

Enterprise-Friendly Software Development



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Why?

Profit.

Enterprise-friendly:

- Sell more copies/seats to “enterprise”
- Lower your support costs

= Profit.

What is “enterprise”?

- **Banks**
- **Insurance companies**
- **Schools**
- **Universities**
- **Internet search giants**
- **Animation studios**

any environment with a large number of [^]Macs
managed

What is “enterprise-friendly”?

What is “enterprise-friendly”?

- Can be easily purchased for large numbers of users
- Can be installed with automated tools
- When installed, works as expected for all users of a machine, even those without admin rights.

Enterprise purchasing

- Rule #1: Make sure your customers can buy your product

Enterprise purchasing

- The Mac App Store is not an enterprise-friendly store.
- Make sure your software is available outside the Mac App Store.
- You get to keep 30% more!



Enterprise purchasing

- Extra credit: support “site licenses”

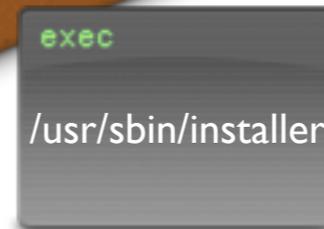
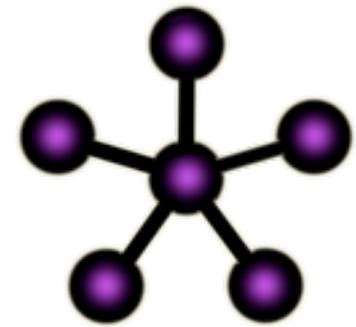
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Enterprise deployment

- Use the Apple package format
- Or a drag-n-drop disk image
- There is no third option.





Repackaging considered harmful

Repackaging considered harmful

- Extra work for system administrators
- They will do it wrong
- You get to support their mistakes

Packaging for enterprise

- Simpler is better
- Install all your parts
- Avoid package scripts

Package script pitfalls

- Assuming there is a logged-in user
- Assuming the user installing the software will be the same user **using** the software
- Assuming you own the Dock, Desktop, etc
- Assuming the software will be installed to the startup disk

if you must script...

- Use the `$COMMAND_LINE_INSTALL` environment variable
- Don't use `$USER`
- Use the `$3` argument
- Test your script when no-one is logged in

if you must script...

```
# demonstrate $COMMAND_LINE_INSTALL
if [ "$COMMAND_LINE_INSTALL" = "" ]; then
    open "http://www.example.com/welcome"
fi
```

please don't...

- Assign ownership to current user
- Launch an application after install
- Install everything as world-writable!

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What's different?

- Multiple users on one machine
- Directory Services/network users
- Most users may not have admin rights
- Network home directories

Home folders

- May not be in /Users
- May be encrypted
- May be on network volumes
- May not exist yet!

Home folders

- use `NSHomeDirectory`
- or `NSHomeDirectoryForUser`
- or even `$HOME`
- don't assume `/Users!`

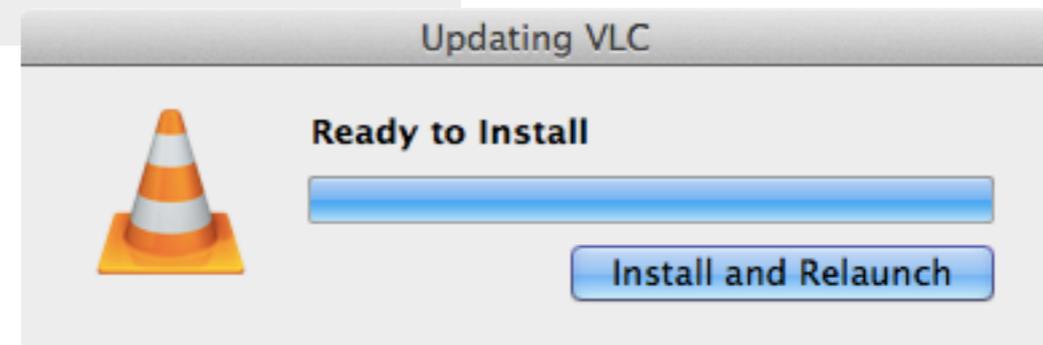
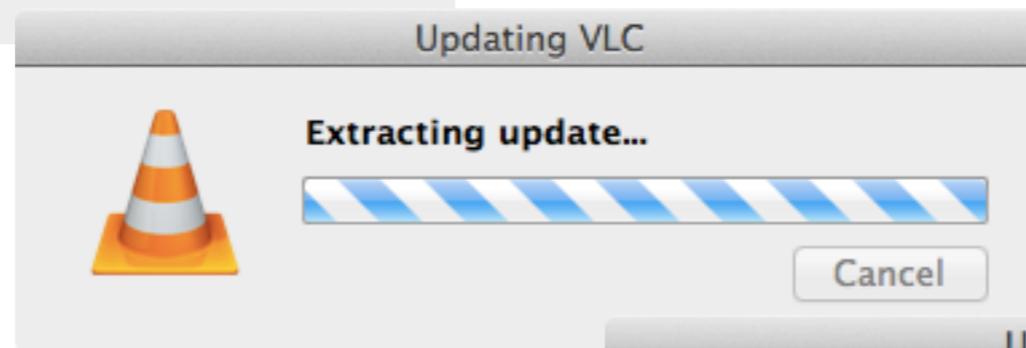
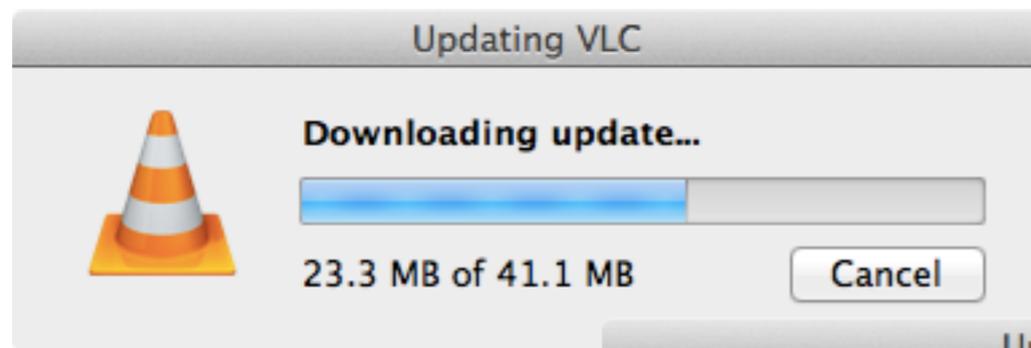
Licensing/Registration

- Storing this info in user home folder:
 - Not ideal in the enterprise
- Support a global location:
 - `/Library/Preferences/`
 - `/Library/Application Support/`

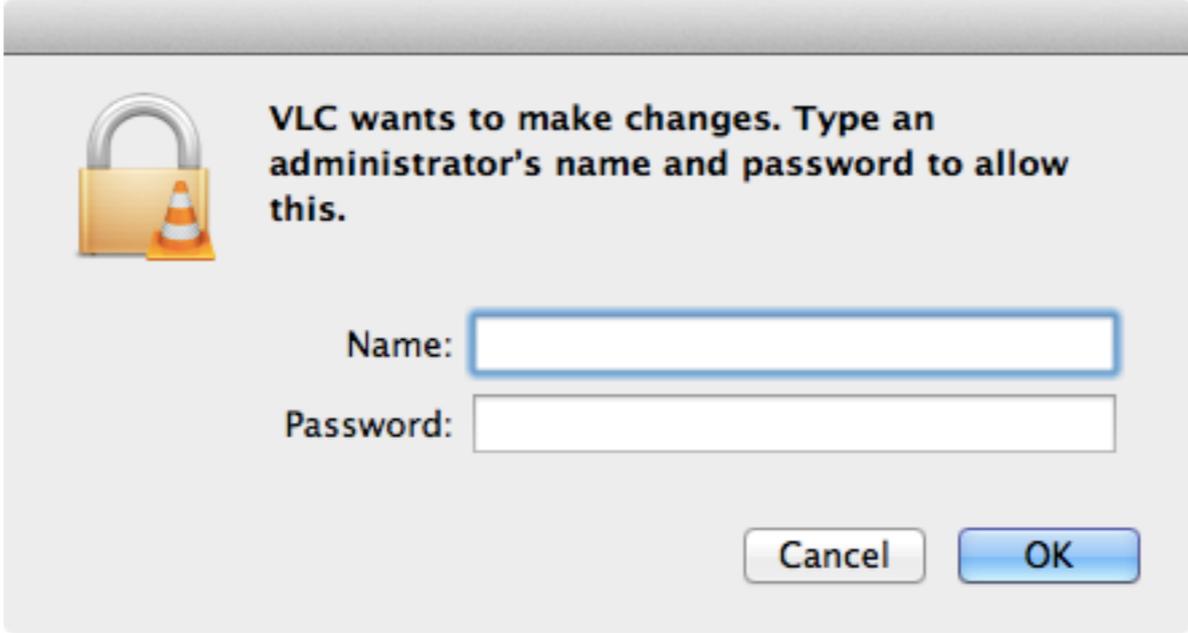
Auto Updates



Auto Updates



Auto Updates



VLC wants to make changes. Type an administrator's name and password to allow this.

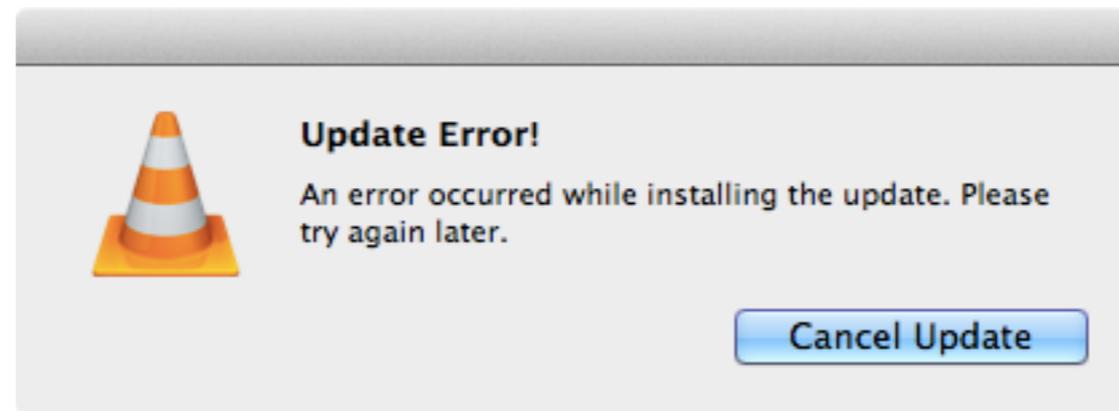
Name:

Password:

Cancel OK

The image shows a standard macOS-style dialog box with a light gray background and a title bar. On the left side, there is an icon of a yellow padlock with a VLC traffic cone on top of it. To the right of the icon, the text reads "VLC wants to make changes. Type an administrator's name and password to allow this." Below this text are two input fields: the first is labeled "Name:" and the second is labeled "Password:". At the bottom right of the dialog, there are two buttons: "Cancel" and "OK". The "OK" button is highlighted with a blue gradient.

Auto Updates



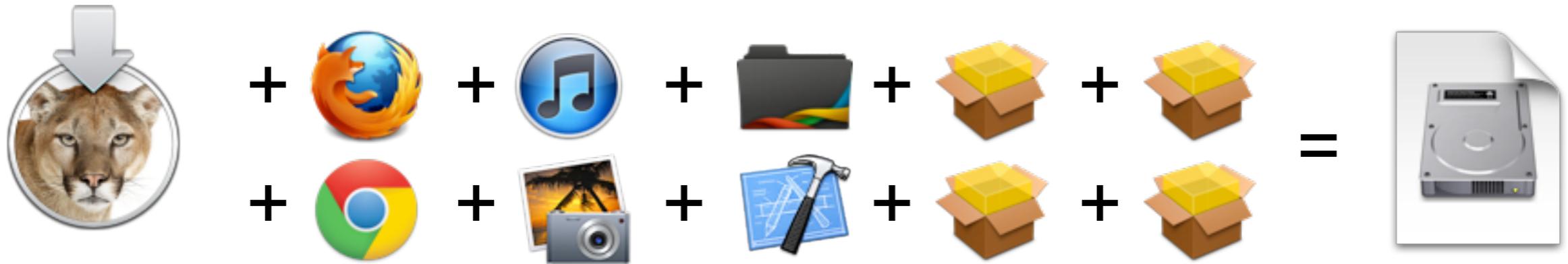
Auto Updates

- User might not be an administrator!
- Organization may want to control timing
- Let us turn off auto-updates
- Make updates available as packages

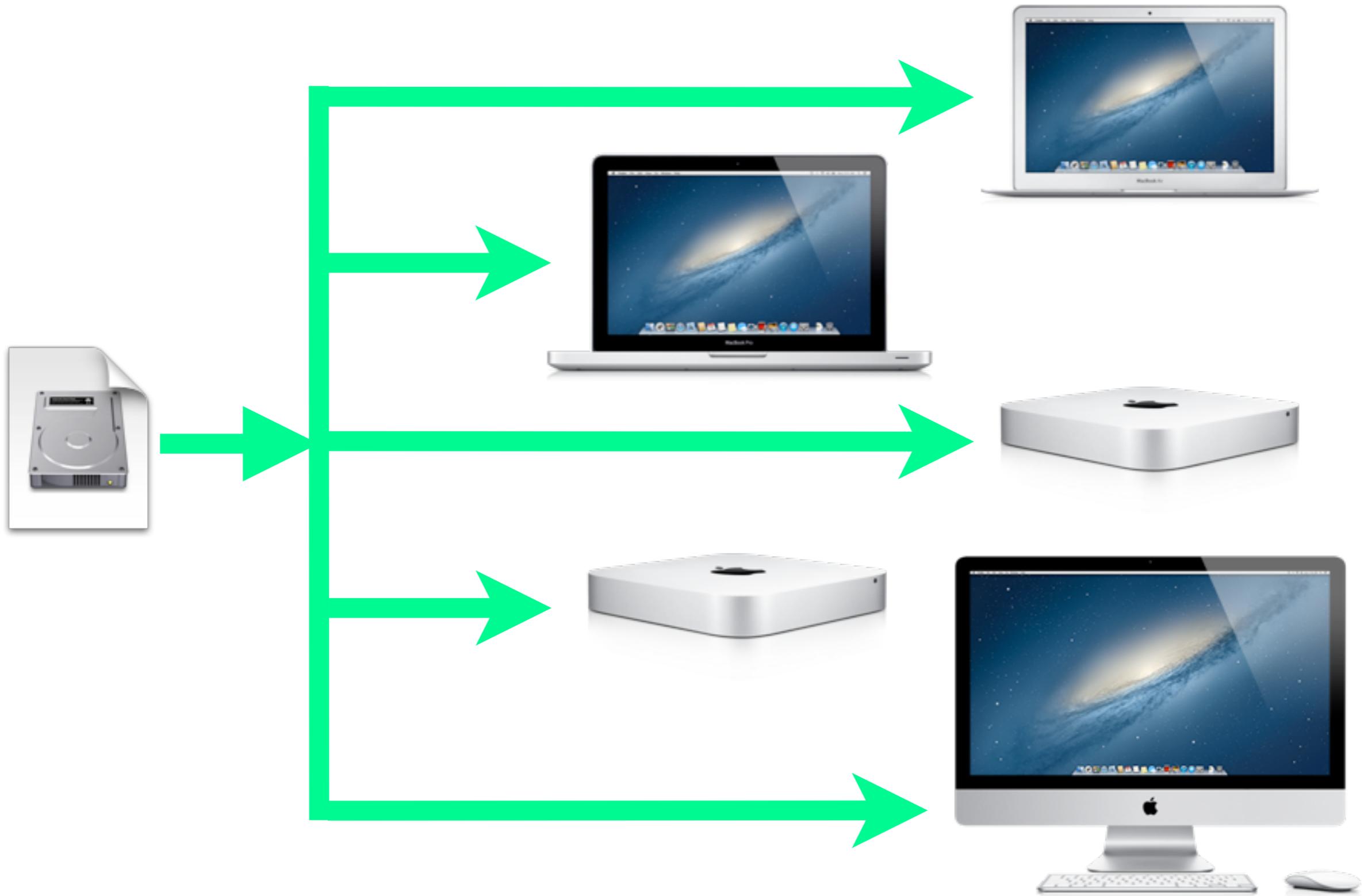
Extra Credit

- Imaging
- MCX/Profiles

Modular imaging



Modular imaging



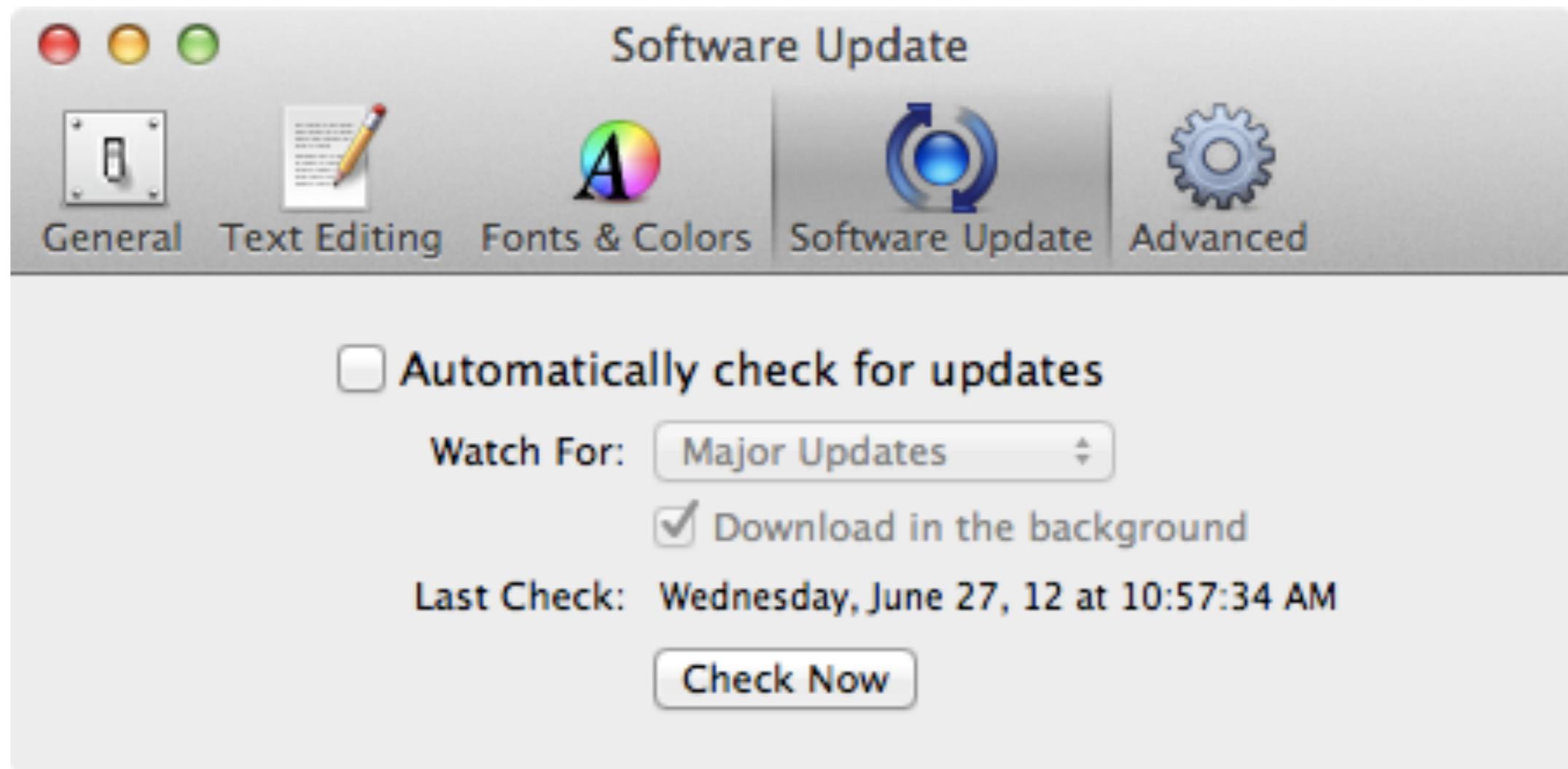
Modular imaging

- Ensure your software can:
 - Install to non-boot disk
 - Install with no GUI user

MCX/Profiles

- Allow admins to manage preferences/settings
- Examples:
 - Disable auto-update
 - Turn off registration prompts

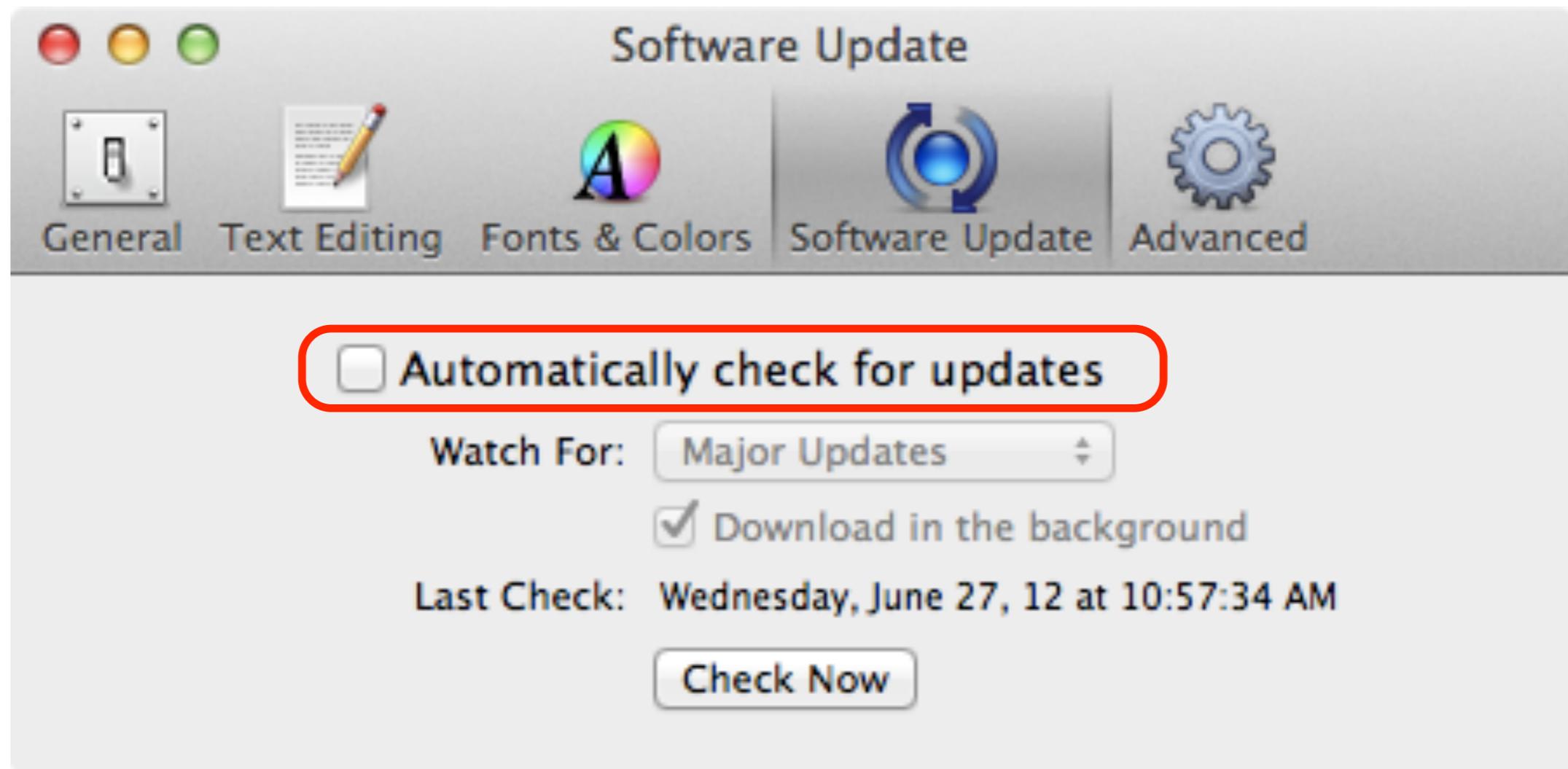
MCX/Profiles



MCX/Profiles

- Don't roll your own saving/restoring of preferences
- Use CoreFoundation CFPreferences methods

MCX/Profiles



MCX/Profiles

```
CFStringRef autoUpdateKey = CFSTR("SoftwareUpdateAutomaticCheckEnabled");
```

```
// Set up the preference.
```

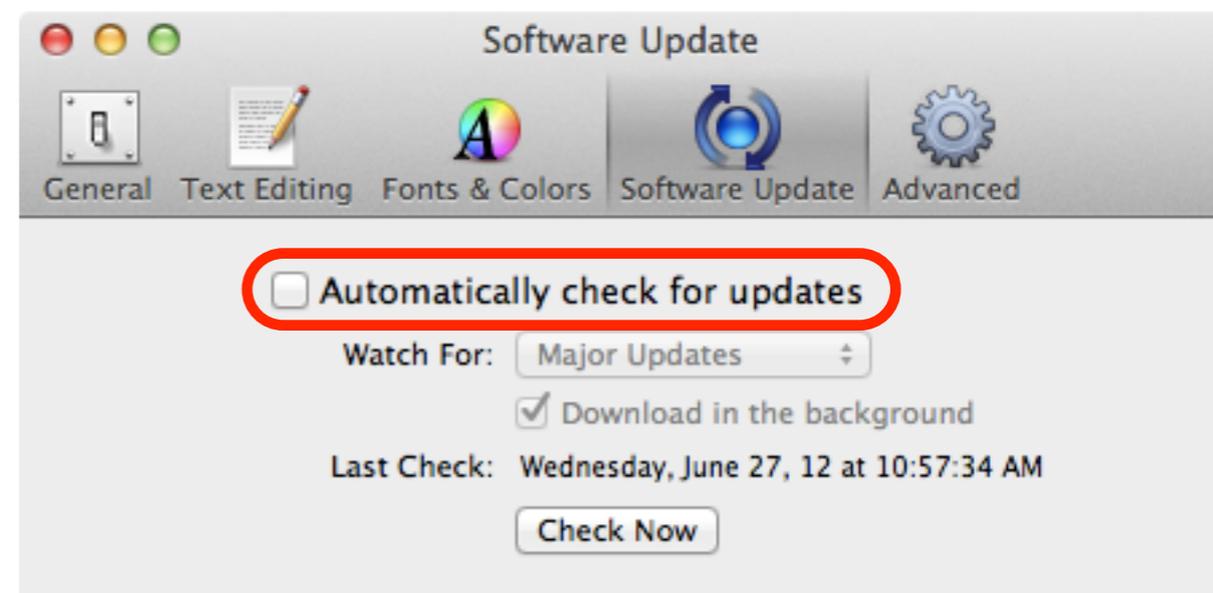
```
CFPreferencesSetAppValue(autoUpdateKey, @NO,  
                          kCFPreferencesCurrentApplication);
```

```
// Write out the preference data.
```

```
CFPreferencesAppSynchronize(kCFPreferencesCurrentApplication);
```

```
// Read the preference.
```

```
autoUpdatesEnabled = (CFStringRef)CFPreferencesCopyAppValue(autoUpdateKey,  
                                                             kCFPreferencesCurrentApplication);
```



What if I don't?

- Systems administrators may recommend competitor's enterprise-friendly product
- Systems administrators may resort to repackaging or hacks to make your software work in their environment

What if I don't?

- Fewer sales
- Higher support costs

Review

What is “enterprise-friendly”?

- Make it easy to purchase for large numbers of users/machines
- Make it easy to install with automated tools
- Make sure it works for all users of a machine, even those without admin rights

...that's enterprise-friendly!