RED HAT TRAINING & CERTIFICATION

CLASSROOM REQUIREMENTS

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INTRODUCTION

Red Hat classes are highly interactive and depend on a well supported classroom. Generally the courses require:

- One PC per student and one PC for the instructor with internet uplink on a second network card
- Isolated classroom network (see below)
- PCs are reinstalled by the instructor or preloaded by facility staff (JBOSS classes)
- Red Hat classes cannot be delivered on virtual machines (e.g. VMware.)
- Software is provided by the instructor unless stated otherwise.

Please see the detailed requirements below.

TABLE OF CONTENTS

GENERAL REQUIREMENTS

Note on Virtualization:

Red Hat classes use virtualization to provide students multiple machines simulating client/server scenarios in a realistic way. KVM based virtualization is used for most classes. KVM uses hardware based virtualization provided Intel VT / AMD-V. For that reason Red Hat classes cannot run on top of other virtualization technologies such as Vmware.

DESKTOPS VS SERVERS

Our classes are designed to use PC or laptop type hardware. Servers are usually too loud for a classroom environment.

Servers in a data center can not be used because of network requirements

Environment:

- In room temperature control / air conditioning to provide a comfortable learning environment
- No outside noise
- Sufficient desk space so that students can take notes while working on the PCs
- Projection screen in the front of the room
- Whiteboard or Flipchart

Overhead projector

- 1280x1024 capable
- 2000 Ansi Lumen or better connected to Instructor Server

Instructor machine:

- Intel Core 2 Duo or better
- Hardware virtualization support required (see below) (except JBOSS classes)
- 2 GB RAM (4 GB recommended)
- 100 GB hard disk space
- SATA controllers should be set to Native (AHCI) mode
- DVD drive capable of booting system
- USB2 external port

- Video card capable of 1280x1024 resolution or better under RHEL 5
- TWO 100/1000 Mbps Ethernet cards compatible with RHEL 5.
- Sound System (active speakers or similar)

BACKUPS

All classroom machines will be re-installed by in the Red Hat instructor or facility staff to ensure a consistent course environment.

Please backup all data before the class starts.

Red Hat is not responsible for any lost data

Student machines:

NOTE: All student machines must have identical hardware configurations.

- Intel Core 2 Duo or better
- Hardware virtualization support required (except JBOSS classes)
- 2 GB RAM
- 100 GB hard disk space
- SATA controllers should be set to Native (AHCI) mode
- CD-ROM drive capable of booting system
- USB2 external port
- Video card capable of 1280x1024 resolution or better under RHEL 5
- 100/1000 Mbps Ethernet card compatible with RHEL 5
  NO WIRELESS NICs ARE PERMITTED IN CLASSES INCLUDING EXAMS.
- Network boot recommended
- One PC per student unless specified otherwise.
- Courses with exam: One spare machine must be available.

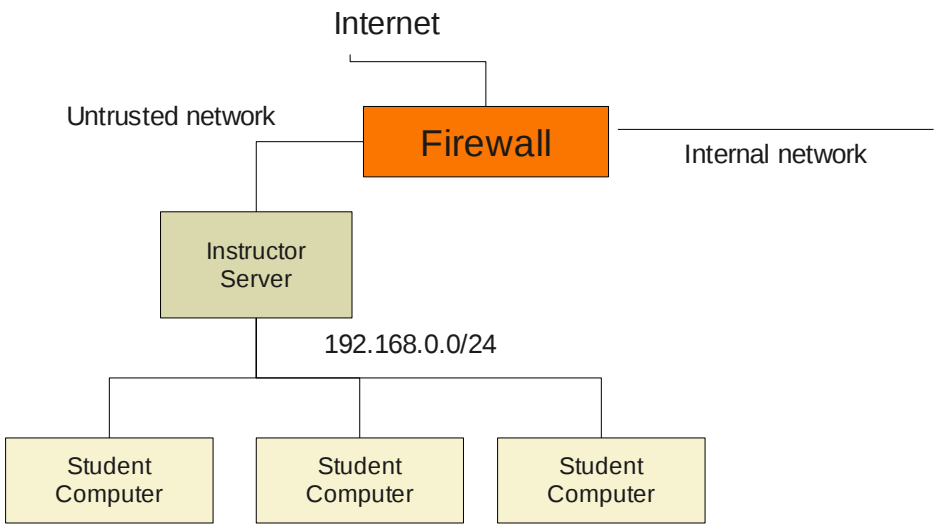
Classroom network

100baseT full duplex switched minimum. Connects student machines and server, on its own local subnet, and **must be isolated** from the facility network. Internet uplink is provided via a second network card in the instructor server. The instructor server provides DHCP, PXE, DNS and other services to the classroom network.

Internet access via second network card **must be available** during all public training sessions. It is strongly suggested for onsite classes.

Facility networking must accommodate classroom use of the following IP address ranges:

- 192.168.0.0/24
- 192.168.1.0/24
- 172.24.0.0/16
- 172.25.0.0/16



COMPATIBLE HARDWARE

Ideally use Red Hat certified hardware. When not available perform a test installation of the relevant release and check if network, disk and graphics are functional.

RED HAT EXAMS

Classrooms must follow the requirements strictly for Red Hat exams to ensure fairness and comparability of the exams worldwide

COURSE SPECIFIC REQUIREMENTS

All courses unless specified otherwise

- One computer per student
- One spare machine should be available
- RHEL 6 compatible hardware

Courses including an exam (EX???)

- One spare machine must be available
- All student machines must have an identical configuration.
- Wireless network cards must be removed.

RH318 / EX318

- Two computers per student
- One additional PC
- One Windows XP Professional license per student
- One Windows 2008 Server license per student
- 4 GB RAM required
- 1000baseT network
- 100 GB HDD
- x86-64 CPU with hardware virtualization support (see below)
- **This class requires RHEL 5.5 compatible hardware**

RH401/ EX401

- Two computers per student
- 4 GB RAM required
- 1000baseT network

- 100 GB HDD
- Two NICs per student machine
- sufficient spare ethernet cables to connect every two PCs together
- x86-64 CPU with hardware virtualization support (see below)
- **This class requires RHEL 5.1 compatible hardware**

RH423 / EX423

- One additional PC with 2003 Server (Standard edition)
- One additional PC with Windows XP (optional)
- Exam: Two computers per student
- **This class requires RHEL 5.1 compatible hardware**

RH436 / EX436

- 4 GB RAM required
- 1000baseT network
- **This class requires RHEL 5.4 compatible hardware**

RH442 / EX442

- Exam: Two computers per student
- **This class requires RHEL 5.4 compatible hardware**

RHS333 / EX333

- Two computers per student for the EX333 exam
- **This class requires RHEL 5.1 compatible hardware**

JBOSS courses

- Windows XP SP 2 may be pre-loaded on student machines for all JBoss classes. These machines must include:

  Access privileges that allow for installation of software

  - WinZip v.11+
  - Microsoft Excel or Open Office Calc (only for JB451)
  - JDK 1.5 (all classes except JB336, JB295)
  - JDK 1.6 (JB295)
- The instructor will load Red Hat Enterprise Linux at student's request through PXE boot.
- The classroom server will be installed by the instructor with Red Hat Enterprise Linux
- Hardware virtualization support is currently not required for JBOSS classes

HARDWARE VIRTUALIZATION SUPPORT

All classroom machines (student and instructor) for Linux classes should include a x86-64 processor which supports use of either the Intel VT or AMD-V hardware virtualization extensions. On a system installed with Linux, a CPU supporting these features will have the `lm` flag and either the `vmx` (Intel VT) or `svm` (AMD-V) flag set in the file /proc/cpuinfo. Support for Intel VT or AMD-V ("hardware virtualization extensions") should be verified with your hardware vendor.

JBOSS classes are not utilizing this feature at the moment.

Processors believed to be **SUPPORTED** include:

- Intel Pentium D 9x0 family (Many, not all)
- most Intel Core 2 (but verify with vendor, also see known problem list below)
- all Intel Core 2 Quad
- Intel Xeon released after May 2006

- Intel i5, i7
- Intel Pentium 4 HT 662, Pentium 4 HT 672 (most other Pentium 4 not supported)
- AMD Athlon 64 / Athlon 64 X2 released after May 2006
- AMD Athlon X2, AMD Athlon Neo, AMD Phenom
- most AMD Turion (see known problem list below)
- AMD Opteron 1xxx/2xxx/8xxx families

Processors believed **NOT SUPPORTED** include:

- All Intel Pentium 3 and earlier, Pentium M, Pentium Dual-Core, Celeron, Intel Core, Intel Atom
- Most Intel Pentium 4 (*except HT 662 and HT 672*)
- The following Intel Core 2 processors:
  - E4xxx family, E7200, E7300, E8190, some E7400, some E7500
  - Q8200, Q8200S, some Q8300
  - T5xxx family (*except T5600*), T6xxx family
  - P7350, P7450
- AMD Sempron
- AMD Turion ML-* and MT-* families
- AMD Opteron 1xx/2xx/8xx families

Additional processors or systems that support or do not support Intel VT or AMD-V may be released; verify support with your vendor.

Note: Some Intel VT systems may have the Intel VT feature disabled in the machine's BIOS; *all classroom systems MUST have Intel VT support ENABLED in the BIOS by default*. Some instructions on how to check this are available online in chapter 28.12 of the RHEL 5 Virtualization Guide: (http://www.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/5/html/Virtualization_Guide/sect-Virtualization-Troubleshooting-Enabling_Intel_VT_and_AMD_V_virtualization_hardware_extensions_in_BIOS.html)

ACKNOWLEDGEMENT

I have read and understood the classroom requirements document (Version 2011-02-18) and agree to provide an environment as specified.

IMPORTANT NOTE: Red Hat is not responsible for any damages related to Client's failure to provide appropriate facility and/or equipment as described here.

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Company