



Windows Services

Support Windows and mixed-platform workgroups with high-performance, affordable network services.

Features

File and print services

- Integrated Samba 3 for native SMB/CIFS protocol support
- Windows file sharing over TCP/IP
- PostScript printer queue sharing with Windows clients
- NTLM, NTLMv2, and Kerberos authentication
- Unified file locking for Mac and Windows users—simultaneous sharing of files without corruption
- Unicode support for multilingual files

NT Domain services

- Support for Primary Domain Controller (PDC), Backup Domain Controller (BDC), and Domain Member services
- Hosting of Windows home directories and roaming profiles

Native Active Directory integration

- Support for reading and writing data stored in Active Directory
- Active Directory domain membership and automatic Kerberos setup and service configuration
- Full compatibility with Active Directory access control lists (ACLs)
- Packet signing for data integrity

Network services

- Virtual private networking using PPTP and L2TP/IPSec
- Domain Master Browser for service discovery
- Name/Address resolution across multiple subnets using WINS
- DHCP server assignment of WINS and NetBIOS settings

Technology Brief

Mac OS X Server: Windows Services

Mac OS X Server is an ideal platform for providing network services to Windows clients, whether in a Windows-only or mixed-platform environment. Leveraging the latest open source technologies, Mac OS X Server offers native workgroup services—file and printer sharing, directory and authentication services, and VPN—for Windows clients. Apple's industry-leading administration tools make these open source services extremely easy to set up and manage. And the Unlimited-Client Edition of Mac OS X Server allows you to scale your network as your needs grow—without draining your IT budget.

Apple has integrated Samba 3, the latest version of the popular open source SMB/CIFS server, with Mac OS X Server to deliver high-performance, reliable file and printer sharing for Windows clients, as well as support for NT Domain services. Support for access control lists (ACLs) provides flexible file system permissions that are fully compatible with Windows Server 2003, Windows Vista, and Windows XP. With NT Domain services, Mac OS X Server can host network home directories and roaming profiles for Windows clients and provide single sign-on authentication to network services, without requiring organizations to take on the complexity and expense of an Active Directory infrastructure.

For businesses and institutions that have already deployed Active Directory, Mac OS X Server helps save costs. With no per-user license fees, Mac OS X Server can deliver cost-effective workgroup services, while integrating with Active Directory for permissions, user and group account information, and authentication.

Windows Services at a Glance



- 1 Apple's Open Directory architecture provides login and authentication services for Mac and Windows clients.
- 2 Network home directories hosted on Mac OS X Server are accessible from a Mac or Windows computer, making it easy for users to switch between platforms.
- 3 Network services for Windows clients are built in, including WINS, NetBIOS, and VPN.
- 4 High-performance file and print services make it easy to share network resources using the native Windows SMB/CIFS protocol.



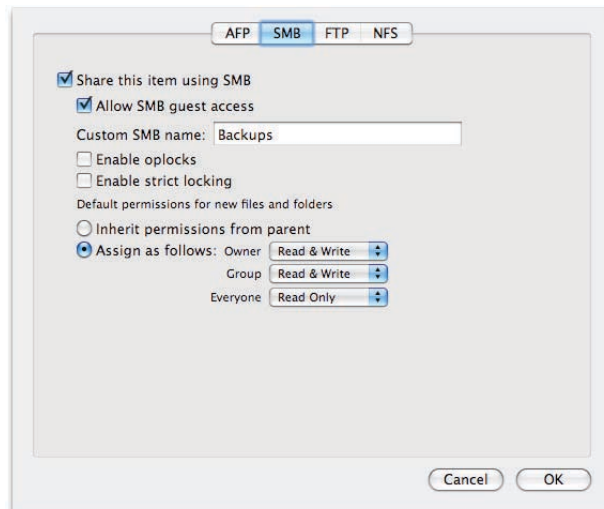
Shared folders hosted on Mac OS X Server appear in the Network Neighborhood of Windows clients.

Native File and Print Services

Mac OS X Server makes it easy to configure and manage high-speed SMB/CIFS file and print services for Windows clients. Support for native service discovery protocols enables Mac OS X Server systems to appear right in the Network Neighborhood—just like a Windows server—so Windows clients can browse folders and share files without having to install additional software.

To provide greater flexibility in complex computing environments, Mac OS X Server v10.5 Leopard includes support for access control lists (ACLs)—a capability unprecedented on any UNIX- or Linux-based platform. With file system ACLs, an extended set of permissions gives you fine-grained control over share point and folder access privileges, and any file object can be assigned multiple users and groups, including groups within groups. The native ACL implementation of Mac OS X Server enables full interoperability with Windows Server Active Directory environments and with Windows Vista and XP clients, making Mac OS X Server the ultimate platform for sharing files in mixed-platform workflows.

The built-in Workgroup Manager application provides an easy-to-use interface for defining share points and managing user account information and access privileges. Any disk, volume, or folder hosted on Mac OS X Server can be shared using any combination of protocols, making it available to Mac, Windows, and Linux clients.



Workgroup Manager allows you to control the use of network resources with user-based disk and print quotas. Quotas apply to individual users in your directory, so they remain in effect regardless of which computer—or even which platform—clients are using. The user accounts and quotas that you define in Workgroup Manager can be stored on the local server or in a centralized LDAP directory server. Mac OS X Server can access account records and write to virtually any LDAP directory, including Apple Open Directory and Microsoft Active Directory.

Samba 3

Samba is a popular open source replacement for Microsoft's SMB/CIFS file, print, and domain services that is designed to run on UNIX-based platforms. The latest version, Samba 3, delivers major enhancements, including support for NT Domain services and single sign-on authentication with Kerberos. For more information about Samba, visit www.samba.org.

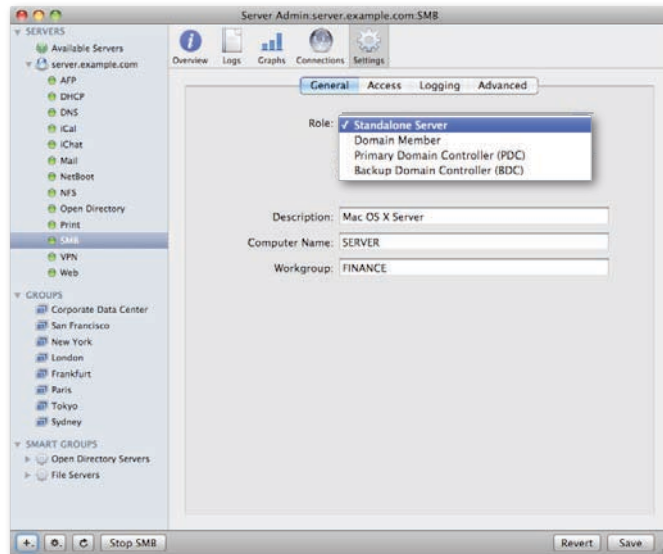
NT Domain Services

Open Directory, Apple's standards-based directory and authentication services architecture, uses Samba 3 technology to provide NT Domain services. That means you can configure Mac OS X Server as a Primary Domain Controller (PDC) or Backup Domain Controller (BDC), allowing Windows users to authenticate against Mac OS X Server directly from their PC login window. In addition, PDC support makes it possible for Mac OS X Server to host network home directories and roaming profiles for Windows clients.

The integration of Samba 3 makes Mac OS X Server an ideal replacement for aging Windows NT or Windows 2000 servers, without requiring businesses to transition to a complex and expensive Active Directory infrastructure.

Setting up Windows services

The powerful Server Admin utility provides a single-window interface for configuring, managing, and monitoring network services on Mac OS X Server. Setting up Windows services couldn't be easier: Simply select the server's role, type the server name and description, and click the Start SMB button.



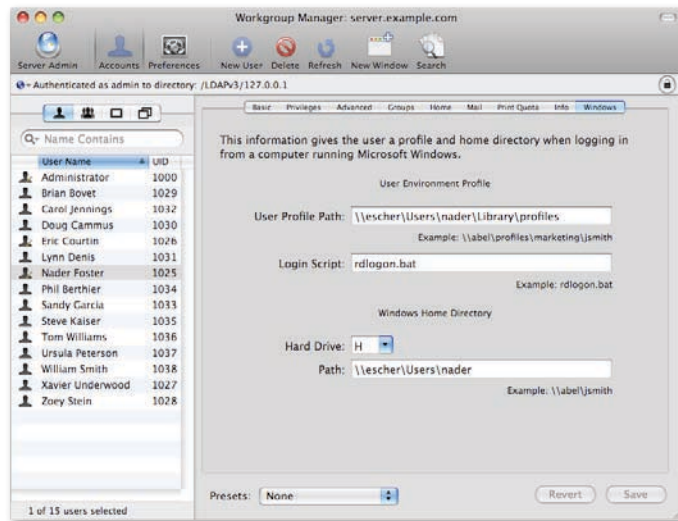
Mac OS X Server can provide different levels, or roles, of Windows services depending on your network and its configuration. All of them allow you to provide file and print services for Windows clients.

- **Primary Domain Controller (PDC)** hosts an NT domain, storing user, group, and computer accounts and providing authentication services to the domain using Open Directory. The PDC server can host user profiles and home directories for Windows users defined in the directory.
- **Backup Domain Controller (BDC)** provides automatic failover and backup of the NT domain login and other Windows client requests for authentication and directory services. The BDC server can host user profiles and home directories for Windows users defined in the directory.
- **Domain Member** can also host user profiles and home directories for users who have domain user accounts. It authenticates clients using the Mac OS X Server system that is the Primary Domain Controller.

- **Standalone Server** authenticates users for its Windows file service, but does not provide authentication services for Windows domain login. This role is used in unmanaged network environments or when integrating with an Active Directory infrastructure.

Network home directories

Using Workgroup Manager, it's easy to provide any user on your network with a Windows roaming profile and network home directory. This can be a unique network folder for use by the user when logged in to a Windows computer or the same network folder that's mounted when the user logs in to a Mac system. Using the same folder allows users to access their personal files and system preferences securely from either platform.



VPN Services

With the built-in Virtual Private Network (VPN) server, Mac OS X Server provides secure remote network access from Windows computers as if they were on the same local area network. Mac OS X Server uses the popular PPTP and L2TP tunneling protocols to support a wide range of Windows systems using any standards-based VPN client. Mac OS X Server VPN services use highly secure authentication methods, including MS-CHAP and network-layer IPSec encryption for L2TP clients.

Windows Network Infrastructure

Mac OS X Server can provide network infrastructure services for your Windows clients. Samba 3 provides network browsing and name-to-address translation services through the use of integrated WINS (Windows Internet Name Server) and NetBIOS (Network Basic Input/Output System) services.

WINS provides dynamic computer name registration and resolution, allowing Windows clients to find each other on the same network or, when used with NetBIOS, to discover Windows clients and domains across subnets without requiring a local domain controller.

The DHCP services of Mac OS X Server can simplify the setup, configuration, and deployment of Windows clients on your network. DHCP can be configured to automatically assign WINS and NetBIOS information to Windows clients, simplifying system configuration and administration for network administrators.

Integration with Active Directory

Mac OS X Server is designed to fit into just about any managed network environment, including ones that use Microsoft's Active Directory. Support for Active Directory domain membership and automatic Kerberos setup and server configuration enables Mac OS X Server to accept Kerberos authentication credentials for users and groups in the Active Directory domain. And you can configure Mac OS X Server to access basic user account information in Active Directory without requiring any modification to the Active Directory schema.

This means all services running on Mac OS X Server can use Active Directory for user and group lookups, as well as for authentication. And since Mac OS X Server has no per-user license fees, it's an attractive platform for delivering services of many types, including file and print, calendar, instant messaging, wiki hosting, and VPN access. Departments or workgroups in enterprise environments can take advantage of these low-cost services in Mac OS X Server, while integrating with their existing Active Directory infrastructure for permissions, user and group account information, and authentication. Secure network services hosted on Mac OS X Server even support single sign-on for clients authenticated using Microsoft's proprietary Kerberos implementation.

Apple Server Solutions

Native workgroup and network services for Windows clients are built into Mac OS X Server, Apple's UNIX® server operating system. Combining the latest open source technologies with Mac ease of use, Mac OS X Server unleashes the power of Xserve, Apple's rack-optimized server hardware. With phenomenal performance, massive storage capacity, high-bandwidth I/O, and integrated remote management tools, Xserve running Mac OS X Server is the ideal server solution for education, small businesses, and enterprises alike.

For More Information

For more information about Mac OS X Server, Xserve, and other Apple server solutions, visit www.apple.com/server.