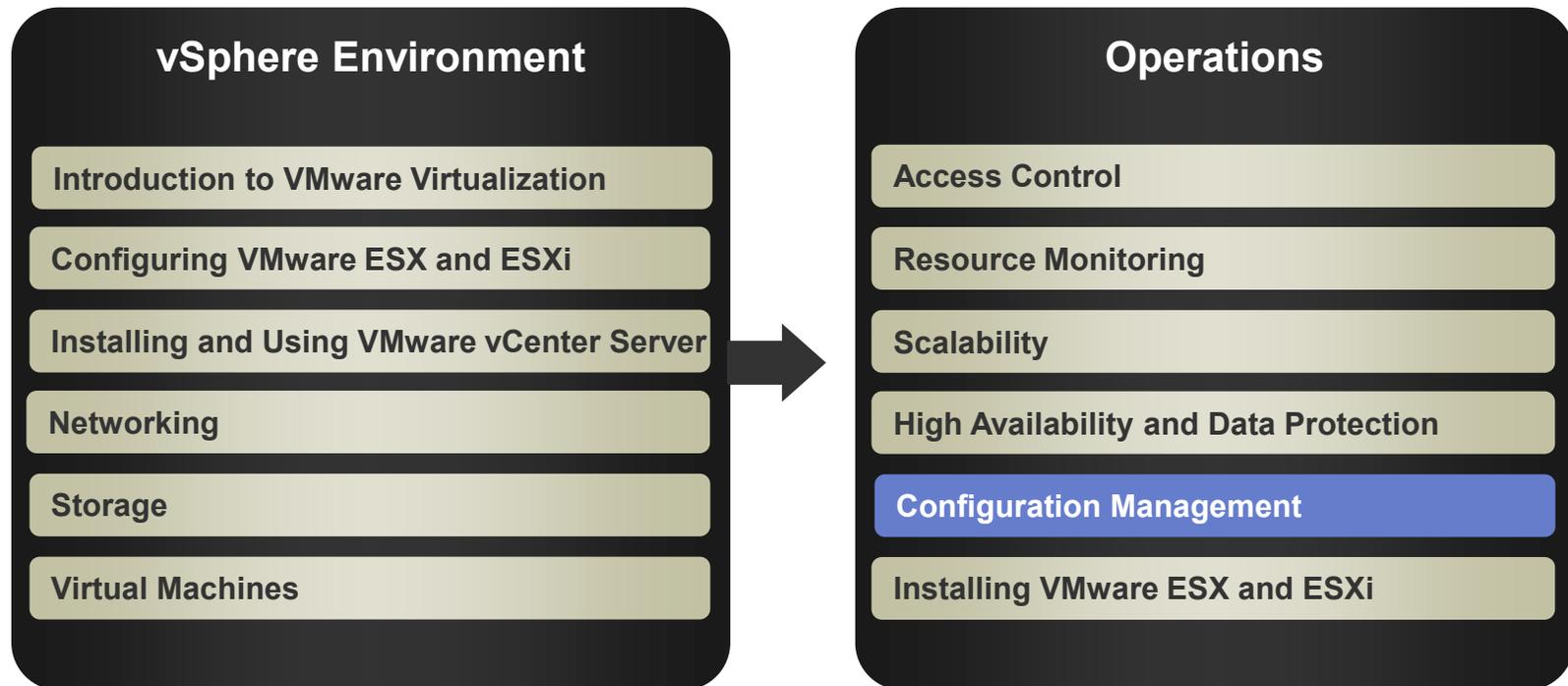




Configuration Management

Module 12

You Are Here



Importance

- Over time, your VMware® vSphere™ environment might undergo change in its hardware or software configuration, or in the form of software updates or patches. From a manageability and scalability perspective, it is important to implement changes to your vSphere environment in an orderly, controlled, and systematic fashion.

Lesson Objectives

- Describe host profiles
- Describe VMware vCenter™ Update Manager
- List the steps to install Update Manager
- Use Update Manager
 - Create and attach a baseline
 - Scan virtual machines for updates
 - Remediate baselines

Managing Configuration Changes

Configuration changes that occur in your vSphere environment include:

- Changes to a host's configuration
- Changes to a host's or virtual machine's software in the form of software updates and patches

vSphere functions that allow smooth, effective change:

- Host Profiles – Eliminates per-host configurations and efficiently maintains configuration consistency and correctness across the entire datacenter
- Update Manager – Uses a set of operations to ensure effective, automated patch and upgrade management

Host Configuration Overview

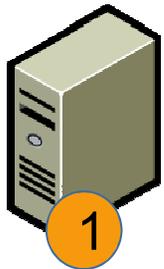
VMware ESX™/ESXi host configurations have a wide scope, which include:

- > CPU
- > Memory
- > Storage
- > Networking
- > Licensing
- > DNS and routing
- > ESX service console firewall

The Host Profiles feature allows you to export configuration settings from a reference host and save them as a portable set of policies, called the host profile.

Existing processes for modifying a single host's configuration are either manual or automated through scripts.

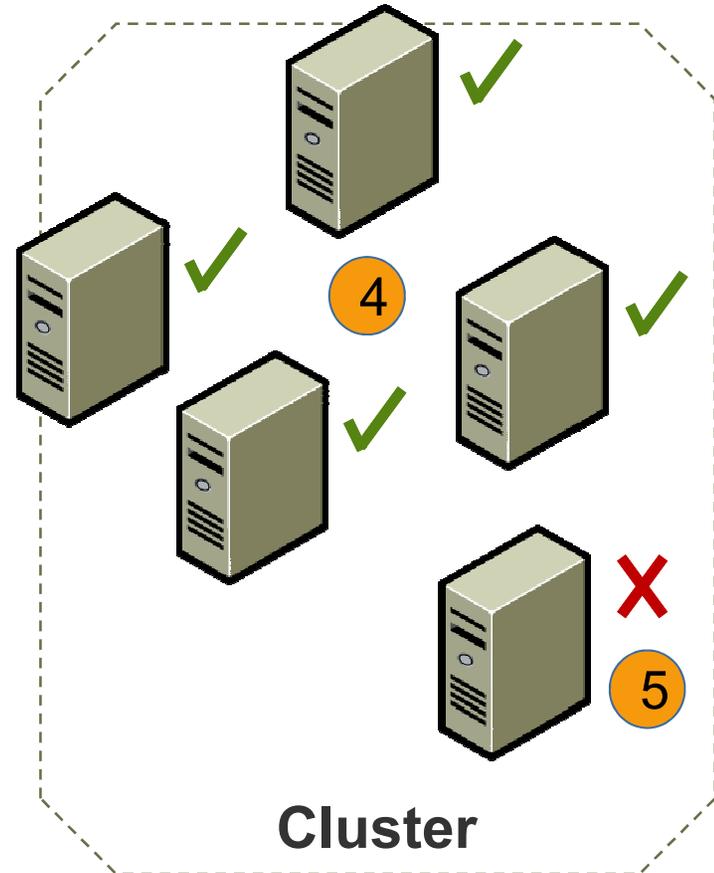
Host Profiles



Reference host

Host profile 2

- Networking
- Storage
- VMotion
- Services
- Firewall
- Date and Time
- Users and User Groups
- Security
- Memory Reservation



Update Manager

Update Manager patches and updates ESX/ESXi hosts and the virtual machines, templates, and virtual appliances hosted on them.

Update Manager reduces security risks.

- Keeping systems up to date reduces the number of vulnerabilities.
- Many security breaches exploit older vulnerabilities.
- Reducing the diversity of systems in an environment:
 - Makes management easier
 - Reduces security risks

Update Manager Capabilities

Automated patch downloading:

- > Begins with information-only downloading
- > Can be scheduled at regular intervals
- > For ESX/ESXi patching: <http://www.vmware.com>
- > For Windows/Linux virtual machines and applications:
<https://shavlik.com>

Creation of baselines and baseline groups

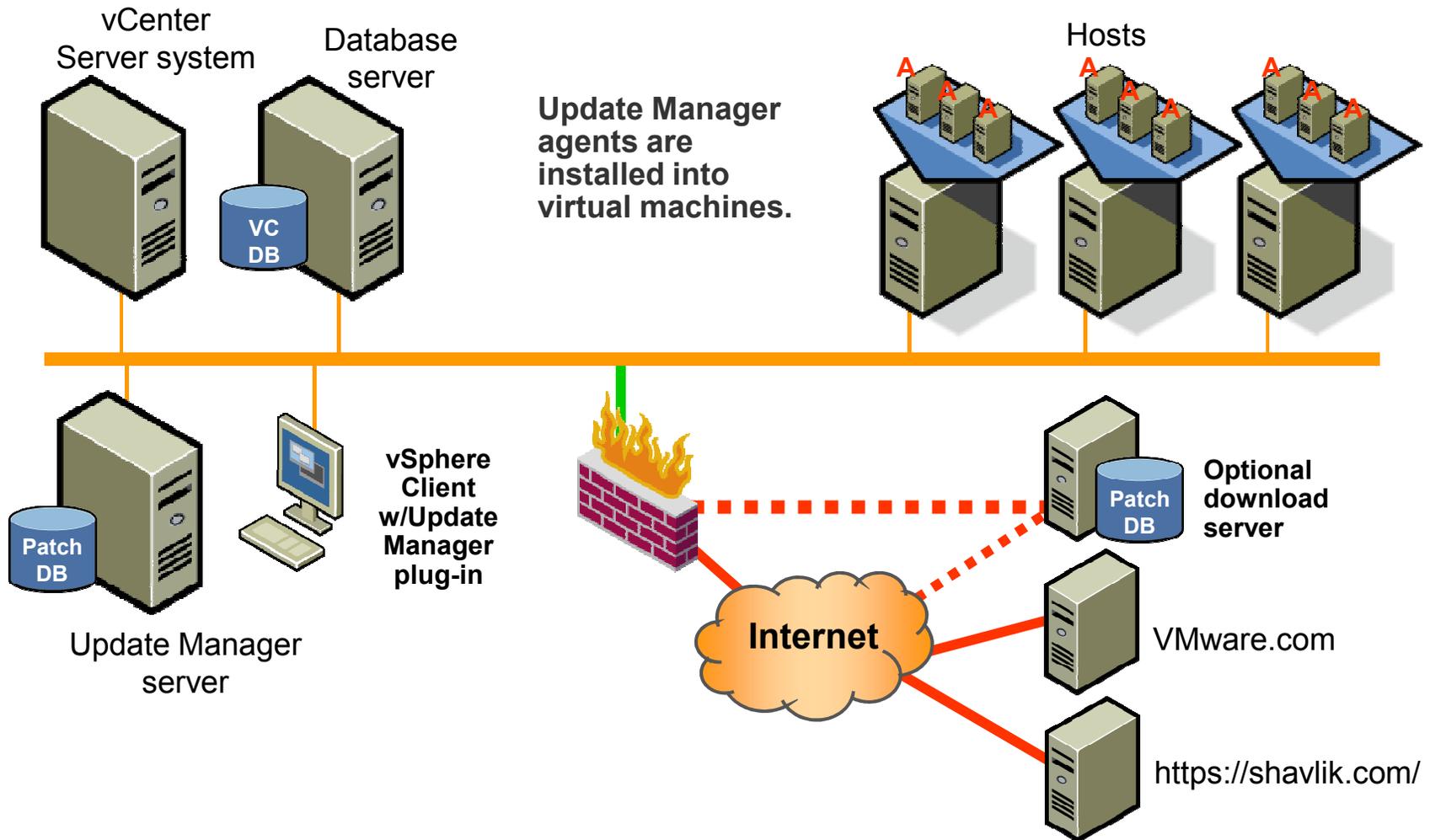
Scanning

- > Inventory systems are scanned for baseline compliance.

Remediation

- > Inventory systems that are not current can be automatically patched.

Update Manager Components



Installing Update Manager

Launch the VMware vCenter Installer, then click vCenter Update Manager.

Update Manager server software can run on the vCenter Server system or on another Windows system.



Information Needed for Update Manager Installation

vCenter Server information:

- IP address
- User name and password

Database options:

- Install a Microsoft SQL Server 2005 Express instance.
- Or use an existing supported database and provide data source name.

Update Manager port settings:

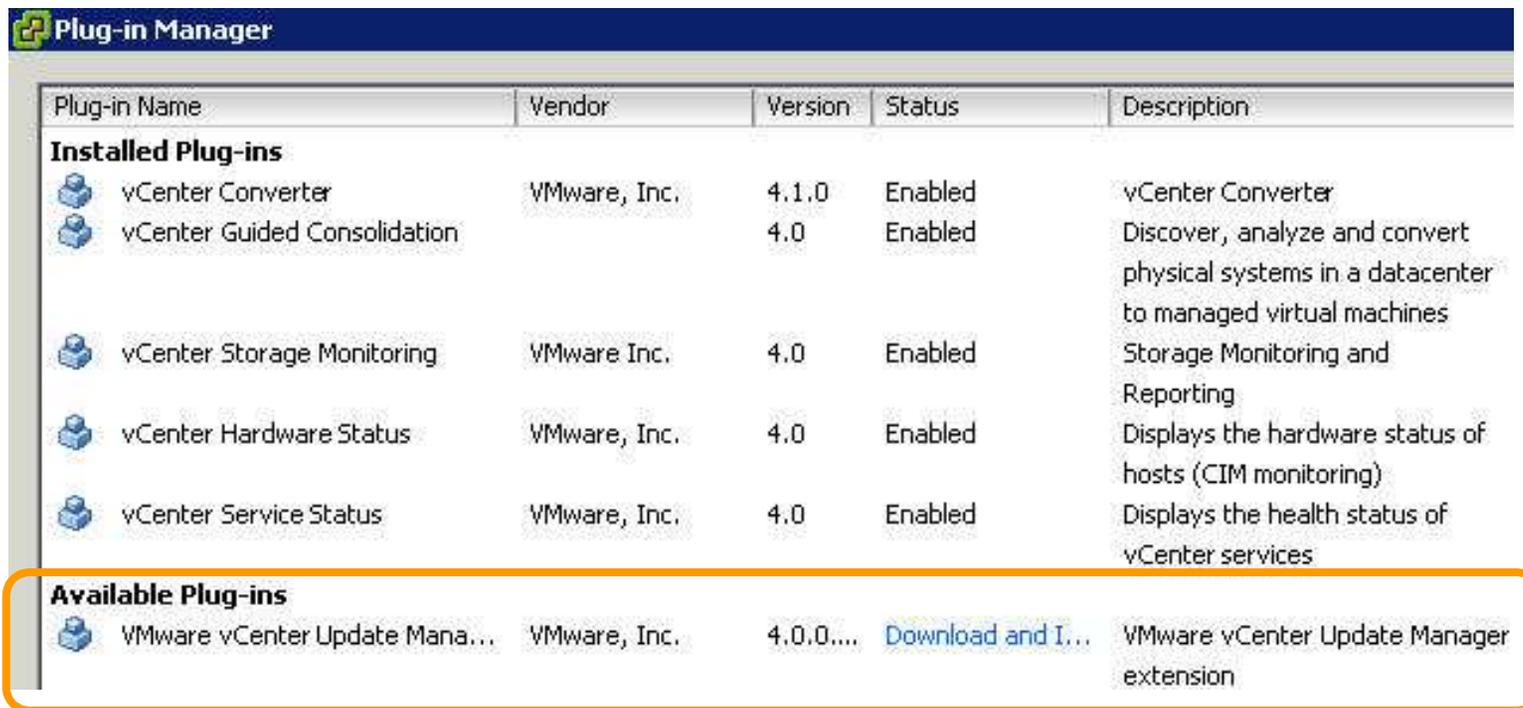
- IP address or host name of Update Manager
- SOAP port, Web port, and SSL port
- Identify whether you want to configure proxy settings.

Destination folder and location for downloading patches

Installing the Update Manager Client Plug-In

To install the Update Manager client:

- Install the Update Manager Extension plug-in into the vSphere Client.



The screenshot shows the vSphere Plug-in Manager interface. It features a table with columns for Plug-in Name, Vendor, Version, Status, and Description. The table is divided into two sections: 'Installed Plug-ins' and 'Available Plug-ins'. The 'Available Plug-ins' section is highlighted with an orange border, showing the 'VMware vCenter Update Mana...' plug-in with a 'Download and I...' link.

Plug-in Name	Vendor	Version	Status	Description
Installed Plug-ins				
 vCenter Converter	VMware, Inc.	4.1.0	Enabled	vCenter Converter
 vCenter Guided Consolidation	VMware, Inc.	4.0	Enabled	Discover, analyze and convert physical systems in a datacenter to managed virtual machines
 vCenter Storage Monitoring	VMware Inc.	4.0	Enabled	Storage Monitoring and Reporting
 vCenter Hardware Status	VMware, Inc.	4.0	Enabled	Displays the hardware status of hosts (CIM monitoring)
 vCenter Service Status	VMware, Inc.	4.0	Enabled	Displays the health status of vCenter services
Available Plug-ins				
 VMware vCenter Update Mana...	VMware, Inc.	4.0.0....	Download and I...	VMware vCenter Update Manager extension

Configuring Update Manager Settings

Configure virtual machine and ESX/ESXi host settings.

Virtual machines can be protected by snapshots.

Host updates require maintenance mode.

Update Manager Administration for VC-QUAIL04.vmeduc.com

Getting Started | Baselines and Groups | Configuration | Events | Patch Repository

Settings

- Network Connectivity
- Patch Download Settings
- Patch Download Schedule
- Virtual Machine Settings
- ESX Host Settings
- vApp Settings

Virtual Machine Settings

Specify the remediation rollback options. If enabled, rollback will snapshot the virtual machine before remediation.

Snapshot the virtual machines before remediation to enable rollback.

Keep for 18 hours

Don't delete snapshots

Snapshots reduce the performance of the virtual machine. Delete the snapshots as soon as the remediation is validated.

Update Manager Administration for VC-QUAIL04.vmeduc.com

Getting Started | Baselines and Groups | Configuration | Events | Patch Repository

Settings

- Network Connectivity
- Patch Download Settings
- Patch Download Schedule
- Virtual Machine Settings
- ESX Host Settings
- vApp Settings

ESX Host Settings

The ESX and ESXi hosts must be put in maintenance mode, and all virtual machines and appliances shut down and/or migrated before remediation can proceed. If the host cannot enter maintenance mode, the task will respond as specified below.

Failure response: Retry

Retry delay: 30 minutes

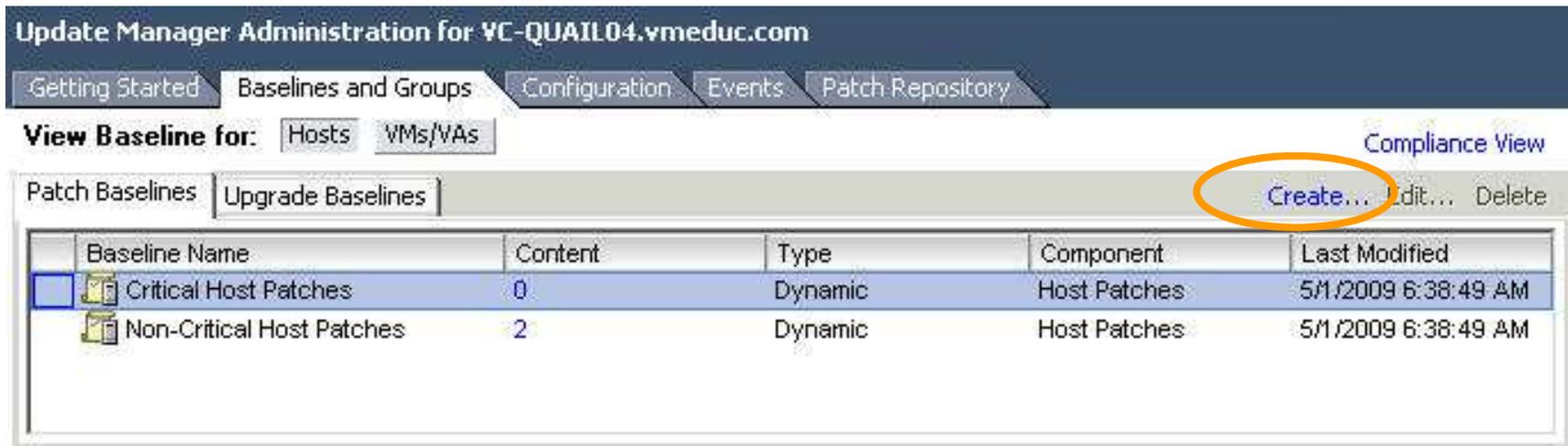
Number of retries: 3

Apply

Creating a Baseline

A baseline consists of one or more patches. A baseline group consists of multiple baselines.

To create a baseline, click Create.



Update Manager Administration for VC-QUAIL04.vmeduc.com

Getting Started | Baselines and Groups | Configuration | Events | Patch Repository

View Baseline for: Hosts | VMs/VAs

Compliance View

Patch Baselines | Upgrade Baselines

Create... | Edit... | Delete

Baseline Name	Content	Type	Component	Last Modified
 Critical Host Patches	0	Dynamic	Host Patches	5/1/2009 6:38:49 AM
 Non-Critical Host Patches	2	Dynamic	Host Patches	5/1/2009 6:38:49 AM

New Baseline: Name, Type, Patch Options

1. Specify name and description.
2. Choose a baseline type.
3. Choose a patch option: Fixed or Dynamic.

New Baseline Wizard

Baseline Name and Type
Enter a unique name and description for this baseline and choose the baseline type.

Baseline Name and Type
Patch Options
Criteria
Ready to Complete

Baseline Name and Description:

Name:

Description:

Baseline Type:

Host Baselines	VM Baselines	VA Baselines
<input type="radio"/> Host Patch	<input checked="" type="radio"/> VM Patch	<input type="radio"/> Virtual Appliance Upgrade
<input type="radio"/> Host Upgrade		

Patch Options

Select the options for patches that you would like to use in this baseline.

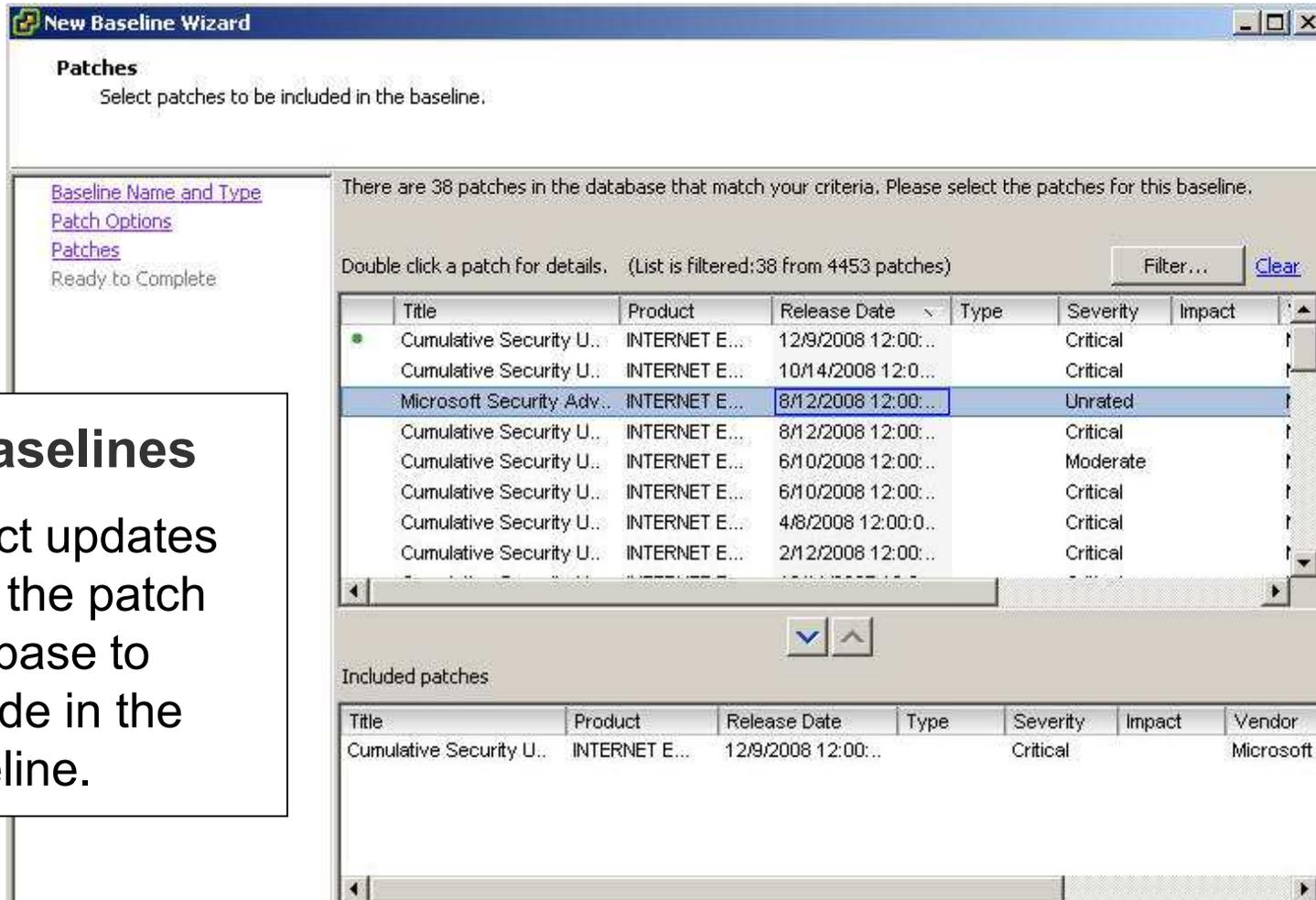
[Baseline Name and Type](#)
[Patch Options](#)
Patches
Ready to Complete

Select a dynamic or fixed baseline.

Fixed
Fixed baselines remain the same even if new patches are added to the database.

Dynamic
Dynamic baselines are updated when new patches meeting the specified criteria are added to the database.

Finding Specific Fixed Patches



Patches
Select patches to be included in the baseline.

[Baseline Name and Type](#)
[Patch Options](#)
[Patches](#)
Ready to Complete

There are 38 patches in the database that match your criteria. Please select the patches for this baseline.

Double click a patch for details. (List is filtered: 38 from 4453 patches) [Filter...](#) [Clear](#)

Title	Product	Release Date	Type	Severity	Impact
Cumulative Security U..	INTERNET E...	12/9/2008 12:00:...		Critical	
Cumulative Security U..	INTERNET E...	10/14/2008 12:0...		Critical	
Microsoft Security Adv..	INTERNET E...	8/12/2008 12:00:...		Unrated	
Cumulative Security U..	INTERNET E...	8/12/2008 12:00:...		Critical	
Cumulative Security U..	INTERNET E...	6/10/2008 12:00:...		Moderate	
Cumulative Security U..	INTERNET E...	6/10/2008 12:00:...		Critical	
Cumulative Security U..	INTERNET E...	4/8/2008 12:00:0...		Critical	
Cumulative Security U..	INTERNET E...	2/12/2008 12:00:...		Critical	

Included patches

Title	Product	Release Date	Type	Severity	Impact	Vendor
Cumulative Security U..	INTERNET E...	12/9/2008 12:00:...		Critical		Microsoft

Fixed baselines

- Select updates from the patch database to include in the baseline.

Baseline Management

Update Manager Administration for VC-QUAIL04.vmeduc.com

Getting Started | Baselines and Groups | Configuration | Events | Patch Repository

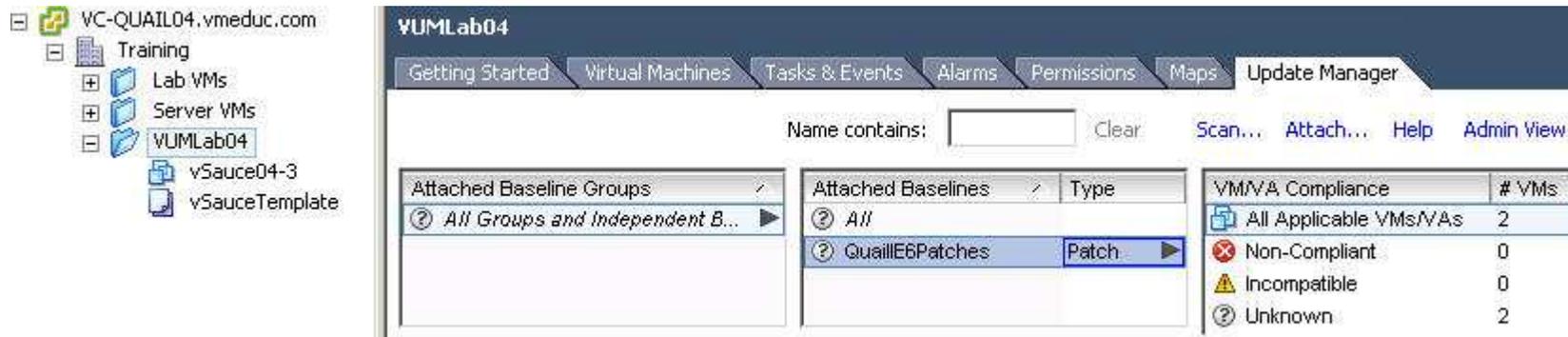
View Baseline for: Hosts | VMs/VAs Compliance View

Patch Baselines | Upgrade Baselines Create... Edit... Delete

Baseline Name	Content	Type	Component	Last Modified
 Critical VM Patches	344	Dynamic	VM Patches	5/1/2009 7:0...
 Non-Critical VM Patches	4199	Dynamic	VM Patches	5/1/2009 7:0...
 Quaille6Patches	1	Fixed	VM Patches	5/1/2009 7:1...

Edit or remove existing baselines.

Attaching Baselines



VC-QUAIL04.vmeduc.com

- Training
 - Lab VMs
 - Server VMs
 - VUMLab04
 - vSauce04-3
 - vSauceTemplate

VUMLab04

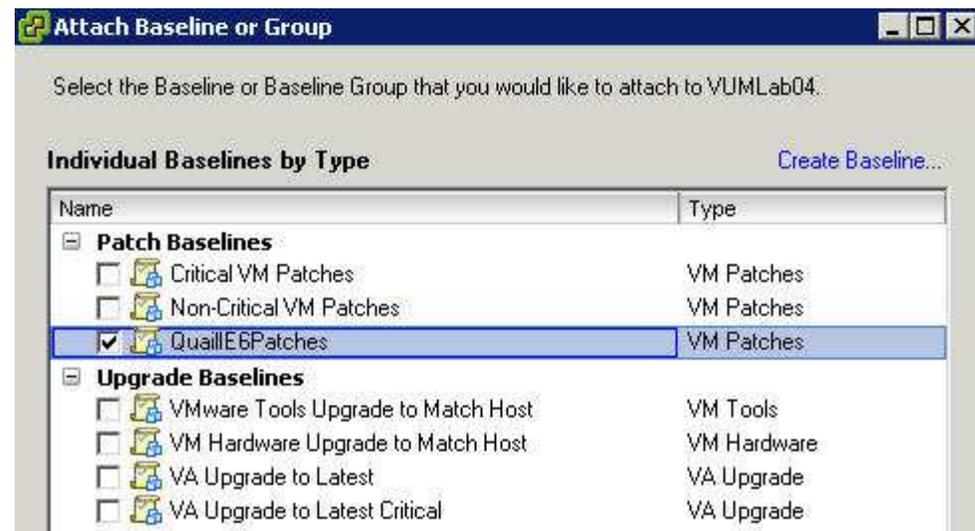
Getting Started Virtual Machines Tasks & Events Alarms Permissions Maps **Update Manager**

Name contains: Clear Scan... Attach... Help Admin View

Attached Baseline Groups	Attached Baselines	Type
<input type="radio"/> All Groups and Independent B...	<input checked="" type="radio"/> All	
	<input checked="" type="radio"/> QuaillE6Patches	Patch

VMVA Compliance	# VMs
<input checked="" type="checkbox"/> All Applicable VMs/VAs	2
<input checked="" type="checkbox"/> Non-Compliant	0
<input checked="" type="checkbox"/> Incompatible	0
<input checked="" type="checkbox"/> Unknown	2

1. Select inventory object.
 - It is a best practice to attach a baseline to a folder instead of to an individual object.
2. Click the Update Manager tab.
3. Click Attach, then select baselines.



Attach Baseline or Group

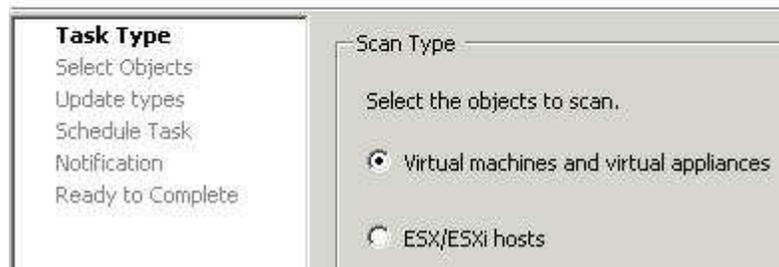
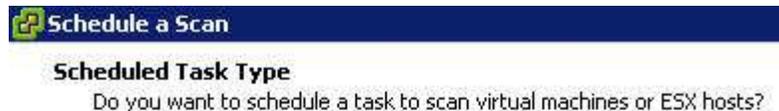
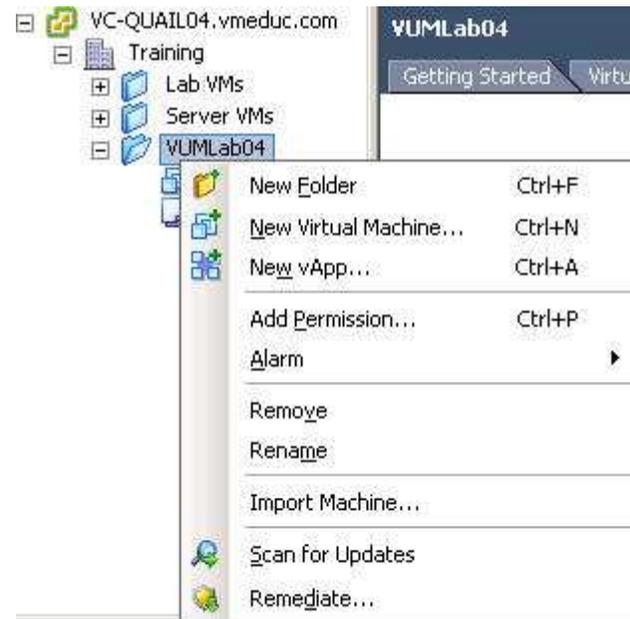
Select the Baseline or Baseline Group that you would like to attach to VUMLab04.

Individual Baselines by Type [Create Baseline...](#)

Name	Type
<input type="checkbox"/> Critical VM Patches	VM Patches
<input type="checkbox"/> Non-Critical VM Patches	VM Patches
<input checked="" type="checkbox"/> QuaillE6Patches	VM Patches
<input type="checkbox"/> VMware Tools Upgrade to Match Host	VM Tools
<input type="checkbox"/> VM Hardware Upgrade to Match Host	VM Hardware
<input type="checkbox"/> VA Upgrade to Latest	VA Upgrade
<input type="checkbox"/> VA Upgrade to Latest Critical	VA Upgrade

Scanning Virtual Machines for Updates

Right-click inventory object. Select Scan for Updates.



**Or create a scheduled task.
Make sure that you are in the
correct inventory view.**

Viewing Compliancy

VC-QUAIL04.vmeduc.com

- Training
 - Lab VMs
 - Server VMs
 - VUMLab04**
 - vSauce04-3
 - vSauceTemplate

VUMLab04

Getting Started | Virtual Machines | Tasks & Events | Alarms | Permissions | Maps | Update Manager

Name contains: Clear Scan... Attach... Help Admin View

Attached Baseline Groups	Attached Baselines	Type	VM/VA Compliance	# VMs
⊗ All Groups and Independent Bas...	⊗ All		📄 All Applicable VMs/VAs	2
	⊗ Critical VM Patches	Patch	⊗ Non-Compliant	2
	⊗ Non-Critical VM Pa...	Patch	⚠ Incompatible	0
	⊗ QuailE6Patches	Patch	❓ Unknown	0

All Groups and Independent Baselines -> All -> 📄 All Applicable VMs/VAs

Virtual Machines and Virtual Appliances	Type	Patches	Upgrades	Last Scan Time
📄 vSauceTemplate	📄 VM	⊗ 190		5/1/2009 7:33...
📄 vSauce04-3	📄 VM	⊗ 190		5/1/2009 7:33...

Hide VMs/VAs Remediate...

Remediating Baselines

Remediate

Remediation Selection

Select the targets of your remediation.

Remediation Selection

- Patches
- Schedule
- Rollback Options
- Ready to Complete

Select the baselines or baseline groups to remediate.

Baseline Groups and Types

Name
Individual Baselines by Type
<input checked="" type="checkbox"/> Patch Baselines

Baselines

<input checked="" type="checkbox"/> Name	Type
<input type="checkbox"/> Critical VM Patches	VM Patches
<input type="checkbox"/> Non-Critical VM Patches	VM Patches
<input checked="" type="checkbox"/> QuailE6Patches	VM Patches

<input checked="" type="checkbox"/> Name	Type	Version	Patches	Upgrades
<input checked="" type="checkbox"/> vSauceTemplate	VM	vmx-07	<input checked="" type="checkbox"/> 1	
<input checked="" type="checkbox"/> vSauce04-3	VM	vmx-07	<input checked="" type="checkbox"/> 1	

**Right-click
inventory object,
then choose
Remediate.**

**Or create a
scheduled task.**

Scheduling the Remediation

It is possible to force powered-off and suspended virtual machines to power on for remediation.

Remediate

Schedule
Specify when to apply the updates.

[Remediation Selection](#)
[Patches](#)
Schedule
[Rollback Options](#)
[Ready to Complete](#)

Applying updates might require the virtual machines to be powered on. Note: Patch remediation and VMware Tools upgrades take place while VMs are powered Off.

Task Name:

Task Description:

For powered On virtual machines, apply updates:

Immediately
 At time:

For powered Off virtual machines, apply updates:

Immediately
 At time:

For suspended virtual machines, apply updates:

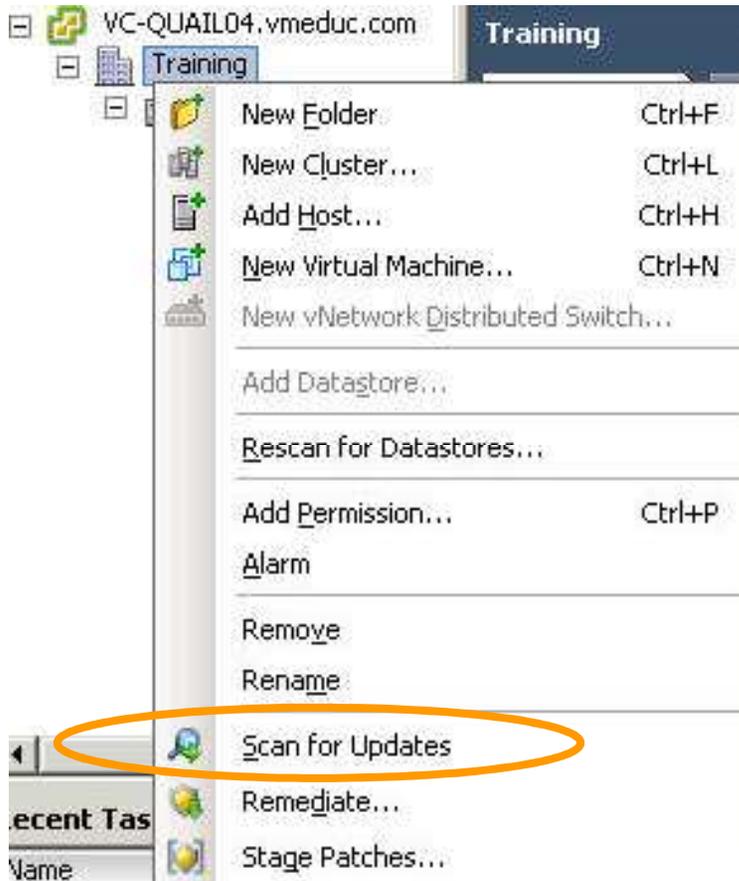
Immediately
 At time:

Setting Remediation Rollback Options

The screenshot shows the 'Remediate' window with the 'Rollback Options' tab selected. The window title is 'Remediate' and the tab is 'Rollback Options'. Below the title bar, there is a sub-header 'Rollback Options' and a description: 'Specify whether you would like to enable rollback before updating the virtual machines.' On the left side, there is a navigation pane with links for 'Remediation Selection', 'Patches', 'Schedule', and 'Rollback Options' (which is highlighted). Below the navigation pane, it says 'Ready to Complete'. The main area contains the following options: 'Specify the remediation rollback options. If enabled, rollback will snapshot the virtual machine before remediation.' There is a checked checkbox 'Snapshot the virtual machines before remediation to enable rollback.' Below this, there is a 'Keep for' spinner set to '18' hours, and a radio button option 'Don't delete snapshots'. An information icon with a note says 'Snapshots reduce the performance of the virtual machine. Delete the snapshots as soon as the remediation is validated.' There is a section titled 'Snapshot Details' with a 'Name' field containing 'VUMLab04 Snapshot 1' and a 'Description' field containing 'Before Patching'. At the bottom, there is an unchecked checkbox 'Snapshot the memory for the virtual machine.'

Use Rollback Options to control snapshot behavior. It is possible to snapshot the virtual machine's memory before the update.

Scanning Hosts



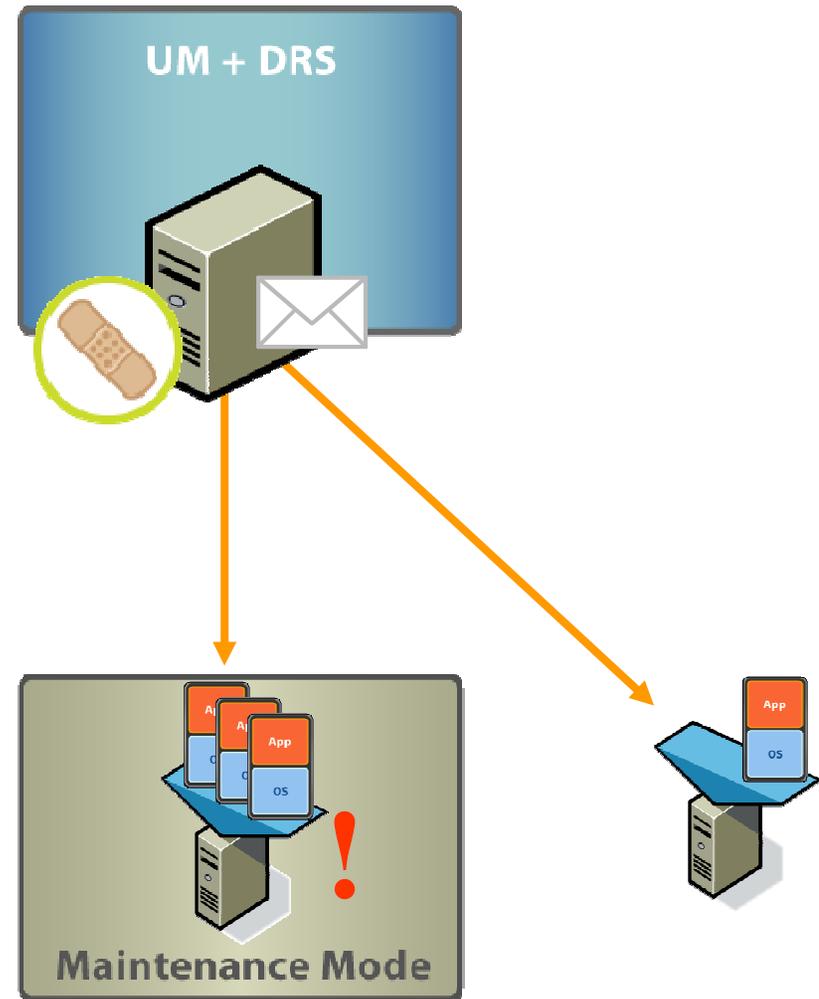
Scan ESX/ESXi hosts just as you would virtual machines.

- > Always use the Hosts and Clusters view to use Update Manager with ESX/ESXi hosts.
- > Attach baselines to folder or host before scan.
- > Scan can be performed while virtual machines are running.

DRS-Enabled Remediation

Eliminate downtime for virtual machines when patching ESX/ESXi hosts.

- Update Manager puts host in maintenance mode.
- VMware Distributed Resource Scheduler (DRS) moves virtual machines to available host.
- Update Manager patches host, returns host to production mode.
- DRS moves virtual machines back per rule.



Lab 22

In this lab, you will install, configure, and use Update Manager.

1. Create a folder and add a virtual machine and template to it.
2. List all patches installed on both your virtual machine and template.
3. Create a patch baseline.
4. Scan for updates.
5. Remediate the virtual machine and template.

Key Points

- The Host Profiles feature allows you to export configuration settings from a golden reference host and save them as a host profile, used to quickly configure other hosts in the datacenter.
- Update Manager patches and updates ESX/ESXi hosts, virtual machines, templates, and virtual appliances.
- Update Manager reduces security vulnerabilities by keeping systems up to date and by reducing the diversity of systems in an environment.