

Xserve Configuration via Remote Management

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Goal

- To ship the Xserve where it lives and setup, install, manage, and backup your Xserve with no video card and no local access
- Administration by remote control
 - Other Macs
 - PCs
 - Palm Devices



What We'll Cover

- Hardware
- Setup
- Backup
- Control

What should you know?

- Someone at that location who likes you
- ssh
- ARD
- Server Tools
- crontab
- All MAC Addresses
- Server Hardware Serial Number
- Server Software Serial Number



Hardware

- Apple currently ships Mac OS X Server on one DVD
- Older Xserves may not have a DVD reader
- CDs are available via Apple

More Hardware

- Apple has an optional hardware RAID card for the Xserve
- Two built-in Ethernet ports
- Fiber Channel cards are also an option
- “What’s in *YOUR* Xserve?”
- Goal, some software may need to be backed up immediately

Networking

- Apple currently pre-configures the Xserve to boot into Server Assistant
- Can you find it?
 - If you are local, no fair - you cheated (Bonjour)
 - Obtain a public IP from your ISP
 - Easier said than done, but let's ask anyway

Groveling for an IP

- Ask ISP to setup DHCP server and give out specific IP address to your Xserve
 - This is done by ISP matching the Xserve MAC address to an IP address
 - Easy to do if another Mac OS X Server is already installed
 - If your Xserve is destined to have another IP address, that's ok too
 - This one is temporary

Locating your Xserve

- Using Server Assistant
 - Enter your IP and hardware serial number or 12345678 for older equipment
- Using command line
 - `/System/Library/ServerSetup/sa_srchr IP_Address`


Server Assistant

Mac OS X Server Assistant

Destination


Use the list below to select the server where the software should be installed. If you want to install to a server that is not in the list, enter its IP address in the provided field.

Install to: Server in List Server at IP Address

IP Address	Host Name	Mac Address	Status
169.254.41.34	localhost	00:0a:95:da:92:78	

Server Status...
This server is waiting for installation.

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 **Enter the temporary password to continue.**

The server's temporary password is the first eight digits of the server's serial number.

Password:

[Cancel](#) [OK](#)

Install Now?

- No.
- Be patient.
- Conquer and divide.
- Partition disk, many disks, or RAID
 - Commit at least 10G to a spare volume
- use diskutil from CLI

But I Can't Partition

- Out of the box, no.
- Have pal at other end boot from Server DVD w/no keyboard attached
 - This obtains a DHCP address, enables ssh daemon, and has a variety of CLI tools available, all from booting off DVD
 - Explain...

So Far

- DVD boots Xserve at other end
- Obtains public IP
- You use `ssh root@public_ip` to connect
 - Password is hardware serial # or 12345678
- `diskutil` can now be used to prepare disks and volumes
 - At LEAST two partitions, one 10G

diskutil

- `df -hl`
 - Shows device names
- `diskutil partitionDisk /dev/disk0 2 JournaledHFS+ xserver 150G JournaledHFS+ backuphd 10G`
- Partitions disk into 2 HFS+ partitions called xserver and backuphd which are 150G and 10G respectively
- Brave souls can also use `pdisk`

Better Still

- 3 disks in Xserve
- First two are software mirrored and that's where the install will take place
- Third disk will be used shortly

Now Install

- Now install via Server Assistant or CLI
- When installing remotely, there is no GUI method to customize the installation
- Choose volume and (re)format if necessary
 - Might give you that warm fuzzy feeling
- CLI `installer` command will work too

Volume Pickings

Mac OS X Server Assistant

Volumes

There are multiple volumes on the server <localhost> at the <10.0.1.6>.

Use the list to choose the volume where the software should

Volume	Volume Information	System
osx	74.4 GB, (2.1 GB Used)	10.4

Installing on <localhost>.
You cannot upgrade this version of Mac OS X.

Remote Server Information
Srv Info: Mac OS X Server, 10.4, 8A428
Sys Info: Mac OS X, 10.4, 8A428
Bay: None

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Ready to begin installation.

The software will be installed on volume <osx> on the server <localhost> at IP address <10.0.1.6>.

Upgrade installations allow you to proceed without erasing the volume. If you are installing on a volume that can't be upgraded, you need to erase the volume before installing. Erasing destroys any existing data on the volume and formats the volume.

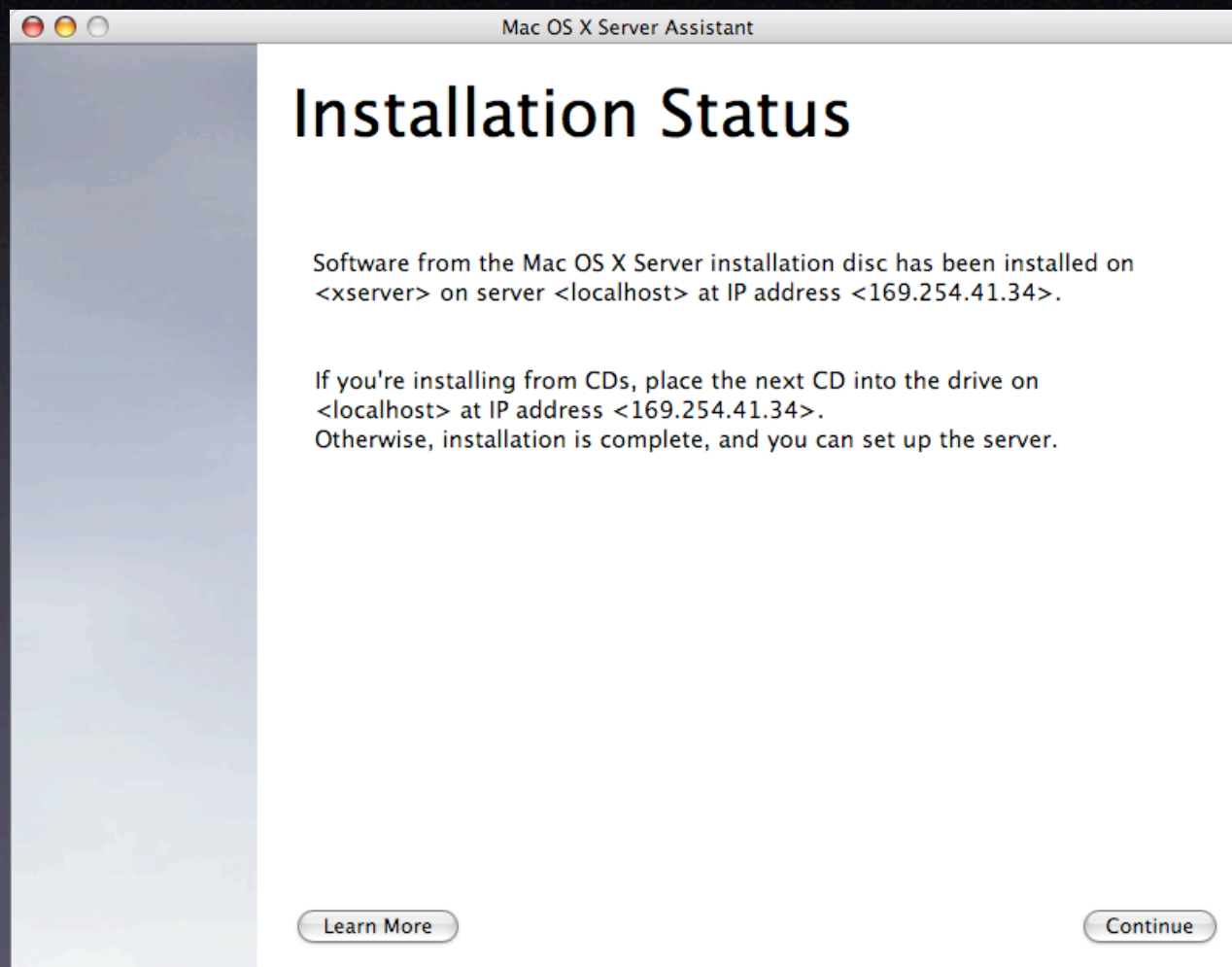
Use Don't erase or Erase and format as Mac OS Extended (Journaled) to choose the volume where the software should be installed.

This installation requires you to erase the volume. Any existing data will be destroyed.

[Cancel](#)

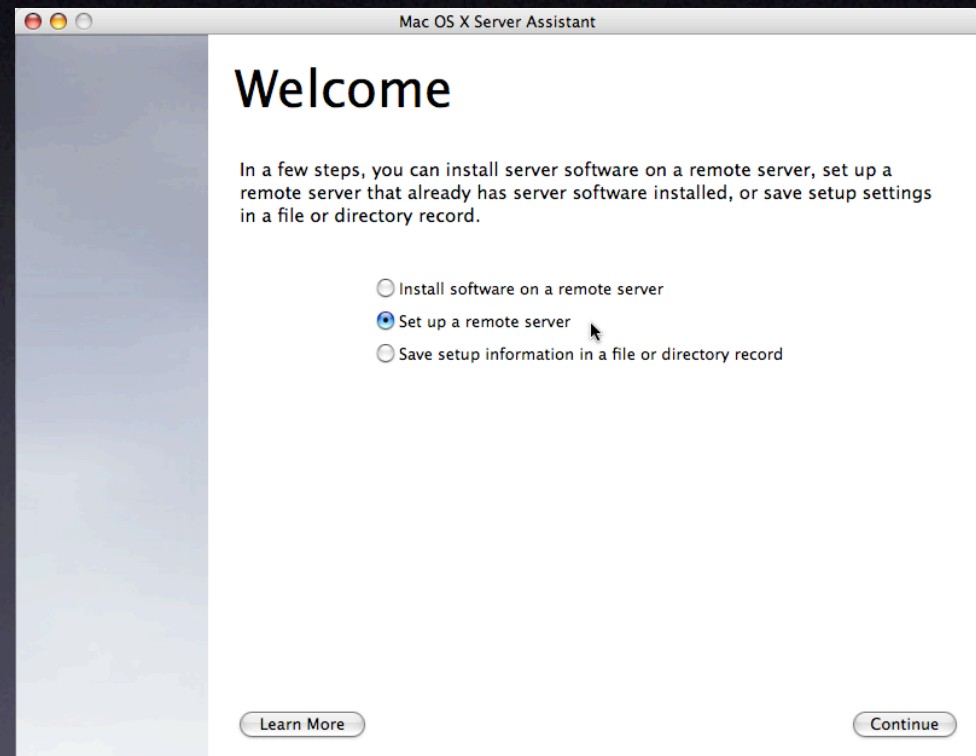
[OK](#)

If using CDs, time to call the pal



Installation Complete

- Time to setup server
- Use Server Assistant because the alternative is a lot of typing



Hardware Serial # Again

Mac OS X Server Assistant

Destination


The Mac OS X Server Assistant needs to know which servers to set up. You can use the table below to select servers on your subnet. If you want to set up a server that is not in the list, click Add and enter the server's information. You'll also need to supply the preset passwords for the servers you are setting up.

Apply	IP Address	Name	Password
<input checked="" type="checkbox"/>	10.0.1.5	localhost

Buttons: Add... Remove Refresh List

Buttons: Learn More Go Back Continue

One moment please...
Your selected servers are being authenticated.



Setup Panes

- Language
- Keyboard
- Serial Number
- Administrator account
 - Do NOT use capitol letters in short name
 - Best practice do not use short name **admin**

More Setup Panes

- Naming
 - Hostname
 - Cannot be set initially
 - Computer Name is AFP name
 - Bonjour Name

Naming

Mac OS X Server Assistant: 10.0.1.5

Network Names

This information is needed to configure your server to be accessed over the network.

Host Name: Set dynamically
Click Learn More button for details.

Computer Name:
Examples: My Server or Web Server

Local Hostname:
Examples: MyServer or WebServer
Computers on the server's local subnet will be able to reach it at <Guitar-Shop-Server.local>.

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Network

- Chose active network interfaces
 - AppleTalk can only be active on one interface
- If the Xserve is far away, why do you even need it active?
- Select IP address(es) for interface(s)
 - Can be changed later with `changeip`
 - Not best practice though
- Understand that after you apply all settings, this will be the new IP address for your server

Directory Usage

- Be careful here
- Do NOT make an Open Directory Master yet
 - Standalone Server for now
- Can connect to other Directory System

Standalone Server
✓ Connected to a Directory System
Open Directory Master

✓ As Specified by DHCP Server
Open Directory Server
NetInfo Server
Other Directory Server

Connected to Directory System

- As Specified by DHCP Server
 - Riiiiiiiiight. I want a Mac OS X Server to get a different address each time
- Open Directory Server
 - This server obtains all directory information from another Mac OS X Server running as a Master
- NetInfo Server
 - Backwards compatible with Jaguar
- Other Directory Server
 - UNIX, LINUX, Open LDAP

✓ As Specified by DHCP Server

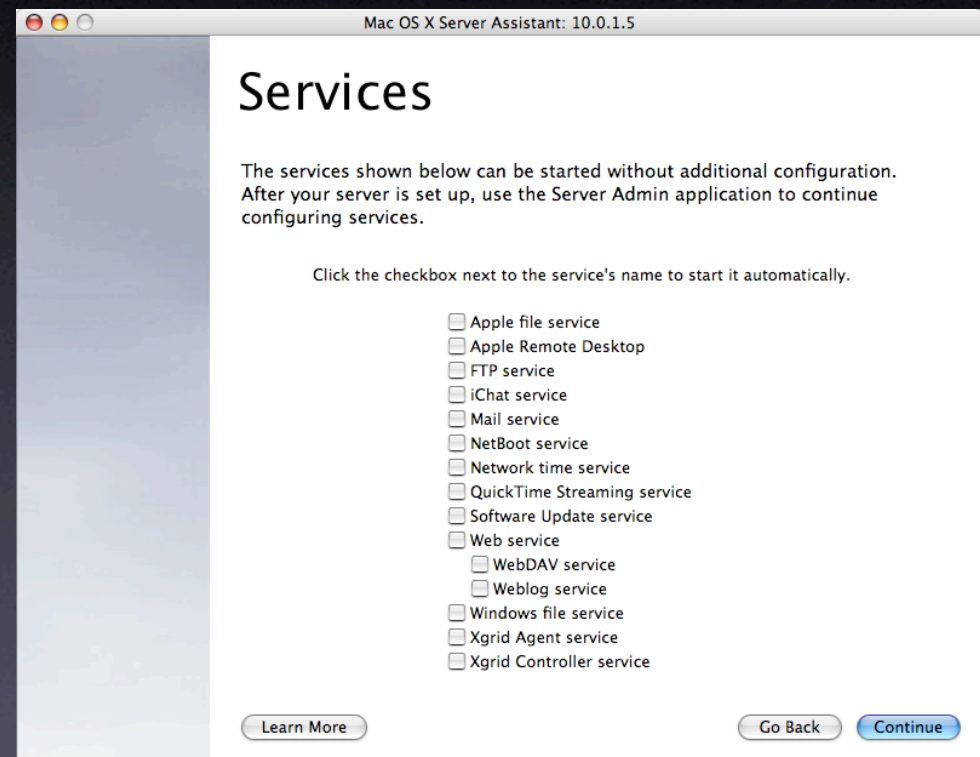
Open Directory Server

NetInfo Server

Other Directory Server

Still MORE Setup Panes

- Services
 - Initially start only ARD
- Time Zone
- Network Time



Now Save It

- Before applying the settings, save them
 - Create folder
 - Auto Server Setup
 - Save settings with default name inside this folder
 - Default name is MAC address.plist

Save

Mac OS X Server Assistant: 10.0.1.5

Confirm Settings

Review the settings. Save As saves settings in a file or directory (Learn More provides details). Go Back lets you change settings. Apply completes setup. Set Up More (in offline mode) creates new settings.

Adding New User:	Dakota Admin
Short Name:	dakota
Administrator/root password:	Using local account password
Host Name:	Set dynamically
Computer Name:	Guitar Shop Server
Local Hostname:	Guitar-Shop-Server
Built-in Ethernet:	
TCP/IP Connection Type:	Manual Configuration
IP Address:	10.0.1.125
Subnet Mask:	255.255.0.0
Router:	10.0.1.1
DNS Host:	10.0.1.1

[Save As...](#) [Set Up More](#)

[Learn More](#) [Go Back](#)

Save settings

Choose Text File to save documentation of your settings. Choose one of the other options to save the settings in a directory or file that can be used to automatically set up a server.

When you save settings, if the settings are for a particular server use MAC address, IP address, serial number, or host name as name. Use "generic" if you want multiple servers to use the saved settings.

When you save settings in a file, use the extension ".plist". Place the file in the target server in /Volumes/<device-name>/Auto Server Setup/.

Save as: Text File
 Configuration File
 Directory Record

Save in Encrypted Format.

Passphrase:

[Cancel](#) [OK](#)

There are several built-in Ethernet ports in the target server.

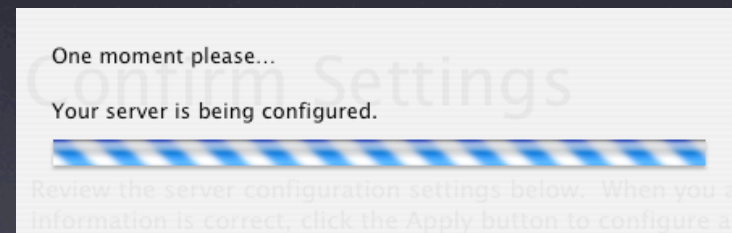
The MAC addresses are 000a95da9278
000a95f26bff

Do you want to save the settings for each MAC address in a separate file? If not, only one file will be saved, named using the MAC address of the first port listed in the Network Interfaces pane.

[No](#) [Yes](#)

Now Apply

- Once file is saved in Auto Server Setup folder on second partition, settings can be applied
- Server Assistant will no longer respond after pressing the Apple button
- Remove ssh key from your client machine, it may not match after the IP is changed



Update

- Update ARD first
 - Running `softwareupdate` from CLI can cause issues with QuickTime update if you update all (choose to not run that update yet)
 - Or locate and kill QT installer with another ssh connection
- Once ARD is updated and you can connect properly, then run Software Update via GUI

Additional Installs

- Install Developer Tools and your diagnostic/repair/maintenance tools
- Do not edit services or add data at this point

Client Install

- *Client?!?*
- Install Mac OS X Client on local machine and use same admin name and pwd as server (if you want)
 - Enable ssh, ARD, and update to current
- Image and copy over image to server and use `hdiutil` from CLI or DiskUtility with ARD to clone Mac OS X Client on backup partition

Huh?

- You have a Server boot volume
- You have a Client boot volume

Client Setup

- Do NOT boot from Client partition yet
- Copy over `/Library/Preferences/SystemConfiguration/preferences.plist` from Server to Client
 - This moves IP configuration information over
 - Remove or edit DNS and Search domain info
- Know ARD command to reactivate ARD

Time To Test

- Use GUI or `systemsetup` to change startup disk from server to client
 - `sudo systemsetup - setstartupdisk /Volumes/backuphd/System/Library/CoreServices`
- If successful, you should be able to ARD and ssh into Mac OS X Client with same credentials as server

More Client Setup

- Don't forget Auto Server Setup folder was created on other volume
 - Move it to Client volume
- Install Developer Tools and your diagnostic/repair/maintenance tools
- Configure to your liking - firewall, permissions, etc...

Image Time

- Use your favorite disk imaging tool to create r/w image of current server partition in pristine, updated, non-service configured state
 - Repair permissions beforehand and clean up to liking
- This is your image 1.0 and can be restored at any time in the future
- Change startup disk back to server

Back In Server

- Use your favorite disk imaging tool to create image of current client partition in case client side needs to be restored in the future
 - Repair permissions beforehand
- You now have two bootable partitions that allow for easy swapping and restoring without calling for help

Server Configuration

- Server Admin tool time
- Decide on DNS method
 - Off/On/Local Only
- Promote to Master if necessary

DNS

- If you're going to need DNS, at least have the server see itself
- Double-check Network Preferences DNS and search domain settings

Master

- Once DNS is resolving, promote to Master
 - Use `hostname` and `host` CLI to test
- Open ssh connection and tail `slapconfig` log to insure proper promotion


Firewall

- Enable Firewall first
- Shut everything down except what is already shown
 - ssh, server tools
- Use Firewall GUI wisely
- Create cron job to kill firewall every 30 minutes while you test
 - If you goof, then you wait and it fixes itself

Firewall

- Delete all IP Address groups except the one named *any*
- Create new group for each interface if using more than one
- One interface use the *any* configuration

Tear-offs

- Each service's Settings tab has a tear off 
- This creates a small plist of all that service's settings
- Use tear off with Firewall often while tweaking it
- Save ALL tear offs to encrypted disk image saved on client partition

Other Services

- Just Say No! to FTP
 - Use SFTP instead
- Use SMB with care
- Tear offs Tear offs Tear offs
 - When tweaking and making changes, save Tear offs in versioned folders in case you need to get back to a given state

Server Perfecto

- Your server is then setup the way you want and you have entered all the appropriate user data and service data
- Time to create another image on client, image 2.0
- This is your configured server prior to any real usage

Now The Fun Part

- Create a script to mount the server 2.0 disk image and then sync it one way with the server volume (while booted from the server of course)
- The script unmounts the disk image when finished
- Have this run whenever you want

Daily Usage

- Monitor logs closely
- Cron jobs to:
 - Move archived log files to client volume
 - Repair permissions
 - Backup various databases such as mail, ldap, mysql, and scripts

Security

- Data can be transferred in clear text
- Use certificates to encrypt data transfers
- Use open ssh to create keys

Synopsis

- When properly planned and configured, only a serious network or hardware failure is cause for contacting the ISP
- Use clone/sync tools to mount image on client and synchronize server volume on regular basis via crontab

Thank You

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