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Worldwide

Developers

Conference



Internet Services on Mac OS

Mark Altenberg

Internet Evangelist

Apple Computer

Mac OS Internet Services

Add Internet functionality to your apps

- **Subwoofer**
 - Frédéric Artru, Apple
- **Active X**
 - Eric Soldan, Microsoft
- **Configuration Manager**
 - Christopher Evans, Microsoft
- **vCard**
 - Gavin Eadie, University of Michigan





Subwoofer

Frédéric Artru

Apple Computer

Subwoofer

Overview

- **What is Subwoofer?**
- **What can you do with it?**
- **Architecture**
- **Dependencies**
- **API overview**
- **Extending Subwoofer**
- **Sample code**



What Is Subwoofer?

An Internet Access API

- **Download data from any URL**
- **Small, lightweight**
- **Shared library**
- **Supports ftp, http, and file URLs**
- **Extensible to other schemes**
- **Easy to use—one call does it all!**



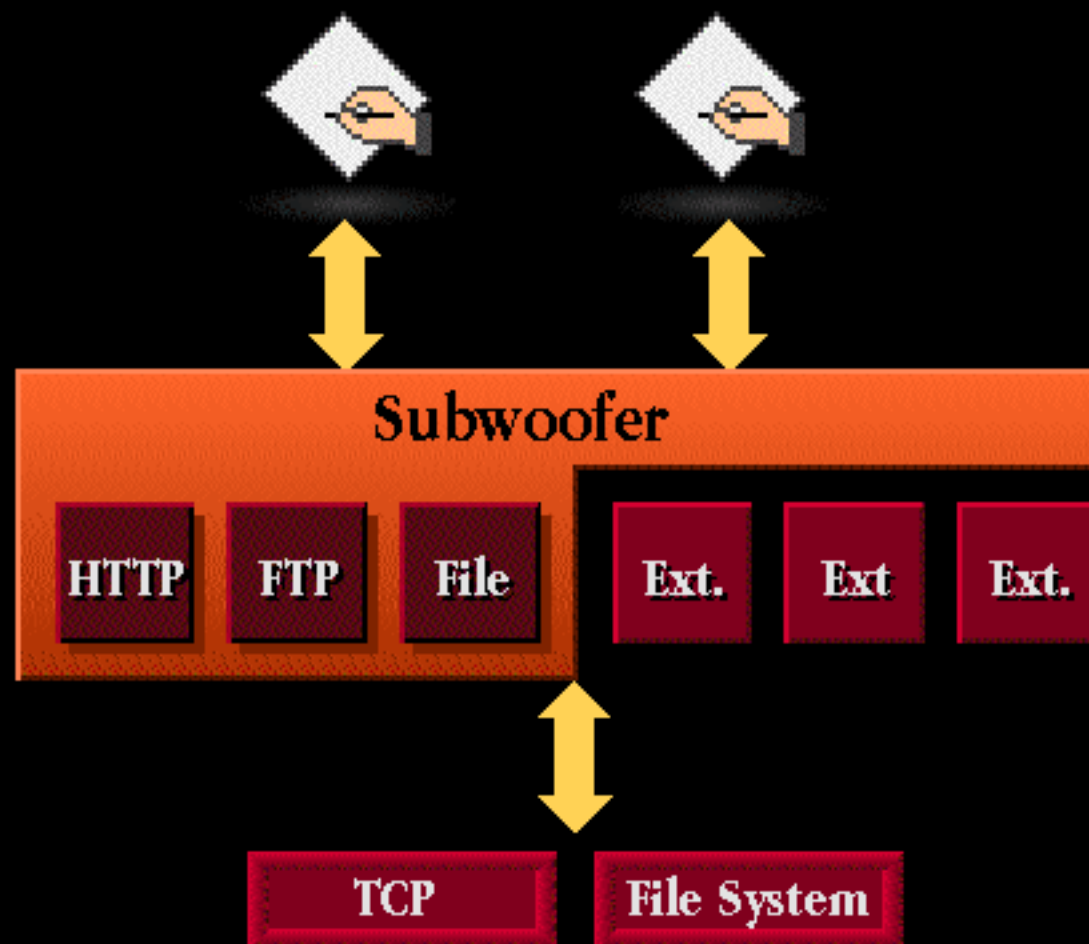
What Can You Do with It?

Options are endless!

- **Get app's data from the Internet**
- **Update the user to the latest app version**
- **Register users by posting HTML forms**
- **Anytime you need dynamic content**
 - Help files
 - User tips



Architecture



Dependencies

- **OpenTransport or MacTCP**
- **StuffIt Engine will be used if available**
- **Internet Config required to attain information about proxies and firewalls**
- **Uses CFM**



Downloading

- **Single call:**
 - `URLDownload`
 - Returns when download complete
 - Optionally displays progress
- **Progressive download:**
 - Need a reference (`URLNewReference`, `URLDisposeReference`)
 - Initiate download with `URLOpen`
 - Download progressively with `URLGetBuffer` or `URLReadBuffer`



Properties

- Characteristics of the resource and its URL
- Queried by `URLGetProperty`
- Some can be set with `URLSetProperty` (e.g., username and password)
- Common properties
 - `kURLResourceSize`
 - `kURLMIMETYPE`
 - `kURLResourceName`
 - `kURLUsername`, `kURLPassword`



How To Use API

Method 1 – Polling

- Query state of the download by `URLGetCurrentState`
- Common states
 - `kURLDataAvailableState`
 - `kURLDownloadingState`
 - `kURLAbortingState`
 - `kURLCompletedState`
 - `kURLErrorOccurredState`



How To Use API

Method 2—Event notification

- **Install client routine to receive events**
- **Register for events that interest you**
- **Common events:**
 - `kURLPercentEvent`
 - `kURLPropertyChangedEvent`
 - `kURLInitiatedEvent`
 - `kURLDownloadingEvent`
 - `kURLErrorOcurrredEvent`



Extending Subwoofer

Shared library implements API

- Subwoofer scans at initialization
- Extensions override existing protocols
- May have additional properties and events
- Implements all calls but `URLDownload`



Sample Code

Using URLDownload

```
#include "Subwoofer.h"

OSErr GetURL(char* url, FSSpec file)
{
    OSErr err = noErr;
    URLOpenFlags flags;

    flags = kURLDisplayProgressFlag +
           kURLDisplayAuthFlag +
           kURLExpandFileFlag +
           kURLReplaceExistingFileFlag;

    err = URLDownload(url, &file, flags);

    return err;
}
```



Sample Code (progressive API)

With progressive API

```
void GetURL(char* url,
            FSSpec *file,
            URLOpenFlags openFlags)
{
    URLReference urlRef = nil;
    Boolean done = false;

    (void) URLNewReference(url, &urlRef);
    (void) URLOpen(urlRef,
                  file,
                  openFlags,
                  (URLNotifyProcPtr) &Notify,
                  kURLAllEventsFlag,
                  (UInt32) &done);

    while ( !done ) YieldToAnyThread();

    (void) URLDisposeReference(urlRef);

    return;
}
```



Sample Code (*cont.*)

```
OSStatus Notify(UInt32 refCon,
                URLReference urlRef,
                URLEvent event,
                const char* changed,
                UInt32 downloadSize)
{
    Boolean *done = (Boolean*) refCon;

    switch ( event )
    {
        // ... other events here
        case kURLCompletedEvent:
            *done = true;
            break;
    }

    return noErr;
}
```





ActiveX Development for Macintosh

*Bring THE NET to your
apps...*



Eric Soldan

*Program Manager,
ActiveX for Mac*

ActiveX Development

Container or control...

- **ActiveX is a 2-way plug-in architecture...**
 - You can convert your existing code into a control
 - You can adapt your existing applications to become containers
- **Two goals, one API. The SDK includes...**
 - Samples for both
 - QuickStart wizards and helpers for both



Become an ActiveX Container

Being a container gives your application...

- A great about box
- Online help
- Online product registration
- Net-borne product updates
- Render HTML
- Ability to browse the “web”



Become an ActiveX Control

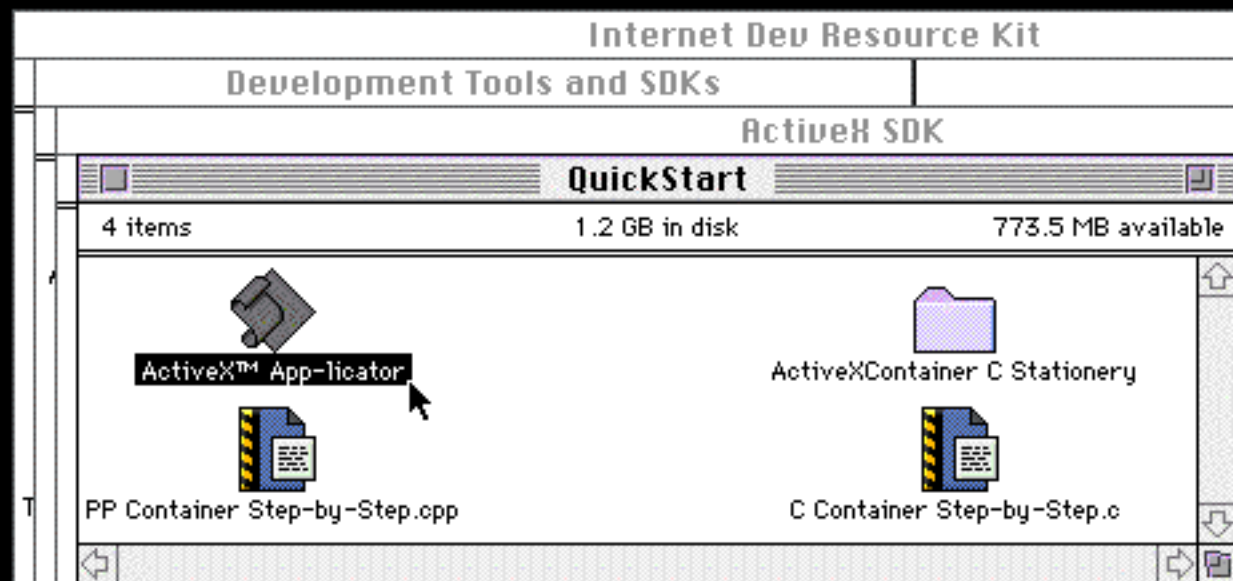
Being a control gives you...

- Ability to run inside Internet Explorer
- Ability to run inside other containers



ActiveX Container Development

QuickStart: Check the CD for the “App-licator”



- Run the “App-licator” script on your existing Metrowerks project files



ActiveX Container Development

AFTER APPLICATOR:

PowerPlant: Compile and fixup...

- Your project should build, for a while
- Address the issues that the source file “PP Container Step-by-Step.cpp” lists
- Build / run / test
- Add additional functionality for about boxes, HTML help, online ordering, etc.



ActiveX Container Development

AFTER APPLICATION:

Other (C, Pascal, etc.): Code and compile

- Follow the recipes in the documentation
- Use / modify the callbacks that were added to your project
- Build / run / test
- Add additional functionality for about boxes, HTML help, online ordering, etc.



ActiveX Container Development

How hard is it, really? ...

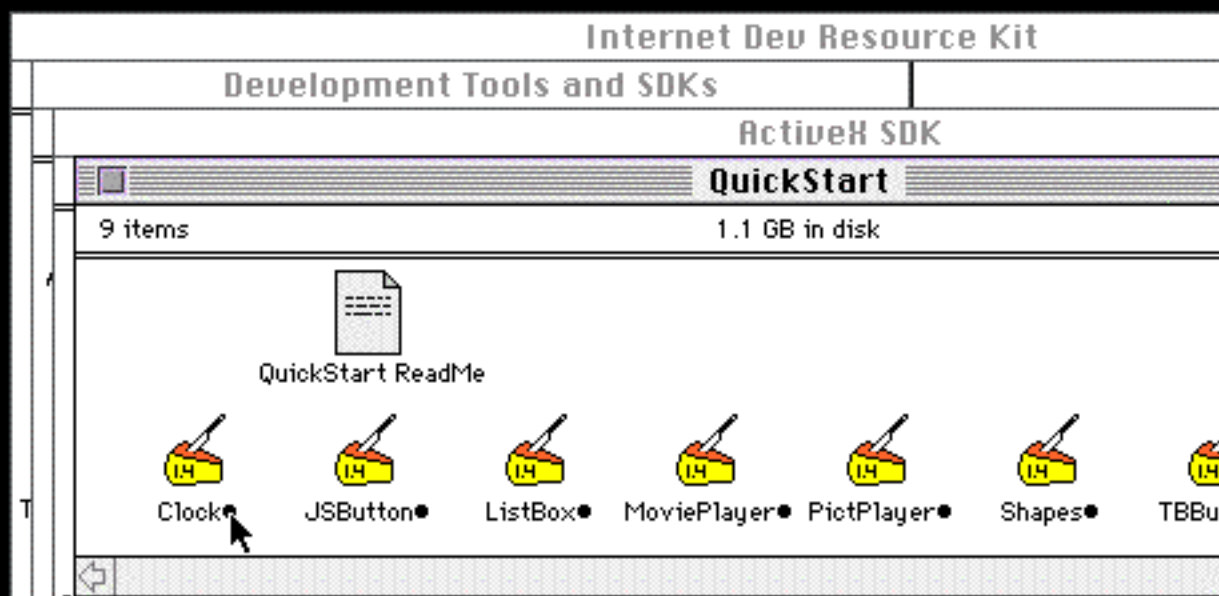
- **Simplest sample**
 - 7501 bytes !!
(entire app)
- **Embeds specific control**
- **AX_CreateSite**
- **AX_CreateControl**



ActiveX Control Development

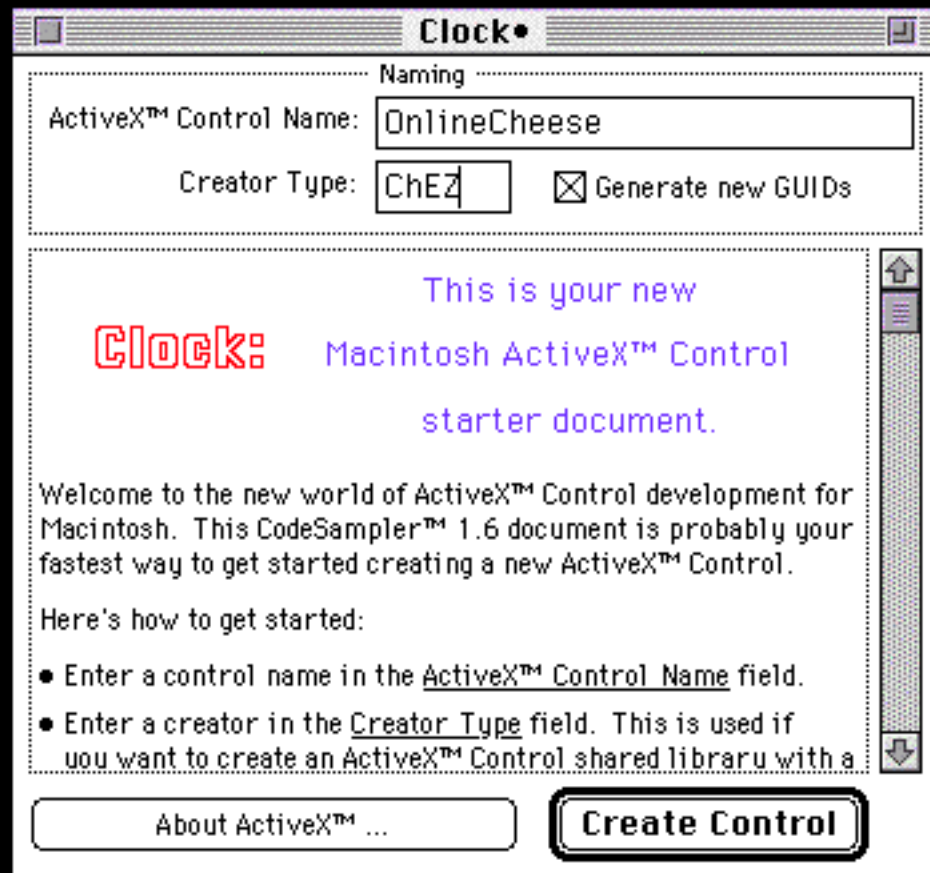
QuickStart: Check the CD for CodeSampler™ control starter documents

- Choose the “closest” sample control
- Open the CodeSampler document



ActiveX Control Development

Customize the CodeSampler™ settings:



The screenshot shows a window titled "Clock" with a "Naming" section. The "ActiveX™ Control Name" field contains "OnlineCheese". The "Creator Type" field contains "ChEZ". There is a checked checkbox for "Generate new GUIDs". Below this is a message: "This is your new Clock: Macintosh ActiveX™ Control starter document." followed by a welcome message and instructions. At the bottom are two buttons: "About ActiveX™ ..." and "Create Control".

Naming

ActiveX™ Control Name:

Creator Type: Generate new GUIDs

This is your new
Clock: Macintosh ActiveX™ Control
starter document.

Welcome to the new world of ActiveX™ Control development for Macintosh. This CodeSampler™ 1.6 document is probably your fastest way to get started creating a new ActiveX™ Control.

Here's how to get started:

- Enter a control name in the ActiveX™ Control Name field.
- Enter a creator in the Creator Type field. This is used if you want to create an ActiveX™ Control shared library with a



ActiveX Control Development

Convert “clock” into your project

- Yank clock-specific code (not much)
- Paste your code into the correct places
- Unless you extend the interface, you don't have to deal with COM at all





Demo



Configuration Manager

Christopher Evans

Microsoft MS-Bay

Shared Preferences

- **Great for users**
 - Users can avoid reconfiguring common settings
- **Adds complexity for developers**
 - Need to synchronize with other applications
 - UI must be recreated for each separate app
 - Multiple UIs for the same values confuse users
 - Developers spend too much time developing configuration UI



Configuration Manager Goals

- **Common user experience for common prefs**
- **Modular panel SDK for reuse by different apps**
- **Multi-paneled prefs window so apps can host panels directly**
- **“One Stop Shopping” for app configuration**
- **Simple for developers to write and incorporate panels**
- **Simple to incorporate window into apps**



Configuration Manager

Configuration Manager

Network

- Protocol Helpers
- Proxies
- Site Passwords

Receiving Files

- Download Options
- File Helpers
- Cookies

Web Browser

- Browser Display
- Web Content
- Home/Search
- Language/Fonts
- Java
- Security
- Ratings
- Advanced

Page & Link

Text:

Background:


Text Size:

Already viewed:

Not yet viewed:

Underline links

Toolbar Settings

Show icon animation: 

Show button bar:

Show address bar Auto-complete address

Show status bar

Show favorites bar



Configuration Manager Panels

- Lay out interface with DITL resources
- Control panel behavior in code
- Configuration Manager provides appropriate look
- Panels can decide which group of panels they belong to
- Panels can open other panels as modal or modeless dialogs



Configuration Manager Window

- Can be hosted in any application
- Available as control panel
- Application filters which panels and groups are visible to the user





Demo

Configuration Manager Summary

- **Available end of May**
- **Currently shipping with Mac Internet Explorer 3.01, Internet Mail and News 3.01 and other applications coming soon**
- **More info, comments or suggestions**
 - MacPref@microsoft.com
- **Developer mailing list**
 - config-dev@ws63.psdbay.com with message body SUBSCRIBE





The Mac™ OS vCard SDK

Gavin Eadie

Ramsay Consulting
gavin@umich.edu

What Are vCards?

...an electronic analog of the "business card"

- **Standard**
 - Cross platform, IETF working group
- **Personal Data**
 - Name, address, telephone, E-mail, etc.
- **Robust Format**
 - Printable text, line wrapping format
- **Exchange**
 - E-mail, web pages, PDA transfers



Example vCard

Property list

```
{name[;attributes]:value}
```

```
BEGIN:VCARD
```

```
FN:Gavin Eadie
```

```
ORG:Ramsay Consulting
```

```
TEL;WORK;MSG:+1 (313) 327-0396
```

```
TEL;WORK;FAX:+1 (313) 763-0523
```

```
EMAIL;INTERNET:gavin@umich.edu
```

```
X-FOLD-EXAMPLE:All one line  
                  folded for transmission.
```

```
X-QUOTE;ENCODE=QP:One Line=0A=  
Next Line
```

```
END:VCARD
```



How Can I Use vCards in My Application ?

...anything that deals with people data

- **Telephony, E-mail, PIMs,
Video Conferencing**
 - Copy/paste and drag/drop
 - Exchange by E-mail, infrared, etc.
- **Web Directories**
 - Downloads
- **Hardware**
 - Smart telephones



Technical Details

...what does the SDK provide ?

- **Mac OS based code**
 - API to create and populate vCards
 - API to read and parse vCard files
 - Uses FSSpecPtr
 - API to convert an LDAP entry to a vCard





Demo

Availability and More Information

- **Internet Mail Consortium**
 - <http://www.imc.org/pdi/>
- **Internet Engineering Task Force
Access, Searching & Indexing
of Directories**
 - ietf-asid-request@umich.edu
- **Apple Materials**
 - <http://devworld.apple.com/dev/emailtech>



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