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# ¿Por qué ExecuTrain?

ExecuTrain es un proveedor de entrenamiento corporativo a nivel internacional y líder mundial en la capacitación empresarial. Contamos con 22 años y más de 62 mil personas capacitadas en zona occidente.

## ¿Por qué ExecuTrain?

Te guiamos en la definición de tus requerimientos de capacitación, en las diferentes etapas:

- Detección de necesidades, evaluación de conocimientos, plan de capacitación y seguimiento posterior para elegir el plan de capacitación como tú lo necesitas.
- El más amplio catálogo de cursos, desde un nivel básico hasta los niveles de conocimientos más especializados.
- En ExecuTrain el material y la metodología están diseñados por expertos en aprendizaje humano. Lo que te garantiza un mejor conocimiento en menor tiempo.
- Tú puedes confiar y estar seguro del aprendizaje porque nuestro staff de instructores es de primer nivel, algunos de los cuales son consultores en reconocidas empresas.
- No pierdas tu tiempo, los cursos están diseñados para un aprendizaje práctico.
- Nuestra garantía: Nuestro compromiso es que tú aprendas, si no quedas satisfecho con los resultados del programa, podrás volver a tomar los cursos hasta tu entera satisfacción o la devolución de tu dinero.

## Modalidad de servicio

- Cursos de Calendario
- Cursos Privados: On site y en nuestras instalaciones.
- Cursos Personalizados: Adaptamos el contenido del curso y su duración dependiendo de la necesidad del cliente.
- E-Training: cursos a distancia de forma interactiva, mejorando la capacidad de aprendizaje de nuestros participantes guiados por un instructor en vivo.

# Curso oficial Linux LPIC-3 304: Virtualization & High Availability + examen

LPIC-3 es un programa de certificación profesional que cubre las especialidades empresariales de Linux. LPIC-3 304 cubre la administración de Linux en toda la empresa con énfasis en virtualización y alta disponibilidad.

## > Contenido del curso

- 330 – Virtualization
- 334 – High Availability Cluster Management
- 335 – High Availability Cluster Storage

## > Prerrequisitos

Para presentarse al examen LPIC-3 tener la certificación LPIC-2. Para realizar el curso no es necesaria la certificación previa. Y si se recomienda tener conocimientos equivalentes a la misma.

## > Temario

### Introduction

- LPI 304 / RHCA 423 Exam Overview
- Setting up a Lab Environment

### Module 1: High Availability Essentials

Module Introduction

Lesson 1: Linux Clustering Solutions Overview

- Learning objectives
  - HA Clusters
  - Load Balancing Clusters
  - High Performance Clusters
  - Summary

Lesson 2: Understanding HA Clustering Needs

- Learning objectives
  - Example: Creating an HA Solution for a Web Server
  - Shared Storage
  - Quorum
  - Fencing
  - Understanding Active/Passive vs. Active/Active
  - Setting up an HA Architecture
  - Summary

### Module 2: Linux HA Clustering

Module Introduction

Lesson 3: Software Solutions Overview

- Learning objectives
  - Heartbeat
  - Red Hat Cluster Suite: cman and rgmanager
  - Heartbeat 2.0 and the CRM
  - Managing the Membership Layer: Corosync
  - Managing Cluster Resources: Pacemaker
  - Current State: Mainstream Pacemaker and Red Hat pcs
  - Summary

Lesson 4: Configuring the Membership Layer

- Learning objectives
  - Setting up Multicast-based Corosync on SUSE
  - Setting up Unicast-based Corosync on Red Hat
  - Tuning Corosync Options
  - Using udpu in Corosync
  - Lesson 4 Labs Configuring Corosync on SUSE and Configuring Corosync on Red Hat
  - Lab 1 Solution Configuring Corosync on SUSE
  - Lab 2 Solution Configuring Corosync on Red Hat
  - Summary

## Lesson 5: Working with Pacemaker

- Learning objectives
  - Understanding Pacemaker Components
  - Managing the Cluster with crmsh
  - Managing the Cluster with pcs on Red Hat
  - Managing the Cluster with HAWK
  - Configuring Generic Cluster Properties
  - Working with Resource Agents
  - Labs Setting up an HA Web Server Using crmsh and Setting up an HA Web Server Using pcs
  - Lab 1 Solution Setting up an HA Web Server Using crmsh
  - Lab 2 Solution Setting up an HA Web Server Using pcs
  - Summary

## Lesson 6: Managing Fencing

- Learning objectives
  - Understanding Quorum
  - Managing Quorum
  - Understanding the Need for Fencing
  - Understanding the Different Types of Fence Agents
  - Configuring Fencing on Red Hat
  - Configuring the Red Hat fence\_xvm Device
  - Configuring Nested Fencing on Red Hat
  - Configuring the SBD Device on SUSE
  - Verifying Fencing Functionality
  - Labs Configuring Fencing on SUSE and Configuring Fencing on Red Hat
  - Lab 1 Solution Configuring Fencing on SUSE
  - Lab 2 Solution Configuring Fencing on Red Hat
  - Summary

## Lesson 7: Resource Management

- Learning objectives
  - Understanding Resource Types
  - Managing Resources
  - Managing Resource Constraints
  - Working with Groups
  - Working with Clones
  - Managing Failed Resources
  - Labs Working with Resource Groups and Constraints in pcs and Working with Resource Groups and Constraints in crm

- Lab 1 Solution Working with Resource Groups and Constraints in pcs
- Lab 2 Solution Working with Resource Groups and Constraints in crm
- Summary

## Lesson 8: Operational Cluster Management

- Learning objectives
  - Managing Resource States
  - Managing Node Membership States
  - Managing Node States
  - Migrating Resources
  - About Resource Cleanup
  - Cluster Logging
  - Setting up Cluster Notifications
  - Labs Managing Resources with pcs and Managing Resources with crmsh
  - Lab 1 Solution Managing Resources with pcs
  - Lab 2 Solution Managing Resources with crmsh
  - Summary

## Module 3: Cluster Storage

### Module Introduction

## Lesson 9: Configuring DRBD

- Learning objectives
  - Understanding DRBD
  - Setting up a DRBD Device
  - Managing DRBD
  - Integrating DRBD in the Pacemaker Cluster
  - Lab Creating an Active/Passive DRBD Device
  - Lab Solution Creating an Active/Passive DRBD Device
  - Summary

## Lesson 10: Configuring an iSCSI SAN

- Learning objectives
  - Understanding iSCSI SAN
  - Configuring an iSCSI Target
  - Managing an iSCSI Initiator
  - Managing iSCSI Timeouts
  - Understanding Cluster Based iSCSI
  - Lab Configuring an HA iSCSI Target on top of DRBD
  - Lab Solution Configuring an HA iSCSI Target on top of DRBD
  - Summary

## Lesson 11: Managing Multipath

- Learning objectives
  - Understanding Multipath
  - Configuring Multipath
  - Testing Multipath
  - Lab Setting up Multipath for iSCSI
  - Lab Solution Setting up Multipath for iSCSI
  - Summary

## Lesson 12: Working with LVM in a Cluster

- Learning objectives
  - LVM Overview
  - Understanding Cluster LVM Challenges
  - Understanding HA LVM
  - Setting up HA LVM
  - Understanding cLVM
  - Setting up cLVM
  - Lab Configuring HA LVM
  - Lab Solution Configuring HA LVM
  - Summary

## Lesson 13: Managing GFS2 in a Red Hat Cluster

- Learning objectives
  - GFS2 Overview
  - Creating a GFS2 File System
  - Managing a GFS2 File System
  - Managing GFS2 Cluster Resources
  - Lab Creating a GFS2 Cluster Resource on top of cLVM
  - Lab Solution Creating a GFS2 Cluster Resource on top of cLVM
  - Summary

## Lesson 14: Managing OCFS2

- Learning objectives
  - OCFS2 Overview
  - Creating a Cluster Managed OCFS2 File System
  - Managing an OCFS2 File System
  - Lab Creating an OCFS2 File System on top of cLVM
  - Lab Solution Creating an OCFS2 File System on top of cLVM
  - Summary

## Module 4: Configuring Advanced HA Solutions

### Module Introduction

## Lesson 15: Configuring an HA Apache Web Server

- Learning objectives
  - Introduction
  - Understanding 2-Node Cluster Issues
  - Setting up Fencing
  - Setting up the Shared LVM Storage
  - Creating the Apache Resource Group
  - Managing Constraints
  - Summary

## Lesson 16: Configuring an HA NFS Solution

- Learning objectives
  - Introduction
  - Setting up the Cluster and Storage Layer
  - Setting up the NFS Service
  - Configuring Resource Constraints
  - Testing the Solution
  - Summary

## Lesson 17: Managing Legacy Red Hat Clustering

- Learning objectives
  - Understanding Legacy RHCS Architecture
  - Setting up the Base Cluster
  - Managing Quorum
  - Configuring Fencing
  - Creating Resources and Services
  - Lab Configuring an HA Apache Web Server
  - Lab Solution Configuring an HA Apache Web Server
  - Summary

## Module 5: Load Balancing

### Module Introduction

## Lesson 18: Managing Load Balancing Solutions

- Learning objectives
  - Understanding Load Balancing
  - Setting up DNS Round Robin Load Balancing
  - Using LVS
  - Understanding HAProxy
  - Configuring HAProxy as a Layer 7 Load Balancer
  - Setting up Keepalived
  - Managing Ldirectord
  - Lab Configuring a Load Balancing Cluster
  - Summary