

# MAC OS X

*Revised 4/10/2012*

**/training/etc**

*The Art of Knowledge.*

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**Course Description:** OS X Lion Support Essentials is a three-day, hands-on course that provides an in-depth exploration of troubleshooting on OS X Lion. This course is designed to give you a tour of the breadth of functionality of OS X Lion and the best methods for effectively supporting users of OS X Lion systems. The course is a combination of lectures and hands-on case study exercises that provide practical real-world experience.

**Who Should Attend:** This class is for help desk specialists, technical coordinators, service technicians, and others who support Mac users. It will also benefit technical support personnel in businesses that use Macs and technical coordinators or power users who manage networks of computers running OS X — such as teachers and technology specialists who manage networks or computer labs.

**Prerequisites:** Students must have knowledge of OS X and basic computer navigation.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Understand the troubleshooting process
- Become more efficient with available tools and resources
- Use OS X 10. Lion features in depth, including finding additional information
- Understand concepts appearing on the Apple Certified Support Professional certification test

### Course Outline:

#### Installation

Preparing and partitioning the drive  
Installing OS X Lion  
Using the installer log files to verify a successful installation  
Configuring OS X Lion with the Setup Assistant  
Updating software with Software Update and Installer  
Tips and techniques for troubleshooting an installation problem

#### User Accounts

Creating and managing user accounts  
Creating and managing administrator accounts  
Locating directory attributes  
Security  
password selection  
Keychain  
FileVault

#### File Systems

File systems supported by OS X Lion  
File and directory ownership and permissions  
Disk Utility and file repair  
Using the command line for file management

#### Data Management

The root volume  
File system layout  
Preferences  
Frameworks  
File types unique to OS X Lion (i.e., resource forks and packages)  
Spotlight  
File archives  
Disk images  
Archiving and restoring data with Time Machine  
Managing backup data  
Accessing the data outside of Time Machine

#### Applications and Processes

Applications supported in OS X Lion  
Applications created with different developer APIs  
The UNIX concept of a process  
The relationship of processes and applications  
Tools to monitoring and managing processes  
Application preferences  
Troubleshooting  
Boot Camp

#### Network Configuration

Basic networking configuration  
TCP/IP networking  
Ethernet  
AirPort  
Multiple network connections  
Appropriate use of network locations  
Isolating and troubleshooting network elements

#### Network Services

Connecting to common network resources  
Network Users accounts with Directory Services, AFP, SMB, SSH, FTP, and WebDAV connections  
Bonjour  
NetBIOS  
The network browser  
Isolating client software issues from network issues  
Enabling network services on a OS X Lion client,  
Peer-to-peer collaboration  
Sharing files between Macs and Windows, sharing web documents  
Screen sharing  
Firewall  
Techniques to isolate server issues from client and network issues

#### Peripherals and Printing

Connecting peripherals to a Mac  
Cabling  
Connections  
Device drivers for common peripherals  
Managing printers  
Print-job management  
Printer PPDs and PDF workflow  
Techniques for isolating cabling, driver, or application issues

#### System Startup

Troubleshooting boot issues with a Mac at startup  
Phases of the startup process  
Automatic process launching with launched and login window startup items

**Course Description:** OS X Server Essentials is a three-day, hands-on course designed to give technical coordinators and entry-level system administrators the skills, tools, and knowledge to implement and maintain a network that uses OS X Server. Students learn how to install and configure OS X Server to provide network-based services, such as file sharing, web and wikis. Tools for efficiently managing and deploying OS X are also covered. The course is a combination of lectures and hands-on case study exercises that provide practical real-world experience.

**Who Should Attend:** This course is designed for help desk specialists, technical coordinators, and entry-level system administrators who implement and maintain networks using OS X Server.

**Prerequisites:** Students must have an understanding of OS X, experience with OS X in a network environment, and basic OS X troubleshooting experience or Lion 101.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Understand the features of OS X Server v10.7
- Configure essential services on OS X Server
- Use OS X Server tools to monitor and troubleshoot services
- Use of OS X Server to manage a small network of Macintosh computers and users
- Manage access to files and services
- Prepare for Apple Certified Technical Coordinator certification

## Course Outline:

### Installing and Configuring OS X Server

Installation  
initial configuration  
server administration tools  
troubleshooting installation issues

### Authenticating and Authorizing Accounts

Creating and administering accounts  
Controlling access (ACLs)  
Troubleshooting

### Using Open Directory

Configuring Open Directory  
Single sign-on  
Backing up directory data  
Troubleshooting Open Directory  
Introduction to Kerberos

### Using File Services

Configuring and troubleshooting Apple File Service  
Share points for Windows users  
NFS  
Network mounts  
FTP  
Case sensitivity issues

### Managing Web Services

Hosting multiple web sites on a single server  
Providing WebDAV access to files

### Using Collaborative Services

Setting up and configuring wikis and blogs  
Providing iChat and iCal services to assist people working together  
Configuring Address Book service to share contact information amongst multiple computers

### Implementing Deployment Solutions

Configuring and troubleshooting NetBoot/Network Install to deploy Mac OS X

### Managing Accounts

Managed accounts  
Preference management  
Managed network browsing  
Mobile accounts  
Troubleshooting account management

**Course Description:** The Apple Certified Technical Coordinator (ACTC) 10.7 Boot Camp is a combined delivery of the Lion 101 and Lion 201 courses, along with the associated certification exams. This hands-on course provides an in-depth exploration of functionality and troubleshooting on OS X and the best methods for effectively supporting users of OS X systems. This course also gives technical coordinators and entry-level system administrators the skills, tools, and knowledge to implement and maintain a network that uses OS X Server. Students learn how to install and configure OS X Server to provide network-based services, such as file sharing, authentication, and printing. Tools for efficiently managing and deploying OS X and software updates are also covered.

**Who Should Attend:** This course is for help desk specialists, technical coordinators, service technicians, and others who support Mac users. Others who will benefit include technical support personnel in businesses that use Macs for general productivity or creative design and technical coordinators or power users who manage networks of computers running OS X — such as teachers and technology specialists who manage classroom networks or computer labs.

**Prerequisites:** Students should have Knowledge of OS X and basic computer navigation, basic troubleshooting experience, and experience with OS X in a network environment.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Understand the troubleshooting process and become more efficient with available tools and resources.
- Understand and use OS X Lion features in depth, including how to find additional information.
- Prepare for Apple Certified Support Professional certification.

## Course Outline:

### Installation

Preparing and partitioning the drive  
Installing OS X Lion  
Using the installer log files to verify a successful installation  
Configuring OS X Lion with the Setup Assistant  
Updating software with Software Update and Installer  
Tips and techniques for troubleshooting an installation problem

### User Accounts

Creating and managing user accounts  
Creating and managing administrator accounts  
Locating directory attributes  
Security  
password selection  
Keychain  
FileVault

### File Systems

File systems supported by OS X Lion  
File and directory ownership and permissions  
Disk Utility and file repair  
Using the command line for file management

### Data Management

The root volume  
File system layout  
Preferences  
Frameworks  
File types unique to OS X Lion (i.e., resource forks and packages)  
Spotlight  
File archives  
Disk images  
Archiving and restoring data with Time Machine  
Managing backup data  
Accessing the data outside of Time Machine

### Applications and Processes

Applications supported in OS X Lion  
Applications created with different developer APIs  
The UNIX concept of a process  
The relationship of processes and applications  
Tools to monitoring and managing processes  
Application preferences  
Troubleshooting  
Boot Camp

### Network Configuration

Basic networking configuration  
TCP/IP networking  
Ethernet

AirPort  
Multiple network connections  
Appropriate use of network locations  
Isolating and troubleshooting network elements

### Network Services

Connecting to common network resources  
Network Users accounts with Directory Services, AFP, SMB, SSH, FTP, and WebDAV connections  
Bonjour  
NetBIOS  
The network browser  
Isolating client software issues from network issues  
Enabling network services on a OS X Lion client,  
Peer-to-peer collaboration  
Sharing files between Macs and Windows, sharing web documents  
Screen sharing  
Firewall  
Techniques to isolate server issues from client and network issues

### Peripherals and Printing

Connecting peripherals to a Mac  
Cabling  
Connections  
Device drivers for common peripherals  
Managing printers  
Print-job management  
Printer PPDs and PDF workflow  
Techniques for isolating cabling, driver, or application issues

### System Startup

Troubleshooting boot issues with a Mac at startup  
Phases of the startup process  
Automatic process launching with launched and login window startup items

### Installing and Configuring OS X Server

Installation  
initial configuration  
server administration tools  
troubleshooting installation issues

### Authenticating and Authorizing Accounts

Creating and administering accounts  
Controlling access (ACLs)  
Troubleshooting

### Using Open Directory

Configuring Open Directory  
Single sign-on

Backing up directory data  
Troubleshooting Open Directory  
Introduction to Kerberos

### Using File Services

Configuring and troubleshooting Apple File Service  
Share points for Windows users  
NFS  
Network mounts  
FTP  
Case sensitivity issues

### Managing Web Services

Hosting multiple web sites on a single server  
Providing WebDAV access to files

### Using Collaborative Services

Setting up and configuring wikis and blogs  
Providing iChat and iCal services to assist people working together  
Configuring Address Book service to share contact information amongst multiple computers

### Implementing Deployment Solutions

Configuring and troubleshooting NetBoot/Network Install to deploy Mac OS X

### Managing Accounts

Managed accounts  
Preference management  
Managed network browsing  
Mobile accounts  
Troubleshooting account management

**Course Description:** Mac OS X Support Essentials is a three-day, hands-on course that provides an in-depth exploration of troubleshooting on Mac OS X. This course is designed to give you a tour of the breadth of functionality of Mac OS X and the best methods for effectively supporting users of Mac OS X systems. The course is a combination of lectures and hands-on case study exercises that provide practical real-world experience.

**Who Should Attend:** This course is for help desk specialists, technical coordinators, service technicians, and others who support Mac users. It is also for technical support personnel in businesses that use Macs for general productivity or creative design and for technical coordinators or power users who manage networks of computers running Mac OS X — such as teachers and technology specialists who manage classroom networks or computer labs.

**Prerequisites:** Students should have basic Mac OS X knowledge and basic troubleshooting experience.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Understand the troubleshooting process and become more efficient with available tools and resources
- Understand and use Mac OS X 10.6 features in depth, including finding additional information
- Prepare for Apple Certified Support Professional certification

### Course Outline:

#### Chapter 1 - Installation

Prepare and partition the drive  
Install Mac OS X  
Use the installer log files to verify a successful installation  
Configure Mac OS X with the Setup Assistant  
Update software with Software Update and Installer  
Tips and techniques for troubleshooting an installation problem

#### Chapter 2 - User Accounts

Create and manage user accounts  
Create and manage administrator accounts  
Locate directory attribute  
Security  
Password selection  
Keychain  
FileVault

#### Chapter 3 - Command Line & Automation

Command line essentials including navigation and file manipulation  
Basic scripting and automation using the shell

#### Chapter 4 - File Systems

File systems supported by Mac OS X  
File and directory ownership and permissions  
Disk Utility and file repair  
Using the command line for file management

#### Chapter 5 - File Management

The root volume  
File system layout  
Preferences  
Frameworks  
File types unique to Mac OS X (i.e., resource forks and packages)  
Spotlight  
File archives  
Disk images  
Archiving and restoring data with Time Machine  
Managing backup data  
How to access the data outside of Time Machine

#### Chapter 6 - Applications

Applications supported in Mac OS X  
Applications created with different developer APIs  
The UNIX concept of a process  
The relationship of processes and applications  
Tools to monitoring and managing processes  
Application preferences  
Troubleshooting  
Boot Camp

#### Chapter 7 - Network Configuration

Basic networking configuration  
TCP/IP networking  
Ethernet

AirPort  
Multiple network connections  
Appropriate use of network locations  
Isolating and troubleshooting network elements

#### Chapter 8 - Network Services

Connecting to common network resources  
Network Users accounts with Directory Services  
AFP, SMB, SSH, FTP, and WebDAV connections  
Bonjour  
NetBIOS  
The network browser  
Isolating client software issues from network issues

#### Chapter 9 - Peripherals

Connecting peripherals to a Mac  
Cabling  
Connections  
Device drivers for common peripherals  
Managing printers  
Print-job management  
Printer PPDs and PDF workflow  
Techniques for isolating cabling, driver, or application issues

#### Chapter 10 - Startup Process

Troubleshooting boot issues with a Mac at startup  
Phases of the startup process  
Which part of the system is active during each phase  
Issues that can arise  
Automatic process launching with launchd and login window startup items

**Course Description:** Mac OS X Server Essentials is a four-day course designed to give technical coordinators and entry-level system administrators the skills, tools, and knowledge to implement and maintain a network that uses Mac OS X Server. Students learn how to install and configure Mac OS X Server to provide network-based services, such as file sharing, mail, web and wikis. Tools for efficiently managing and deploying Mac OS X and software updates are also covered. The course is a combination of lectures and hands-on case study exercises that provide practical real-world experience.

**Who Should Attend:** This course is designed for help-desk specialists, technical coordinators, and entry-level system administrators who implement and maintain networks using Mac OS X Server.

**Prerequisites:** Students should have an understanding of Mac OS X, experience with Mac OS X in a network environment, and basic troubleshooting experience or Snow 101.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Use the features of Mac OS X Server v10.6
- Configure essential services on Mac OS X Server
- Use Mac OS X Server tools to monitor and troubleshoot services
- Use Mac OS X Server to manage a small network of Macintosh computers and users
- Manage access to files and services
- Prepare for Apple Certified Technical Coordinator certification

### Course Outline:

#### Chapter 1 - Installation & Configuration

Installation  
Initial configuration  
Server administration tools  
Troubleshooting installation issues

#### Chapter 2 - Authentication, Authorization, and Access Control

Creating and administering accounts  
Controlling access (ACLs)  
Troubleshooting

#### Chapter 3 - Using Open Directory

Configuring Open Directory  
Single sign-on  
Backing up directory data  
Troubleshooting Open Directory  
Introduction to Kerberos

#### Chapter 4 - Using File Services

Configuring and troubleshooting Apple File Service  
Share points for Windows users  
NFS  
Network mounts  
FTP  
Case sensitivity issues

#### Chapter 5 - Hosting Mail Service

Configuring, maintaining and troubleshooting email service

#### Chapter 6 - Managing Web Service

Hosting multiple web sites on a single server  
Providing WebDAV access to files

#### Chapter 7 - Using Collaborative Services

Setting up and configuring wikis and blogs, and the iChat and iCal services to assist people working together  
Configuring Address Book service to share contact information amongst multiple computers

#### Chapter 8 - Implementing Deployment Solutions

Configuring and troubleshooting NetBoot/Network Install to deploy Mac OS X

#### Chapter 9 - Managing Accounts

Managed accounts  
Preference management  
Managed network browsing  
Mobile accounts  
Troubleshooting account management

**Course Description:** This four-day course focuses on both Mac OS X as a directory service client, and Mac OS X Server as a directory server. Cross platform solutions are emphasized in both instances. In working with Mac OS X, students learn how to use network accounts and Kerberos authentication with any common directory service, such as Apple's Open Directory, Microsoft's Active Directory, or an industry-standard LDAP server.

In working with Mac OS X Server, students learn how to run a robust, scalable directory system using Apple's Open Directory server. Students also learn how to use Mac OS X Server to augment an existing directory service infrastructure. The course is a combination of lecture and hands-on case study exercises that provide practical real-world experience.

**Who Should Attend:** This course is designed for system administrators and IT professionals who need to gain specific knowledge about directory services, how to effectively configure Mac OS X computers to access directory services, and configure Mac OS X Server to provide directory services in a mixed-platform environment.

**Prerequisites:** Students should have basic troubleshooting experience or Snow 101, basic Mac OS X Server experience or Snow 201, an understanding of basic IP networking, including IP address, subnet masks, ports, and protocols and experience using the command-line interface with Mac OS X.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Use network accounts and Kerberos authentication with any common directory service
- Run a robust, scalable directory system using Apple's Open Directory server
- Use Mac OS X Server to augment an existing directory service infrastructure

### Course Outline:

#### Chapter 1- Accessing Local Directory Service

Creating and editing local users  
Creating and editing local groups; troubleshooting login issues

#### Chapter 2- Accessing an Open Directory System

Configuring Mac OS X client computer to log in using an Open Directory master  
Configuring Directory Services search paths  
Troubleshooting binding issues;  
Troubleshooting login issues

#### Chapter 3- Accessing an LDAP Server

Populating an LDAP server with information required by Mac OS X for network login  
Configuring Mac OS X client computer to log in using a standard LDAP server  
Troubleshooting login issues

#### Chapter 4 - Accessing an Active Directory System

Configuring Mac OS X client computer to log in using an Active Directory system  
Troubleshooting binding issues  
Troubleshooting login issues

#### Chapter 5 - Configuring Open Directory Server

Configuring Mac OS X Server as an Open Directory master  
Configuring Mac OS X Server as a Primary Domain Controller  
Managing data stored in an Open Directory master  
Troubleshooting issues promoting Mac OS X Server to an Open Directory master

#### Chapter 6 - Configuring Open Directory Replicas

Configuring Mac OS X Server as an Open Directory replica  
Troubleshooting Open Directory replication

#### Chapter 7 - Connecting Mac OS X Server to Open Directory System

Configuring a Mac OS X Server to connect to an existing Open Directory server  
Configuring a service to use an Open Directory network user or group  
Troubleshooting binding issues  
Troubleshooting authentication issues

#### Chapter 8 - Integrating Mac OS X Server with Other Systems

Configuring Mac OS X Server to supplement directory data provided by a third-party server  
Configuring Mac OS X Server services to authenticate in a third-party Kerberos realm  
Configuring a thirdparty server to authenticate using an Open Directory KDC

**Course Description:** This three-day course focuses on solutions for deploying software, ranging from the installation of individual files to the deployment of complete system images to multiple computers. Students then apply what they've learned to create a full deployment plan that includes testing, hardware and software deployment, auditing and maintenance.

The course also teaches students how to create a tiered Software Update server solution, as well as about third-party solutions to supplement tools provided by Apple. Students get hands-on experience in using tools such as Apple Remote Desktop, Disk Utility, PackageMaker, and System Image Utility and discuss the pros and cons of each for different deployment situations.

**Who Should Attend:** This class is for Mac OS X system administrators who need to know how to streamline the process of installing and configuring a large number of computers running Mac OS X.

**Prerequisites:** Students must have an understanding of Mac OS X, basic troubleshooting experience or Snow 101, basic Mac OS X Server experience or Snow 201, experience with Mac OS X in a network environment, and experience using the command-line interface with Mac OS X.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Create a tiered Software Update server solution
- Use tools such as Apple Remote Desktop, Disk Utility, PackageMaker, and System Image Utility
- Streamline the process of installing and configuring a large number of computers running Mac OS X

### Course Outline:

#### Deployment Planning

Using the Deployment Planning Template  
Understanding primary deployment concepts  
Planning hardware deployment logistics  
Planning usage management

#### Deploying Individual Items and Containers

Mac OS X file deployment considerations  
Using archive files for deployment  
Using ARD 3 to deploy items  
Using disk images for deployment

#### Deploying with Installation Packages

Understanding Mac OS X installation technology  
Creating installation packages  
Using installation package actions, scripting, and snapshots  
Deploying and maintaining installation packages  
Third-party installation tools

#### Deploying Entire Systems

System deployment techniques overview  
Creating a cloned system image  
Creating a modular system image  
Deploying system images  
Third-party system image creation tools and Boot Camp

#### Using NetBoot for Deployment

Understanding the NetBoot service  
Creating simple NetBoot images  
Configuring the NetBoot service  
Creating custom NetBoot images  
Third-party system deployment tools

#### Postimaging Deployment Considerations

Postimaging client configuration techniques  
Postimaging server configuration techniques  
Third-party postimaging configuration tools

#### System Maintenance

Understanding system maintenance concepts  
Using Apple tools for system maintenance  
Using the Apple Software Update service  
Third-party system maintenance tools

#### Complete Deployment Solutions

Real-world deployment case studies  
Finalizing your deployment solution

**Course Description:** This three-day course focuses on strategies for providing secure access from mobile devices to services running on private networks. Working with Mac OS X Server, students learn how to securely provide network services such as web, mail, and calendar to mobile computers and devices, such as the iPhone. Students will also learn the basics of deploying both web and native applications on mobile devices such as the iPhone using Xcode, Dashcode, and the iPhone Configuration Utility. The course is a combination of lecture and hands-on exercises that provide practical real-world experience.

**Who Should Attend:** This course is designed for system administrators and IT professionals who need to gain specific knowledge about DNS, VPN, firewalls, certificates and proxy servers, effectively configure mobile devices that are connected to public networks to access services running on a private network, and configure Mac OS X Server to provide trusted authentication to proxied services such as web, mail, and calendar.

**Prerequisites:** Students must have basic troubleshooting experience or Snow 101, basic Mac OS X Server experience or Snow 201, understanding of basic IP networking (including IP address, subnet masks, ports, and protocols), and experience using the command-line interface with Mac OS X.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Provide secure access from mobile devices to services running on private networks
- Securely provide network services such as web, mail, and calendar to mobile computers and devices
- Deploy both web and native applications on mobile devices

### Course Outline:

#### Chapter 1 - DNS

Creating and editing zones  
Verifying forward and reverse lookups  
Configuring split-DNS  
Creating secure and private DNS servers  
Troubleshooting name resolution.

#### Chapter 2 - DHCP

Configuring Mac OS X client computer to obtain an IP address from a DHCP server  
Configuring secure DHCP address distribution  
Troubleshooting host configuration issues  
Troubleshooting address conflicts

#### Chapter 3 - NAT/Gateway

Configuring Mac OS X Server to provide network address translation services  
Configuring Mac OS X client computer to access public services through a gateway server  
Troubleshooting address translation issues  
Securing Systems and Services

#### Chapter 4 - Firewalls

Configuring Mac OS X Server computer to restrict IP access to services

#### Chapter 5 - VPN

Establish secure connections between clients connected to a public network and services running on private intranets

#### Chapter 6 - Keys & Certificates

Establish trusted and validated connections between clients and services  
Providing Services for Mobile Devices

#### Chapter 7 - Providing iPhone Applications

Create, distribute, and install configuration profiles with the iPhone Configuration Utility (iPCU)  
Using Xcode and Dashcode to develop and deploy native and web application for iPhone and iPod touch

#### Chapter 8 - Mobile Access Server

Provide secure, public access via proxy servers connected to a public network to Address Book, iCal, Mail, and Web services

**Course Description:** The Apple Certified Technical Coordinator (ACTC) 10.6 Boot Camp is a combined delivery of the Snow 101 and Snow 201 courses, along with the associated certification exams. This hands-on course provides an in-depth exploration of functionality and troubleshooting on Mac OS X and the best methods for effectively supporting users of Mac OS X systems.

This course also gives technical coordinators and entry-level system administrators the skills, tools, and knowledge to implement and maintain a network that uses Mac OS X Server. Students learn how to install and configure Mac OS X Server to provide network-based services, such as file sharing, authentication, and printing. Tools for efficiently managing and deploying Mac OS X and software updates are also covered.

**Who Should Attend:** This course is designed for help desk specialists, technical coordinators, service technicians, and entry-level system administrators who implement and maintain networks using Mac OS X Server or support Mac users, technical support personnel in businesses that use Macs for general productivity or creative design, and technical coordinators or power users who manage networks of computers running Mac OS X — such as teachers and technology specialists who manage classroom networks or computer labs.

**Prerequisites:** Students must have basic Mac OS X knowledge and basic troubleshooting experience.

**Benefits of Attendance:** Upon completion of this course, students will be able to:

- Implement and maintain a network that uses Mac OS X Server
- Install and configure Mac OS X Server to provide network-based services
- Use tools for efficiently managing and deploying Mac OS X and software updates

## Course Outline:

### Snow 101

#### Chapter 1 - Installation

Prepare and partition the drive, install Mac OS X, use the installer log files to verify a successful installation, configure Mac OS X with the Setup Assistant, update software with Software Update and Installer, tips and techniques for troubleshooting an installation problem

#### Chapter 2 - User Accounts

Create and manage user accounts, create and manage administrator accounts, locate directory attributes, security, password selection, Keychain, and FileVault

#### Chapter 3 - Command Line & Automation

Command line essentials including navigation and file manipulation. Basic scripting and automation using the shell

#### Chapter 4 - File Systems

File systems supported by Mac OS X, file and directory ownership and permissions, Disk Utility and file repair, using the command line for file management

#### Chapter 5 - File Management

The root volume, file system layout, preferences, frameworks, file types unique to Mac OS X (i.e., resource forks and packages), Spotlight, file archives, disk images, archiving and restoring data with Time Machine, managing backup data, how to access the data outside of Time Machine

#### Chapter 6 - Applications

Applications supported in Mac OS X, applications created with different developer APIs, the UNIX concept of a process, the relationship of processes and applications, tools to monitoring and managing processes, application preferences, troubleshooting, Boot Camp

#### Chapter 7 - Network Configuration

Basic networking configuration, TCP/IP networking, Ethernet, AirPort, multiple network connections, appropriate use of network locations, isolating and troubleshooting network elements

#### Chapter 8 - Network Services

Connecting to common network resources, Network Users accounts with Directory Services, AFP, SMB, SSH, FTP, and WebDAV connections, Bonjour, NetBIOS, the network browser, isolating client software issues from network issues

#### Chapter 9 - Peripherals

Connecting peripherals to a Mac, cabling, connections, device drivers for common peripherals, managing printers, print-job management, printer PPDs and PDF workflow, techniques for isolating cabling, driver, or application issues

#### Chapter 10 - Startup Process

Troubleshooting boot issues with a Mac at startup, phases of the startup process, which part of the system is active during each phase, issues that can arise, automatic process launching with launchd and login window startup items

### Snow 201

#### Chapter 1 - Installation & Configuration

Installation, initial configuration, server administration tools, and troubleshooting installation issues

#### Chapter 2 - Authentication, Authorization, and Access Control

Creating and administering accounts, controlling access (ACLs), and troubleshooting

#### Chapter 3 - Using Open Directory

Configuring Open Directory, single sign-on, backing up directory data, troubleshooting Open Directory, and an introduction to Kerberos

#### Chapter 4 - Using File Services

Configuring and troubleshooting Apple File Service, share points for Windows users, NFS, network mounts, and FTP; case sensitivity issues

#### Chapter 5 - Hosting Mail Service

Configuring, maintaining and troubleshooting email service

#### Chapter 6 - Managing Web Service

Hosting multiple web sites on a single server, providing WebDAV access to files

#### Chapter 7 - Using Collaborative Services

Setting up and configuring wikis and blogs, and the iChat and iCal services to assist people working together, and configuring Address Book service to share contact information amongst multiple computers.

#### Chapter 8 - Implementing Deployment Solutions

Configuring and troubleshooting NetBoot/Network Install to deploy Mac OS X

#### Chapter 9 - Managing Accounts

Managed accounts, preference management, managed network browsing, mobile accounts, troubleshooting account management