ESX 4 Patch Management Guide

ESX 4.0

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About This Book

This book, *ESX 4 Patch Management Guide*, provides background information on processing patches for ESX 4.0 hosts and describes how to use the `esxupdate` utility to apply software updates and to track software installed on ESX 4.0 hosts.

This book provides information specific to ESX 4.0 hosts and the `esxupdate` utility. It does *not* discuss the following:

- How to patch ESX 4.0 hosts automatically with the VMware Update Service and the VMware vCenter Update Manager. For information on these tools, see "ESX Patch Management Tools" on page 21.

- How to patch ESXi 4.0 hosts with the vihostupdate vSphere Command Line Interface (CLI). For information on vihostupdate, see "ESX Patch Management Tools" on page 21.

- How to patch versions of ESX released prior to version 4.0. For information on this process, see the *Patch Management for ESX Servers* tech note and the *ESX Server 3 Patch Management Guide*.

- How to upgrade ESX hosts. For information on upgrading, see the *vSphere Upgrade Guide.* For a list of VMware release definitions, see the VMware *Upgrade and Update Policy* by going to http://www.vmware.com/support/policies/upgrade.html.

Intended Audience

This manual is intended for anyone who must manually apply patches to ESX 4.0 hosts. The information in this manual is written for system administrators who use a service console to manage ESX hosts.

What's Changed from ESX 3.x

This manual has been updated from the ESX Server 3 Patch Management Guide to include new definitions and procedures that are unique to ESX 4.0.

Document Feedback

VMware welcomes your suggestions for improving our documentation. If you have comments, send your feedback to:

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VMware vSphere Documentation

The VMware vSphere documentation consists of the combined vCenter Server and ESX documentation set.

Technical Support and Education Resources

The following sections describe the technical support resources available to you. You can access the most current versions of this manual and other books by going to:

http://www.vmware.com/support/pubs

Online and Telephone Support

Use online support to submit technical support requests, view your product and contract information, and register your products. Go to http://www.vmware.com/support.

Customers with appropriate support contracts should use telephone support for the fastest response on priority 1 issues. Go to http://www.vmware.com/support/phone_support.

Support Offerings

Find out how VMware support offerings can help meet your business needs. Go to http://www.vmware.com/support/services.

VMware Education Services

VMware courses offer extensive hands-on labs, case study examples, and course materials designed to be used as on-the-job reference tools. For more information about VMware Education Services, go to http://mylearn1.vmware.com/mgrreg/index.cfm.

About Patches and Updates

<div style="text-align: right; font-size: xx-large; font-weight: bold; color: gray;">1</div>

Software patches provide immediate fixes for one or more security issues or critical fixes for a specific area of the product. For information about a specific patch, go to the VMware vSphere Download Center at http://www.vmware.com/download/vi.

Types of software updates and related terms:

- **Bulletin**. A grouping of one or more VIBs (vSphere Installation Bundle). Bulletins are defined within metadata.

- **Depot**. A logical grouping of VIBs and associated metadata that is published online.

- **Extension**. A bulletin that defines a group of VIBs for adding an optional component to an ESX host. An extension is usually provided by a third party, as are patches or updates to the extension.

- **Metadata**. Extra data that defines dependency information, textual descriptions, system requirements and bulletins.

- **Offline Bundle zip**. An archive that encapsulates VIBs and corresponding metadata in a self-contained depot that is useful for offline patching.

- **Patch**. A bulletin that groups one or more VIBs together to address a particular issue or enhancement.

- **Roll-up**. A collection of patches that is grouped for ease of download and deployment.

- **RPM**. Binary packages that include a set of control scripts, which provide information for the RPM about how to install the package and any post installation configuration that is needed.

- **Update**. A periodic release of an ESX image, which contains multiple fixes and support for new hardware.

- **VIB**. A VIB is a single software package.

Patches do not have installation wizards. You install them with a patch update tool. The patch update tool for ESX 4.0 hosts is `esxupdate`. For information about patch update tools for other ESX versions, see "ESX Patch Management Tools" on page 21.

About the esxupdate Utility

You use the patch maintenance utility, `esxupdate`, to retrieve information about updates and extensions from VMware and third parties, to track installed software, and to apply software packages to ESX 4.0 hosts. You run `esxupdate` from the service console while you are logged on to an ESX 4.0 host as user `root`. You can run only one instance at a time on the same ESX 4.0 host.

A record of each installed bulletin is written to the `/etc/vmware/esxupdate` directory on the host. The record includes the bulletin ID, the installation time, the VIBs installed, and other details. This directory acts as a patch database and is used by `esxupdate` to query the patches installed on the host.

⚠ **CAUTION** This directory is read-only. If you change the contents, when `esxupdate` performs an integrity check, it will fail for the changed files. In such cases, `esxupdate` exits with an IntegrityError message. For more information, see "esxupdate Exit Codes and Error Messages" on page 19.

For ESX 4.0 hosts, there are four basic modes of `esxupdate`: Inspection mode, scan mode, test mode, and update mode.

- *Inspection mode.* Queries your system for bulletins and bulletin details. You use two commands to retrieve bulletin information: `esxupdate query` and `esxupdate info`.

  - Use the `esxupdate query` command to display a list of bulletins installed on ESX 4.0 host. The output lists the bulletins in ascending installation order and includes the bulletin name, installation date, and a 40-character summary of the bulletin. All bulletins that are installed are listed. Bulletins that are superseded by another bulletin are considered obsolete and are not displayed in this output.

  - Use the `esxupdate info` command to display information on the contents of one or more bulletins. The output includes the bulletin name, release date, and details about the metadata files, including the VIB packages that are part of the bulletin.

    You can use the `info` command for both installed and uninstalled bulletins. For more information, see "Retrieving Bulletin Information" on page 12.

- *Scan mode.* Determines which bulletins are applicable to the ESX 4.0 host by querying the bulletins in a depot and the bulletins installed on the host for bulletin and system dependencies. Use the `esxupdate scan` command before you install bulletins to determine which ones are applicable to the host. For more information, see "Scanning for Applicable Bulletins" on page 11.

- *Test mode.* Enables `esxupdate` to go through all installation operations without installing the specified bulletins. Test mode downloads the appropriate files, preloads the `esxupdate` depot cache for HTTP and FTP servers, checks for RPM package dependencies, and determines which RPMs to install. For more information, see "Staging an Installation" on page 13.

- *Update mode.* Installs bulletins on ESX 4.0 hosts. Use the `esxupdate update` command to install individual bulletins, a bundle zip, or an online depot. Update mode scans the depot for dependencies and handles them, if possible, before installing. For more information, see "Install Bulletins on an ESX 4.0 Host" on page 15.

For information on `esxupdate` syntax and commands, see "esxupdate Options and Commands" on page 17

Patch Maintenance Strategy

Use the following guidelines to manage patching for your ESX 4.0 hosts.

- Keep your environment as current as possible. Determine whether any bulletins are necessary for your environment and apply those bulletins. Minimize the change to your software environment whenever possible. For more information on determining bulletin applicability, see "Scanning for Applicable Bulletins" on page 11.

- Analyze the risk factor of applying the bulletin. For example, assess the virtual machine and ESX 4.0 host downtime requirements. The `scan` command provides the information you need to analyze risks and server downtime.

- Download and install roll-ups rather than individual bulletins. This method saves you download time and ensures, when dependencies exist, that your depot contains all necessary bulletins.

- For a multihost environment, set up patch depots on a centralized server that is accessible by all ESX hosts. Create a separate depot for each ESX version in your environment. Although you can put depots on an ESX host, VMware does not recommend it.

Customizing Your Patch Process

You can write custom scripts to automate your patch process. For example, you can create a `cron` job to periodically download roll-ups to a depot. You can write a script to scan the depot for applicable bulletins and install all at one time. If during the scan operation, `esxupdate` finds a bulletin that requires virtual machines to be powered off, you can write a script that puts them into maintenance mode.

If you use custom scripts to automate the ESX 3 patch process, you must update them to work with ESX 4.0. Specifically, upgrade your scripts to use the `esxupdate -m` option to point to the depot and to install multiple bulletins at one time.

Installing Updates

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You must perform several procedures to up your patch environment and install bulletins on your ESX 4.0 hosts.

This chapter contains the following sections:

- "Bundle Zip Files" on page 11
- "Scanning for Applicable Bulletins" on page 11.
- "Retrieving Bulletin Information" on page 12.
- "Verifying Disk Space" on page 13.
- "Staging an Installation" on page 13.
- "Verifying Bulletin Installations" on page 16.

Bundle Zip Files

A bundle zip contains a metadata zip which defines the bulletins available for installation and also contains one or more packages. Each package is a VIB file that is translated into one RPM package during the installation process.

Scanning for Applicable Bulletins

To determine which bulletins in your depot are applicable to your ESX 4.0 host, use the `esxupdate scan` command. A bulletin is applicable if at least one VIB package applies to the ESX platform and it updates a package on the ESX host, or if it is a new package. When you scan a depot, by default the `scan` command only displays applicable bulletins that have updated or new packages. The `--all` option displays all of the bulletins including inapplicable bulletins.

If `esxupdate` can handle all dependencies and does not find any conflicts, it can install the patches included in the scan. If conflicts exist, they are listed in the scan output.

The following Example 1-1 shows the information returned from an `esxupdate scan` command on a depot.

Example 2-1. Example 1-1. scan Command Sample Output

```
Bulletin ID    ---Date---     ----- Summary -----
bul_1          2008-11-12     This is the bul_1
bul_2          2008-11-12     This is the bul_2
```

To scan for applicable bulletins

1   Log into the service console on the ESX 4.0 host as user `root`.

    If you do not have direct access to the ESX 4.0 host, connect remotely to the service console using `ssh`.

2   If the depot is not on the ESX 4.0 host, type the following command to enable an outgoing connection for the service console.

    `esxcfg-firewall --allowOutgoing`

3   Run the `esxupdate scan` command.

    NOTE   You cannot run `esxupdate` in the current directory without `-m` or `--bundle`.

    ■   To scan applicable bulletins in a depot:

        esxupdate -m <metadataURL> scan

    ■   To scan for applicable bulletins in a bundle zip:

        esxupdate --bundle <bundleZipURL> scan

    ■   To list all the bulletins regardless of applicability or software platform, add the `--all` / `-a` option.

4   When you are done accessing the depot, reset the service console firewall to high security:

    esxcfg-firewall --blockOutgoing

For information on scanning, see "Scanning for Applicable Bulletins" on page 11. For information on `esxupdate` syntax and commands, see "esxupdate scan" on page 18.

Retrieving Bulletin Information

The `esxupdate query` and `esxupdate info` commands retrieve information about installed bulletins and bulletins that are in a depot or bundle zip.

To retrieve information about installed bulletins

1   From the service console, log on to the ESX 4.0 host as user `root`.

    If you do not have direct access to the ESX 4.0 host, connect remotely to the service console using `ssh`.

2   Run the `esxupdate query` or `info` command.

    ■   To retrieve a brief summary of all installed bulletins:

        esxupdate query

        This command lists all installed bulletins in ascending installation order and includes the installation date and a brief summary for each bulletin.

    ■   To retrieve details about bulletins returned by the query:

        esxupdate -b <bulletin1> -b <bulletin2> info

For information on `esxupdate` syntax and commands, see "esxupdate query" on page 18 and "esxupdate info" on page 18.

The following Example 1-2 shows the information returned when you run the `esxupdate query` command on an ESX 4.0 host.

Example 2-2. Example 1-2. query Command Sample Output

```
Installed software bulletins

-----Bulletin ID----        --Installed--         --------Summary--------
bul_1                       2008-07-08T19:55:04   This is the summary
Cisco Swordfish Drop 071420082008-07-19T05:03:22  Swordfish VIB for COS only
```

To retrieve information about bulletins in a depot or bundle zip

1   From the service console, log on to the ESX 4.0 host as user `root`.

    If you do not have direct access to the ESX 4.0 host, connect remotely to the service console using `ssh`.

2   If the depot is not on the ESX 4.0 host, type the following command to enable an outgoing connection for the service console.

    `esxcfg-firewall --allowOutgoing`

3   Run the `esxupdate info` command.

    - To retrieve details of all bulletins in a metadata file:

      `esxupdate -m <metadataURL> info`

    - To retrieve details of specific bulletins in a depot:

      `esxupdate -m <metadataURL> -b <BulletinID1> -b <BulletinID2> info`

    - To retrieve detailed information on all bulletins in a bundle zip:

      `esxupdate --bundle <bundleZipUrl> info`

4   When you are done accessing the depot, reset the service console firewall to high security.

    `esxcfg-firewall --blockOutgoing`

For information on `esxupdate` syntax and commands, see

This Example 1-3 shows the information returned when you run the `esxupdate info` command on a single installed bulletin.

Example 2-3. Example 1-3. info Command Sample Output

```
Id          - Driver 2
Releasedate - Releasedate - 2008-11-17T11:28:42-07:00
Vendor      - VMware, Inc.
Summary     - Wonderful driver 2.1
Severity    - critical
Category    - storage
Installdate -
Description - Self-contained bulletin with one Vib
Kburl       - http://kb.vmware.com/selfservice/microsites
Contact     - support@vmware.com
List of constituent VIBs:
   cross_driver_2.1-1
```

Verifying Disk Space

Check the following requirements to make sure the host system has enough disk space. (SEE UPDATE)

- The `/partition` directory has at least 50MB of free space.

- The disk space allocated to the service console has an amount of free space that is twice the size of the bulletin to be installed.

- Before installing patches, use the `stage` command. See

Staging an Installation

Staging an installation allows `esxupdate` to perform the following tasks without installing any bulletins:

- Downloads the appropriate bulletins and VIB packages to the host to reduce downtime when a large number of updates must be installed

- Checks for VIB signature

- Checks for VIB and RPM dependencies

- Determines the bulletin order

- Determines which RPMs must be installed, but does not install them

This command also populates the `esxupdate` cache for the HTTP and FTP depots as well as bundle zips. As a result, when you run the update command, the download step can be skipped.

To stage an installation

1   From the service console, log on to the ESX 4.0 host as user `root`.

    If you do not have direct access to the ESX 4.0 host, connect remotely to the service console using `ssh`.

2   If the depot is not on the ESX 4.0 host, type the following command to enable an outgoing connection for the service console.

    `esxcfg-firewall --allowOutgoing`

3   Run the `esxupdate stage` command.

    - To run a test installation of all bulletins in a depot:

        `esxupdate -m <metadataURL> stage`

    - To run a test installation of multiple bulletins in a depot:

        `esxupdate -m <metadataURL> -b <BulletinID> -b <BulletinID> stage`

    - To run a test installation of a bundle zip:

        `esxupdate --bundle <bundleZipUrl> stage`

4   When you are done accessing the depot, reset the service console firewall to high security:

    `esxcfg-firewall --blockOutgoing`

Installing Bulletins

You use the `esxupdate update` command to install bulletins. You can install any number of bulletins from one or more depots. You can install one or more bundle zip files. The bundle zip files are independent from any depot and can be located on the local ESX host, a CD-ROM drive, or any remote HTTP, NFS, or FTP server. When installing bulletins, keep in mind the following `esxupdate` behavior:

- If you do not specify bulletin IDs to install, `esxupdate` installs all applicable bulletins in the depot.

- If you specify one or more bulletin IDs to install, the following can happen:

    - If no dependencies exist, `esxupdate` installs only those bulletins.

    - If dependencies exist and a specified bulletin requires you to install one or more unspecified bulletins, you are given the option to install additional packages. These packages are installed if you enter `y`.

The host system should have the following space available to ensure space for the installation:

- A minimum of 24MB for the `/tmp` and `/boot` directories.

- A minimum of 100MB for the `/root` directory.

- In general, the installation requires twice the size of the downloaded bulletins.

Before you install bulletins or bundle zip files, you must run the `stage` command to download all packages, validate signatures, and check for dependencies and conflicts.

During the installation process, `esxupdate` validates each VIB package by using a set of signature keys. If any VIB package in a patch contains a missing or invalid signature, `esxupdate` does not install the bulletin.

After validating the bulletins, `esxupdate` performs the following tasks during the install:

- Filters out any packages that do not apply to the current version ESX.

- Checks for software dependencies and prerequisites, for example, if the bulletin is the correct ESX version, if virtual machines are powered off, and so on.

- Verifies the digital signatures of the packages in each bulletin.

- Checks for adequate disk space.

- Removes obsolete packages from the ESX 4.0 host.

- Installs the packages. Packages installed already or superseded by a newer installed version are not installed.

- Updates the `initrd` image, which ensures updated drivers are loaded on ESX for the next boot.

During the installation, if an `esxupdate` patch is available, the utility updates itself. If the `initrd` and driver configurations require changes, the changes are made after all bulletins are installed.

For information on installing bulletins, see "Install Bulletins on an ESX 4.0 Host" on page 15. For information on checking for patch dependencies, see "Scanning for Applicable Bulletins" on page 11.

Install Bulletins on an ESX 4.0 Host

The installation process is recorded in the `esxupdate.log` file. By default, this file is located in the `/var/log/vmware` directory.

To install bulletins on an ESX host

1   Verify that the host has enough disk space to perform the installation.

    See "Verifying Disk Space" on page 13.

2   From the service console, log on to the ESX 4.0 host as user `root`.

    If you do not have direct access to the ESX 4.0 host, connect remotely to the service console using `ssh`.

3   If the depot is not on the ESX 4.0 host, type the following command to enable an outgoing connection for the service console.

    `esxcfg-firewall --allowOutgoing`

4   Scan the desired bulletins to determine if they are applicable.

    See "To scan for applicable bulletins" on page 12.

    ***

    NOTE `esxupdate` never reboots your host.

    ***

5   Run `esxupdate update` command.

    - To install all applicable bulletins in the depot:

        `esxupdate -m <metadataURL> update`

    - To install specific bulletins in the depot:

        `esxupdate -m <metadataURL> -b <Bulletin1> update`

    - To install all applicable bulletins in a bundle zip:

        `esxupdate --bundle <rollupBundleZipURL> update`

6   If necessary, reboot the system.

7   Run the `esxupdate query` command to verify the installation was a success.

See

8   When you are done accessing the depot, reset the service console firewall to high security:

`esxcfg-firewall --blockOutgoing`

Verifying Bulletin Installations

This command lets you verify all installed bulletins were installed correctly, that none were missing or had the wrong version number.

1   If necessary, log on to the ESX 4.0 host as user `root`.

If you do not have direct access to the ESX 4.0 host, connect remotely to the service console using ssh.

2   If the depot is not on the ESX 4.0 host, type the following command to enable an outgoing connection for the service console.

`esxcfg-firewall --allowOutgoing`

3   Run the `esxupdate query` command.

`esxupdate query`

Verify the bulletin you installed is in the return list.

Reference Information

<div style="text-align: right; font-size: 3em;">3</div>

This chapter contains the following sections:

esxupdate Options and Commands

The `esxupdate` utility is a patch maintenance tool for ESX. You use it to review the contents of a bulletin, install software, and track installed software.

You run `esxupdate` from the ESX service console while logged in as user `root`. The activity of the tool is recorded in the `esxupdate.log` file. By default, this file is located in the `/var/log/vmware` directory.

To see help information for `esxupdate`, run the utility with no arguments.

Table 3-1. esxupdate Options

Option	Flag	Description
`--meta <metadataURL>`	`-m`	Specifies the location of metadata file inside a depot. Can be repeated. A metadata URL may point to a vendor's web site directly, if vendors make their updates available online, or to a locally mirrored copy. When you use the `-m` flag without the `-b` flag, `esxupdate` selects all the bulletins in the metadata. For example: (HTTP): `esxupdate -m http://downloads.vmware.com/vi4/update1-metadata.zip -m http://updates.dvs.cisco.com/fake/esx4/metadata.zip` (HTTPS): `esxupdate -m https://downloads.vmware.com/vi4/update1-metadata.zip -m https://updates.dvs.cisco.com/fake/esx4/metadata.zip` (FTP): `esxupdate -m ftp://<FTP_Server_Hostname>/esx/vi4/metadata.zip -b VMW_ESX4_Patch1` (NFS): `esxupdate -m file:///var/updates/esx4/metadata.zip`
`-b <BulletinID> | <*>`	`-b`	Specifies one or more bulletins. If not specified, all bulletins are handled. Must be combined with the `-m` or `--bundle` options. Use one `-b` flag for each bulletin to install. For example: `esxupdate -m <metadataURL> esxupdate -b ESX350-200802055-BG -b ESX350-200803066-SG`
`--bundle <bundlezipURL>`		Specifies the location of an offline bundle zip. `esxupdate` downloads and unpacks the zip. Can be used with `-b` option to select bulletins within the bundle zip. Can be repeated. Use with the scan, info, stage, update commands. For example: `esxupdate --bundle <bundleZipURL> scan`
`--http_proxy <proxy_server>: <port>`		Use `<proxy_server>` at `<port>` for HTTP connections.

Table 3-1. esxupdate Options (Continued)

Option	Flag	Description
––all		Lists all the bulletins in metadata or bundle zips, instead of just the applicable ones. Use this option with the `esxupdate scan` command.
––loglevel <number or level name>		Changes the level of detail written to the `esxupdate.log` file. Possible values are as follows: ■ or DEBUG — Debugging information ■ or INFO — Detailed Information ■ or WARNING — Warning ■ or ERROR — Error
––nocache		The `esxupdate` update command uses its cache of already downloaded VIBs if possible, but there are times when the cache can become stale. Use the ––nocache option to force `esxupdate` update to always download all VIBs.
––retry		Specifies the number of times to retry a connection to an HTTP, HTTPS or FTP server. The default value is defined in the [defaults] section of `esxupdate.conf`. If you enter a specific value the default value **5** is overridden. For example, if you enter **7**, it supersedes **5** and esxupdate tries to reconnect to an HTTP, HTTPS or FTP server seven times in case of a broken connection.
––timeout		Specifies the amount of time to wait when connecting to or reading from an HTTP, HTTPS, FTP server or proxy.

esxupdate Commands

Table 3-2. esxupdate Commands

Command	Description

esxupdate info	Displays information about bulletins, including a brief summary, and build and install times. This command retrieves the bulletin definitions from the metadata or the patch database on the ESX host (`/etc/vmware/esxupdate`). See "Retrieving Bulletin Information" on page 12.
	Syntax for bulletins in a depot:
	`esxupdate –m meta1URL –b bulletinID [–b bulletin2 ...] info`
	`esxupdate ––bundle bundleZipURL [–b bulletinID [–b bulletin2 ...]] info`
	Syntax for bulletins in the patch database:
	`esxupdate –b installed–bulletinID info`

esxupdate query	Returns a list, in install order, of all bulletins installed on the ESX host. See "To retrieve information about installed bulletins" on page 12. **Syntax** `esxupdate query`
esxupdate scan	Returns a list of the applicable bulletins in a depot metadata or in a bundle zip. Use with ––all option to return a list of all bulletins. See "Scanning for Applicable Bulletins" on page 11. **Syntax** `esxupdate [––meta <metadataURL>] [––bundle <bundle-zip–URL>] [––all]] scan`
esxupdate stage	Downloads the appropriate VIBs for the selected bulletins, preloads the `esxupdate` depot cache for HTTP and FTP servers, and checks for VIB and RPM dependencies. For example: `esxupdate –m <metadataURL> stage` See "Staging an Installation" on page 13.

esxupdate update	Checks the specified bulletins for dependencies, checks the ESX host for dependencies, determines which bulletins to install, and installs them on the ESX host. See "Install Bulletins on an ESX 4.0 Host" on page 15.
	Syntax
	`esxupdate –m https://meta1.zip [–m https://meta2.zip ... ] [–b bulletinID1 [–b bulletinID2 ... ]] update`
	
	`esxupdate ––bundle https://offline–bundle.zip [–b bulletin1 [–b bulletin2 ... ]] update`

esxupdate Exit Codes and Error Messages

Table 3-3. esxupdate Error Codes and Error Messages

Exit Code	Error Message	Explanation and Workaround
0		Command completed successfully.
1		Not root. `esxupdate` must be entered as the root user.
2		Invalid command line syntax or arguments.
3	LockingError	Cannot acquire lock. Another `esxupdate` is running.
4	MetadataDownloadError	Downloading or extraction of data failed. Verify that the correct URL was specified, and is reachable. Use `esxcfg-firewall` to open additional ports. If the target URL or file has been copied from another source, verify that it has been copied correctly.
5	MetadataFormatError	
7	VibDownloadError	
26	BundleDownloadError	
27	BundleFormatError	
8	VibFormatError	Not a VIB archive, missing files, files in wrong order, `descriptor.xml` invalid.
9	VibIOError	Indicates an error reading or writing files to or from local storage. Verify that adequate free space exists on mounted file systems.
10	FileIOError	
11	DatabaseFormatError	`vibs.xml` not a valid XML file. Bulletins zip not a zip archive. Invalid structure in either file.
13	NoMatchError	VIB or Bulletin ID not in metadata, or requested VIBs or bulletin do not apply to host platform (stage, update only).
14	DependencyError	`esxupdate` was unable to resolve dependencies. This condition is due to conflicts between any of the requested VIBs, required dependencies and the host, packages on the host obsoleting reqested VIBs or their requirements, or due to one or more requirements not being found in the metadata (stage, update only). This condition is different from UnsatisfiedDependencies.
15	PackageManagerError	RPM or ipkg transaction failed.
18	MaintenanceModeError	ESX host is not in maintenance mode when it must be, or hostd is down. Maintenance mode cannot be determined.
19	PostScriptError	A post script exited with a nonzero status.
20	VibSigMissingError	One or more VIBs contain invalid or untrusted signature data. If the data has been copied from another source, verify that it has been copied correctly. Verify that the host date is set correctly. If problems persist, contact VMware Support.
21	VibSigVersionError	
22	VibSigFormatError	
23	VibSigInvalidError	
24	VibSigDigestError	
25	UnsatisfiedDependencies	Additional VIBs are required for installation, and the user declined to install them. This condition is specifically different from DependencyError. While dependencies were successfully resolved, they could not be automatically installed due to user input (CLI) or failure of the caller to specify required VIBs on the command line (HA or CLI).
80		Not an error. The system must be rebooted to complete the update.

Frequently Asked Questions

When an RPM on my ESX host has a Linux equivalent, can I use the Linux RPM to update my system?

No. VMware recommends that you update your ESX 4.0 host with RPMs supplied by VMware.

Can I remove installed VMware patches from my ESX host?

No. Patches cannot be removed after they are installed.

Should the build number of the ESX host change after I apply a patch?

It is normal for some portions of the ESX 4.0 software installation to change build numbers when patches are applied. For information on determining the build number for each of the components of your ESX installation, see the VMware knowledge base article, KB 1001179.

ESX Patch Management Tools 4

This section describes three patch management tools that VMware provides in addition to the `esxupdate` utility:

- About VMware vCenter Update Manager
- About vSphere Host Update Utility
- About vihostupdate vSphere CLI

You can access the most current versions of the documentation for each tool by going to http://www.vmware.com/support/pubs.

You can find information about the VMware *Upgrade and Update Policy* by going to http://www.vmware.com/support/policies/upgrade.html.

About VMware vCenter Update Manager

VMware vCenter Update Manager is an optional module for vCenter Server that periodically downloads patch information from the Internet. Update Manager performs user-defined scan operations on ESX 4.0 and ESXi 4.0 hosts for patch compliance. If it determines a patch is required, VMware vCenter Update Manager downloads the patch and installs it based on user-defined configurations. VMware vCenter Update Manager can perform scan and installation operations with latest patches in an air gap or semi-air gap environment that has no Internet access, by using a shared repository. The Update Manager plug-in is an optional feature that requires vSphere Client.

The VMware vCenter Update Manager documentation consists of release notes, an administration guide, and online help integrated with the VMware vCenter Update Manager vSphere Client plug-in.

About vSphere Host Update Utility

You can use vSphere Host Update Utility to patch ESXi 4.0 hosts. vSphere Host Update Utility finds applicable patches and enables you to install them. You have the option to install vSphere Host Update Utility when you install the vSphere Client. By default, the utility is not installed.

The vSphere Host Update Utility is documented in the *vSphere Upgrade Guide*.

About vihostupdate vSphere CLI

The `vihostupdate` vSphere CLI command can scan ESX/ESXi hosts for installed patches, enforce software update policies, and install software patches. It can perform software updates to ESX/ESXi images and install and update ESX/ESXi extensions such as VMkernel modules, drivers, and CIM providers. For ESX/ESXi 4.0 hosts, run `vihostupdate`. For ESX/ESXi 3.5 hosts, run `vihostupdate35`.

See the *vSphere CLI Installation and Reference Guide* and the *vSphere Upgrade Guide*.

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Updates for the ESX 4 Patch Management Guide

Last Updated: February 17, 2010

This document provides updates to the ESX 4.0 version of the ESX 4 Patch Management Guide. Updated descriptions, procedures, and graphics are organized by page number so that you can easily locate the areas of the guide that have changes. If the change spans multiple sequential pages, this document provides the starting page number only.

The following is an update to the ESX 4 Patch Management Guide:

Updates to the Verifying Disk Space section on Page 13

Updates to the Verifying Disk Space section on Page 13

In the Verifying Disk Space section, the first and second list item should be :

- The / partition has at least 50MB of free space.

- The disk space allocated to the service console has an amount of free space that is thrice the size of the bulletin to be installed