

Welcome

To Advance through Presentation
Use Page Up and Page Down Keys



99 | Worldwide
Developers
Conference



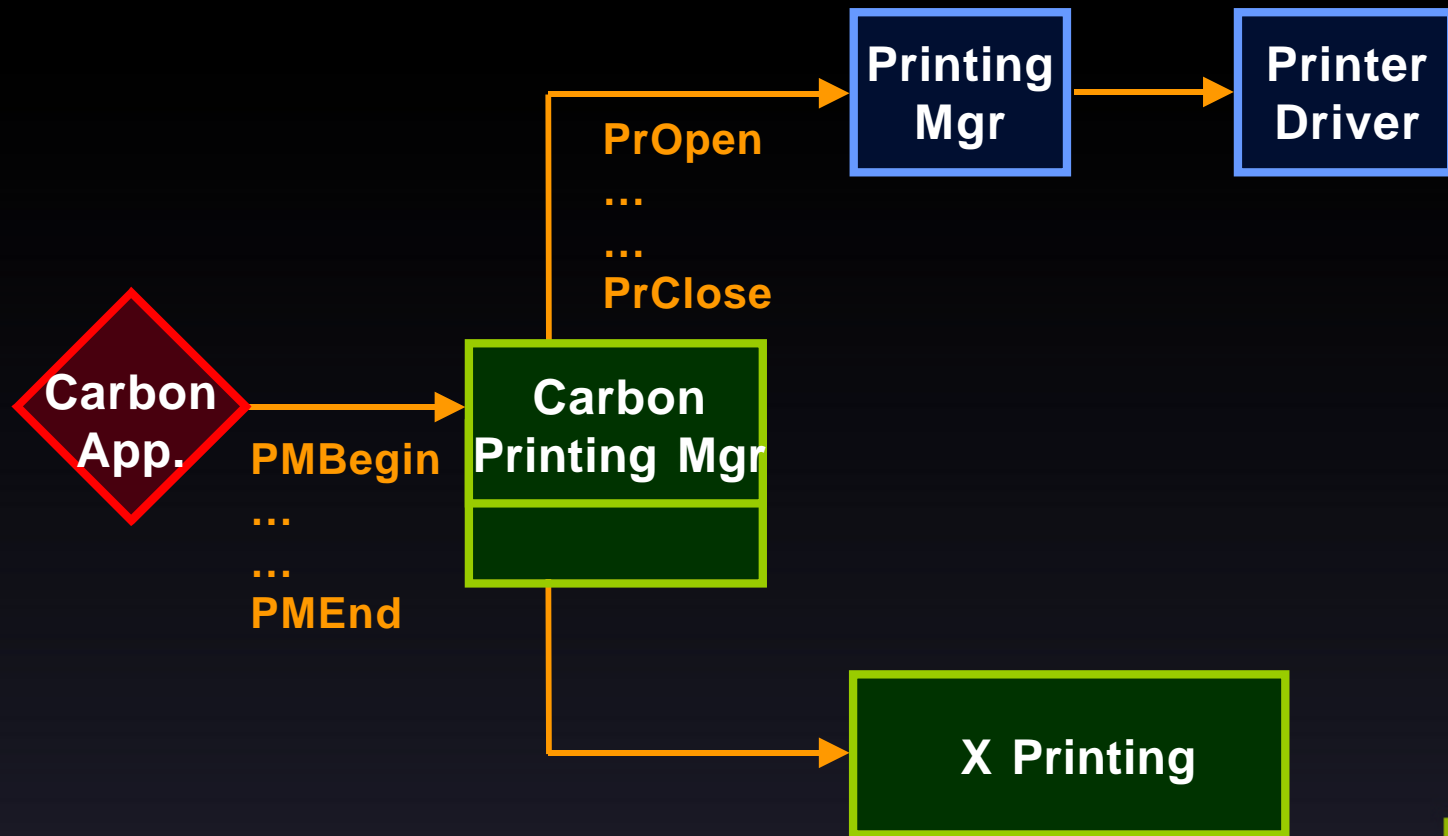
Printing for Mac OS 8 and Mac OS X

Paul Danbold
Printing Stooge

Printing for Carbon Developers

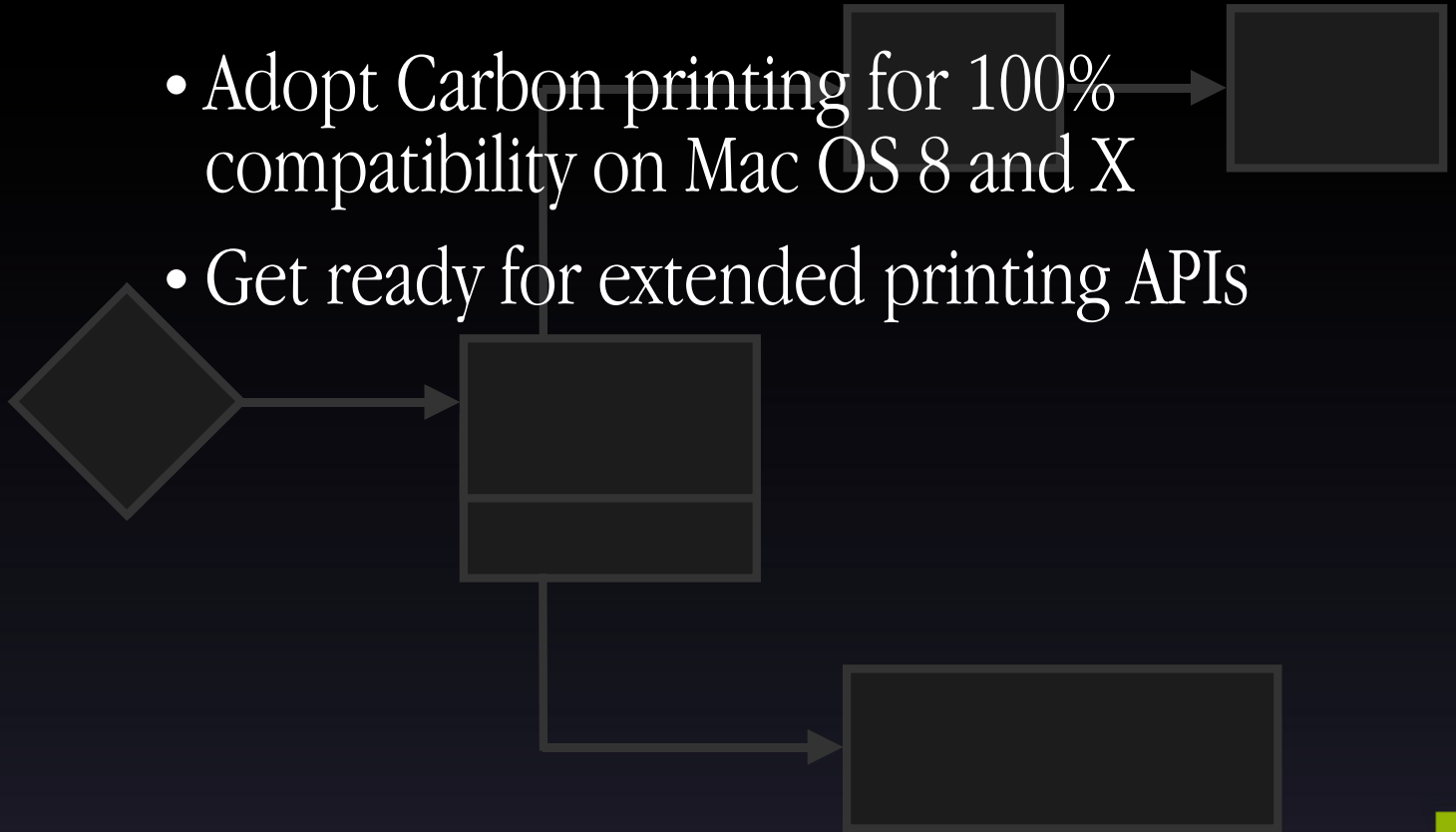


Printing on 8 and X

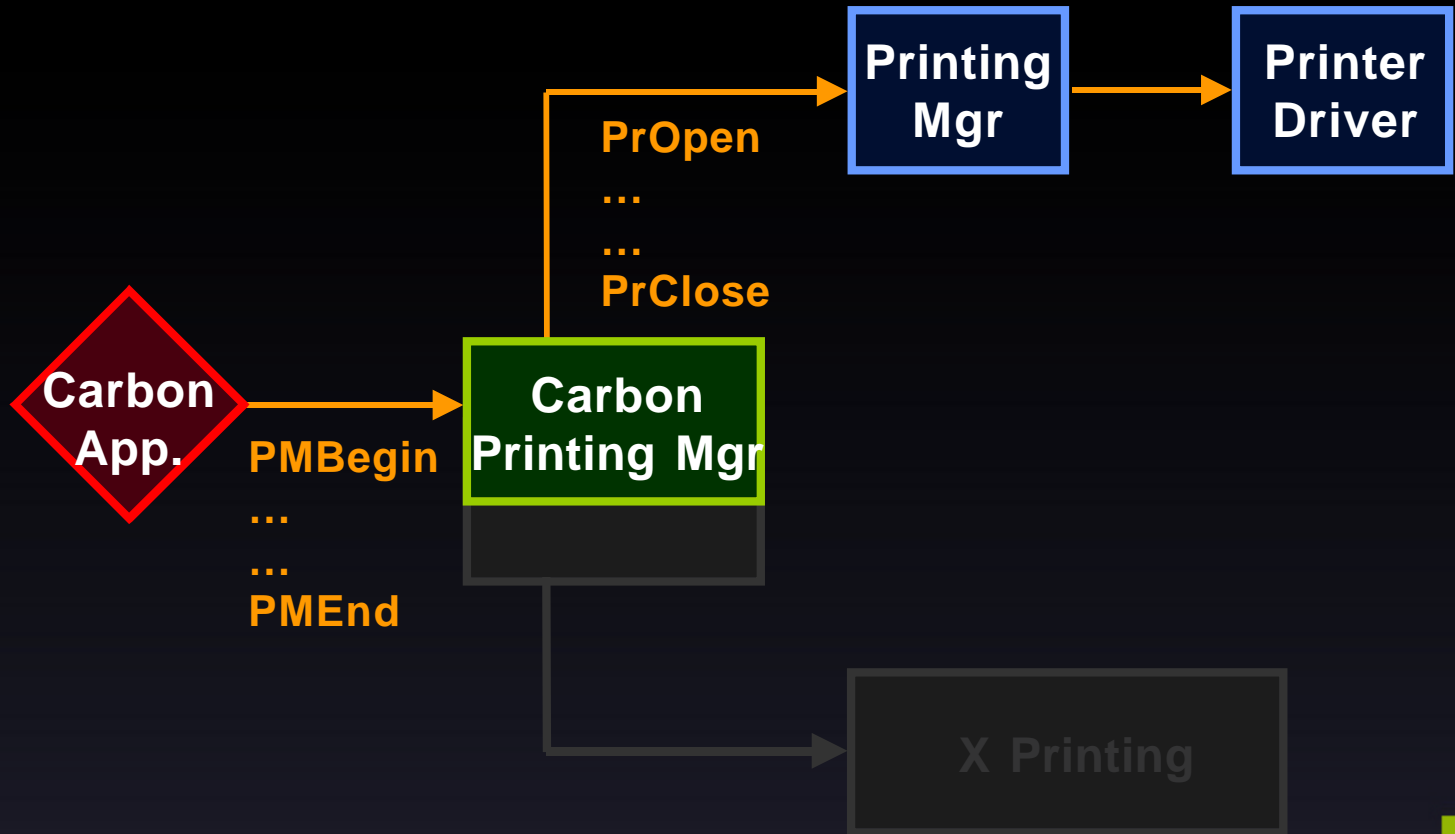


Printing on 8 and X

- Adopt Carbon printing for 100% compatibility on Mac OS 8 and X
- Get ready for extended printing APIs

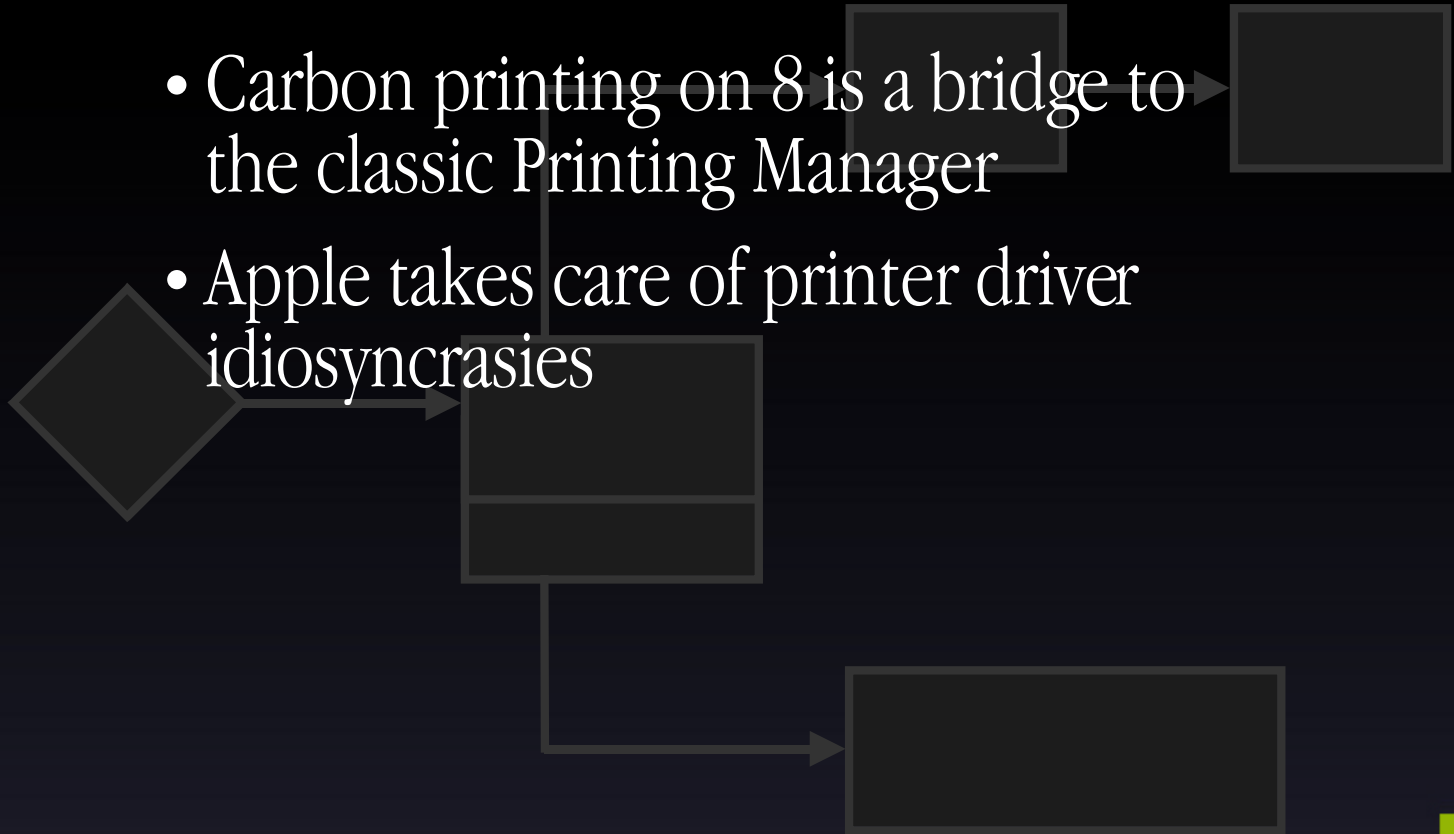


Printing on 8

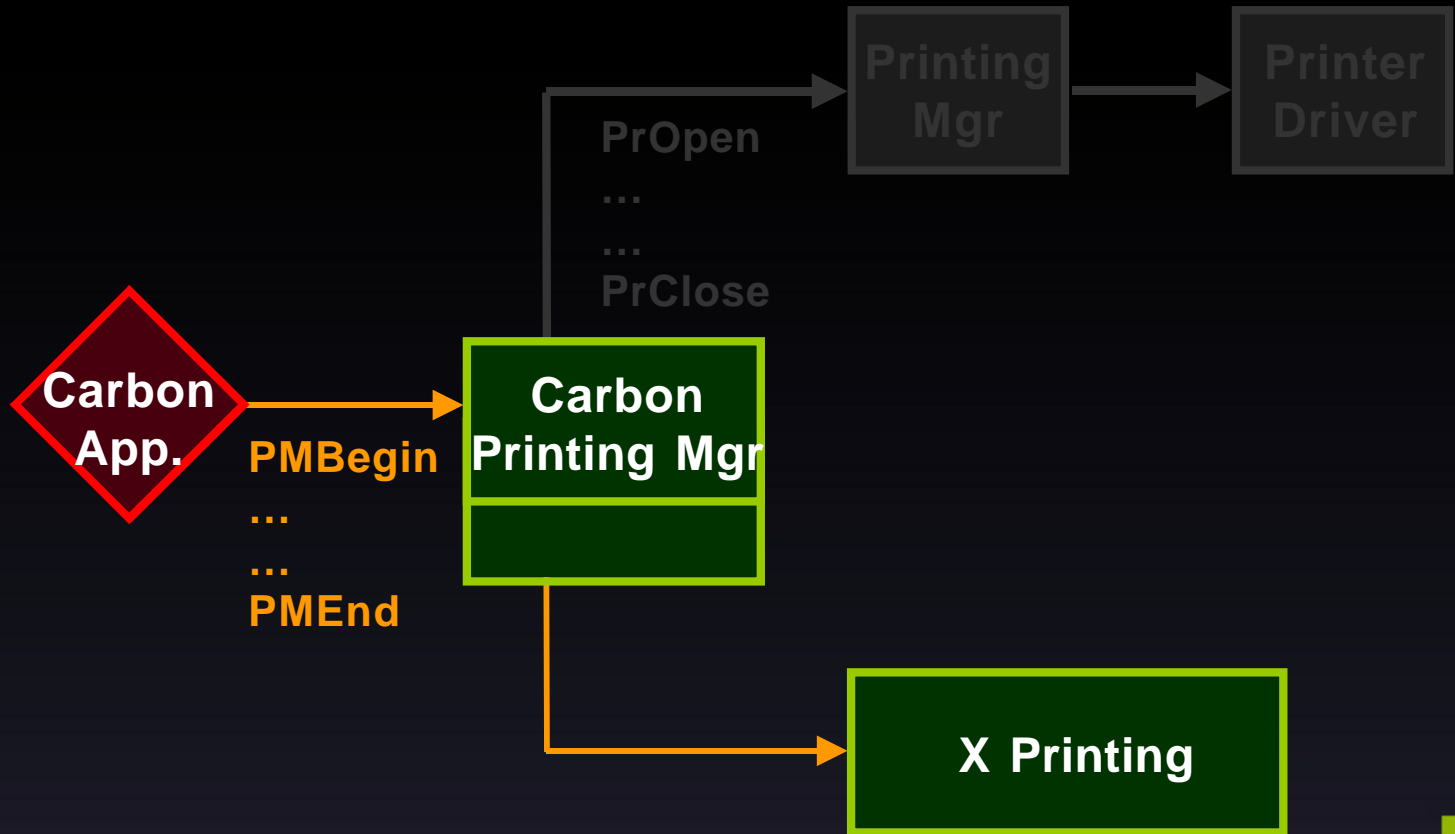


Printing on 8

- Carbon printing on 8 is a bridge to the classic Printing Manager
- Apple takes care of printer driver idiosyncrasies

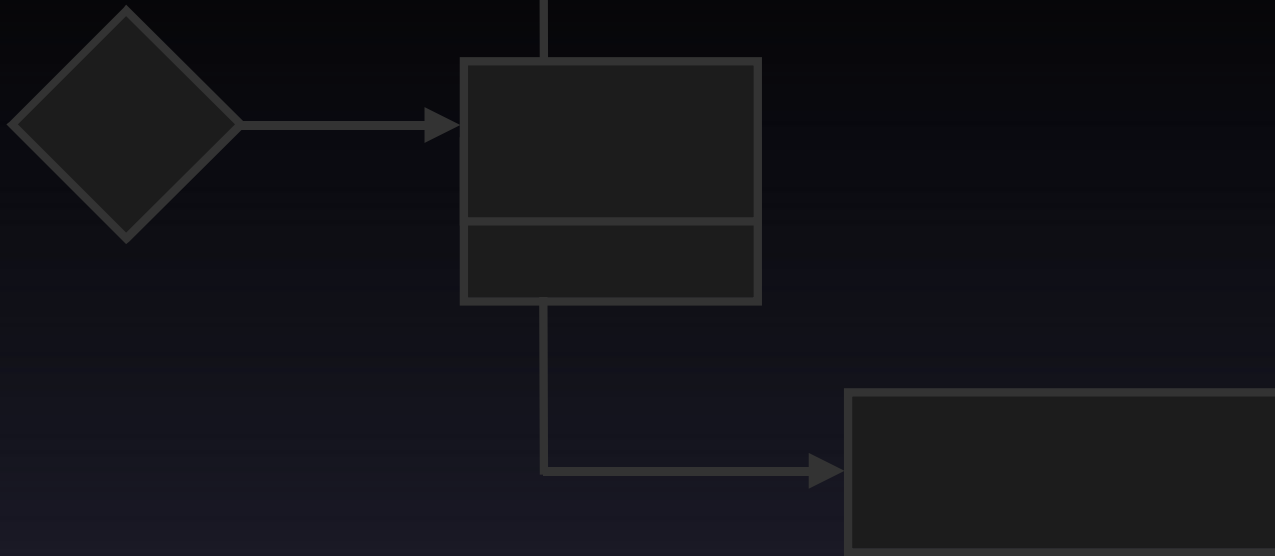


Printing on X



Printing on X

- Carbon printing on X is a direct interface to the new printing system



Carbon Printing

- Use PMApplication functions for printing
- Do not mix Printing.h code with PMApplication.h code



Carbon Printing

// opaque, extensible Page Format and Print Settings objects

typedef struct OpaquePMPageFormat* PMPageFormat

typedef struct OpaquePMPrintSettings* PMPrintSettings



Carbon Printing

// lots of accessor functions

PMGetScale (PMPageFormat pageFormat, double* scaling)

PMSetScale (PMPageFormat pageFormat, double scaling)

PMGetCopies (PMPrintSettings printSettings, UInt32* copies)

**PMSetCopies (PMPrintSettings printSettings, UInt32 copies,
Boolean lock)**



Carbon Printing

// extending the Page Format and Print Settings objects

PMGetPrintSettingsExtendedData (**PMPrintSettings**
printSettings, OSType dataID, UInt32* size, void* theData)

PMSetPrintSettingsExtendedData (**PMPrintSettings** printSettings,
OSType dataID, UInt32 size, void* theData)

PMGetPageFormatExtendedData (**PMPageFormat** pageFormat,
OSType dataID, UInt32* size, void* theData)

PMSetPageFormatExtendedData (**PMPageFormat** pageFormat,
OSType dataID, UInt32 size, void* theData)



Carbon Printing

// flattening the Page Format and Print Settings objects

**PMFlattenPageFormat (PMPageFormat pageFormat, Handle*
flatFormat)**

**PMUnFlattenPageFormat (Handle flatFormat, PMPageFormat*
pageFormat)**

**PMFlattenPrintSettings (PMPrintSettings printSettings, Handle*
flatSetting)**

**PMUnFlattenPrintSettings (Handle flatSetting, PMPrintSettings*
printSettings)**



Carbon Printing

// compatibility functions

**PMConvertOldPrintRecord (Handle prRecHdl, PMPrintSettings*
printSettings, PMPageFormat* pageFormat)**

**PMMakeOldPrintRecord (PMPrintSettings printSettings,
PMPageFormat pageFormat, Handle* prRecHdl)**



Carbon Printing

`// opaque grafPort for imaging pages`

`typedef struct OpaquePMPrintContext* PMPrintContext`



Carbon Printing

// append DITL functions

**PMPrintDialogInit (PMPrintSettings printSettings, PMDialog*
newDialog)**

**PMPageSetUpDialogMain (PMPageFormat pageFormat, Boolean*
accepted, PMPageSetUpDialogInitUPP myInitProc)**

**PMPrintDialogMain (PMPrintSettings printSettings,
PMPageFormat constPageFormat, Boolean* accepted,
PMPrintDialogInitUPP myInitProc)**



Carbon Printing

// stricter scoping rules

PMBegin
 PMBeginDocument
 PMBeginPage
 PMGetGrafPtr
 PMEndPage
 PMEndDocument
PMEnd



What Is “Tioga”

- Tioga is our project name for the next Mac OS Printing system
- Tioga includes additional application printing APIs
- Tioga is a modern, modular printing architecture with a new model for developing printer “drivers”; we call them printer “modules”



Tioga Printing

- There is more than one way to submit a print job

```
PMBegin
    PMBeginDocument
        PMBeginPage
            // QD or CGS drawing
        PMEndPage
    PMEndDocument
PMEnd
```



Tioga Printing

- Printing multiple documents in one job

```
PMBegin
  PMBeginJob
    PMBeginDocument
      PMBeginPage
      PMEndPage
    PMEndDocument
    PMBeginDocument
      PMBeginPage
      PMEndPage
    PMEndDocument
  PMEndJob
PMEnd
```



Tioga Printing

- Printing a file, directly:

PMSubmitDocument (document, documentInfo || nil)

- Printing a file by reference:

PMSubmitDocumentReference (uri, documentInfo || nil)



Tioga Printing

- More printer information:

PMGetPrinterFonts ()

PMGetPrinterMedia ()

- More job and document information:

PMGetDocumentFonts ()

PMSetDocumentFonts ()



Tioga Printing

- More print settings:

PMGetPriority ()
PMSetPriority ()

PMGetLayout ()
PMSetLayout ()

PMGetHoldUntil ()
PMSetHoldUntil ()

PMGetNumberUp ()
PMSetNumberUp ()

PMGetCoverSheet ()
PMSetCoverSheet ()

PMGetQuality ()
PMSetQuality ()

PMGetFinishings ()
PMSetFinishings ()

PMGetPaperSource ()
PMSetPaperSource ()

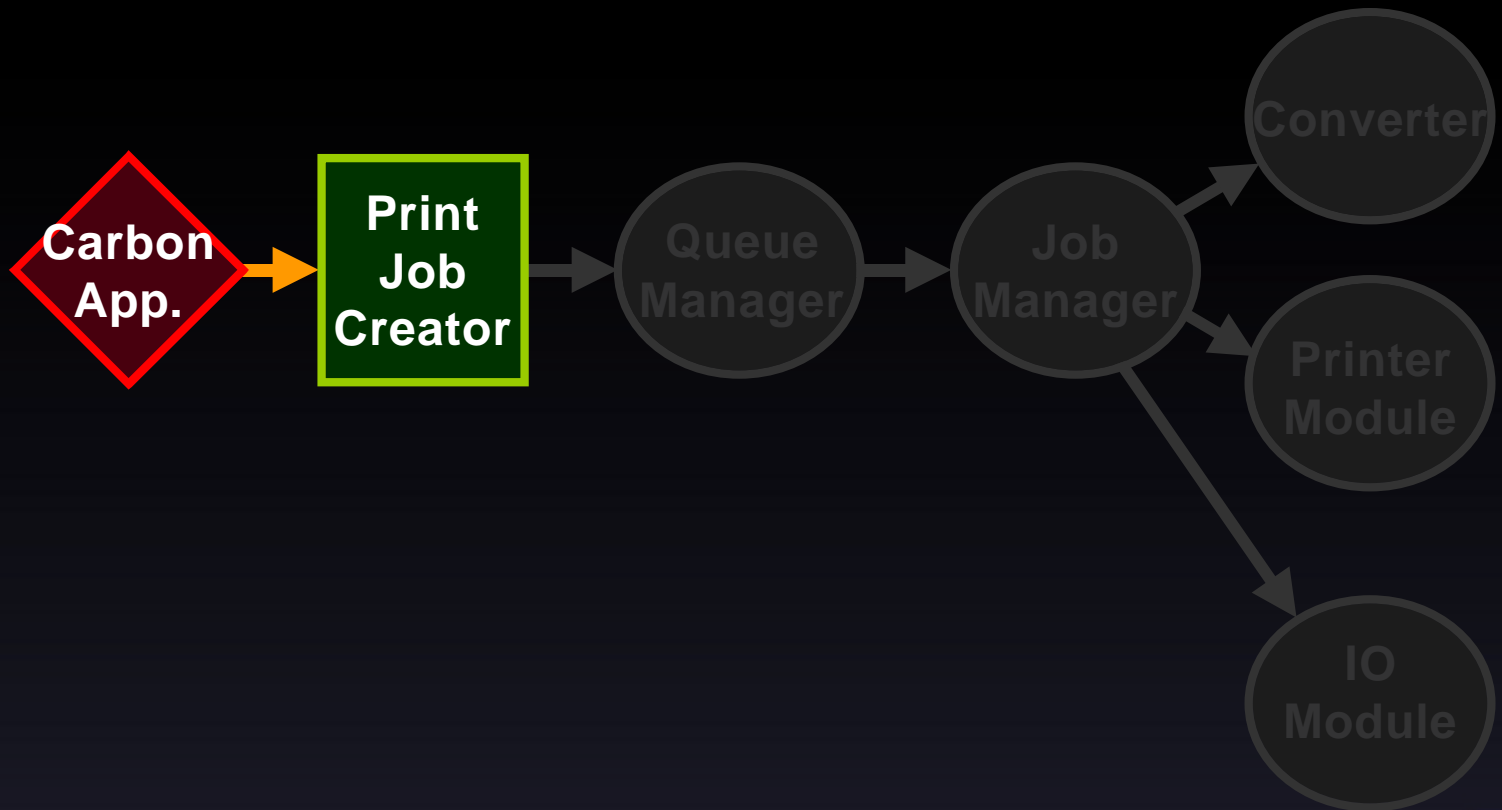


Carbon and Tioga Printing

- Support Carbon Printing for compatibility on Mac OS 8 and X
- Take this opportunity to clean up your printing code (if needed)
- Feedback is always welcome
- Get ready for Tioga APIs

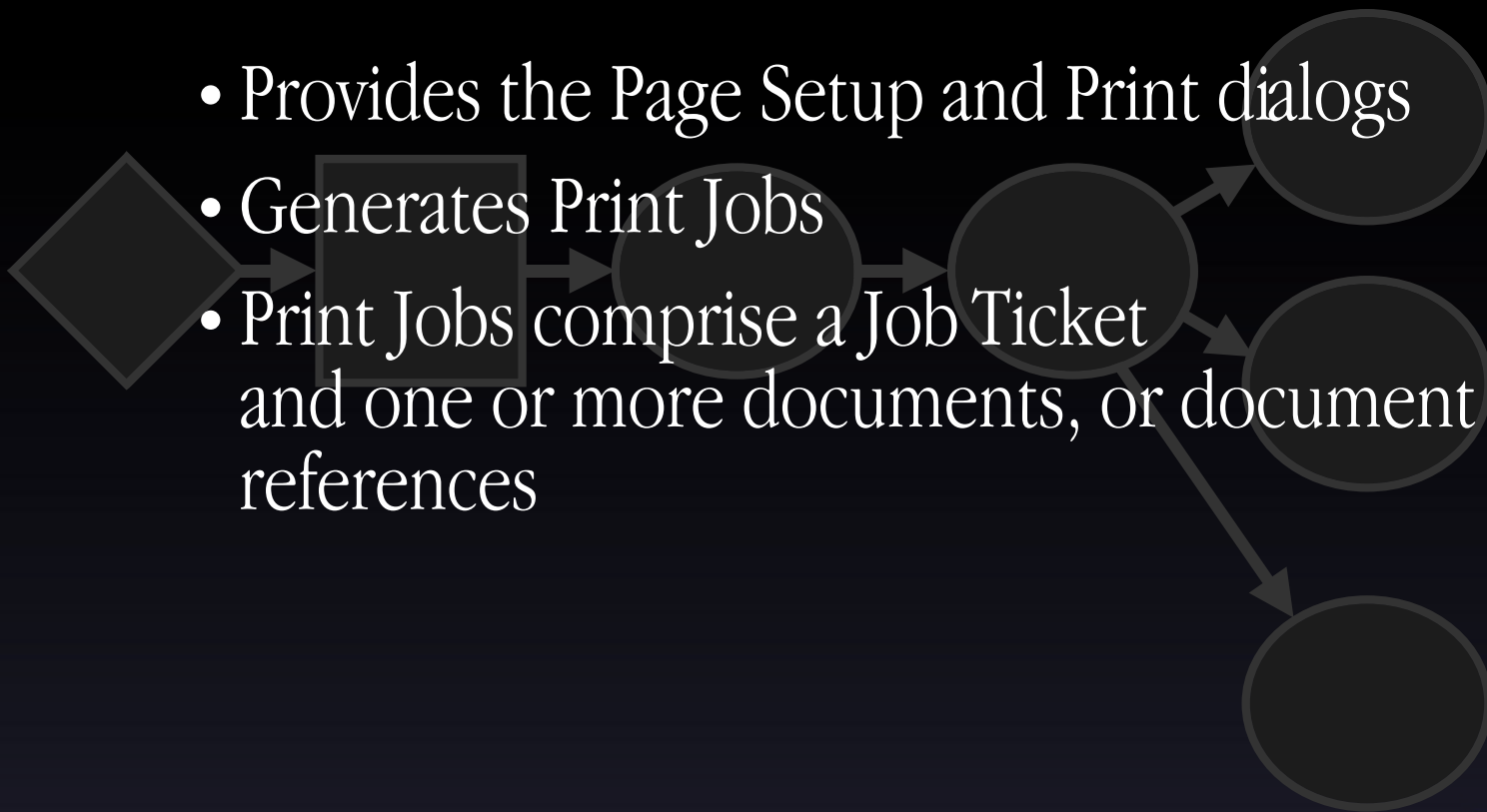


Tioga Printing



Print Job Creator

- Provides the Page Setup and Print dialogs
- Generates Print Jobs
- Print Jobs comprise a Job Ticket and one or more documents, or document references



Job Ticket



Job Ticket

- Print Settings
 - Copies, Page Range, Layout, Color Matching, Resolution, Cover Pages...



Job Ticket

- Print Settings
- Job Information
 - Printer Name, Size of print job and number of documents, submitters information (name, email address) . . .



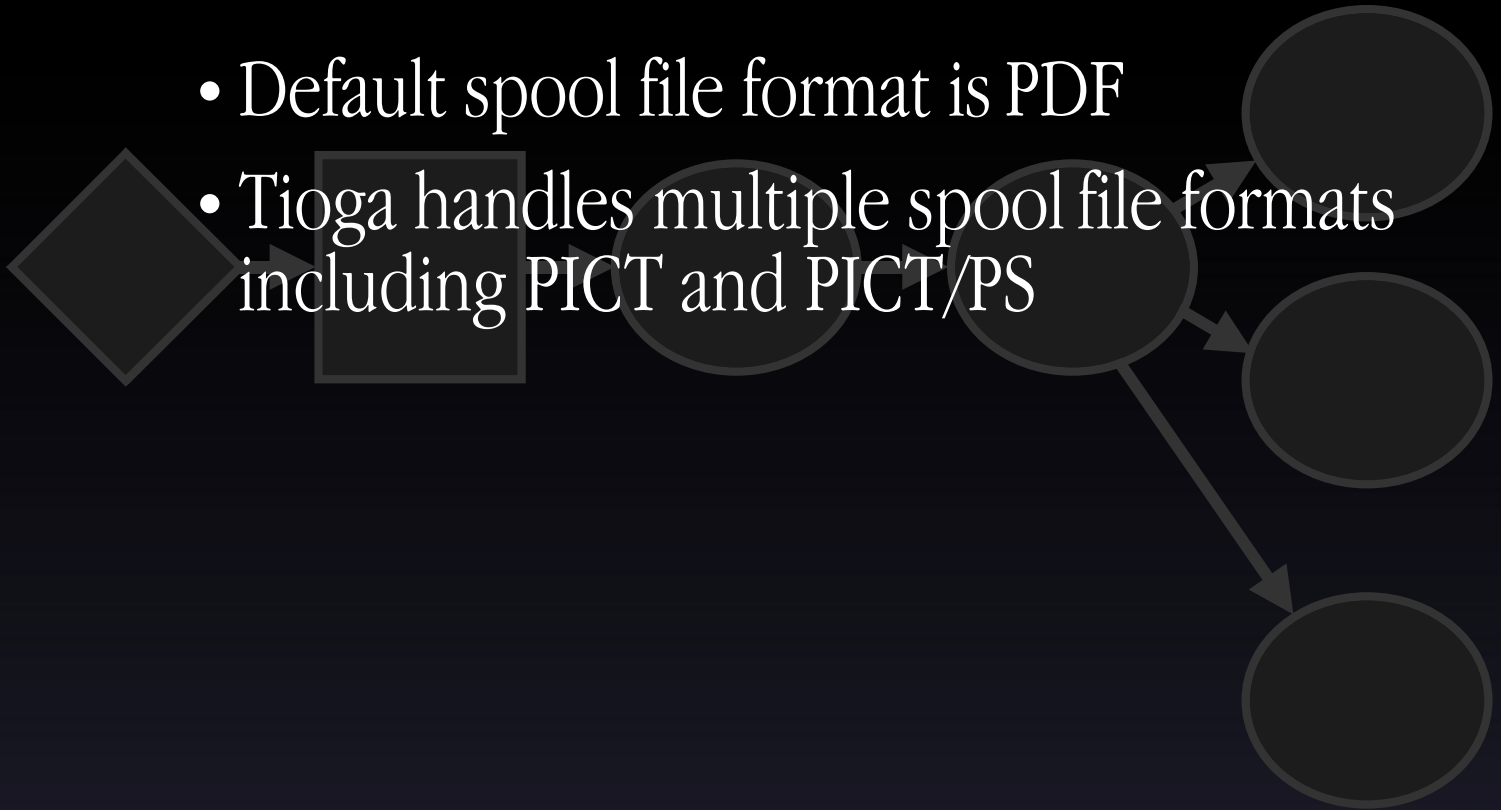
Job Ticket

- Print Settings
- Job Information
- Document Information
 - Document Name, Type, Size, Language, Page Format, Author's Information (name, email address) . . .

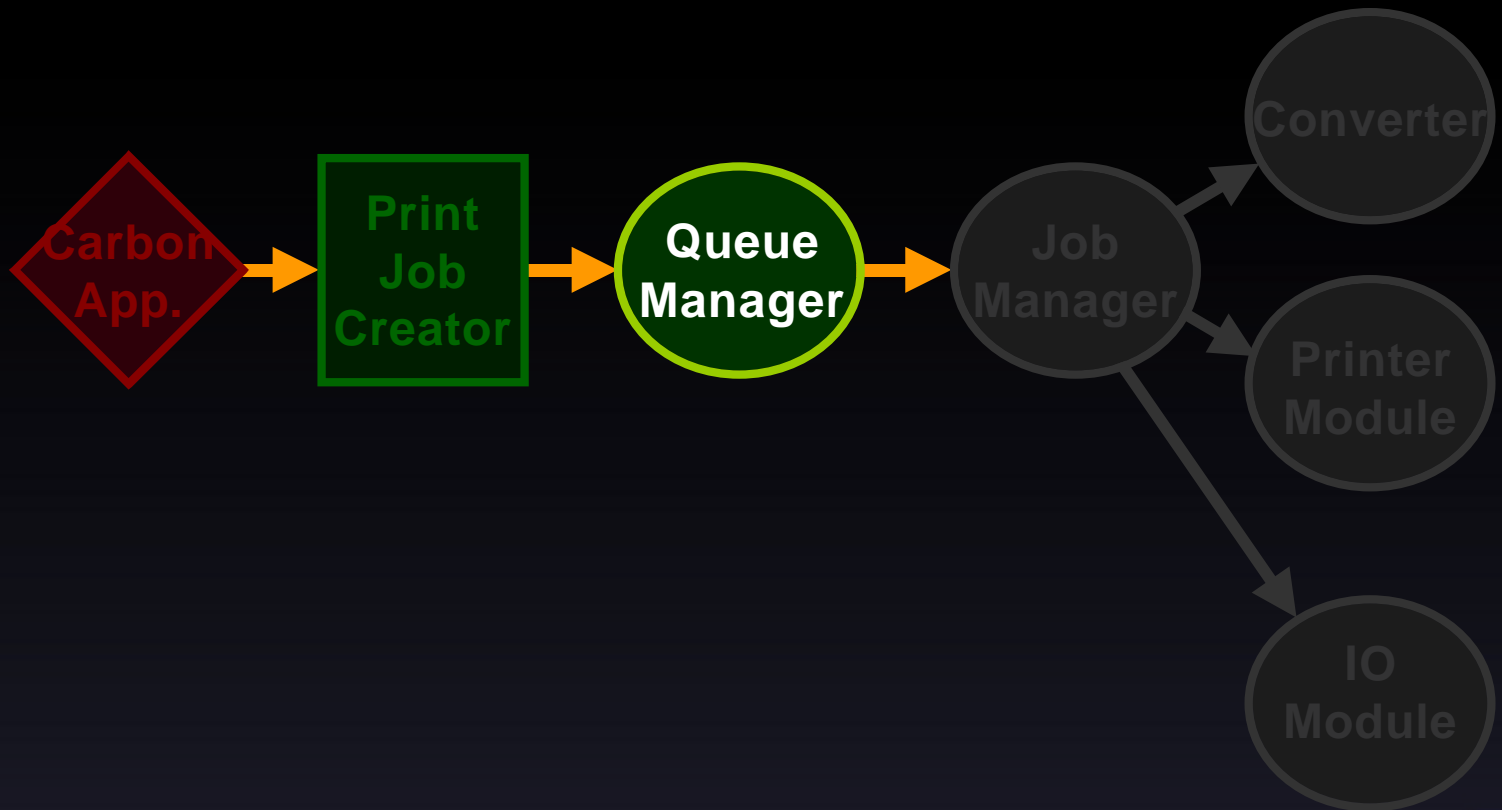


Print Job Creator

- Default spool file format is PDF
- Tioga handles multiple spool file formats including PICT and PICT/PS



Queue Manager

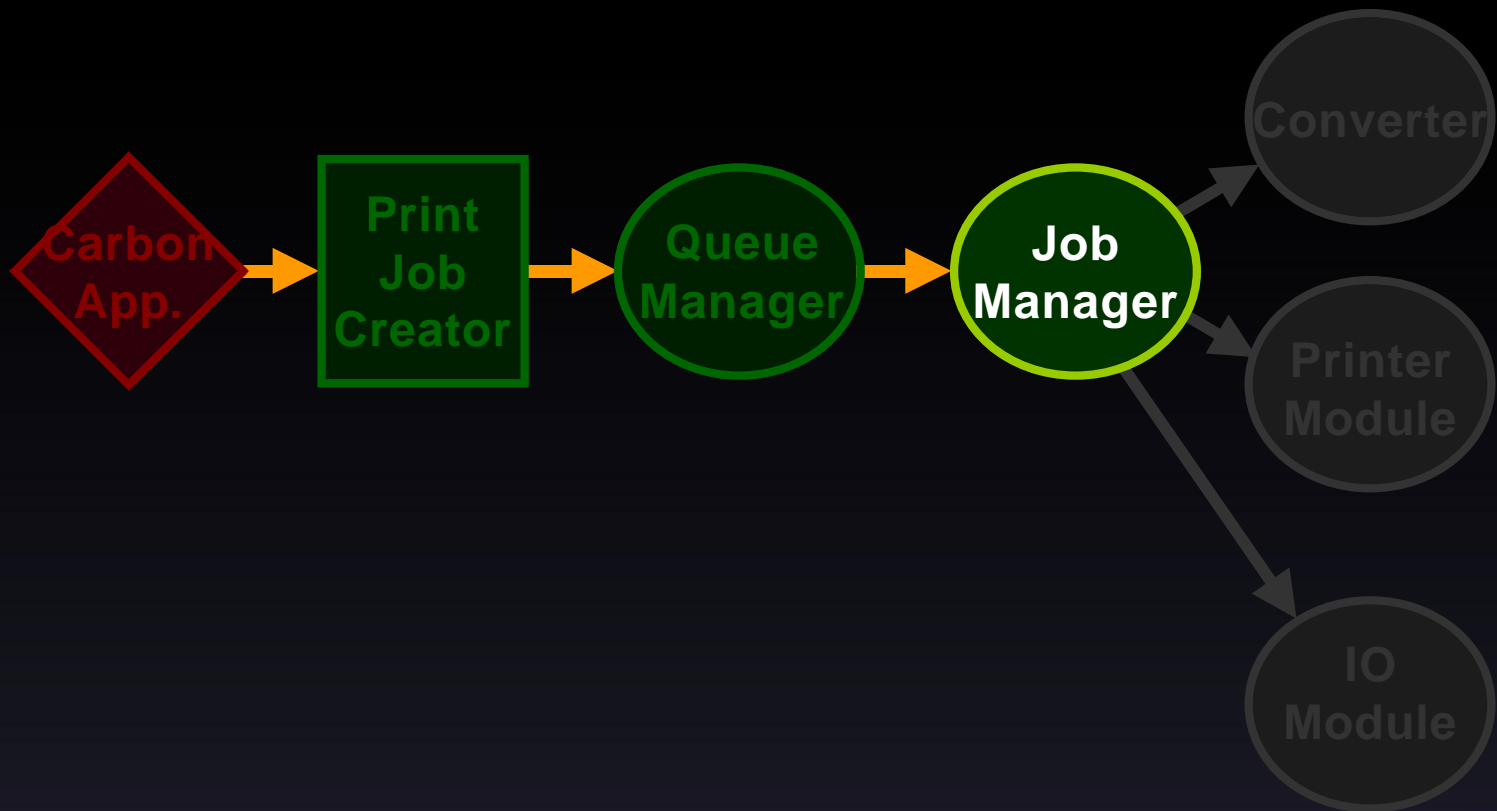


Queue Manager

- Tioga is an INTERNET printing system
- Internet Printing Protocol (IPP)
<http://www.pwg.org/ipp/>
- Provides “print server” features—shared queues, monitors job and printer status
- Creates and manages local queues—jobs can be put on hold, reordered, deleted

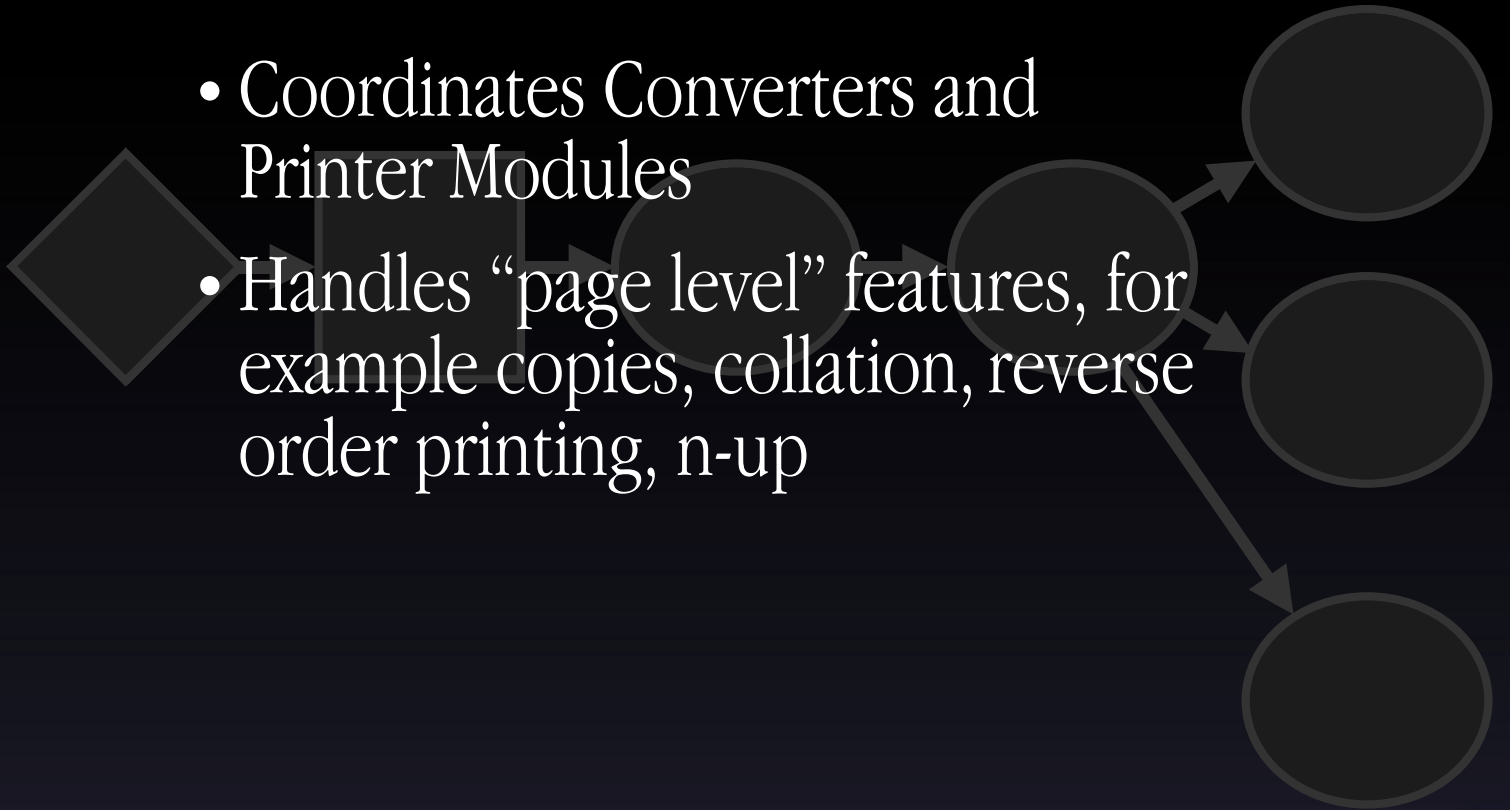


Job Manager

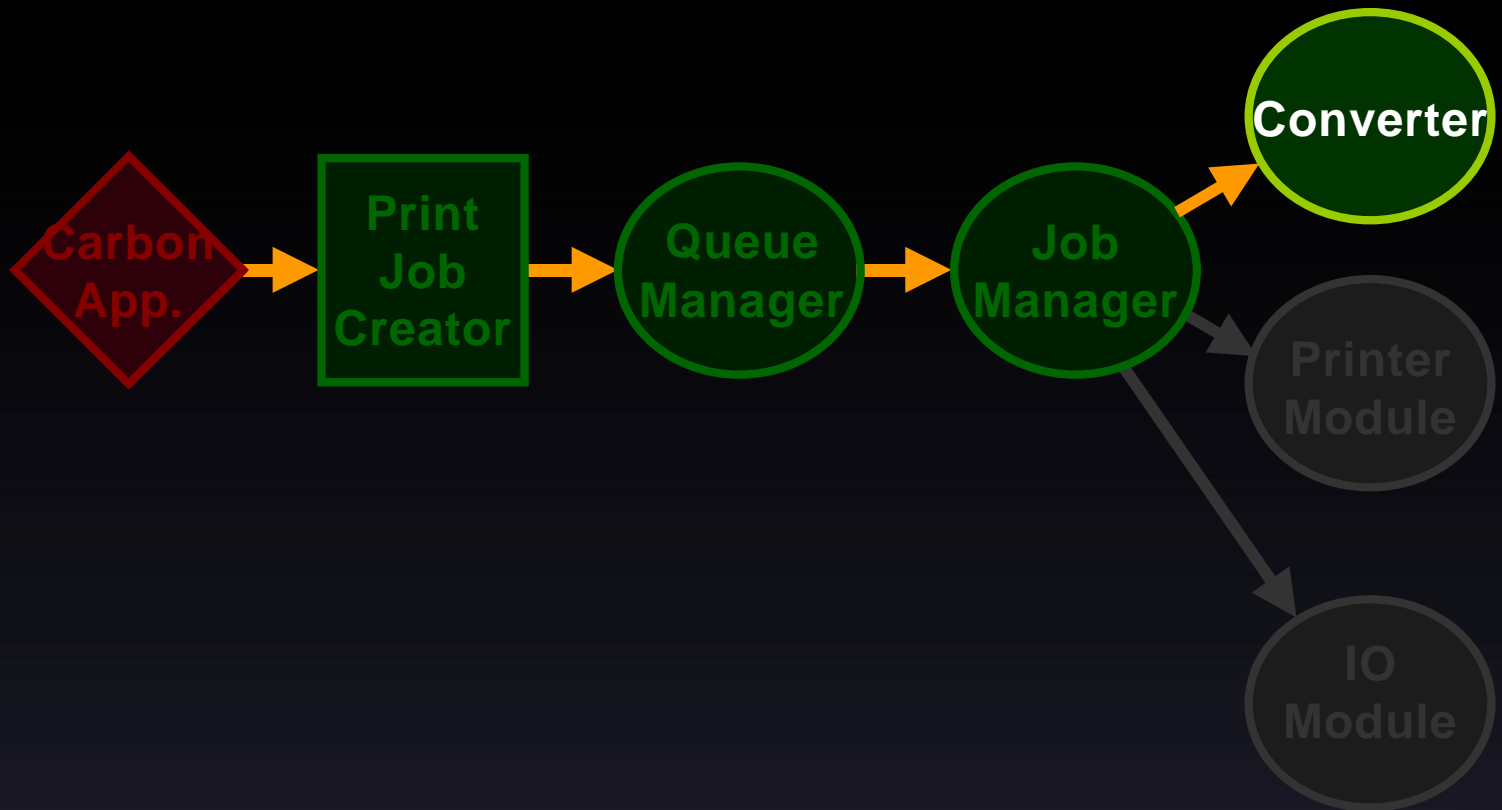


Job Manager

- Coordinates Converters and Printer Modules
- Handles “page level” features, for example copies, collation, reverse order printing, n-up

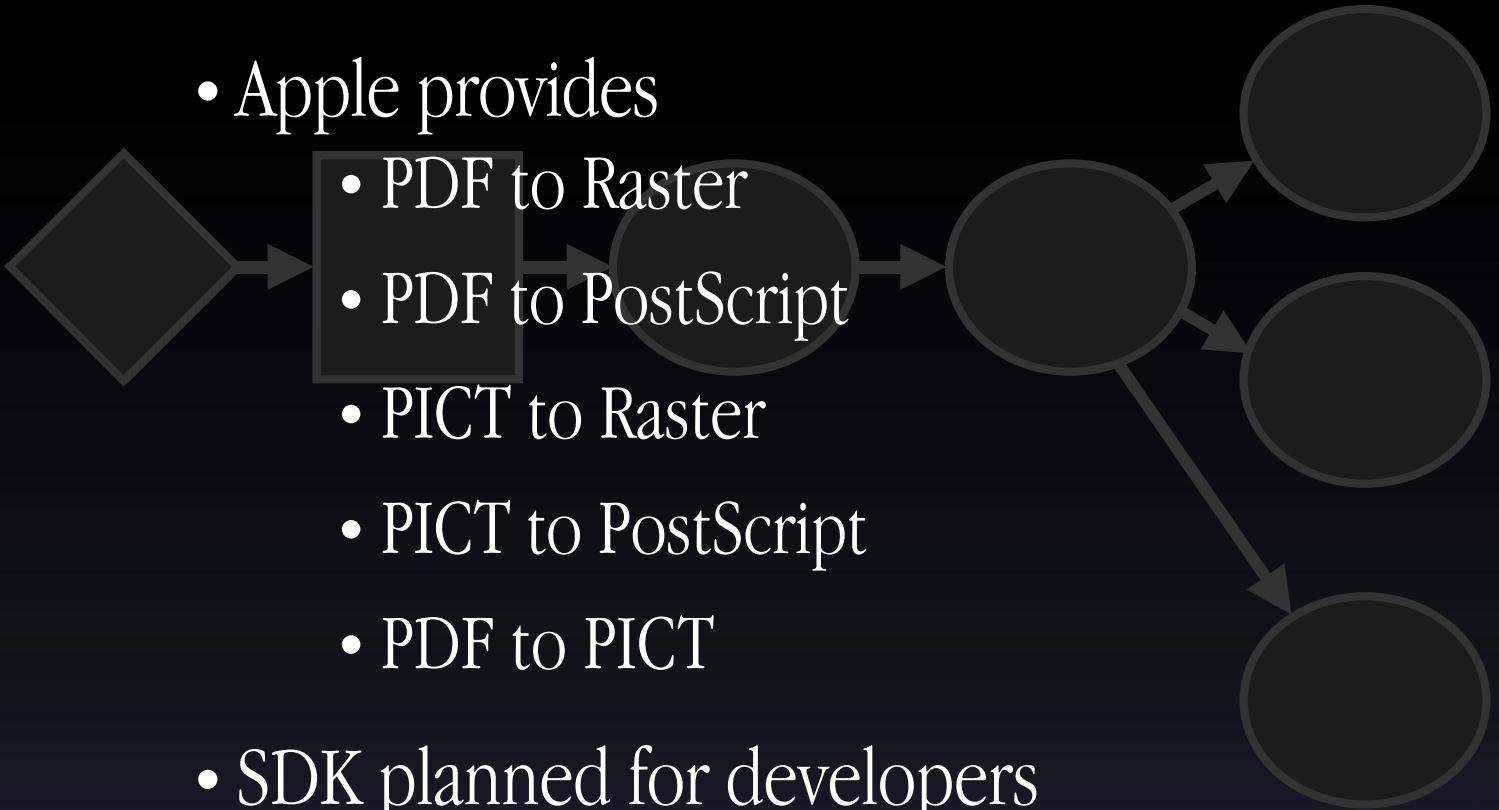


Converters

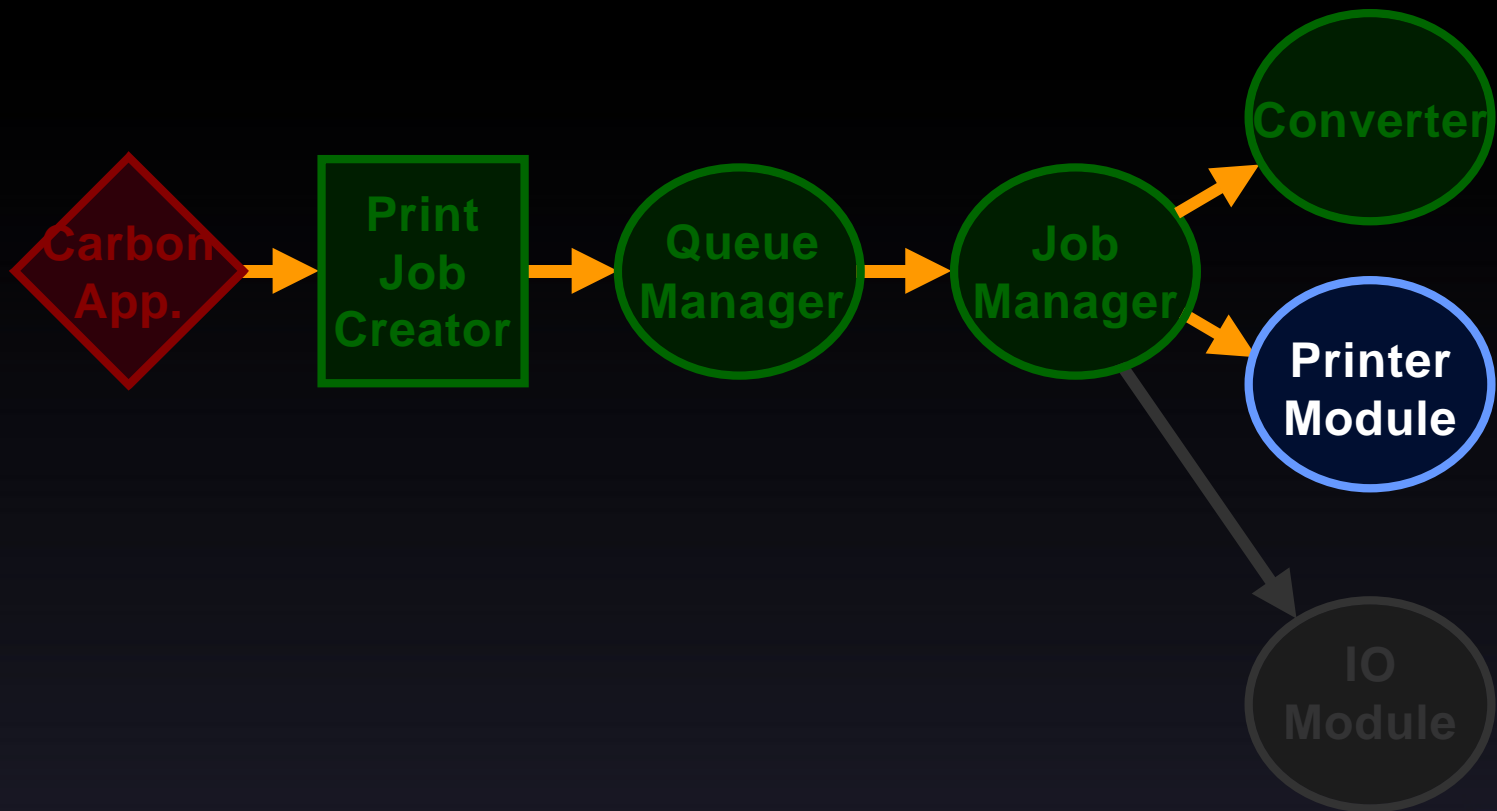


Converters

- Apple provides
 - PDF to Raster
 - PDF to PostScript
 - PICT to Raster
 - PICT to PostScript
 - PDF to PICT
- SDK planned for developers



Printer Modules

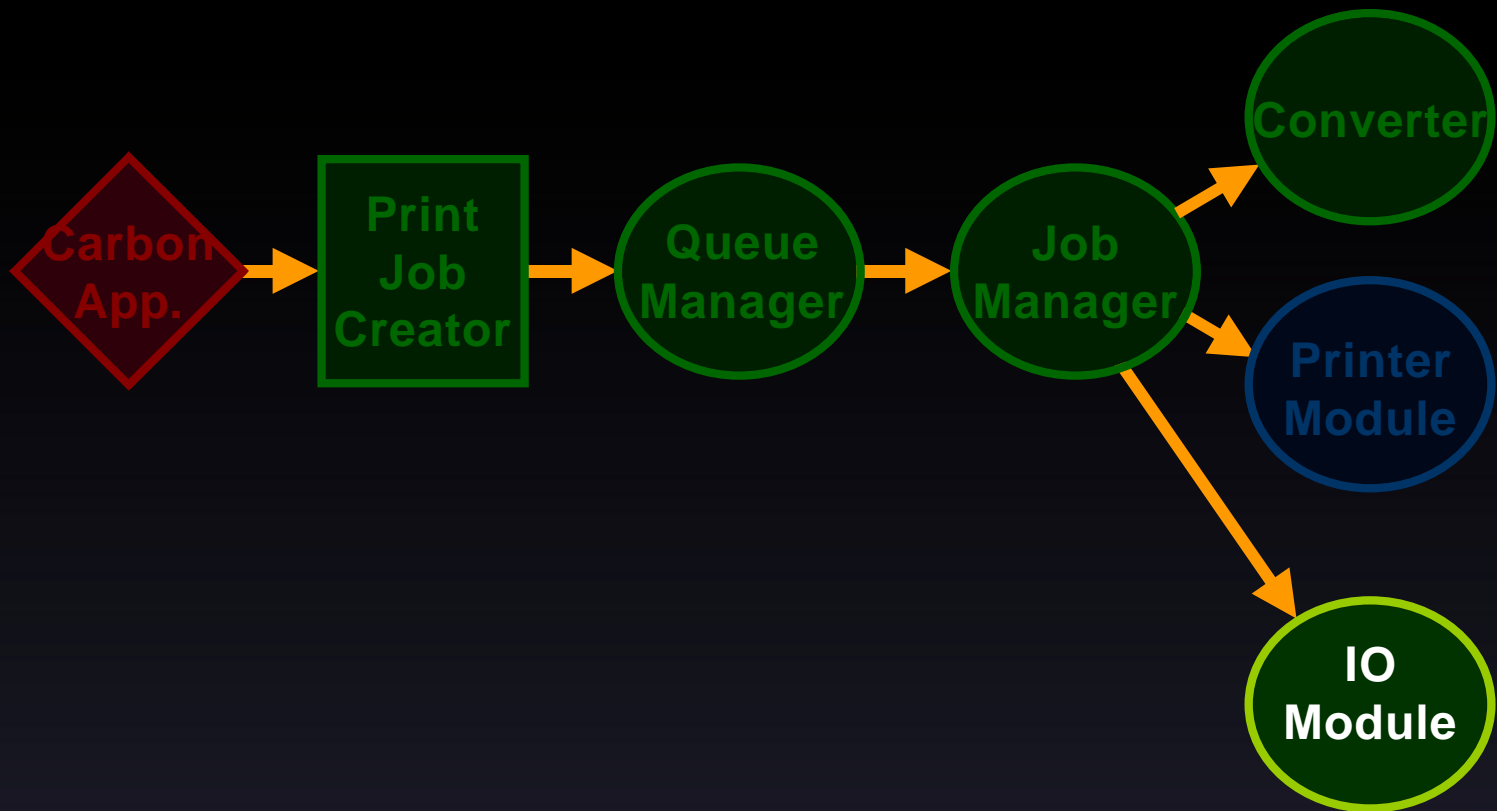


Printer Modules

- Prepares data for downloading to printers
- Supports device-specific features with Print dialog extensions
- Apple provides the default PostScript Printer Module
- Developers use our SDK to develop custom Printer Modules



IO Modules



IO Modules

- Sends print data and gets status from target device:

- PAP, LPR...to network printers
- USB, Firewire, IrDA...to direct connect printers
- IPP to other IPP Servers
- File to disk



Compatibility

- Carbon and Cocoa applications can print to Classic drivers
- Classic applications will print to Tioga printers
- Mac OS 8 clients will print to Tioga print servers, and vice versa
- Windows clients will print to Tioga print servers, and vice versa





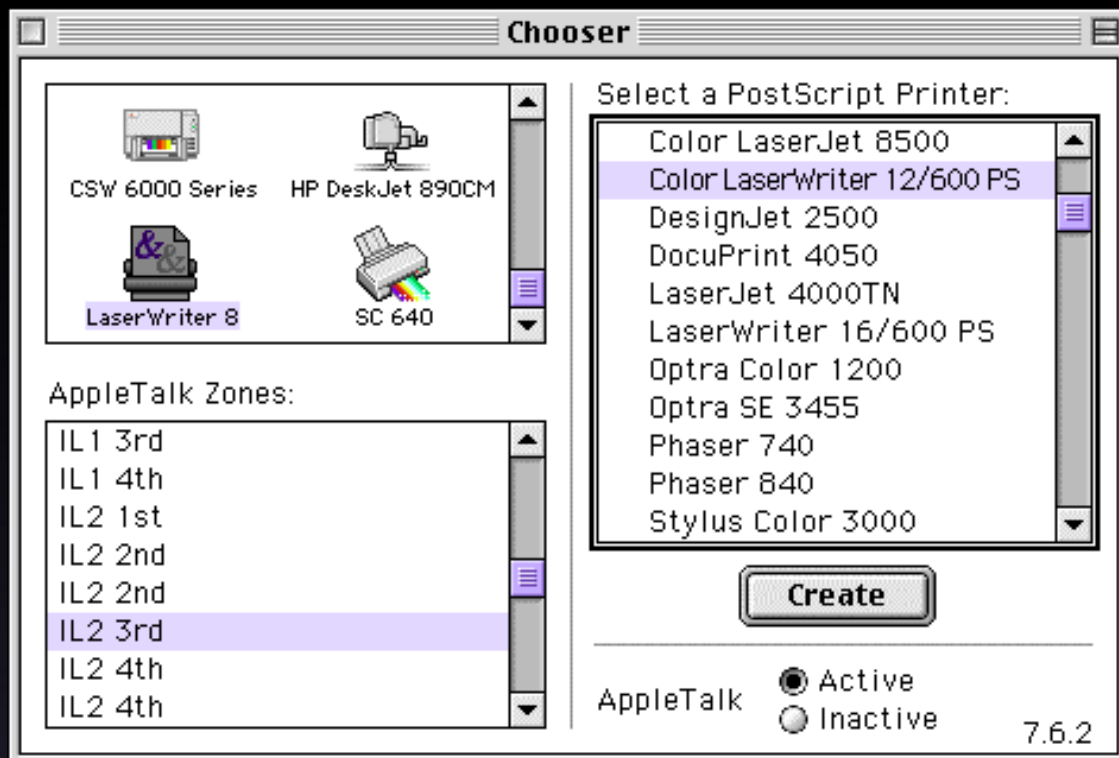
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Demo

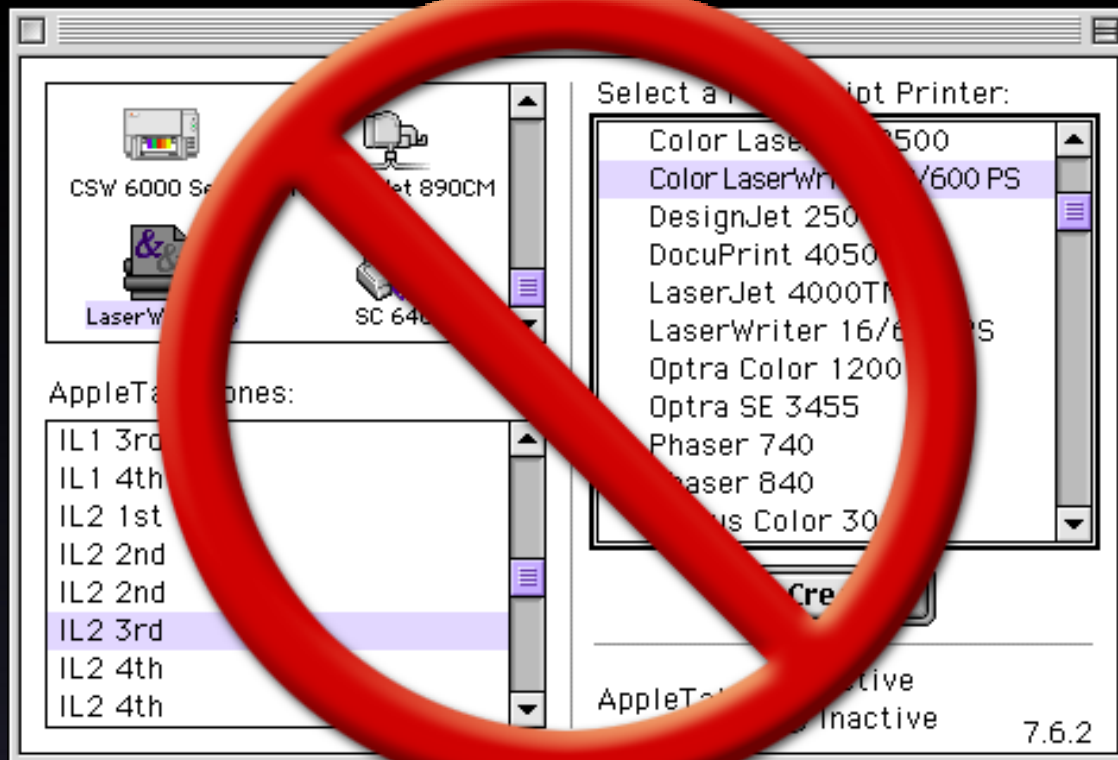
Mike Conley

Underpaid Lackey

PrintCenter



PrintCenter



PrintCenter

- Single application for managing the user's printing environment
- Replaces Chooser for discovering, selecting, and configuring printers
- Replaces Desktop Printing for managing printers and queues



Page Setup

- Consistent interface for all printers
- Basic (Fewer Options) and Advanced (More Options) mode
- Supports application extensions
- User-configurable



Print Dialog

- Consistent interface for all printers
- Basic (Fewer Options) and Advanced (More Options) mode
- Supports application and printer extensions
- Multiple Settings Groups
- User-configurable



Summary

- Support Carbon Printing now for Mac OS 8 and X compatibility
- Support Tioga Printing to take advantage of a modern, extensible and powerful printing system
- Attend Graphics and Printing Feedback Forum, tomorrow at 10:15 in room J2
- Send feedback to devfeedback@apple.com





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Q&A



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Welcome

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