

Welcome

To Advance through Presentation  
Use Page Up and Page Down Keys



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# Navigation Services Update

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# Session Overview

- Why Navigation Services?
- A Brief History
- API Overview
- The Future



# Why Navigation Services?

- Standard File needs replacing
- Better user experience
- Rich feature set
- Ready for Carbon



# Standard File





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# A Brief History

- SDK 1.0 released March 1998
- Mac OS 8.5 includes version 1.1
- Mac OS 8.6 includes version 1.1.2



# Required for Carbon

- Standard File is not available
- Navigation Services are Carbon-ready
- Available today on Mac OS X  
Developer Preview





# API Overview

- Dialogs
- Selection Objects
- Options
- Callback Procedures
- Control Messages



# Six Dialogs

```
OSErr NavGetFile ( AEDesc *                defaultLocation,  
                  NavReplyRecord *        reply,  
                  NavDialogOptions *      dialogOptions, ... );  
  
OSErr NavPutFile ( ... );  
  
OSErr NavChooseFile ( ... );  
  
OSErr NavChooseFolder ( ... );  
  
OSErr NavChooseVolume ( ... );  
  
OSErr NavChooseObject ( ... );
```



# Selection Objects

- An AEDesc describes each selected object

```
struct NavReplyRecord {
    UInt16
    Boolean
    Boolean
    Boolean
    Boolean
    AEDescList
    ScriptCode
    FileTranslationSpecArrayHandle
    UInt32
    char
    version;
    validRecord;
    replacing;
    isStationery;
    translationNeeded;
    selection;
    keyScript;
    fileTranslation;
    reserved1;
    reserved[231];
};
```



# Options

- Customize appearance and behavior

```
struct NavDialogOptions {  
    UInt16  
    NavDialogOptionFlags  
    Point  
    Str255  
    Str255  
    Str255  
    Str255  
    Str255  
    Str255  
    Str255  
    UInt32  
    NavMenuItemSpecArrayHandle  
    char  
    version;  
    dialogOptionFlags;  
    location;  
    clientName;  
    windowTitle;  
    actionButtonLabel;  
    cancelButtonLabel;  
    savedFileName;  
    message;  
    preferenceKey;  
    popupExtension;  
    reserved[494];  
};
```



# Callback Procedures

- Dynamically customize behavior
- Support application modal dialogs

**MyEventProc( ... );**

**MyObjectFilterProc( ... );**

**MyPreviewProc( ... );**



# Control Messages

- Tell a dialog to do something

```
OSErr NavCustomControl ( NavContext context,
                        NavCustomControlMessage selector,
                        void * parms);
```

```
enum {
    kNavCtlSortOrder,
    kNavCtlGetLocation,
    kNavCtlSetLocation,
    kNavCtlAddControlList,
```

```
    ...
```

```
};
```

```
typedef SInt32 NavCustomControlMessage;
```



# Details, Details...

- NavDisposeReply()
- NavCompleteSave()
- NavLoad(), NavUnload()
- NavServicesAvailable()





# Navigation Services 2.0

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# Goals

- Address common developer needs
- Encourage document previews
- Internet access
  - FTP integration
  - Extended network browsing
- Improve performance



# Developer Needs

- **More** file filtering options
- **More** control messages
- **More** dialog options



# Needs Not Addressed

- Global customization
- Controls outside custom area



# More Filtering

- Show all files—no Show menu
- Show all by default—allow Show menu
- Filter files by type only



# More Control Messages

- Select all items
- Go to parent directory
- Disable action buttons (Open, Cancel, ...)
- Rescan directory and filter objects
- Terminate dialog



# More Dialog Options

- Support for package directories
- Optional add to recent items
- Optional custom area bevel frame!



# Document Previews

- New convenience API: `NavCreatePreview()`
- Call after every save
- No need for a Create button
- Create previews dynamically for small documents





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# Internet Features

- Extend the Mac OS user experience to the Internet
- Provide real user benefit with pervasive integration
- Minimize impact on applications



# FTP Access

- Open and Save to FTP servers
- Transparent to client application
- High fidelity file type translation, thanks to URL Access
- Integrated Keychain



# FTP Open

- User navigates to FTP server, selects file
- Nav Services downloads to local disk
- Progress bar for user feedback
- NavReplyRecord points to local file



# FTP Save

- User navigates to FTP directory, saves
- NavReplyRecord points to local file
- Application saves to local file, calls NavCompleteSave()
- Nav Services uploads the local file
- Be prepared for error handling!



# Network Browsing

- Based on NSL  
(Network Services Location Manager)
  - Open plug-in architecture
  - Protocol neutral
  - AppleTalk optional!



# Network Browsing

- Within a dialog, users can:
  - Locate AppleShare and FTP services
  - Authenticate
  - Mount volumes
  - Browse files





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# Roadmap

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**Carbon Overview (Repeat)**

Hall C  
Fri., 9:00am

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**Carbon on Mac OS 8**

Hall C  
Fri., 1:00pm

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**Carbon on Mac OS X**

Hall C  
Fri., 2:30pm





# Roadmap (Cont.)

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**Internet and Web Overview**

Hall A1  
Wed., 10:15am

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**Security APIs: Mac File Signing,  
CMS, and URL Access**

Hall C  
Wed., 4:00pm

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**Apple Service Location  
Strategy**

NSL and Futures

Hall A2  
Thurs., 9:00am



# Roadmap (Cont.)

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**Mac OS User Experience  
Feedback Forum**

Hall B  
Fri., 2:30pm

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**High Level Toolbox  
Feedback Forum**

Hall A2  
Fri., 4:00pm



# Summary

- Modern, extensible document selection
- Required for Carbon
- Addressing developer needs
- Cool new Internet features





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Q&A



Think different.<sup>TM</sup>



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