expiration date. This sample license expired in December of 2009. If the date field begins with a 9, for example 900912, the license does not expire. Only the support contract will need to be renewed to receive updates and assistance.
- **10** = Number of hosts. This sample license was good for up to 10 hosts.
- **ENT** = License edition. Our sample license was an Enterprise license. If it was a Professional license, this section would have displayed PRO.
- **SAMPLE** = The last section of the license ID is a unique identifier.

Updating your esXpress licenses

In order to update esXpress you must have a valid license installed. Also, no expired support licenses can be in use by any hosts in your environment or else you will not be able to upgrade. Contact PHD Virtual to receive an updated license and remove any expired licenses.

esXpress will continue to run once a license has expired though you will not be able to receive future updates. If needed, it is possible to run older versions of esXpress alongside newer versions by isolating the Management Appliances and hosts that are using the older versions. For instance, you could run a version 3.6 Management Appliance with an expired support license and manage the esXpress installation on one set of hosts. You could then also run a version 4.0 Management Appliance with a current license

installed to manage a different set of esXpress hosts. In this scenario you would be able to run regular updates for the current esXpress 4.0 installation but would not be able to update the 3.6 environment.

Another option would be to remove the host using the out of date license from the esXpress Quorum and manage this host in 'stand-alone' mode (without using the Management Appliance). By isolating the host using the expired license in this way, you would then be able upgrade any hosts that are using a valid esXpress license.

Email Server

esXpress can be configured to send email notifications by defining an email server. You need only define an Email Server once, then it can be assigned to each host. If necessary, you can configure multiple email servers and then configure which hosts will use each server. Each host can have only one assigned email server.

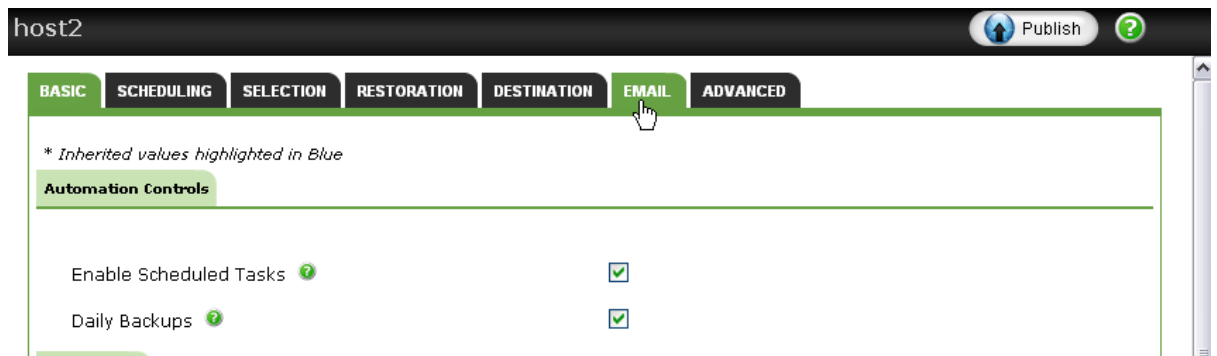
To add a new email server

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. To publish changes to your hosts, click



To assign an email server to a host

1. In the navigation tree, click **Hosts**, then click the hostname link of the host you want to configure. The host settings page opens.



2. Click the **Email** tab.
3. In the **Email Notification Method** section, use the **Select SMTP Server** drop-down box to select the email server the host will use to receive esXpress notifications.
4. Click **Save** then click **Publish**.

User Management


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

Note: Currently, the only available role is Admin.

To add a new user

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

To change a user password

1. In the navigation tree, expand **Configuration** and click **User Management**.
2. In the list of users, click  at the beginning of the line.
3. Use the **Password** and **Confirm Password** text boxes to enter the new password.
4. Click **Ok**.

vCenter Plugin

The vCenter Plugin is an optional feature of the Management Appliance. You only need to install the plug-in if you want to be able to access the appliance web page from within vCenter.

To enable the vCenter Plugin

1. In the navigation tree, expand **Configuration** and click **vCenter Plugin**.
2. Enter your vCenter IP or its DNS Fully Qualified Domain Name (FQDN).
3. Enter the required credentials. The username should have administrative rights in vCenter.
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 Management Appliance web page from within vCenter.

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



To remove the vCenter Plugin

1. In the navigation tree, expand **Configuration** and click **vCenter Plugin**.
2. Click **Remove**.

Quorum

The Quorum page contains the settings required to configure the esXpress Quorum. For additional details about the Quorum, see "[esXpress Quorum](#)" (on page 7).

As of esXpress 4.0, by default, the Quorum uses SSH for communicating with each ESX host. It does this by adding a single, restricted user account to the service console on each host. This account cannot be used to access the host, it is available for use by the Quorum, only.

Existing esXpress installations that upgrade to version 4.0 will continue to use NFS, the Quorum Mode will not be changed during the upgrade process.

To switch the Quorum Mode

1. On the Management Appliance web page, expand the **Configuration** tree, then click **Quorum**.
2. Use the **Quorum Mode** drop-down box to select the mode.
3. Click **Save and Reconfigure**.

The Action Log opens and displays the current action in progress. In order for the Quorum mode to be changed, esXpress is re-installed on each host.

The esXpress Quorum and NFS

PHD Virtual recommends configuring the Quorum to use SSH whenever possible, but if necessary, NFS can be used. When using NFS, there are additional requirements that must be met:

These requirements must be met BEFORE you configure the Quorum to use NFS

- Each host must have a VMKernel IP address configured.
- The Management Appliance virtual machine must be on the same network with the same VLAN ID as the VMKernel (must be routable).

Note: If the Quorum was initially configured to use SSH and then configured to use NFS later, the SSH user account created by esXpress is automatically removed from each host.

Backup Targets

Backup Targets are the physical or virtual locations where the backup files are stored. A Backup Target can be the esXpress DeDupe Appliance, an FTP server, SSH server, or an SMB server.

Use the Backup Targets page to configure and assign backup targets for your hosts.

Caution: Running anti-virus software on a backup target can result in file locking or deletions and may additionally cause issues with writing and deleting backups. PHD Virtual recommends excluding backup targets from anti-virus software scans, as well as excluding the DeDupe Appliance, network shares, and directories used for backup targets (SMB, NFS, or FTP).

To add a new backup target

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.
 - a. Click **Enable as Roll-Over Target**. With roll over enabled, backups will be sent to the target in the event the primary target is not available. The order in which backup targets are used is determined by the backup order number, defined when you assign the target to a target team. See "Target Teams" (on page 32).
 - b. The **Transport Type** defines which type of backup target you are defining (PHDD for the DeDupe Appliance, FTP, SSH or SMB).
 - c. The only Target Type that can be used for DeDupe backups is a PHDD target. This must be a configured esXpress DeDupe Appliance.
 - d. Enter the user options required to connect to the target device. User names and passwords should not contain special characters, including @, /, \$, ', etc.

The Backup Folder must already exist, it will not be created. The path must begin with a forward slash /.
4. Click **OK**.

After you've added a backup target, assign the target to a target team. Backup Targets can be assigned to multiple teams. See "Target Teams" (on page 32) for details on assigning backup targets to target teams.

Note: Modifying or deleting Backup Targets will invalidate the Restore Index. On the **Restore Now** page, click **Refresh Index** to update the list of available backups based on your new backup target settings.



Target Teams

A Target Team defines the backup targets available to a host as well as the order in which the targets should be used, determined by the assigned backup order number. For example, you might create a team named 'prod' and assign all of the targets you will use for production to that team. Alternatively, you might choose to create one Target Team per DRS cluster. There is a limit of nine targets per target team.

To add 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. You can edit the team name at anytime by clicking . To remove a team, click .


After a team is created, assign backup targets to the team.

To assign 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 you'd like to add backup targets to. The team page will open.
3. Click **Assign Target to Target Team**.
4. Use the drop-down boxes to select the backup target you want to add.

5. Select the backup order number for the target and click **Save**. This number determines in what order the target will be used within the team. If the first target is unavailable, the backup will be sent to the next target that has Roll Over enabled. Only available numbers are displayed.

The backup targets assigned to the team are displayed.

To remove a backup target from the team, click .

6. To publish the changes, click



After a target team has been created and targets have been added, assign the team to the hosts that will use the targets for storing esXpress backups.

Target Teams can be assigned at the **Global Settings** level 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.

To assign 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. To publish changes, click



Global Settings

The Global Settings page contains all of the configuration options available for esXpress. Click any tab to open each configuration area. The following sections describe each available page:

- "Basic" (on page 34)
- "Scheduling" (on page 38)
- "Selection" (on page 40)
- "Restoration" (on page 44)
- "Destination" (on page 45)
- "Email" (on page 48)
- "Advanced" (on page 51)

Before applying settings, you should understand how settings are applied to each host. Review the information in "[Configuration Inheritance](#)" (on page 33).

Configuration Inheritance

The Management Appliance uses inheritance to apply configuration settings to your hosts. Inheritance is applied in the following order:

Global > Host Group > Host

For example, configuration settings applied to the Global Settings page are applied to all hosts added to the 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.

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.

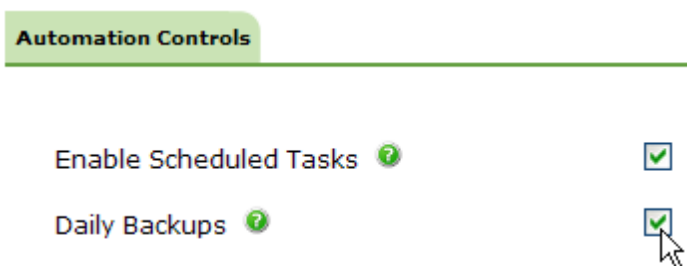
- **Check boxes:** Setting a check box to Light Blue indicates the value will be inherited from the parent object(Host Group or Global settings).
 - Unselected
 - Use inherited value from parent
 - Selected
- **Drop Down boxes:** Blank indicates the setting will be inherited from the parent object.
-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

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

To enable or disable daily backups for a host

1. From the Management Appliance, **Hosts** page, select the host for which you'd like to enable or disable daily backups. The Host's setting page opens.
2. On the **Basic** tab, select or clear the check box, **Daily Backups**.



3. This will enable or disable only the automatic daily backups for the host. Individually scheduled backups ([x12], etc.) and special or one time backups ([xNOW], etc.) will still function. To enable or disable ALL scheduled backups, use the **Enable Scheduled Tasks** option.

Table 3 - Basic Tab options

Basic Tab Configuration Setting	Description
Automation Controls	
Enable Scheduled Tasks	Enable or disable esXpress scheduled tasks (cron jobs). These tasks include the automatic daily backups (Daily Backups), trim mode, and individually scheduled backups (using X commands, etc.). For esXpress to function properly, this option must be enabled.
Daily Backups	This option controls the automatic daily backup operations. The option, Enable Scheduled Tasks (cron jobs) must be enabled first in order for Daily Backups to run. When Daily Backups is disabled, the automatic daily backups will not run but individually scheduled backups ([x12]. etc.) and one time backups ([xNOW], etc.) will still work as normal.
VBA Options	
Total VBAs	Set the maximum number of VBAs that will run at once. By default, esXpress will not let you run more VBAs than you have processors + 1. For example, for a 4 CPU host, you can run up to 5 backup VBAs at once. The number of available VBAs is determined by your esXpress license. By setting this number higher than the Total VBAs for Daily Backups number, you will always have VBAs available to run manual backups, even when the daily backups are running, if needed. Note the Management Appliance does not count toward the total number of VBAs. The number of available VBAs is determined by your esXpress license.
Total VBAs for Daily Backups	When esXpress runs the Automatic Backup or the Backup All VMs command, this is the maximum number of VBAs that will run.
# 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. Note: for ESX 3.5 hosts, this value can be set to 1 CPU only.
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 higher numbered 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.
VBA Location	This option is available at the Host level, only. Since VBAs are small VMs, they must Note that if the VBAs are stored on a VMFS volume with the default formatting of 1 MB block sizes, you will be able to backup VMDK files up to 256 GB, only. If you need to backup VMDK files larger than 256 GB, you will need to store them on a VMFS volume formatted with larger block sizes. 1MB block size = 256 GB max file size 2MB block size = 512 GB max file size 4MB block size = 1024 GB max file size

Basic Tab Configuration Setting	Description
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 backups to 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 depends on the Total VBAs you allow for each host.
Target Type and Location	
Type	<p>esXpress can backup to Network targets, to the VMFS, or it can send backups to both at once. When backing up to the VMFS, all processing is 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.</p> <p>VMFS Only - Only backup to the VMFS.</p> <p>NET Only - Do not backup to the VMFS and send the backups to a Network target.</p> <p>Both - Backup to the VMFS while backing up to the Network targets.</p>
VMFS Backup Target Location	<p>When Target Type is set to VMFS or Both, this option defines the VMFS to send backups to. When choosing a VMFS, they must have a defined name (not the long UUID name).</p> <p>When selecting a VMFS, it must be a version 3 VMFS. esXpress will create a folder on the VMFS called esXpress_backups and the backups will be placed in that folder.</p>

Basic Tab Configuration Setting	Description
VMFS Owner	After the backup archives are created on the VMFS, esXpress will change the owner of the archive to the user set here - this is root, by default. The user must exist on the host. You can also assign a group by setting this option to (Group (dot) User). This option is required when Type is set to VMFS Only or Both.
File Permissions	<p>After the backup archives are created on the VMFS, esXpress will change the permissions of the backup archive to the value set here (default is 755).</p> <p>700 - Will only let the root user access the files.</p> <p>755 - All users can read the backup archives, but only the root user can delete them.</p> <p>777 - All users can read and delete the backup archives.</p> <p>This option is required when Type is set to VMFS Only or Both.</p>
Target Team	Use this option to assign the Target Team. This option is required when Type is set to NET Only or Both. Target teams are used to assign backup targets to your hosts.

Scheduling

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

To set the automatic backup window

1. From the Global Settings, Host Group or Host settings page, click the **Scheduling** tab.
2. In the Backup Window area, use the **Backup Window Starts** and **Backup Window Ends** options to define the backup window for automatic backups. Backup times are designated in 24-hour notation. For example, to define a backup window from 10 PM until 6 AM, set Backup Window Starts to 22 and Backup Window Ends to 6.
3. **Save** and **Publish** your changes.

Table 4 - Scheduling Tab options

Scheduling Tab	
Configuration Setting	Description
Backup Frequency	
Automatic Backup Frequency	Set your backups to run daily or weekly. When set to Weekly, you must also designate which day of the week to run in the Day of Week for Backups dropdown.
System Backup Mode	<p>This setting indicates which types of backups esXpress will run (DELTA/FULL/PHDD/TEST/FLB). The default is DeDupe backups (PHDD).</p> <p>DELTA – Make a Delta backup by default. When set to Delta, you also need to select how often to make a new Full Backup.</p> <p>FULL – Always make a FULL backup when backing up a VMDK. If set to FULL, all backups made will be FULL only backups.</p> <p>FLB – When backing up a VM, run a FLB (File Level Backup) backup only. The image level Full and Delta backups will not be run, only FLB. If a VM has no FLB defined, then it will not be backed up. If you set to FLB, all backups made will be FLB only.</p> <p>PHDD – Make a Data De-Duplicated Backup that will be managed by the esXpress DeDupe Appliance.</p> <p>TEST – Run in Test mode. Go through the process of making a backup, but do not actually do it.</p>
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	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.

Scheduling Tab	
Configuration Setting	Description
	<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>
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 backups. If selected, esXpress will always retry a failed backup during the daily backups 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 backups.</p> <p>YES, AFTER DAILYS – esXpress will run the retry of failed backups after the daily backup, regardless of the time.</p> <p>ALWAYS RETRY – esXpress will always retry failed backups during the daily backups. Anytime all VMs are backed up, the failed VMs will be tried again.</p>

Selection

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.

For even more granular control over the VMs to be backed up, including what days to back up a specific VM or define File Level Backup configuration, you can edit the individual VM configuration files using the PHD Text menu. Refer to the Reference Manual for details.

Table 5 - Selection Tab options

Selection Tab	
Configuration Setting	Description
<i>Backup VMs that Display Names Match or Do Not Match</i>	
Matches	<p>When the backups run, VMs matching this text string or regular expression will be backed up.</p> <p>Sample regular expressions</p> <p>To match two VMs named Demo1 and Demo2, you could use the expression:</p> <p>Demo1 Demo2</p> <p>or</p> <p>Demo (1 2)</p> <p>Pipes separate multiple entries in the expression and parentheses () denote "Or" statements.</p> <p>To match multiple VMs with only one character difference, you can use the dot in the expression. For example:</p> <p>gr.y</p> <p>The above will match all machines named gray, grey, grAy, etc. Also:</p> <p>Test.*</p> <p>Will match any VMs beginning with "Test" including Test1, TestABC, etc.</p> <p>Search online for additional information about creating regular expressions. You'll find many websites with examples and descriptions of regex syntax.</p>
Does Not Match	When the backups run, VMs that match this text string or regular expression will NOT be backed up.
<i>Backup Machine If</i>	
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.
Duplicated VMDK Names	If a VM with multiple VMDKs that have the same name but exist on different datastores, VMware has problems when committing snapshots.

Selection Tab	
Configuration Setting	Description
	The VM will need to be shut down for the snapshots to be committed. By default, esXpress will not backup these VMs. 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 can be run outside of the daily backup runs. When running a Special Backup, it can be sent to a different backup target than what is used for the daily backups. esXpress will create and maintain a separate Index Map for Special backups.
Make [xNOW] run [xSPECIAL]	When you issue the command [xNOW] from the VI3 or vSphere client, esXpress runs a backup immediately. Use this option to override the default action and to use [xSPECIAL] instead. When enabled, anytime you issue the command [xNOW] it will use [xSPECIAL] instead, and a special backup is created.
Mode	Sets the mode to use when running special backups.
Target Type	When running special backups, this option defines the type of backup to run. Default - Use the default backup target options defined in the Backup Options. VMFS Only - Only backup to the VMFS for special backups. This is the VMFS defined in the Backup Options. Network Only - Do not backup to the VMFS and send the backups to the Network target defined in Special Backup Target option. Both - Backup to the VMFS while backing up to the Network target. When going to both VMFS and Net, the data stream is split and sent to both places simultaneously
Target	Choose the Backup Target for Special Backups. You should use a different target than what is used for the daily backups, and set the target for no auto deletes.
Templates	
Auto Backup Registered	When enabled, VM Templates that are registered as a VM on this host will be backed up. They will be treated as if they were another VM. Local Configuration files do not work for registered Templates. When templates are backed up, the VM Name will be prepended with _TP_ on the backup target folders.
Auto Backup All Found	When enabled, the entire VMFS will be searched for template VMs with the .vmtx 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 more than one or two hosts.
Templates Backup Target	Defines to which backup target you want to send Template backups.
File Level Backup	

Selection Tab	
Configuration Setting	Description
Enable	Enable File Level Backups. Refer to the Reference Manual for additional information about running File Level Backups. After enabling FLBs, you must use the esXpress PHD text menu, Configuration Menu, and select Edit VM Local Configuration to designate which files and folders will be backed up.
Run FLB and VMDK concurrently	When enabled, the FLB module will be called anytime a VMDK backup is made. If you want to run FLB each time a VMDK backup (including automatic backups) is made enable this option. If you want to only take a File Level Backup when you initiate one, then disable this option.
Target	Define the target to use for File Level Backups. Folders on the FLB target will be created following the same rules as image-level backups. If you choose to use Full/Delta in the folder name, then FLB will be used.
FLB Compression	<p>Set the compression to use when running FLBs. esXpress uses the open source zip format, which does not support files or archives bigger than 4 GB. If you need to use FLB for larger files, use tar along with gzip (tgz) or lzop (tar.lzo).</p> <p>zip - Make a zip compatible file using the open source zip</p> <p>tgz - Make a tar file that is compressed with gzip</p> <p>lzop - Make a tar file that is compressed with lzop</p>
Maximum FLB Folder Size	<p>Before a folder is backed up, the amount of space used is checked. If the space is greater than what is defined in this option in MB, then the folder is skipped and noted as an error in your logs.</p> <p>A Zero size limit equals unlimited. If you enter 4096 then the user could have no more the 4 GB worth of data to backup.</p>
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 VI3 of vSphere client. X commands are special esXpress commands that can be appended to a Virtual Machine's display name or added to a VM Notes to run backup commands. Some examples are [xNOW], [xPHDD], [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 is ignored.</p> <p>Yes - Do not create a new Delta backup for a VMDK if it has not changed since the last backup.</p> <p>No - Always create a new Delta backup.</p> <p>This option applies only to normal VM backups. For Template backups, if it</p>

Selection Tab	
Configuration Setting	Description
	is unchanged, it will Always skip the Delta backup.
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 PHD menu. It is not available in the Management Appliance. See the 'Reference Manual' for details.

Restoration

This tab provides host-level restore and replication options.

Table 6 - Restoration Tab options

Restoration Tab	
Configuration Setting	Description
VBA Restores	
<i>These options apply to DeDupe backups only</i>	
Use VBAs for restores (Allowed for DeDupe backups only)	Setting this option enables restores through the VBA (Virtual Backup Appliance) instead of doing a restore through the service console. Note – VBA Restores are available only for DeDupe backups.
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
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 Background Restores	Defines the number of background restore processes that can run concurrently.
VMFS Options	
Check VMFS for Backup Archives	Enabling this option will check the VMFS for backup archives when looking to restore.
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.
Advanced Restore Options	
<i>These options apply to DeDupe backups only</i>	
Enable Quick Restore	When enabled, Null blocks are skipped during a restore and only actual data blocks are restored.
Enable In Place Restores	DeDupe restores, only. Allow In Place restores to occur. In Place restores read the existing disk and compare it to the backup file and then restore only the blocks that have changed.
Replication Options	
Enable Replication	This option is defined at the host-level. This option must be enabled for any host which is running esXpress simple or advanced replication. Selecting this option enables the schedule and location options for replication.
Start Replication at	This option is defined at the host-level only. Set the hour at which replication will begin.

Restoration Tab	
Configuration Setting	Description
And check	This option is defined at the host-level only. Define how often to run replication.
Default VMFS to load the Replicated VMs To	This option is defined at the host-level only. Define the VMFS where replicated VMs will be stored. The list of VMDKs to restore are defined in the vmdks.auto file. Refer to the Restoration and DR Guide for additional details.

Destination

This tab provides options about where and how backups are stored. For example, folder definitions, compression, and auto-delete options.

Table 7 - Destination Tab options

Destination Tab	
Configuration Setting	Description
Maximum VMFS Free Space Requirements	
To Start (GBs)	<p>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 value sets the minimum amount of free space required on a VMFS for esXpress to backup a VM.</p> <p>Note: 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 located. Unregister and move the VMX to the other location and re-register to solve this issue.</p>
To Abort (GBs)	<p>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.</p> <p>This value is very important because if you run out of space for a snapshot, the VM will lock up, and this could result in snapshot corruption</p>
Throttle Read I/O per VBA	
Enable	<p>esXpress allows you to slow down the speed of the VBA I/O while running your backups. Since esXpress runs in a VBA, just like any other VM on the host, the CPU resources can be limited by 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. When set to Yes, you must also enter the speed in MB/sec.</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. Using this option allows you to limit the I/O for backups that are run during working hours.</p>

Destination Tab	
Configuration Setting	Description
Speed (MB/sec)	When throttling is enabled, you can also set the maximum speed of the throttle, in MB per second. If you set it to 30, for example, then each VBA will not process data faster than 30 MB per second.
Backup Compression Settings	
Compress FULL archives with	<p>Sets the type of compression to use for Full Backups. When esXpress makes a backup archive, it uses only industry standard compression methods. The Full backup from esXpress is nothing more than the original VMDK file that has been compressed. You can always restore a Full backup by simply uncompressing the Full backup. Current compression options for Full and Delta backups are:</p> <p>gzip - The default option for esXpress, which is gzip -1. By default, esXpress uses gzip (-1) to compress. It gives the best -speed vs. size- trade off. Plus, it is standard on every Linux and ESX server. It is also easily obtainable for Microsoft Windows.</p> <p>6gzip - This is gzip -6, the normal compression level that gzip uses.</p> <p>9gzip - Thus is gzip -9, this is the maximum amount of compression. When you choose 9gzip over gzip (-1), the files can be smaller, but it will take twice as long to compress.</p> <p>lzop - This is for lzop compression. If you choose to use lzop, it can be twice as fast as gzip (-1), but the files will be 15% larger on average</p> <p>nozip - If you do not want compression.</p>
Compress DELTA archives with	Sets the type of compression to use for Delta Backups.
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 each successful VM backup, and then backup archives are selected to be deleted. Setting this option to Yes or Test will enable scheduling options.

Destination Tab	
Configuration Setting	Description
Purge VMFS FULLS Before Backup	When enabled, the backup targets are also indexed before a backup is started. This applies to Full backups. The will free space before the Full backup runs. When this Purge delete runs, it is based on the FULL_DAYS (minus) 1. So if you normally configured to keep 2 Fulls, this Purge will run and keep 1 unique day. If you have FULL_DAYS = 1, then all Fulls for this VMDK are purged before the backup is started.
Unique Days of Fulls to Keep	Set the unique days of Full backups to keep on the targets.
Unique Days of Deltas to Keep	Set the unique days of Delta backups to keep on the targets.
Min Days to Keep Full Backups	<p>This option allows you set a minimum number of calendar days to keep your Full backups. This is a failsafe. If set to 0 (zero), then this option will be ignored. This will guarantee that you also have your Full backups for a minimum number of calendar days.</p> <p>Even if FULL_DAYS=7, set to keep two days of unique Full backups, and you are making Full backups every day, you will not delete any Full backup that is not at least 7 calendar days old.</p> <p>Net Minimum Calendar days is calculated based on real time and uses the INT value of the difference in days. For example, if the value is set to 5 and a backup was stored at noon on the 1st of the month and a second backup is taken on the 6th at midnight, although five calendar days have elapsed, the actual difference between backups is 4.5 days. And since the integer value is used (4), the minimum days setting of 5 has not yet been reached so the older backup is not purged.</p> <p>To ensure 4 days of backups are stored, set this value to 5 and to ensure 5 days, you would set the value to 6, etc.</p>
NET Auto-Delete	
Enable	When enabled, each backup target is indexed after each successful VM backup, and then backup archives are selected to be deleted. Setting this option to Yes or Test will enable scheduling options.
Purge FULLS Before Backup	When enabled, the backup targets are also indexed before a VM backup is started. This applies to Full backups. The purpose of this is to free space before the Full backup runs. When this Purge delete runs, it is based on the FULL_DAYS (minus) 1. So if you normally configured to keep 2 Fulls, this Purge will run and keep 1 unique day. If you have FULL_DAYS = 1, then all Fulls for this VMDK are purged before the backup is started.
Unique Days of Fulls to Keep	Set the unique days of Full backups to keep on the targets.
Unique Days of Deltas to Keep	Set the unique days of Delta backups to keep on the targets.

Destination Tab	
Configuration Setting	Description
Min Days to Keep Full Backups	<p>This option allows you set a minimum number of calendar days to keep your Full backups. This is a failsafe. If set to 0 (zero), then this option will essentially be ignored. This will guarantee that you also have your Full backups for a minimum number of calendar days.</p> <p>Even if FULL_DAYS=7, set to keep two days of unique Full backups, and you are making Full backups every day, you will not delete any Full backups that is not at least 7 calendar days old.</p> <p>Net Minimum Calendar days is calculated based on real time and uses the INT value of the difference in days. For example, if the value is set to 5 and a backup was stored at noon on the 1st of the month and a second backup is taken on the 6th at midnight, although five calendar days have elapsed, the actual difference between backups is 4.5 days. And since the integer value is used (4), the minimum days setting of 5 has not yet been reached so the older backup is not purged.</p> <p>To ensure 4 days of backups are stored, set this value to 5 and to ensure 5 days, you would set the value to 6, etc.</p>
Trim Setting	
User Trim Mode for Auto Delete	<p>When enabled, esXpress will perform backup archive deletions in Trim mode. This will run hourly from the console and relies on Automatic backups being enabled. When set to No, the normal deletion method is used, checking after each backup, from the VBA.</p> <p>Yes - Run backups in Trim Mode, once an hour from this host.</p> <p>No - Do not use Trim Mode, run traditional deletes from the VBA after each VMDK backup.</p>

Email

The Email tab includes email and notification options for esXpress. You can assign up to five email addresses to receive esXpress notifications.

To add email addresses for esXpress notifications


1. On the **Global Settings** page, **Host Group**, or **Host settings** page, click the **Email** tab.
2. In the **Email Notification Address** area, enter an email address and click




The list of email addresses is displayed.

Email Notification Address

Maximum items allowed: 5

1 sample@espress.com 


3. Enter any additional email addresses to receive notification, up to five total. To remove any address, click  .
4. **Save** and **Publish** your changes.

Table 8 - Email Tab options

Configuration Setting	Description
<i>Email Notification Method</i>	
...Select SMTP Server	Define which email server to use for sending esXpress notifications. Only email servers you've configured in the appliance are displayed. See " Email Server " (on page 29).
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 enable this option. If you wish to use the VBA default network then leave this option disabled.
<i>Email Notification</i>	
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.
Host Name in Email Subject	This applies to all backup reports with the exception of the automatic daily backup. 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	<p>Enable this option to create a PDF version of the Backup Log report that is attached to the daily backup report email and also stored on the Management Appliance available via a link in the daily backup report email.</p> <p>When running scheduled backups other than the automatic daily, the PDF report will be sent as an email attachment only, no link to the report is created</p> <p>When not enabled, the PDF report is not created.</p>
Send 'Nothing to Backup' Email	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. By default, this is option is enabled.
Backup Target Report after Backup All	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 is used when doing a restore. If the backup archives are not shown in the restore menus then they will not be included in this report. When enabled, this will send the Backup Target report after a Backup All. This option is disabled by default.

Configuration Setting	Description
	<p>Normally you would set only one or two hosts for this report. It is recommended to enable this option on the slowest host to get the Backup Target report after all the backups are done for the day. The subject for this report is: 'Backup Target Report and it is made up of six basic reports.</p> <ol style="list-style-type: none"> 1. Archive Summary per Backup Target. 2. Summary report by each Date, sorted by Date Descending. 3. Delta backups that do not have a matching Full backup. 4. Summary report for each VM by VMDK. Sorted by VM NAME / VMDK File. 5. Summary report for each VM, sorted by VM NAME. 6. Summary report for each VMDK, sorted by the VMDK name.
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 run in the foreground. This report is the summary of the restore job 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 enabled, 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)	When enabled, a VM backup status email will be sent if a VM backup has an ERROR status.
Emailed Status Reports after Backup All	This option indicates when to send an email report for the daily backups. Setting it to On Errors Only will only send the report if there was a backup error.
Emailed Status Reports logs deleted after	The number of days to store report logs on the Management Appliance. Logs can be viewed by clicking the links in the daily emailed status report. By default, this is set to 7 days. Available free space for the Management Appliance logs is displayed on the System page.
Email Notification Address	
Maximum items allowed: 5	Enter the email addresses for the users to receive the esXpress notifications.

Advanced

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

Advanced tab 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 become available after enabling this option. These additional Snap on Snap configuration options are required for previous versions of ESX, only.
Commit Consolidate Helper Snapshot	This option applies to pre-vSphere hosts, only. When VMware commits a snapshot on a VM, it will add the Consolidate Helper snapshot, and commit the other snapshots back to the VMDK disk. Then it will remove the Consolidate Helper snapshot. Sometimes this does not work perfectly, and these snapshots can remain. Enabling this option allows esXpress to try to commit these snapshots when starting a backup. This applies to Snap on Snap (Baja) Mode.
Default Target	This option applies to pre-vSphere hosts, only. When you backup a VM that already has a snapshot, you can define which target you want to start at. This target will be appended to the Roll-Over backup target list, and will be first. If this target fails then the regular backup targets will be tried. This target must be set for Roll-Over and Backup.
Connection Authentication Method	This option applies to pre-vSphere hosts, only. Select which authentication method to use. esXpress uses VCB commands to do Snap on Snap backups, which requires a username and password. When set to VCB, esXpress will use the user and password that is stored in the /etc/vmware/backup.conf file. When set to esXpress, you can define the user and password you want to use.
Validate Against	This option applies to pre-vSphere hosts, only. When using the VCB commands, esXpress can validate against the localhost or to a VC server. The user must be created through the VI3 client for both VC and Localhost. If you are using localhost, create the user from the VI3 client connected directly to the localhost. Root user should be used for testing, only.
Snapshot Authorization User	This option applies to pre-vSphere hosts, only. The snapshot user must be able to search, create, modify, add, and remove snapshots. Currently, it is only used for removing snapshots when using snap on snaps.
Authorization Password	This option applies to pre-vSphere hosts, only. Enter a password for the Snapshot Authorization User.
Confirm Password	This option applies to pre-vSphere hosts, only. Confirm the password for the Snapshot Authorization User.

Advanced tab	
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 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 this to successfully add a snapshot. If your Novell VMs require this, then enable this option.
Quiesce for All Virtual Machines	Runs the VMware quiesce function when creating snapshots. This feature is available for operating systems that support Microsoft Volume Shadow Copy Service only. http://msdn.microsoft.com/en-us/library/bb968832(VS.85).aspx
VM Notes Settings	
Update VM Notes with Backup Status	Indicate when and if you want esXpress backup status for Virtual Machines to be updated in the 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>
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 . By default, esXpress will open outbound holes in the host firewall when needed. These holes are not closed, but exist 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 VI3 configuration.</p> <p>No - Do not run in Secure Mode, open holes in the firewall when needed. This is the default option. 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.

Advanced tab Configuration Setting	Description
	- 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	This will cause esXpress to re-register the VBA each time it powers on. For hosts that are running DRS, you must enable this option. If you are running a host without DRS, then do not enable this option. For ESX 3.0.x hosts, it is recommended to leave this disabled.
Do Extreme Network Fix on Power On	If the VBA experiences problems connecting to the network after powering on, enabling this option will attempt to re-synch the host with Virtual Center.
Start VBA With Network Connected	This option does not apply to ESX 4.0 (vSphere) hosts. For ESX hosts version 3.5 update 3 and above, enable this option to instruct the esXpress VBAs to start with networking connected. This allows the VBAs to power on much faster. Do not enable this option if your hosts are running ESX versions older than 3.5 update 3.
Delay Options	
VM Delay	Time (in minutes) to wait before beginning a new VM backup. This should be changed only if instructed by support.
Index Timeout	Time (in minutes) to force indexing to timeout. This should be changed only if instructed by support.
Advanced Settings	

Advanced tab Configuration Setting	Description
Globally SKIP VMDKs that match disk ID (ex: ide0:5 scsi1:2 scsi1:9)	This option applies to all backups. You can configure esXpress to globally skip certain SCSI or IDE disk IDs during the backup process. List the disk IDs separated by a space, this 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	<p>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 is useful for RDMs. When enabled, when encountering an Independent Mode disk, treat as a WARNING (in emails).</p> <p>When disabled, do not treat an independent mode disk as an error, just note it and continue.</p>
Error if VM has snapshot	<p>When esXpress backs up a VM, it decides if it was a Good backup, or a Warning, or an ERROR. By default, VMs with snapshots are not backed up, and are treated as a WARNING (in the emails). When enabled, this option will cause esXpress to treat VMs with existing snapshots as a WARNING in the Daily Backup Log / Email.</p> <p>Take caution when disabling this option, 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.</p>
Ignore UUID on Auto-Deletes	<p>When performing deletes for a particular VM Name and VMDK, the UUID of the VM is noted. This VM Name and UUID make each folder on the backup targets unique. When enabled, 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>When disabled, all VMs are unique. This is recommended. 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 used in the PHD Text menu to either NANO or VI.
Delegate User	Define the Delegate User to use (default is root). This is the user VMware uses to access VM files. If you've changed this in VMware, use this option to make esXpress aware of the correct 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 - When set to 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 - When set to 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</p>

Advanced tab	
Configuration Setting	Description
	only applies if the VBA has more than 1 CPU.
Reverify PHDD Blocks after write	DeDupe Only. Enable this option only if you are experiencing issues with bad blocks or are instructed to by support. Enabling this option will force additional verification of the backup data blocks when they are written to the DeDupe storage location. Each block of data will be read again to verify that the blocks that were sent to the storage location were good. Note that this may significantly impact backup performance.
Backup Index Mode	
Use Change Block Tracking to Index source disk	<p>Change Block Tracking (CBT) requires the latest version of VMware Tools installed, VMs must be at hardware version 7 and they must be running on a version 4.0 or higher ESX host.</p> <p>When enabled, esXpress will check to see if each VM on the host supports CBT and it will enable the feature.</p> <p>Enabling this feature allows esXpress to use the VMware vSphere API to keep track of only the disk sectors that have changed in a VM between backups. Instead of reading the entire VMDK each time to discover what has changed, only the changed blocks are read to establish backups, saving significant time in the process.</p> <p>Note that when enabled, CBT may slightly impact the VMs overall performance.</p> <p style="text-align: center;">Note: This feature cannot be enabled for VMs that have existing snapshots.</p>

Hosts

In order for esXpress to run backups on a host, the host must first be added to the Management Appliance. Before adding hosts, you should add the "Backup Targets" (on page 31) and any "Target Teams" (on page 32) you would like as well as review the "Global Settings" (on page 33). Hosts inherit settings from the Global Settings page, then from any Host Groups they belong to.

From the Hosts page, you can add individual hosts by clicking **Add Host** or you can add multiple hosts directly from vCenter by clicking **Add Hosts from vCenter**.

All added hosts are displayed on the Hosts page. If **Scheduled Tasks** is selected, the esXpress automatic backups are set to run. To disable the daily backups on a host, clear the Scheduled Tasks check box. Note that in addition to the automatic daily backups, Scheduled Tasks also controls automatic deletes/trim mode and individually scheduled backups using X commands [x12], etc.).

Locks	Host Name	Check-IN	Host Group	TargetTeam	Install State	Last Message	Modify	Scheduled Tasks
<input type="checkbox"/>	doc-test	00h:00m	Hosts1	Team1	Installed	2010-01-11 09:09:29 - REINDEX - Completed		<input checked="" type="checkbox"/>
<input type="checkbox"/>	esx_host1	00h:02m	Hosts1	Team1	Installed	2010-01-11 08:58:32 - INSTALL - Completed		<input checked="" type="checkbox"/>
<input type="checkbox"/>	Global							<input type="checkbox"/> All

The Hosts Page tabs are described in the following sections:

- "Status Tab" (on page 58)
- "Info Tab" (on page 59)

- "Quick Config Tab" (on page 59)

To add or delete individual hosts, add multiple hosts from vCenter, or edit host options, follow the instructions, below.

To add a new host

1. In the navigation tree, click **Hosts**.
2. Click **Add Host**.
3. Enter the host details:
 - a. For host name, enter a Fully Qualified Domain Name. Host name is case-sensitive and must match your ESX server's hostname, exactly. There is a maximum of 50 characters allowed for this field.
 - b. The User ID and root password are required to allow esXpress to install the VBA and management RPMs to your host as well as run the backup operations.
 - c. The User ID used should not be root, it must be a separate user that exists on the host.
 - d. When adding a new host you can optionally assign it to a Host Group and provide a Target Team.
 - e. Make sure **Enable scheduled backups** is selected to allow backups to run on the host.
4. Click **OK**.

The host is added and the esXpress software is installed - this may take a few moments. The esXpress installation is complete when the **Last Message** column displays, ...**INSTALL - Completed**.

Last Message

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

To see the message details, click the link and expand the message. Failure to install esXpress on the host is usually a problem with a bad username for SSH, a bad root password, or the VMKernel not enabled.


Note: When you add a host with a previous version of esXpress installed, it will be automatically upgraded to the latest esXpress version. You do not need to uninstall esXpress before it is added. However, you must re-enter the previous configuration settings. Do not enable esXpress or Publish the configuration until you have reviewed and updated the settings. Review and configure the Global Settings first then add your hosts so they inherit the correct global settings. Then make any necessary changes at the host level if you require any host-specific settings.

5. When the host is added, click the Quick Config tab and configure the basic required host settings. See "Quick Config Tab" (on page 59). Click **Save**, then **Publish** then changes.

To add another host, click **Add Host** again and follow the steps above.

To add hosts from vCenter

1. In the navigation tree, click **Hosts**
2. At the top of the Hosts page, click **Add Hosts from vCenter**.

- Enter the credentials for the vCenter Server from which you would like to add hosts and click **Import**.
The hosts managed by vCenter are displayed along with their available memory (in MB). In order to run the esXpress software properly, each host must have more than 512 MB of available memory. If a host has less than 512 MB, a warning is displayed.
- Select the hosts to install esXpress to - all hosts will use the default credentials by default. If a host requires credentials other than the default, click  in the **Credentials** column. A new window opens to allow you to enter host-specific credentials.

Edit credentials: 192.168.41.218

Use custom credentials

SSH Account

User Name:


Password:

Root Account

Password:

Select **Use custom credentials** and enter the SSH username and password as well as the root password for the host. The Credential column is updated to show the new credentials.


Credentials

 root:*****

To revert back to using the default credentials, click  and clear the **Use custom credentials** text box.

- Define the default credentials to use for all hosts.
- Select a Target Team and (optionally) a Host Group for the imported hosts.
- Click **Submit**.
- The hosts from vCenter are added to your Hosts list and the esXpress software is installed. When the **Last Message** column displays the message, *Install Completed*, the installation is complete.

To edit host options

- In the navigation tree, click **Hosts**.
- 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 Management Appliance. This option will completely remove the host and any setting associated with it.

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

To delete a host

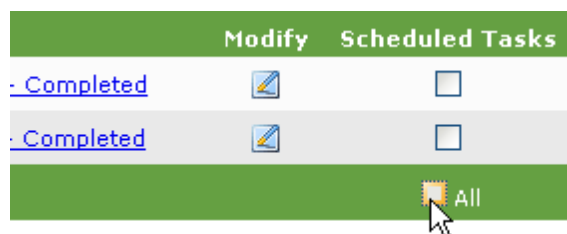
1. In the navigation tree, click **Hosts**.
2. Find the host you want to delete, and click .
3. Click **Delete Host**.
4. Click **OK**.

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

To enable or disable all scheduled tasks for all hosts

If you need to disable all backups for all of your hosts because of upcoming maintenance, for example, you can use the **Scheduled Tasks** option on the hosts page to quickly turn them off and on. Note that only scheduled backups are affected, one-time and special backups ([xNOW], etc.) will still operate as normal.

1. From the Management Appliance, **Hosts** page, select or clear the check box **All** to select or clear all **Scheduled Tasks** checkboxes for all hosts.



2. Click **Apply Changes**. All scheduled tasks, including the daily backups and any individually scheduled backups, are enabled or disabled.

Status Tab

The Status tab is the default view on the Hosts page. It displays host information, esXpress installation status, and provides options to modify hosts, disable or enable backups, and manage locks. Each Status tab column is described below:

- **Locks** - displays the current esXpress lock status and allows you to set new locks. For more information, see "Setting Locks" (on page 60).
- **Host Name** - the short name for each Host. Clicking on the Host Name will bring you directly to the hosts' configuration settings page.
- **Check-IN** - indicates how long it has been since the host last checked in with 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 indicates there may be an issue with the host that would need further investigation.
- **Host Group** - displays the host group the host is a member of.

- **Target Team** - displays the assigned Target Team.
- **Install State** - shows the esXpress install state.
- **Last Message** - shows the last Action Log message, including installation and lock status messages. Clicking a message link opens the full Action Log, filtered for the current host. Click **Back** to return to the Hosts page.
- **Modify** - click to edit the host values you defined when you added the host to the appliance.
- **Enabled**- use this check box to control the esXpress backups. If you need to stop esXpress from running backups on a specific host, uncheck this box.

Info Tab

The info tab on the Hosts page includes the host name, description, the current esXpress version running on each host, and the name of the license each host is using.

To change the active license for a host, see "License" (on page 27) .

To change the description for any host, click the **Status** tab, then click .

Quick Config Tab

The Quick Config tab on the Hosts page provides a simplified screen for maintaining the primary esXpress options for each host. After adding hosts, use this tab to quickly set the backup window and other required host settings.

Status Info Quick Config

Filter: Go

HostName	Backup Mode	Backup Window Start	Backup Window End	VBA Total	VBA Daily Backups	VBA Location	Network
doc-test	PHDD	0	6	4	2	Storage1	VM Network

Undo Save

- **Backup Mode** - defines the type of backup you wish to run on this host (Delta/Full/PHDD/Test/FLB).
 - **Backup Window Start**– sets the time your daily backups will begin at (0-23).
 - **Backup Window End Time** – sets the time after which daily backups will no longer start (0-23).
- Note:** The backup window start and end times refer to the time on each ESX host device - the time on the Management Appliance VM does not affect the backup window.
- **VBA Total** –the total number of Virtual Backup Appliances (VBAs) allowed to run on the host at any one time.
 - **VBA Daily Backups** – the total number of VBAs to be used for Daily Backups (concurrent backups).
 - **VBA Location** – Defines the VMFS location where the VBAs will be located. This value is required.

Note: If the VBAs are stored on a VMFS volume with the default formatting of 1 MB block sizes, you will be able to backup VMDK files up to 256 GB, only. If you need to backup VMDK files larger than 256 GB, you will need to store them on a VMFS volume formatted with larger block sizes. The VBA Location displays the maximum VMDK size allowed for each storage volume available.

- 1MB block size = 256GB max file size
- 2MB block size = 512GB max file size





- 4MB block size = 1024GB max file size
- 8MB block size = 2048GB max file size

- **Network** – Defines the network the VBAs will use. This value is required.

Note: After making any changes, be sure to **Save** and **Publish** to update hosts with the new configuration settings.

Setting Locks

On the Host page, you can set Locks for each host. esXpress has multiple locks that can be set, Abort, Stop, and Pause. To change the current lock for a host, move your cursor over the Lock icon in the Locks column and then select the new lock from the drop-down list. A description of each available lock follows:

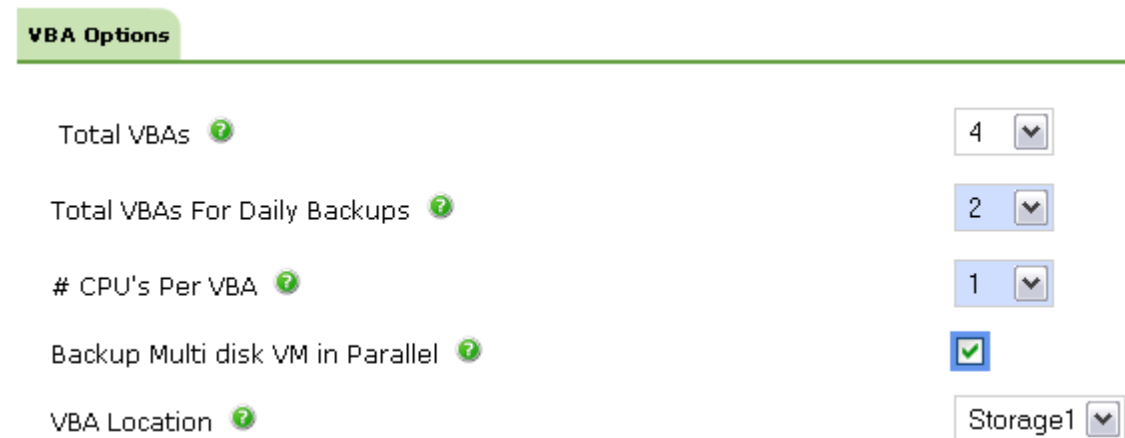
-  **Clear** - The default setting. In order for backups to run, locks must be set to Clear.
-  **Abort** - All running backups will be aborted. Setting this lock will cause all backups to cease immediately.
-  **Stop** - Currently running backups will be aborted after the current VMDK is finished.
-  **Pause** - Currently running backups will be paused after the current VMDK is finished.










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

Host Settings

From the **Hosts** page, click a **Host Name** link to open the settings page for 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 values for **Total VBAs For Daily Backups**, **# CPU's Per VBA** and **Backup Multi disk VM in Parallel** are inherited.



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

Some esXpress settings are only available at the host level, for example, on the Basic tab, the Automation Controls section can only be modified when viewing settings at the host level. If you viewed the settings at the Global or Host Group level, these options would not be available. For more information, see ["Maintaining Host Specific Settings" \(on page 61\)](#).

All of the tabs and their available settings are explained in detail within the topic, ["Global Settings" \(on page 33\)](#).

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

For each new host that is added, you will need to review and assign these host-specific settings. Make sure you **Save** the settings before clicking **Publish** to send the configuration settings to each host.

Global Settings Buttons



- **Reload** – Request an updated list of VMFS and network values. This process will run automatically every hour to refresh the appliance.
- **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 updated VMFS or network settings.
- **Save** – Saves the configuration settings for the current configuration tab to the Management Appliance database.

Publish



In order for the configuration settings to be sent to hosts running esXpress, the changes must be published using this button. If you do not publish your changes, any modifications made will not be reflected on your hosts, they will only be saved in the Management Appliance database.

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 *****

Host Groups



By using host groups, you can assign similar configuration values to a number of Hosts without having to define settings individually for each Host. For example, you may want to assign all hosts that belong to a particular DRS cluster to a Host Group named DRS1, and define settings for the group. Then, when a Host is assigned to the Host Group, it will inherit the settings automatically. 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.

To add a host group

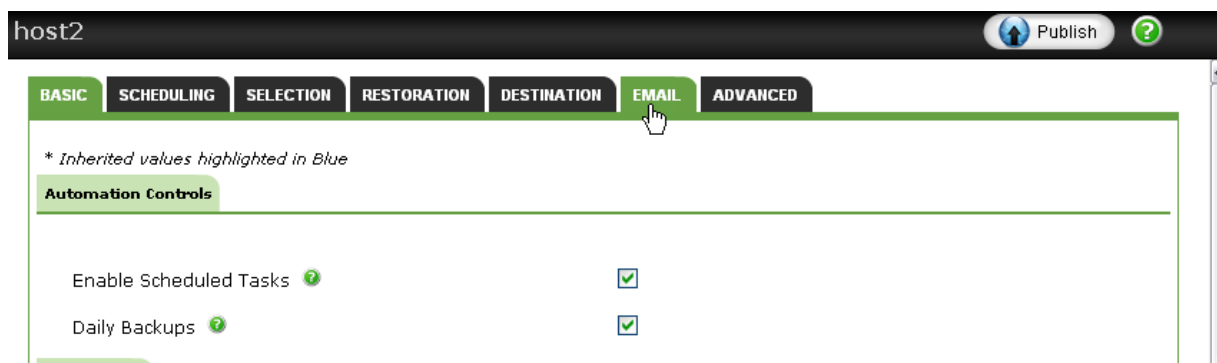
1. In the navigation tree, click **Host Groups**.
2. On the Host Groups page, enter a name for the group and click:



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


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



For details about the settings available, refer to the "Global Settings" (on page 33).

To add or change a host group for a host

1. In the navigation tree, click **Hosts**.
2. Find the host you'd like to modify, and click .
3. At the Host Option page, use the **Host Group** drop-down box to select the Host Group.
4. Click **OK**
5. Click **Publish**

Restore Now

As of esXpress 4.0, you can use the Management Appliance **Restore Now** page to restore backups from any backup target (restoring backups from VMFS requires additional setup, described below). The Management Appliance triggers the restore, then the actual restore processing takes place within the esXpress VBAs or the service console depending on the restore mode (see "Restoration" (on page 44)).

Caution: The restore process may overwrite existing data on the target host. Be sure to check the host first before you begin the restore process to ensure you will not overwrite any data you do not want to lose.

For additional, detailed information about restoring VMs with esXpress, refer to the esXpress Restoration and Disaster Recovery Guide.

Before restoring backups, consider the following:

- If you are restoring a VM to its original location, any existing disks will be overwritten.
- If you select to restore to an alternate Datastore, the VMDK and VMX files will both be copied to the same Datastore or directory.
- To restore multiple VMDKs to different directories or Datastores, each restore must be done separately (only one target location can be selected each time you perform a restore).
- If you restore a VMX to a new location you will need to manually modify the VMX to point to the location of the VMDK files.
- To index backup files for restores, backup targets must have Roll Over enabled and must be set to Target Type of either Both or Restore. Target Types of Backup will not be indexed for restores.
- In order for a host to complete a restore, the backup target where the VM backup exists must belong to that host's target team (the target host for the restore must be able to 'see' the backup file).

To display available backups

1. From the Management Appliance navigation tree, select **Restore Now**.
2. On the **Restore Now** page, click **Refresh Index** to update the list of available backups. All available backups from all of the network backup targets configured on the Management Appliance are displayed (see "[Backup Targets](#)" (on page 31)).

To stop a running index, click **Stop Indexing**.

All available backups are displayed.

Note: Modifying or deleting Backup Targets will invalidate the Restore Index. Click **Refresh Index** to update the list of available backups based on your new backup target settings.

To restore a backup

1. From the Management Appliance navigation tree, select **Restore Now**.
2. On the **Restore Now** page, click **Refresh Index** to update the list of available backups. All available backups from all of the network backup targets configured on the Management Appliance are displayed ("[Backup Targets](#)" (on page 31)).
3. From the list of backups, first select the **Machine Name** to display all available backup files for that VM. If necessary, use the **Search** box to find a specific virtual machine.
4. Select the backup file you want to restore.

2. Select a backup:

Backup Created	Type	Target Site
11/04/2009 00:01:00	phdd	DeDupDoc
11/04/2009 00:01:00	phdd	DeDupDoc
11/04/2009 00:01:00	phdd	DeDupDoc
11/03/2009 08:55:00	phdd	DeDupDoc
11/03/2009 08:55:00	phdd	DeDupDoc
11/03/2009 08:55:00	phdd	DeDupDoc
10/29/2009 16:28:00	phdd	DeDupDoc
10/29/2009 16:28:00	phdd	DeDupDoc

Note: Hosts have access only to backups that are stored on the Backup Targets within their assigned Target Team. When selecting a backup, if you see the message, **Error: There are no active hosts with access to the selected backup's location**, add the Backup Target to which that backup belongs to the host's Target Team.

- Use the **Customize restore** section to select what to restore.

3. Customize restore:

Restore these virtual disks:

SampleVM_2.vmdk
 SampleVM_1.vmdk
 SampleVM.vmdk

Restore VMX configuration file

Overwrite existing VMX file

Register VMX with ESX server

- Select **Restore these virtual disks** to select which VMDK files to restore.
 - Select **Restore VMX configuration file** to restore the VMX file. When selected, you have two additional options:
 - Select **Overwrite existing VMX file** to overwrite an existing VMX file on the restore target host.
 - Select **Register VMX with ESX server** to register the VM with the restore target host.
- Next, select the host to restore to. Available target hosts are displayed in the **Host Name** dialog. Only hosts that are enabled and configured on the Management Appliance with access to the backup file are available as restore targets.
 - When you've selected a host, available datastores on that host are displayed in the **Data Store** dialog box. Select the data store you would like to restore the backup to.
 - The **Restore Directory** is the name of the directory the VM will be restored to on the target Data store. Select to use the existing VM name or enter a custom directory name in the **Directory** text box. Note that if a VMX file is not being restored to its original location you will need to edit the VMX file and update any path names that point to the original location with the appropriate value for the new location.
 - Click **Next**. A summary window opens displaying the details of the restore job.

Restore Summary

Review the restore job details and click Submit Job to continue.

Machine: DemoVM
2009.12.29 0928

Disks: 00_DemoVM.vmdk

Backup Target: Doc DeDup NFS

Destination Host: doc-test
Storage1/DemoVM

Submit Job **Cancel**

- Review the details and click **Submit Job**.

The Action Log opens and the restore status is displayed.

Action ID	Last Updated	Status	Action	Host	User Message
R100	11/04/2009 15:57:42	Pending	RESTOREsandboxdoc2		admin/vmfs/volumes/Storage1/SampleVM-R/SampleVM_2.vmx
R99	11/04/2009 15:57:40	Pending	RESTOREsandboxdoc2		admin/vmfs/volumes/Storage1/SampleVM-R/SampleVM_1.vmdk
A45	11/04/2009 15:49:56	Completed	REINDEX	djmesx2.esxpress.comadmin	Targets: 5 - Warnings: 1 - Errors: 0 - Records Indexed: 767, 0 Fulls, 0 Deltas, 767 PHDDs (0/0)

When the restore is complete, log in to the target host to view the results of the restore process.

Restoring backups from VMFS storage

If you're using the local VMFS to store backups, in order to restore these backups using the Management Appliance, you must first add the host as an SSH target and set the Target Type to Restore.

Backup Targets

Target Name (Friendly)

Enable as Roll-Over Target

Target Network Options

Transport Type

Target Type

Host Name or IP

Network Port

Enable Auto Deletes for this Target

User Options

User Name on Target

Password on Target

Verify Password

Backup Folder

OK **Cancel**

Action Log

The action log displays the various esXpress log messages for all activities run from within the Management Appliance. These include messages when installing and removing ESX hosts and setting locks.

Use the Filter text box to perform a text search across all of the message fields to search for specific messages or to filter messages by a specific host.

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 useful when debugging problems, especially host install errors. This is also useful when working with PHD Virtual support.

System

The System Page displays current information about the Management Appliance.

Table 9 - Management Appliance System page items

System page item	Description
Hostname	Displays the appliance hostname.
System Uptime	Displays the time the appliance has been online.
Network IP address	Displays all IP addresses configured for the appliance.
Storage	Displays available space for the operating system volume for the appliance.

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