



Rock Solid Technical

## VMware Install and Configure 5 Beyond Accelerated 4 Day Class



### Become a VMware Virtualization Master.

This Rock Solid VMware Install and Configure Beyond class includes the Virtualization Council's Virtual Infrastructure Professional (VC-VIP) certification; the leading certification in the industry for Virtual Enterprise Architects. This certification validates your skills on designing and optimizing VMware® environments coupled with intensive training on a wealth of third-party applications that are invaluable when designing and building a VMware enterprise.



WinSCP



vizioncore

vmware



Virtualization Council  
Vendor Neutral Certification

VEEAM



# VMware Install & Configure Beyond 5 | Accelerated 4 Day Class

## Welcome to Rock Solid Technical Services

Today more than ever business organizations are turning to virtualization deployments in order to help them overcome their operational and capital expenditure challenges. Rock Solid Technical Services delivers powerful VMware training, VMware certification and VMware consulting that help improve our customers IT infrastructure and provide key virtualization knowledge-sets to their personnel. Individuals will find our VMware virtualization training and certification invaluable to compete in today's tough job marketplace.

Since 1993, Rock Solid Technical Services has been providing leading edge technology training and consulting to thousands of IT professionals, who need to obtain skills on the most current vendor offerings. We currently specialize in Virtualization Solutions including VMware vSphere ESX/ESXi 5/4.1, vCenter 5/4.1 and the Infrastructure 3 suite of datacenter virtualization products. Find out why our VMware virtualization offerings will make your organization's virtualization of systems and people Rock Solid!

- Sherwood Cornforth, President, Rock Solid Technical Services

## Why Choose a Rock Solid class for your VMware Training?

*We at Rock Solid Technical Services know that you have a choice when choosing a VMware Training Provider, so we thought we would help you differentiate our training from the rest! Our maximum strength Install and Configure Beyond class blows away all other vendor training. Here are just a few of the potent features included in this class:*

- ✓ **Lowest Class Sizes in the Industry** – All Rock Solid Install and Configure Beyond 5 with ESXi and vCenter classes are limited in class size to effectively give you more hands-on and the ultimate in exposure to expert instructors.
- ✓ **You Will Build Your Own Server:** In a VMware authorized class, multiple students may share one ESXi server that is located off-site. In our Install and Configure Beyond class, each student installs, configures, and supports his or her own server throughout the class, from start to finish. This gives you, the student, the best learning environment available, allowing for a true hands on experience, rather than simply observing the technology.
- ✓ **Your Certification Included:** Rock Solid Technical Services now offers independent certifications for virtualization professionals. A passing score will earn you the official certification as a VIP – Virtual Infrastructure Professional! This certification will validate your knowledge and set you apart from your peers.
- ✓ **You'll Work with More Third Party Tools Than Any Other Trainer Provider:** Our VMware Install and Configure Beyond not only shows you what is supported by VMware, but we also show you what actual administrators in the field are using for solutions. There are many great third party products designed to support VMware products and we train you on them.
- ✓ **Extremely Lab Intensive:** Our VMware Install and Configure Beyond is extremely lab intensive and is never the same twice. We cater to the students in the class to deliver a very enriched, targeted course, to suit the student's needs. In addition, we offer Live Labs where when you break it, you fix it! This is true knowledge transfer at its best. We provide you direct experience from the ground up on real hardware that is all on the VMware Hardware Compatibility list. This is proven to increase your learning experience, reduce problems in class and give you concrete skills for returning to the workplace.

# VMware Install & Configure Beyond 5 | Accelerated 4 Day Class

## Why Choose a Rock Solid class for your VMware Training? - cont.

- ✓ **Accelerated Learning Delivery – You Save Time And Money**
  - **Time Savings:** We have taken out all of the overlap and marketing to condense our Mastering VMware vSphere with ESX/ESXi and vCenter class down into a 4 day end to end solution.
  - **Cost Savings:** Our accelerated format pulls content from multiple courses, saving you well over \$10,000 in multiple course fees.
- ✓ **Certified Expert “Real World” Instructors:** Our instructors are Certified Virtual Infrastructure Professional and Master Infrastructure Architect Trainers and work hands on with the product on a daily basis, giving them an advantage in the classroom. Rock Solid does consulting as well as training, which sets our trainers apart from others. Our instructors are prepared to answer questions that might not be addressed in a scripted, off the shelf class.
- ✓ **GB’s of Student Downloads:** We provide students with content that is available for download after class.
- ✓ **Access to VMware Student Forum:** We provide our students with post class support via a web forum where students can post questions to our instructor team after class.
- ✓ **Experts in Virtualization:** All we do is virtualization. As the "new technology experts," our entire staff is dedicated to helping your company or organization with its' virtualization needs. Rock Solid Technical specializes in VMware, XenServer and Workstation, Microsoft Virtual Server or Hyper-V, and Virtual Iron.
- ✓ **All Install & Configure Beyond courses are available in 3 different delivery formats**
  - **Classroom Based** - Instructor Led, Fast Track Classes at locations nationwide.
  - **LiveOnline** - We provide a “remote learning” Install & Configure Beyond offering each month to meet your needs on a convenient and timely basis.
  - **Custom Onsite** – Dedicated, custom, intensive VMware Training at your facility.
- ✓ **100% Rock Solid GUARANTEE**

## Course Objectives

**Upon the completion of Rock Solid’s VMware Install and Configure Beyond, students will master:**

- All of the new and exciting features of vSphere
- Foundational terms and concepts concerning virtualization
- How to install, configure and support ESX/ESXi server 5 and vCenter 5
- How to configure Virtual Machines, templates, and clones
- How to configure Virtual Networking and how to support VMotion / Storage VMotion
- P2V , V2V, V2P, and P2P Methods and Techniques
- Server Consolidation Procedures and Reasoning
- Tools to support a virtual infrastructure - VMware, Platespin, Vizioncore, Veeam, and more
- VMotion, Update Manager, Power Management, Guided Consolidation, Clustering –DRS/HA, and more
- Best Practices within a Virtual Enterprise
- How to perform backups in the ESX/ESXi Environment - Service Console and Virtual Machines - VDR
- How to use the Command Line Interface for supporting ESX/ESXi Servers - ESX/ESXi commands

# VMware Install & Configure Beyond 5 | Accelerated 4 Day Class

## VMware Install and Configure Beyond Class - Benefits and Goals

Our four (4) day intense VMware Install and Configure Beyond provides the most comprehensive approach to Virtualization training. This is an intense, accelerated immersion course, designed for computer professionals that require effective, real-world skill-building.

*Only Rock Solid's VMware Install and Configure Beyond offers you the following benefits:*

- Rock Solid 's definitive, TOTAL immersion training experience
- Specialized Certification
- Intense instruction with no outside distractions
- Four (4) full days of intense instruction, labs and review with an expert virtualization instructor
- The typical day includes:
  - **Expert Led Instruction**, bringing real world expertise into the classroom
  - **Hands-on Labs with in-class equipment**
  - **Group Reinforcement Activities** to help students retain the information for use in the field
- In class students:
  - will use either 2 PC's
    - 1<sup>st</sup> Workstation – each student uses his own server to manage his/her environment
    - 2<sup>nd</sup> ESXi – each student works hands-on with his/her own ESXi server throughout class
  - or use Dual Monitors using extended desktop
- Pod Access available 24/7 for the 4 days
- CD full of tools used in optimizing your Virtual Infrastructure
- Pre and post mentoring by top rated VMware instructors
- Opportunity to re-sit a classroom-based or distance learning course for up to one year
- Tangible evidence of career growth for potential salary increase and/or promotion
- Lower TCO for your Virtualization Environment

## Prerequisites

This class is for IT professionals with 1 or more years of server and infrastructure experience including System Administrators with experience on Microsoft Windows and Linux operating systems

## VMware vSphere VC-VIP Certification

The Install & Configure Beyond class is capped off with a challenging certification, the VC-VIP (Virtualization Council Virtual Infrastructure Professional). This certification requires passing a demanding exam that has been developed to challenge Virtualization Professionals. So not only do you leave trained, you leave TESTED by the top Virtualization Experts in the Industry!

## VC-VIP (Virtualization Council Virtual Infrastructure Professional) Certification - Exam Details

### Exam Quick facts:

- Exam Length: 60-minutes
- # of exam items: 100
- Benefits: Certification for wall mounting, proof of knowledge-level
- Multiple choice
- Multiple answer
- Cut Rate: 72%

# VMware Install & Configure Beyond 5 | Accelerated 4 Day Class

## VMware Install & Configure Beyond | Accelerated 4 Day Class Schedule

In our 4 day class, Rock Solid's expert instructors will immerse you in unparalleled knowledge transfer. You will learn, participate in labs, test and certify. The typical daily schedule rolls out as follows:

Schedule	DAY 1 MON	DAY 2 TUES	DAY 3 WED	DAY 4 THURS
8:00am to 12:00pm	VMware Fundamentals	Configuration of VMs and Virtual Networking	Tools Review vCenter Install and Configure	Best Practices ESXi CLI
12:00pm - 1:00pm	Lunch Break	Lunch Break	Lunch Break	Lunch Break
1:00pm - 5:00pm	Installing VMware ESXi 5 from the ground up	Imaging  Server Consolidation	Advanced Cluster configure DRS and HA	Advanced VMware Troubleshooting, command line support
5:00pm - 10:00pm	Access to Lab Room and time for Practice	Access to Lab Room and time for Practice	Access to Lab Room and time for Practice	<b>TAKE THE VC-VIP Exam</b>

\*The above schedule is an example and is subject to change.

## VMware Install and Configure Beyond - Website Schedule

To view our current VMware Install and Configure Beyond course schedule and locations, visit Rock Solid online [here](#)

## VMware Install and Configure Beyond - Follow-on Courses

**Mastering VMware vSphere Offering:** Rock Solid Technical has released an advanced course that is unparalleled in the industry. [Click Here](#) to Learn More



# VMware Install & Configure Beyond 5 | Accelerated 4 Day Class

## VMware Install and Configure Beyond | Accelerated 4 Day Class - Course Breakdown

### DAY ONE

#### Module 1: The Next Generation of Virtual Infrastructure

- VMware ESXi Server. Platform for virtualizing servers, storage and networking.
- VMware VMFS5. High-performance cluster file system for storage virtualization.
- VMware Virtual SMP. Multi-processor support
- VMware vCenter. vSphere Centralized management, automation and optimization
- VMware HA. Cost effective high availability
- VMware DRS. Dynamic balancing and allocation of resources for virtual machines.
- VMware VMotion. Live migration of VMs
- VMware VMotion Storage. Live migration of storage files without service interruption
- VMware Update Manager. Patching of ESXi hosts and Virtual Machines
- VMware DPS. Distributed Power Service configuration and administration
- VMware Consolidated Backup. Centralized backup software for virtual machines.
- VMware Licensing. FlexLM licensing model.

#### Module 2: Terms and Concepts

- VMware Terms and Concepts
- Host
- Virtual Machine (VM)
- Encapsulation
- Portability
- P2V/V2P/V2V/P2V
- Isolation
- Idealized Hardware
- Virtualization Layer
- Ballooning
- VMnet
- VMnic
- Virtual Switch
- Swap Space
- Root
- Infrastructure Client
- The Service Console

#### Module 3: Installation

- Pre-installation Tasks
- The ESXi Server Build Document
- Performing the Installation
- Installation of ESXi Server
- Graphical Installer
- Post-installation Tasks
- Log files
- Reporting a Problem

#### Module 4: Configuring a Virtual Machine

- Gold Builds, and Clones
- Introduction
- Virtual Machine Basics
- Configuring a Virtual Machine
- Loading the Operating System
- Gold Builds and Clones
- Modify Your Master
- Persistent and non-persistent disks
- Shares, Reservations, and limits
- CPU affinity

#### Module 5: Virtual Networking

- Virtual Switches
- OSI Module
- VMnets
- VMnics
- Network Label
- Creating Virtual Switches
- Physical, Virtual and Bonded NICS
- The Service Console NIC
- MAC Addresses
- MAC Address Overview
- Manually Setting MAC Addresses
- Port Groups and VLANs
- Networking Tools
- service network restart
- esxcfg commands
- ifconfig

#### Module 6: Physical-to-Virtual Migrations

- P-to-V for Free
- cat Your Hard Drive
- cat P-to-V Prerequisites
- cat Process
- BartPE
- P-to-V with BartPE
- Creating Your BartPE Disc
- Including Ghost
- Including Network Driver for Your Physical Server
- Including Disk Drivers for Your Physical Server
- Creating a Share or Swing Virtual Machine
- Network and Mapped Drive Setup
- The Image Source Server
- Image the Target Virtual Server
- VMware P2V Converter
- Platespin PowerP2V
- P-to-V Conclusion

# VMware Install & Configure Beyond 5 | Accelerated 4 Day Class

## DAY TWO

### Module 7: Server Consolidation

- Server Consolidation and Virtualization Defined
- Adoption and Support of Server Virtualization
- Business Case and Technical Requirements
- Technology Strategy: Technology Refresh and Aging
- Infrastructure
- Cost Performance
- Service Agility
- Simplifying the Environment
- Compliance and Risk Reduction
- High-Level Requirements
- Classification and Estimated Work Hours
- The Financial Model
- Developing Your Project Methodology
- Establishing the Project
- Best Practices
- Addressing Typical Challenges
- Gathering Data and Application/Server Inventory
- Structured Interviews
- Application Inventory
- Process Documentation
- Application Repository
- Buy In and Collation
- Assessment
- Application Readiness
- Rationalization
- Technical Leadership to Provide Guidance and Structure
- Assessing Processes, Roles, and Responsibilities Technology Design
- Testing and Validating
- Capacity Planning
- Migration

### Module 8: Cool Tools for a Virtual Infrastructure

- Veeam
- Root access tools
- VMFS to VMFS volumes copy tools
- Creating ISO Images
- Creating flp images
- Patch Management – command line and GUI
- PuTTY
- NewSID
- Platespin's PowerConvertor and PowerRecon
- ESXRanger Backup solutions
- VMware Lab Manager
- vmkfstools and vmware-cmd
- vmkfstools Basics

### Module 9: Administering vCenter

- Introduction
- vCenter enables Services
- VMware Tools for Managing the Virtual Infrastructure
- ESXServer Management Interface and the Service
- Console
- VMware vCenter
- VMware Remote Console
- Understanding Virtual Center Terms and Managed Components
- Software Components
- vCenter Organizational Hierarchy
- Functional Components
- Installing and Configuring vCenter 5
- vCenter Server
  - System Requirements
  - vCenter Server
- vCenter Client
- vCenter Managed Host Requirements
- vCenter Managed Virtual Machine Requirements
- Supported Databases
- Setting Up Microsoft SQL Server for vCenter
- Creating the Database for vCenter Installation
- VMware vCenter
- Installation Procedures Configuring vCenter
- Logging In to Virtual Center
- Creating Data Center Groups
- Adding a New Host to a Data Center
- Configuring Security Settings in Virtual Center
- Using vCenter to Administer Your Virtual Infrastructure
- Creating Virtual Machine Groups
- Managing Virtual Machine Groups and Virtual Machines
- Creating a New VM in vCenter
- Cloning an Existing VM
- Creating a Template
- Customizing a Template
- Deploying the New VM from the Template
- Migrating Virtual Machines
- Hot migration (VMotion)
- Cold Migration (Migrating Powered Down VMs without VMotion)
- Working with the VM Console in vCenter
- Monitoring Resources and Managing Performance through vCenter
- Host Alarms
- Host Alarm Actions
- VM Alarms
- VM Alarm Actions
- Creating a New Host Alarm
- Reviewing Events
- Viewing Performance Data and Configuring

# VMware Install & Configure Beyond 5 | Accelerated 4 Day Class

- Resource Allocations
- Scheduled Tasks in vCenter
- Using the Management Interface and Service Console to Administer the Virtual Infrastructure
- Virtual Machine Security in ESXi Server
- Viewing and Editing File Permissions with the Infrastructure Client
- Creating New Users and Groups or Modifying Existing
- Users and Groups on ESXi Server
- Modifying Existing Users or Creating New Users
- Modifying Existing Groups or Creating New Groups
- Configuring HA
- Configuring DRS
- Setting up DPM (Distributed Power Management)
- Patch Manager – Patching the ESXi Host and Virtual Machines
- Consolidation Manager
- Configuration Resource Pools
- Performance Monitoring and Management through
- ESXi Server
- Performance Monitoring
- Performance Tuning

## DAY THREE

### Module 10: Best Practices, Gotchas, and Common

- Problems
- Introduction
- Best Practices
- ESXi Server Hardware
- Purchasing Supported Hardware
- Multiple NICs
- Memory
- Documentation
- Server Sizing
- Disks
- ESXi Server Software
- Practice, Practice, Practice
- Security
- The Service Console's Swap Space
- VMkernel Swap Space
- Backups
- Modifying or Updating the Linux Kernel on Your ESXi Server
- Virtual Machine Builds
- Using Templates
- Defrag

- Virtual Machine Swap, ESXi swap and OS swap
- Guest OS Memory Requirements
- Mixing Your Virtual Machine Workloads
- ISOs
- Flp's
- Turning Off the Unnecessary
- Keeping Off the Unnecessary
- Administrative Tasks
- Licensing
- Gotchas
- Virtual Evolution
- Microsoft Support
- Common Problems
- Being Unable to Boot from Your Operating System ISO
- Sluggish Windows
- Shutting Down the Host

### Module 11: Backup Strategies for ESXi Server

- Backing Up the Service Console
- Backing Up Virtual Machines
- Backing Up Virtual Machines Like Physical Servers
- Pros Cons
- Backing Up Virtual Disk Files
- Backing up Virtual Machines (Virtual Disk) from the Service Console
- Cons and Pros
- Creating a Snapshot for Backups
- Cons and Pros
- Best Practices
- General Recommendations for Backups Planning
- Boot Disk Contents
- Backup Schedule
- SAN Snapshots

## DAY FOUR

### Module 12: VMware Under the Covers

- Understanding the ESXi Server File and Directory Structure
- The Service Console Directory Structure
- Critical ESXi Server Configuration Files
- The ESXi Server Boot Process
- High-Level Boot Process for ESXi Server
- Detailed Boot Process
- The Start-up Process
- Interaction between the Service Console, VMkernel, and Virtual Machines
- Service Console Services
- Virtual Machines Processes
- VMkernel Services



# VMware Install & Configure Beyond 5 | Accelerated 4 Day Class

## Module 13: Common and Necessary Command-Line Interface (CLI) Commands

- Using the Command-Line Interface
- Connecting to the Service Console Virtual Terminal
- Remote Access Card SSH Client
- Telnet
- Man Pages
- Command-Line Shortcuts
- Command History
- Basic Commands for Directories and Files
- Changing Directories
- Moving and Copying Files
- Finding Files and Searching Their Content
- Searching Virtual Machine Configuration Files for Important Information
- Editing Text Files
- Editing with vi
- Managing Users and Groups
- Managing Directory and File Ownership and Permissions
- Changing Permissions on a File or Directory Changing File or Directory Owner or Group Affiliation Archiving and Compressing Files and Directories Mounting ISO Images, CD-ROMs, and Virtual
- Disks in the Service Console
- Configuring and Managing ESX Server Service Console from the Command Line
- Managing Processes, Restarting Services, and Viewing Performance Statistics
- Managing Processes
- Restarting Services
- Viewing Service Console Performance Statistics
- Managing Physical and Virtual Disks
- Installing and Managing Software Packages
- Managing Devices and Changing Hardware and Network Settings
- Managing Virtual Machines from the Command Line
- Using vmware-cmd to Manage Virtual Machines Viewing Performance Data for Virtual Machines with esxstop
- Adding a New Virtual Disk, Blank Virtual Disk, and Extending Your Existing Virtual Disk
- Performing Backups and Restores of Virtual Machine Virtual Disks
- vmware-cmd and vmkfstools – in depth discussion and use

## SUPPLEMENTAL COURSE MATERIALS:

### Appendix A: Licensing

- FlexLM licensing Model
- License Key Functionality
- Server Based Licensing
- Host Based Licensing
- Installing the licensing server
- Lose of the license server and VM functionality
- License types
- License file

### Appendix B: Instructor notes

- Setting up a low cost SAN
- Miscellaneous notes
- Diskpart usage

### Appendix C: VMware Security

- ESX/ESXi Security
- Virtual Center Security
- Virtual Machine Security
- SAN Security

### Appendix D: Logging

- Virtual Center Logs
- ESX/ESXi Host logs
- VM logs
- Miscellaneous logs

### Appendix E: ESX Server 4i

- What is 4i
- Configuration 4i
- ESX/ESXi to 4i comparison

### Appendix F: Module bullets

- Module highlights

### Appendix G: Helpful Websites

- Helpful websites for a virtual infrastructure

### Appendix H: Test your knowledge answers

- Answers to the test your knowledge question at end of Modules

### Appendix I: Glossary

- Virtual Infrastructure terms and definitions

EXAM CRAM /REVIEW SESSION

TAKE VC-VIP EXAM

**Go Home Certified!!**

## VMware Install & Configure Beyond 5 | Accelerated 4 Day Class

### You're protected with a "Rock Solid" Guarantee

Rock Solid is committed to you having the best possible training experience available. If during the first day of any classroom-based or distance learning course, the student is not fully satisfied and wishes to withdraw, the student will receive a 100% refund, less any applicable fees. We also offer students the opportunity to re-sit a classroom-based or distance learning course tuition-free for up to one year or until the student obtains certification, whichever comes first. Our *Human Capital Guarantee* ensures a successful return on investment for employers. If an employer has paid the cost of a class for an employee who leaves within three (3) months of obtaining certification, Rock Solid will train an additional employee of the company with no tuition cost to the employer (other costs will apply). The employee taking advantage of the *Human Capital Guarantee* must take training within 6 months of the original employee's class end date.\*

### Testimonials

*"The VMware class was extremely value added and the remote learning was great; a very desirable way to take a course .The instructor, was absolutely one of the best instructors I have had."*

- Elizabeth Anderson - Boeing

*"Great class! I highly recommend the instructors."*

- Peter Fountain, Orion Computer Services Inc.

*I learned more in this one week of virtualization training than any course I have taken. I want all of my future training to come from Rock Solid!"*

- Anthony Masters, FAA

### Realize substantial savings with a Corporate On-Site Delivery

Want to learn where you work? Rock Solid specializes in custom on-site solutions. Your company will realize substantial discounts and experience the greatest return on investment through our custom on-sites! We deliver training at your site, where we customize the content 100% to suit your needs. You and your team become the experts throughout the week, saving time and money on consultant fees later on. In fact, our instructors serve as an expert consultant during the engagement, allowing you collaboration on planning and implementation ideas with leading virtualization experts, while also being trained by them.

### About Rock Solid Technical Services

Rock Solid is the recognized leader in VMware training, certification and consulting. Our expert instructors possess strong consulting, implementation and training expertise. Rock Solid's virtualization professionals come from diverse roles including positions in consulting, product development and project management. Our training team has supported public and private corporations, technology vendors, telecommunications companies, US Government and Military, and professional services organizations around the world.



\*All terms & conditions located on [www.rocksolidtechnical.com](http://www.rocksolidtechnical.com)