Command Line Tools for macOS

Ed Marczak & Greg Neagle

GOTHENBURG
Soulstore
COFFEE&MOMENTS
EST. 326 B.C.
JOHN
LENNON
WEEK
SMOOTHIE
39:-
Hallon
Jordgubb
SOULSTORE
coffee&moments
TAKE AWAY OF
YOUR CHOICE
SMALL 20:-
MEDIUM 25:-
LARGE 30:-
VÄLKOMNA
TAYLOR
2.99:-

The definitive guide to Apple's Managed Client technology

Enterprise Mac Managed Preferences

Edward Marczak | Greg Neagle

Apress®

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https://goo.gl/LrAQmb

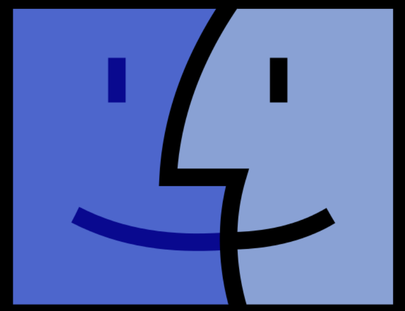
```
]catalog /examples

/EXAMPLES

 NAME           TYPE  BLOCKS  MODIFIED         CREATED          ENDFILE SUBTYPE

*PRODOS          SYS      30  18-SEP-84  0:00  26-OCT-84  2:04    14848
*BASIC.SYSTEM    SYS      21  18-JUN-84  0:00  26-OCT-84  2:06    10240
*STARTUP         BAS       7  26-JUL-84  9:12  26-OCT-84  2:08     2794
*HELP            BIN       5   1-OCT-83  0:00   1-OCT-83  0:00     1537 A=$2000
*HELPSCREENS     TXT      60   1-OCT-83  0:00   1-OCT-83  0:00 12358656 R=  512
*PRACTICE        DIR       1   1-OCT-83  0:00   1-OCT-83  0:00      512
*PROGRAMS        DIR       3   1-OCT-83  0:00   1-OCT-83  0:00     1536
*DATA            DIR       1  16-OCT-87 23:11   1-OCT-83  0:00      512
*EXTRAS          DIR       1   1-OCT-83  0:00   1-OCT-83  0:00      512
*DIRECTORY       DIR       1   1-OCT-83  0:00   1-OCT-83  0:00      512

BLOCKS FREE:   34     BLOCKS USED:  246     TOTAL BLOCKS:  280

]
```

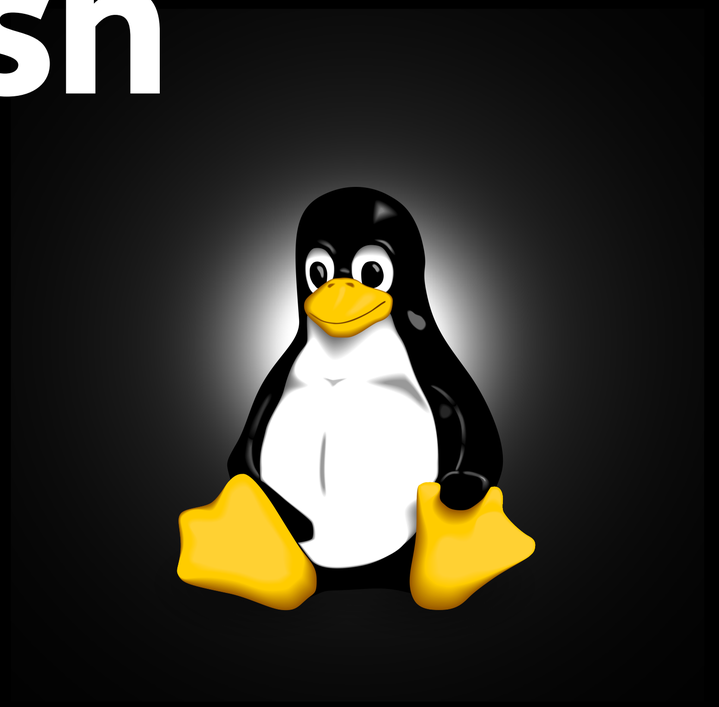
```
Current date is Tue  1-01-1980
Enter new date:
Current time is  7:48:27.13
Enter new time:


The IBM Personal Computer DOS
Version 1.10 (C)Copyright IBM Corp 1981, 1982

A>dir/w
COMMAND  COM    FORMAT   COM    CHKDSK   COM    SYS      COM    DISKCOPY COM
DISKCOMP COM    COMP     COM    EXE2BIN  EXE    MODE     COM    EDLIN    COM
DEBUG    COM    LINK     EXE    BASIC    COM    BASICA   COM    ART      BAS
SAMPLES  BAS    MORTGAGE BAS    COLORBAR BAS    CALENDAR BAS    MUSIC    BAS
DONKEY   BAS    CIRCLE   BAS    PIECHART BAS    SPACE    BAS    BALL     BAS
COMM     BAS
       26 File(s)
A>dir command.com
COMMAND  COM     4959   5-07-82  12:00p
        1 File(s)
A>
```

The Shell

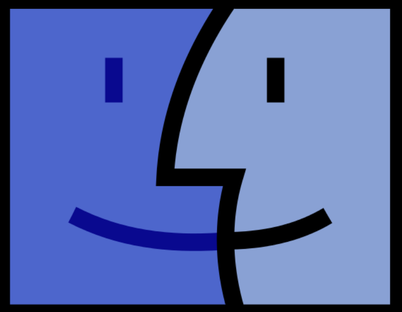
bash

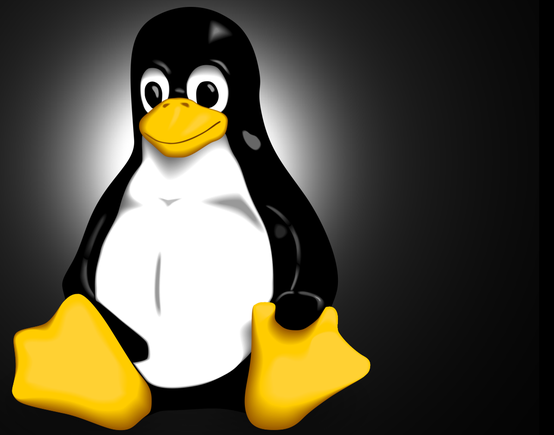
bash



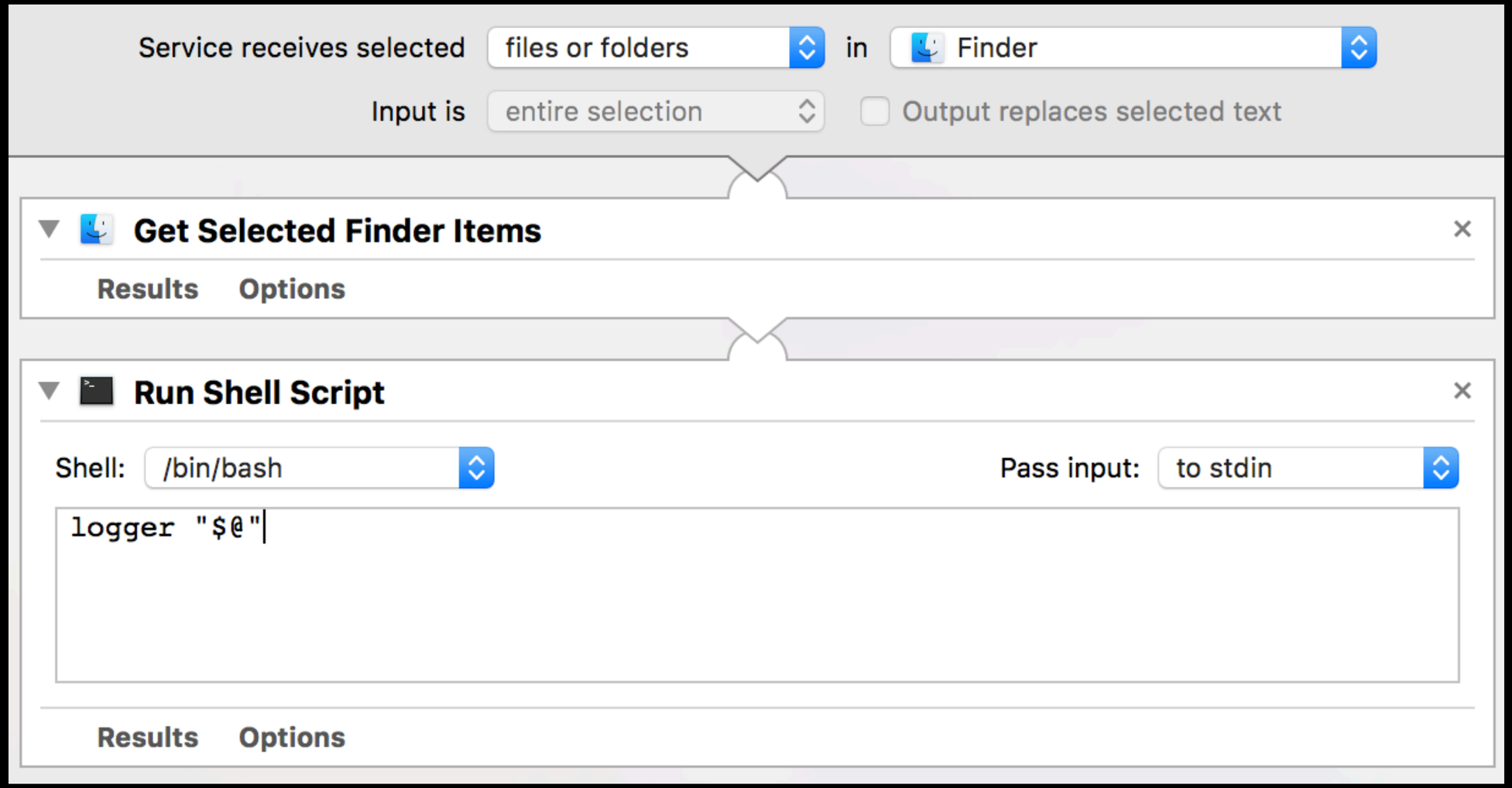


PowerShell





bash


Service receives selected
files or folders
in
Finder
Input is
entire selection
Output replaces selected text
Get Selected Finder Items
Results
Options
Run Shell Script
Shell:
/bin/bash
Pass input:
to stdin
logger "$@"
Results
Options

```
# Shell settings
shopt -s histappend histreedit histverify
export HISTCONTROL='ignoreboth'
export HISTFILESIZE=12000
export HISTSIZE=11000
export HISTTIMEFORMAT='%b %d %H:%M:%S: '
set cmdhist

bind '"\e[A":history-search-backward
bind '"\e[B":history-search-forward

export PROMPT_COMMAND="history -a; history -n"
```

~/.bash_profile

Gothenburg, Nebraska

Pizza Hut
Pizza Hut

Top-rated Gothenburg Things to Do

Pony Express Station
History Museums
99 Reviews

Sod House Museum
Specialty Museums
39 Reviews

Gothenburg Historical Museum
Specialty Museums
3 Reviews

pkgutil

```
pkgutil - Query and manipulate macOS Installer packages and receipts.
```

pkgutil

Determining package installation state

pkgutil

```
bash-3.2$ pkgutil --pkgs
com.apple.pkg.BaseSystemResources
com.apple.pkg.ChineseWordlistUpdate.14U1204
com.apple.pkg.ChineseWordlistUpdate.14U1215
com.apple.pkg.ChineseWordlistUpdate.14U1240
com.apple.pkg.CLTools_Executables
com.apple.pkg.CoreADI
com.apple.pkg.CoreFP
com.apple.pkg.CoreLSKDConfigData.8
com.apple.pkg.CoreSuggestionsConfigData.14U2063
com.apple.pkg.CoreSuggestionsConfigData.14U2099
com.apple.pkg.CoreSuggestionsConfigData.14U2118
com.apple.pkg.CoreSuggestionsConfigData.14U2123
com.apple.pkg.CoreSuggestionsConfigData.14U2128
com.apple.pkg.CoreSuggestionsConfigData.14U2136
com.apple.pkg.CoreSuggestionsConfigData.14U2143
com.apple.pkg.CoreSuggestionsConfigData.14U2159
```

pkgutil

```
bash-3.2$ pkgutil --pkgs | grep -i flash
com.adobe.pkg.FlashPlayer
com.googlecode.munki.disableflash10autoupdate
```

pkgutil

```
bash-3.2$ pkgutil --pkg-info com.adobe.pkg.FlashPlayer
package-id: com.adobe.pkg.FlashPlayer
version: 23.0.0.162
volume: /
location:
install-time: 1473877602

bash-3.2$ date -r 1473877602
Wed Sep 14 11:26:42 PDT 2016
```

pkgutil

Querying files installed by a package

pkgutil

```
$ pkgutil --files com.googlecode.munki.disableflash10autoupdate
Library
Library/Application Support
Library/Application Support/Macromedia
Library/Application Support/Macromedia/._mms.cfg
Library/Application Support/Macromedia/mms.cfg

$ cat /Library/Application\ Support/Macromedia/mms.cfg
AutoUpdateDisable=1
DisableAnalytics=1
```

pkgutil

What package installed this file?

pkgutil

```
$ pkgutil --file-info /Library/Application\ Support/Macromedia/mms.cfg
volume: /
path: /Library/Application Support/Macromedia/mms.cfg

pkgid: com.googlecode.munki.disableflash10autoupdate
pkg-version: 2.0
install-time: 1449621942
uid: 0
gid: 0
mode: 664
```

pkgutil

What files will be installed by this package?

pkgutil

```
bash-3.2$ pkgutil --payload-files BlueJeans.1.17.35.pkg
.
./Blue Jeans.app
./Blue Jeans.app/Contents
./Blue Jeans.app/Contents/_CodeSignature
./Blue Jeans.app/Contents/_CodeSignature/CodeResources
./Blue Jeans.app/Contents/Frameworks
./Blue Jeans.app/Contents/Frameworks/BlueJeans Framework.framework
./Blue Jeans.app/Contents/Frameworks/BlueJeans Framework.framework/
_CodeSignature
./Blue Jeans.app/Contents/Frameworks/BlueJeans Framework.framework/
_CodeSignature/CodeResources
./Blue Jeans.app/Contents/Frameworks/BlueJeans Framework.framework/
BlueJeans Framework
./Blue Jeans.app/Contents/Frameworks/BlueJeans Framework.framework/
Libraries
./Blue Jeans.app/Contents/Frameworks/BlueJeans Framework.framework/
Libraries/ffmpegsumo.so
```

pkgutil

```
Expand a flat package so you can examine its contents
```

pkgutil

```
bash-3.2$ pkgutil --expand BlueJeans.1.17.35.pkg /tmp/bluejeans_pkg
bash-3.2$ ls -alR /tmp/bluejeans_pkg
total 8
drwxr-xr-x   5 gneagle  wheel   170 Oct  7 20:14 .
drwxrwxrwt  20 root     wheel   680 Oct  7 20:14 ..
drwx------   6 gneagle  staff   204 Oct  7 20:14 BlueJeansSetup.pkg
-rw-rw-r--   1 gneagle  staff  1709 Sep 19 10:33 Distribution
drwx------   3 gneagle  staff   102 Oct  7 20:14 Resources

/tmp/bluejeans_pkg/BlueJeansSetup.pkg:
total 77264
drwx------  6 gneagle  staff       204 Oct  7 20:14 .
drwxr-xr-x  5 gneagle  wheel       170 Oct  7 20:14 ..
-rw-r--r--  1 gneagle  staff     53989 Sep 16 09:23 Bom
-rw-rw-r--  1 gneagle  staff      1634 Sep 19 10:33 PackageInfo
-rw-r--r--  1 gneagle  staff  39494002 Sep 16 09:23 Payload
drwxr-xr-x  3 gneagle  staff       102 Oct  7 20:14 Scripts
```

pkgutil

```
drwx------  6 gneagle  staff       204 Oct  7 20:14 .
drwxr-xr-x  5 gneagle  wheel       170 Oct  7 20:14 ..
-rw-r--r--  1 gneagle  staff     53989 Sep 16 09:23 Bom
-rw-rw-r--  1 gneagle  staff      1634 Sep 19 10:33 PackageInfo
-rw-r--r--  1 gneagle  staff  39494002 Sep 16 09:23 Payload
drwxr-xr-x  3 gneagle  staff       102 Oct  7 20:14 Scripts

/tmp/bluejeans_pkg/BlueJeansSetup.pkg/Scripts:
total 8
drwxr-xr-x  3 gneagle  staff  102 Oct  7 20:14 .
drwx------  6 gneagle  staff  204 Oct  7 20:14 ..
-rwxr-xr-x  1 gneagle  staff   78 Sep 19 10:33 postinstall.sh

/tmp/bluejeans_pkg/Resources:
total 152
drwx------  3 gneagle  staff    102 Oct  7 20:14 .
drwxr-xr-x  5 gneagle  wheel    170 Oct  7 20:14 ..
-rw-rw-r--  1 gneagle  staff  76074 Sep 19 10:33 background.jpg
```

pkgutil

```
$ cat /tmp/bluejeans_pkg/BlueJeansSetup.pkg/Scripts/postinstall.sh
#!/bin/sh
# Placeholder script--just exit with success
exit 0
```

pkgutil

pkgbuild

```
pkgbuild - Build a macOS Installer component package from on-disk
files
```

pkgbuild

We're going to build a simple package to cause a policy banner to display over the loginwindow.

This package will install one file:
/Library/Security/PolicyBanner.rtf

pkgbuild

TextEdit File Edit Format View Window Help

PolicyBanner.rtf

Helvetica Regular 12 1.0

Hello!

By using this equipment, you agree to the following terms and conditions:

1.0 Purpose

The computing resources at Foo Bar U support the educational, instructional, research, and administrative activities of the University and the use of these resources is a privilege that is extended to members of the Foo community. As a user of these services and facilities, you have access to valuable University resources, to sensitive data, and to internal and external networks. Consequently, it is important for you to behave in a responsible, ethical, and legal manner.
In general, acceptable use means respecting the rights of other computer users, the integrity of the physical facilities and all pertinent license and contractual agreements. If an individual is found to be in violation of the Acceptable Use Policy, the University will take disciplinary action, including the restriction and possible loss of network privileges. A serious violation could result in more serious consequences, up to and including suspension or termination from the University. Individuals are also subject to federal, state and local laws governing many interactions that occur on the Internet. These policies and laws are subject to change as state and federal laws develop and change.
This document establishes specific requirements for the use of all computing and network resources at Foo Bar U.

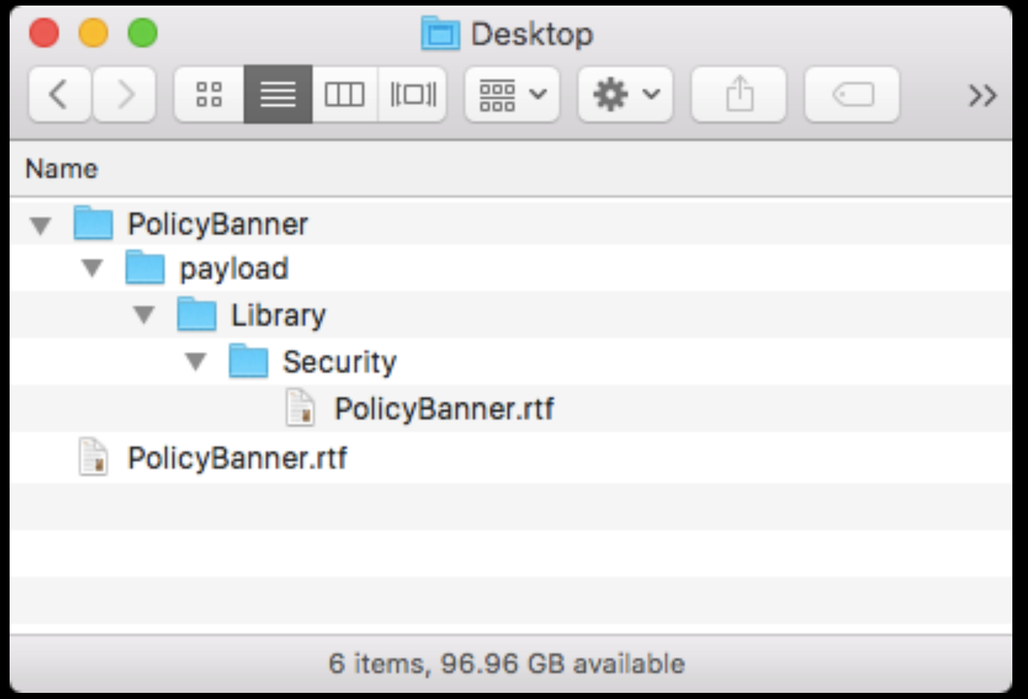
2.0 Scope

This policy applies to all users of computing resources owned or managed by Foo Bar U. Individuals covered by the policy include (but are not limited to) Foo faculty and visiting faculty, staff, students, alumni, guests or agents of the administration, external individuals and organizations accessing network services via Foo's computing facilities.
Computing resources include all university owned, licensed, or managed hardware and software, and use of the university network via a physical or wireless connection, regardless of the ownership of the computer or device connected to the network.
These policies apply to technology administered in individual departments, the resources administered by central administrative departments (such as the University Libraries and Computing and Information Services), personally owned computers and devices connected by wire or wireless to the campus network, and to off-campus computers that connect remotely to the University's network services.

2.1 Your Rights and Responsibilities

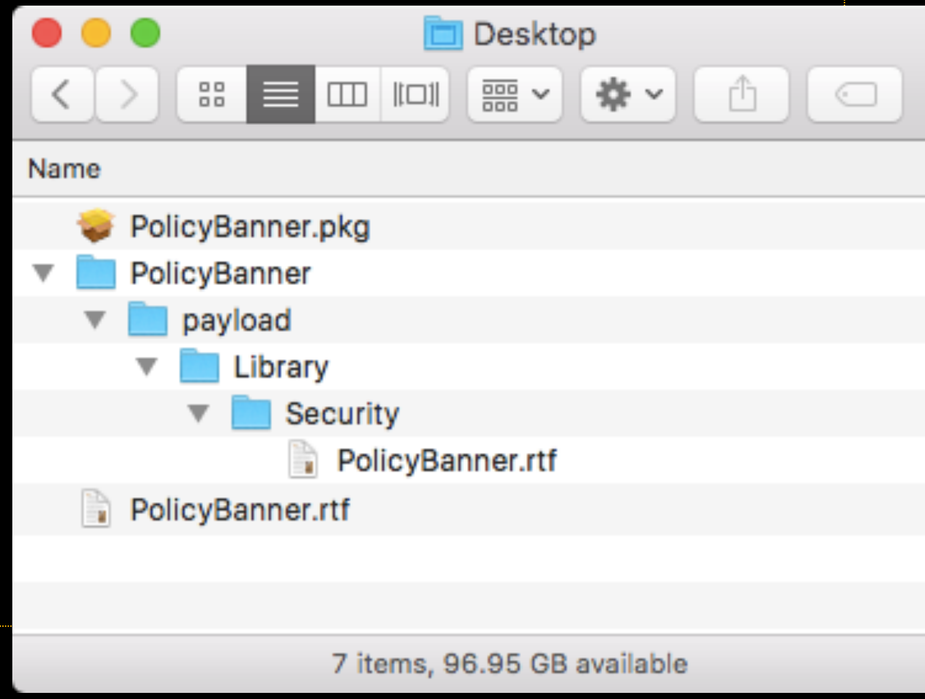
As a member of the University community, the university provides you with the use of scholarly and/or work-related tools

```
$ cd ~/Desktop
$ mkdir -p PolicyBanner/payload/Library/Security
$ cp PolicyBanner.rtf PolicyBanner/payload/Library/Security
```



pkgbuild

```
$ pkgbuild --root PolicyBanner/payload \
           --identifier se.macsysadmin.demo.PolicyBanner \
           --version 1.0 \
           PolicyBanner.pkg
pkgbuild: Inferring bundle components from contents of PolicyBanner/
payload
pkgbuild: Wrote package to PolicyBanner.pkg
```



pkgbuild

```
bash-3.2$ pkgutil --payload-files PolicyBanner.pkg
.
./Library
./Library/Security
./Library/Security/PolicyBanner.rtf
```

pkgbuild

Agreement

Hello!

By using this equipment, you agree to the following terms and conditions:

1.0 Purpose

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This document establishes specific requirements for the use of all computing and network resources at Foo Bar U.

2.0 Scope

Accept

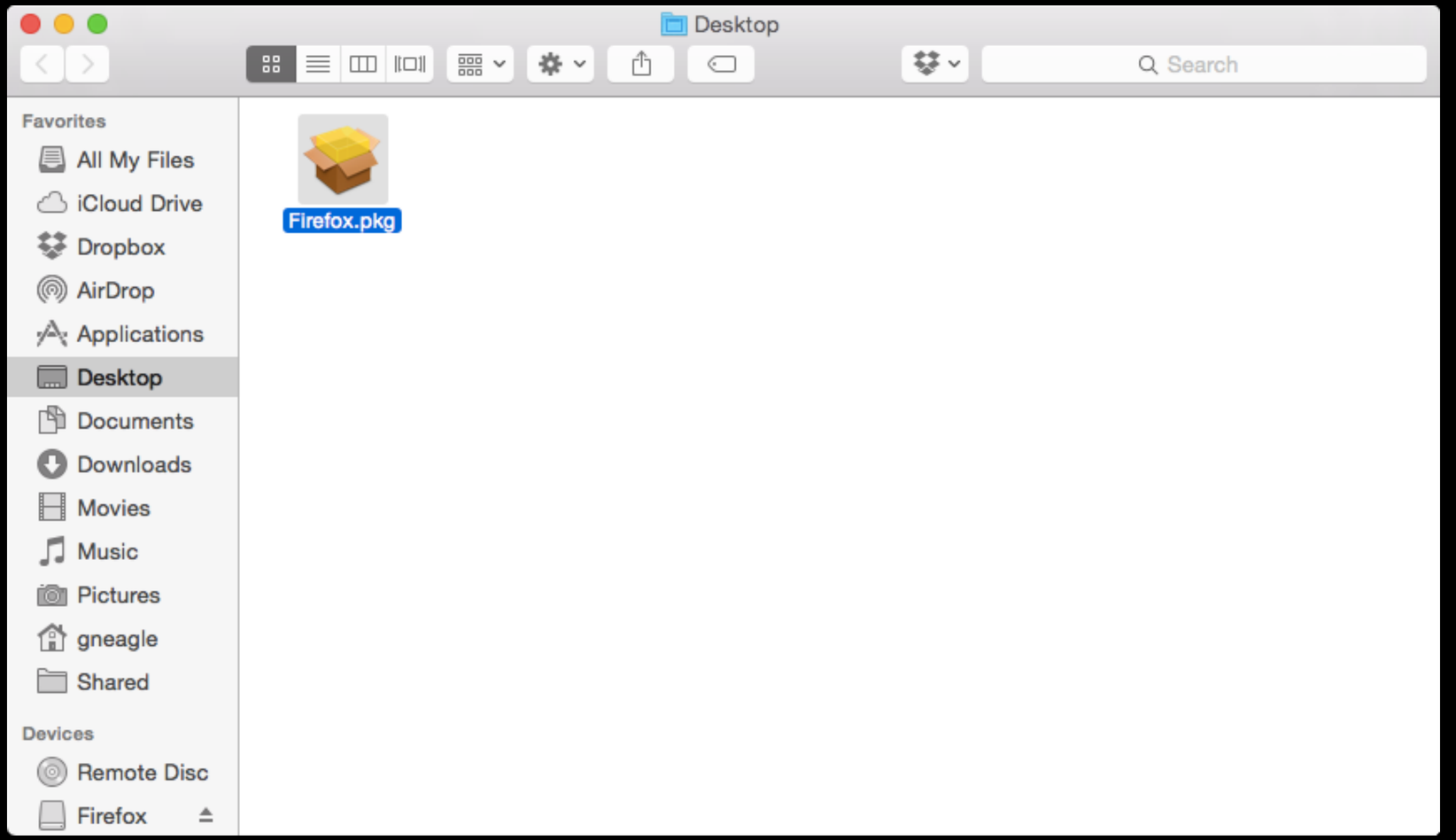
Let’s build a package that installs an application.

pkgbuild

Firefox
Firefox
Firefox

```
bash-3.2$ pkgbuild --component /Volumes/Firefox/Firefox.app \
          --install-location /Applications \
          Firefox.pkg
pkgbuild: Adding component at /Volumes/Firefox/Firefox.app
pkgbuild: Wrote package to Firefox.pkg
```

pkgbuild


Desktop
Search
Favorites
All My Files
iCloud Drive
Dropbox
AirDrop
Applications
Desktop
Documents
Downloads
Movies
Music
Pictures
gneagle
Shared
Devices
Remote Disc
Firefox
Firefox.pkg

```
bash-3.2$ pkgutil --payload-files Firefox.pkg
.
./Firefox.app
./Firefox.app/Contents
./Firefox.app/Contents/_CodeSignature
./Firefox.app/Contents/_CodeSignature/CodeResources
./Firefox.app/Contents/_CodeSignature/._CodeResources
./Firefox.app/Contents/.__CodeSignature
./Firefox.app/Contents/Info.plist
./Firefox.app/Contents/._Info.plist
./Firefox.app/Contents/MacOS
./Firefox.app/Contents/MacOS/crashreporter.app
./Firefox.app/Contents/MacOS/crashreporter.app/Contents
./Firefox.app/Contents/MacOS/crashreporter.app/Contents/_CodeSignature
./Firefox.app/Contents/MacOS/crashreporter.app/Contents/_CodeSignature/Code
./Firefox.app/Contents/MacOS/crashreporter.app/Contents/_CodeSignature/._Co
./Firefox.app/Contents/MacOS/crashreporter.app/Contents/.__CodeSignature
```

pkgbuild

installer

Let’s install the package we just created.

installer

```
bash-3.2$ sudo installer -pkg Firefox.pkg -target /
installer: Package name is Firefox
installer: Installing at base path /
installer: The install was successful.
```

installer

dscl

```
dscl -- Directory Service command line utility
```

dscl

```
bash-3.2$ dscl . list /Users
_amavisd
_appleevents
_appowner
_appserver
_ard
_assetcache
_astris
…
daemon
gneagle
localadmin
nobody
root
```

dscl

```
bash-3.2$ dscl . read /Users/gneagle
dsAttrTypeNative:_writers_hint: gneagle
dsAttrTypeNative:_writers_jpegphoto: gneagle
dsAttrTypeNative:_writers_LinkedIdentity: gneagle
dsAttrTypeNative:_writers_passwd: gneagle
dsAttrTypeNative:_writers_picture: gneagle
dsAttrTypeNative:_writers_realname: gneagle
dsAttrTypeNative:_writers_UserCertificate: gneagle
…
RecordName: gneagle
RecordType: dsRecTypeStandard:Users
SMBSID: S-1-5-21-987654321-987654321-987654321-9778
UniqueID: 4389
UserShell: /bin/bash
```

dscl

```
$ dscl . read /Users/gneagle

$ dscl /Local/Default read /Users/gneagle

$ dscl /LDAPv3/ldap.pretendco.com read /Users/gneagle

$ dscl /Active\ Directory/All\ Domains read /Users/gneagle

$ dscl /Search read /Users/gneagle
```

dscl

```
bash-3.2$ dscl . read /Users/gneagle home
dsAttrTypeNative:home: /Users/gneagle

bash-3.2$ dscl . read /Groups/staff gid
dsAttrTypeNative:gid: 20

bash-3.2$ sudo dscl . passwd /Users/gneagle 12345

bash-3.2$ sudo dscl . delete /Users/gneagle

bash-3.2$ dscl . read /Users/gneagle OriginalNodeName
OriginalNodeName: /LDAPv3/ldap.pretendco.com
```

dscl

```
bash-3.2$ dscl . read /Groups/admin
AppleMetaNodeLocation: /Local/Default
GeneratedUID: ABCDEFAB-CDEF-ABCD-EFAB-CDEF00000050
GroupMembers: FFFFEEEE-DDDD-CCCC-BBBB-AAAA00000000 3495BA11-F3A6-478C-A9
GroupMembership: root localadmin
Password: *
PrimaryGroupID: 80
RealName: Administrators
RecordName: admin BUILTIN\Administrators
RecordType: dsRecTypeStandard:Groups
SMBSID: S-1-5-32-544
```

dscl

dseditgroup

```
dseditgroup -- group record manipulation tool.
```

dseditgroup

```
bash-3.2$ dseditgroup -o checkmember -m gneagle admin
no gneagle is NOT a member of admin

bash-3.2$ sudo dseditgroup -o edit -a gneagle -t user admin

bash-3.2$ dseditgroup -o checkmember -m gneagle admin
yes gneagle is a member of admin
```

dseditgroup

```
bash-3.2$ sudo dseditgroup -o edit -a everyone -t group lpadmin


bash-3.2$ dseditgroup -o checkmember -m gneagle lpadmin
yes gneagle is a member of lpadmin
```

dseditgroup

system_profiler

```
system_profiler - reports system hardware and software configuration.
```

system_profiler

```
bash-3.2$ system_profiler
Accessibility:

    Accessibility Information:

      Cursor Magnification: Off
      Display: Black on White
      Flash Screen: Off
      Mouse Keys: Off
      Slow Keys: Off
      Sticky Keys: Off
      VoiceOver: Off
      Zoom Mode: Full Screen
      Contrast: 0
```

```
bash-3.2$ system_profiler | wc -l
  102134
```

system_profiler

```
bash-3.2$ system_profiler -listDataTypes
Available Datatypes:
SPParallelATADataType
SPUniversalAccessDataType
SPApplicationsDataType
SPAudioDataType
SPBluetoothDataType
SPCameraDataType
SPCardReaderDataType
SPComponentDataType
…
SPNetworkVolumeDataType
SPWWANDataType
SPAirPortDataType
```

system_profiler

```
bash-3.2$ system_profiler SPHardwareDataType
Hardware:

    Hardware Overview:

      Model Name: MacBook Air
      Model Identifier: MacBookAir6,2
      Processor Name: Intel Core i7
      Processor Speed: 1.7 GHz
      Number of Processors: 1
      Total Number of Cores: 2
      L2 Cache (per Core): 256 KB
      L3 Cache: 4 MB
      …
```

system_profiler

```
bash-3.2$ system_profiler SPSoftwareDataType
Software:

    System Software Overview:

      System Version: OS X 10.11.6 (15G1004)
      Kernel Version: Darwin 15.6.0
      Boot Volume: Macintosh HD
      Boot Mode: Normal
      Computer Name: Greg-Neagle--humantorch
      User Name: Greg Neagle (gneagle)
      Secure Virtual Memory: Enabled
      System Integrity Protection: Enabled
      Time since boot: 8:01
```

system_profiler

```
bash-3.2$ system_profiler SPNetworkDataType
Network:

    Bluetooth DUN:

      Type: PPP (PPPSerial)
      Hardware: Modem
      BSD Device Name: Bluetooth-Modem
      IPv4:
          Configuration Method: PPP
      IPv6:
          Configuration Method: Automatic
      Proxies:
          …
```

system_profiler

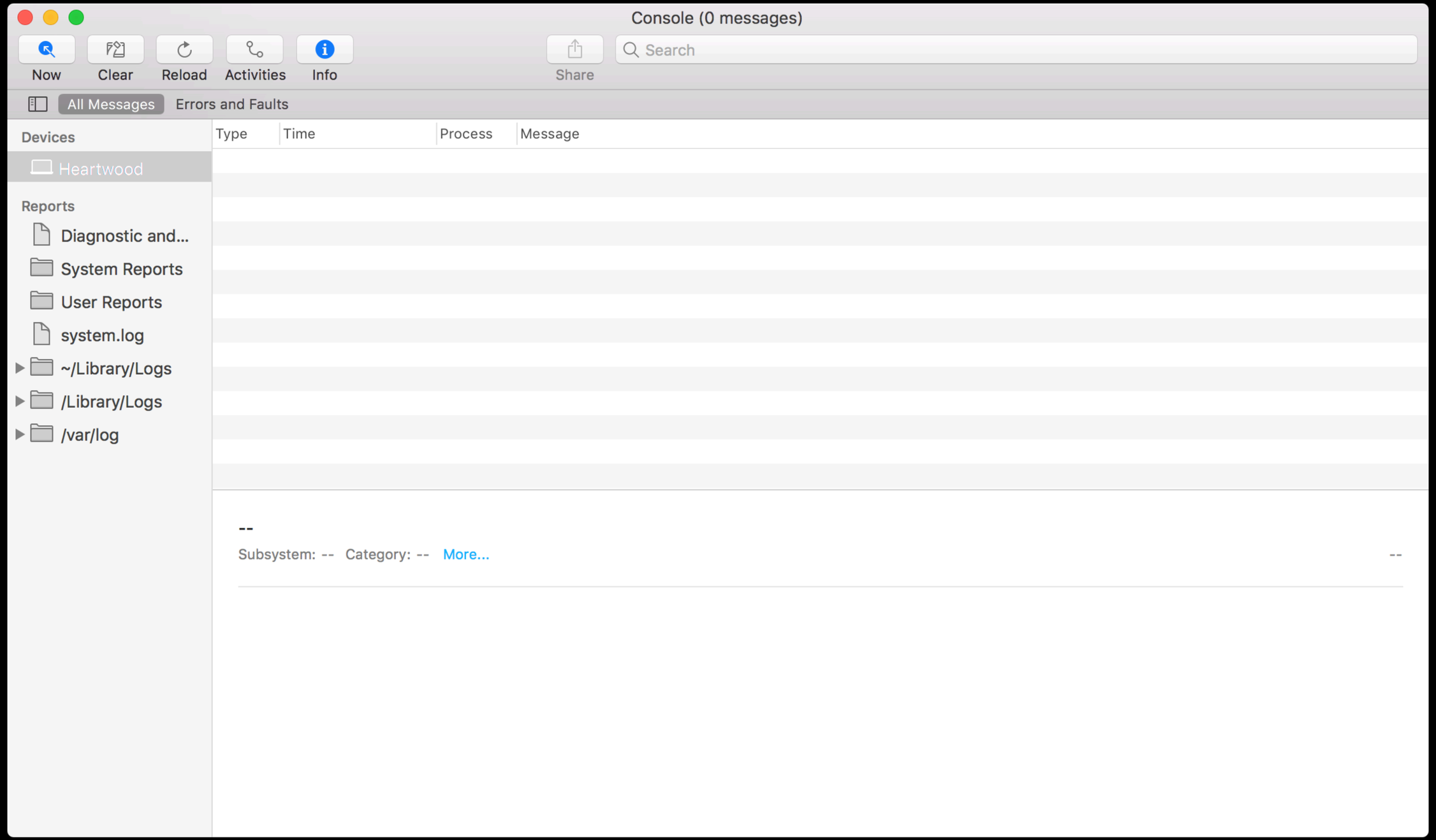
```
bash-3.2$ system_profiler SPDisplaysDataType
Graphics/Displays:

    Intel HD Graphics 5000:

      Chipset Model: Intel HD Graphics 5000
      Type: GPU
      Bus: Built-In
      […]
      Displays:
        Color LCD:
          Display Type: LCD
          Resolution: 1440 x 900
          Pixel Depth: 32-Bit Color (ARGB8888)
```

system_profiler

Intermission

log

It’s not you, it’s Apple


Console (0 messages)
Now
Clear
Reload
Activities
Info
Share
Search
All Messages
Errors and Faults
Devices
Heartwood
Reports
Diagnostic and...
System Reports
User Reports
system.log
~/Library/Logs
/Library/Logs
/var/log
Type
Time
Process
Message
--
Subsystem: --
Category: --
More...
--

```
sudo /Applications/Utilities/
Console.app/Contents/MacOS/
Console
```

```
15:00:31.873134   opendirectoryd      <private> completed, delivered 1 result
15:00:33.032481   coreduetd           CDDBatteryMonitor:   received batterycallback, currentPercentage:82.045206!
15:00:33.032838   powerd              Battery time remaining posted with value 0x2000000004802ad
15:00:33.030817   kernel              SmartBattery: finished polling type 4
15:00:33.035431   DuetHeuristic-BM    <private>
15:00:35.188737   DuetHeuristic-BM    <private>
15:00:35.189547   DuetHeuristic-BM    <private>
15:00:35.189982   DuetHeuristic-BM    <private>
```

```
$ sudo log stream --level debug
Timestamp                       Thread     Type        Activity             PID
2016-10-01 16:16:36.688309+0200 0xc5673    Debug       0x0                  10441  log: Streaming
2016-10-01 16:16:36.698621+0200 0xc5575    Debug       0x0                  69     mds:
[com.apple.spotlightserver.FMW] FIND VOLUME 0x7ff98edd49e0 0x7ff98f02ea00 16777220
2016-10-01 16:16:36.699466+0200 0xc5575    Debug       0x0                  69     mds:
[com.apple.spotlightserver.FMW] FIND VOLUME 0x7ff98edd49e0 0x7ff98f02ea00 16777220
2016-10-01 16:16:36.699573+0200 0xc5575    Debug       0x0                  69     mds:
[com.apple.spotlightserver.FMW] FIND VOLUME 0x7ff98edd49e0 0x7ff98f02ea00 16777220
2016-10-01 16:16:36.711434+0200 0xc55d9    Debug       0x0                  69     mds:
[com.apple.spotlightserver.FMW] FIND VOLUME 0x7ff98edd49e0 0x7ff98f02ea00 16777220
2016-10-01 16:16:36.744435+0200 0x1f7f4    Debug       0x0                  1961   Terminal:
(CoreFoundation) [com.apple.CFBundle.strings] Bundle: <private>, key: \U00D7, value: , table: Localizable,
localizationName: (null), result: ×
```

log

```
$ log stream --process Keynote
Stream 'Keynote' (10871) owned by 'marczak' (502)
Timestamp                       Thread     Type        Activity             PID
2016-10-01 17:58:24.614883+0200 0xd3076    Default     0x0                  10871  Keynote:
(libsystem_trace.dylib) Add Mode: 0x8 ( stream ), Final: 0x8 ( stream )
2016-10-01 18:03:50.128565+0200 0xd3f03    Activity    0x800000000004fa2e   10871  Keynote:
(SystemConfiguration) processing SCNetworkReachability notification
2016-10-01 18:03:50.129012+0200 0xd3f03    Default     0x800000000004fa2e   10871  Keynote:
[com.apple.iwork.default] #TSUCollaborationNetworkHealthCat Sending
TSANetworkReachabilityChangedNotification notification with userInfo <private>
2016-10-01 18:03:50.275288+0200 0xd3f03    Activity    0x800000000004fa2f   10871  Keynote:
(SystemConfiguration) processing SCNetworkReachability notification
2016-10-01 18:03:50.275588+0200 0xd3f03    Default     0x800000000004fa2f   10871  Keynote:
[com.apple.iwork.default] #TSUCollaborationNetworkHealthCat Sending
TSANetworkReachabilityChangedNotification notification with userInfo <private>
```

log

```
$ sudo log stream --process cfprefsd --level debug
Found 2 matches
Stream 'cfprefsd' (10120) owned by 'marczak' (502) (Y/n) ?
Stream 'cfprefsd' (115) owned by 'root' (0) (Y/n) ?

Timestamp                       Thread     Type        Activity             PID
2016-10-01 16:15:08.209651+0200 0xc52aa    Default     0x0                  10120  cfprefsd:
(libsystem_trace.dylib) Add Mode: 0xB ( info, debug, stream ), Final: 0xB ( info, debug, stream )
2016-10-01 16:15:08.209789+0200 0xc5333    Default     0x0                  115    cfprefsd:
(libsystem_trace.dylib) Add Mode: 0xB ( info, debug, stream ), Final: 0xB ( info, debug, stream )
2016-10-01 16:15:42.663806+0200 0xc549b    Debug       0x800000000004aee3   115    cfprefsd:
(CoreFoundation) [com.apple.cfprefsd.User Defaults Daemon] Process 754 sent a request related to
{ com.adobe.accmac, user: kCFPreferencesAnyUser, kCFPreferencesCurrentHost, no container, managed: 1 }
2016-10-01 16:15:42.663940+0200 0xc549c    Debug       0x800000000004aee4   10120  cfprefsd:
(CoreFoundation) [com.apple.cfpprefsd.User Defaults Daemon] Process 754 sent a request related to
{ kCFPreferencesAnyApplication, user: marczak, kCFPreferencesCurrentHost, no container, managed: 1 }
```

log

```
$ log stream --predicate 'eventMessage contains "broken"'
Filtering the log data using "eventMessage CONTAINS "broken""
Timestamp                       Thread     Type        Activity             PID
2016-10-05 14:52:18.840332+0200 0x1940d7   Default     0x0                  16340
loggish: [com.radiotope.loggish.breakage] Unified logging is kinda broken
```

log

I just want to see old log messages!

```
$ sudo log collect --output ~/Desktop --start "2016-10-05
14:00:00"
```

log

```
$ sudo rm -rf  ~/Desktop/system_logs.logarchive

$ sudo log collect --output ~/Desktop --start "$(date -v -2H +'%Y-%m-%d %H:%M:%S')"
```

log

```
$ sudo log collect --output ~/Desktop --start "2016-10-05 14:00:00"
Archive successfully written to /Users/marczak/Desktop/system_logs.logarchive
```

log

```
$ log show ~/Desktop/system_logs.logarchive --predicate
'eventMessage contains "broken"'
==========
/Users/marczak/Desktop/system_logs.logarchive
==========
Skipping info and debug messages, pass --info and/or --debug to include.
Filtering the log data using "eventMessage CONTAINS "broken""
Timestamp                       Thread     Type        Activity             PID
2016-10-05 14:17:32.570038+0200 0x18f25e   Default     0x0                  16135
loggish: [com.radiotope.broken.broken] This is broken
2016-10-05 14:18:28.601669+0200 0x18f7f5   Default     0x0                  16159
loggish: [com.radiotope.broken.broken] This is broken
---------------------------------------------------------------------------
Log      - Default:           2, Info:                0, Debug:            0,Error:
0, Fault:           0
Activity - Create:            0, Transition:          0, Actions:          0
```

log

```
$ log show ~/Desktop/system_logs.logarchive --predicate
'eventMessage contains "broken"'
==========
/Users/marczak/Desktop/system_logs.logarchive
==========
Skipping info and debug messages, pass --info and/or --debug to include.
Filtering the log data using "eventMessage CONTAINS "broken""
Timestamp                       Thread     Type        Activity             PID
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loggish: [com.radiotope.broken.broken] This is broken
2016-10-05 14:18:28.601669+0200 0x18f7f5   Default     0x0                  16159
loggish: [com.radiotope.broken.broken] This is broken
---------------------------------------------------------------------------
Log      - Default:           2, Info:                0, Debug:            0,Error:
0, Fault:           0
Activity - Create:            0, Transition:          0, Actions:          0
```

log

```
$ log show ~/Desktop/system_logs.logarchive --predicate
'eventMessage contains "broken"'
==========
/Users/marczak/Desktop/system_logs.logarchive
==========
Skipping info and debug messages, pass --info and/or --debug to include.
Filtering the log data using "eventMessage CONTAINS "broken""
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loggish: [com.radiotope.broken.broken] This is broken
---------------------------------------------------------------------------
Log      - Default:           2, Info:                0, Debug:            0,Error:
0, Fault:           0
Activity - Create:            0, Transition:          0, Actions:          0
```

log

```
$ log show ~/Desktop/system_logs.logarchive --predicate
'eventMessage contains "broken"'
==========
/Users/marczak/Desktop/system_logs.logarchive
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loggish: [com.radiotope.broken.broken] This is broken
---------------------------------------------------------------------------

Log       - Default:           2, Info:                0, Debug:            0,Error:
0, Fault:           0
Activity - Create:             0, Transition:          0, Actions:          0
```

log

```
$ log show ~/Desktop/system_logs.logarchive --predicate
'eventMessage contains "broken"'
==========
/Users/marczak/Desktop/system_logs.logarchive
==========
Skipping info and debug messages, pass --info and/or --debug to include.
Filtering the log data using "eventMessage CONTAINS "broken""
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2016-10-05 14:17:32.570038+0200 0x18f25e   Default     0x0                  16135
loggish: [com.radiotope.broken.broken] This is broken
2016-10-05 14:18:28.601669+0200 0x18f7f5   Default     0x0                  16159
loggish: [com.radiotope.broken.broken] This is broken
---------------------------------------------------------------------------
Log      - Default:           2, Info:                0, Debug:            0,Error:
0, Fault:           0
Activity - Create:            0, Transition:          0, Actions:          0
```

log

```
$ sudo log config --subsystem com.apple.securityd --mode
"level:debug"

$ sudo log config --subsystem com.apple.securityd --reset
```

log

What about 10.11?

```
$ xcrun simctl spawn booted log show ~/Desktop/
system_logs.logarchive
```

log

open

```
$ open [some file]
```

open

```
$ open SecretPlan.doc
```

open

```
$ open .
```

open

```
open foo.xcodeproj
```

open

find

```
find [where] [what] [action]
```

find

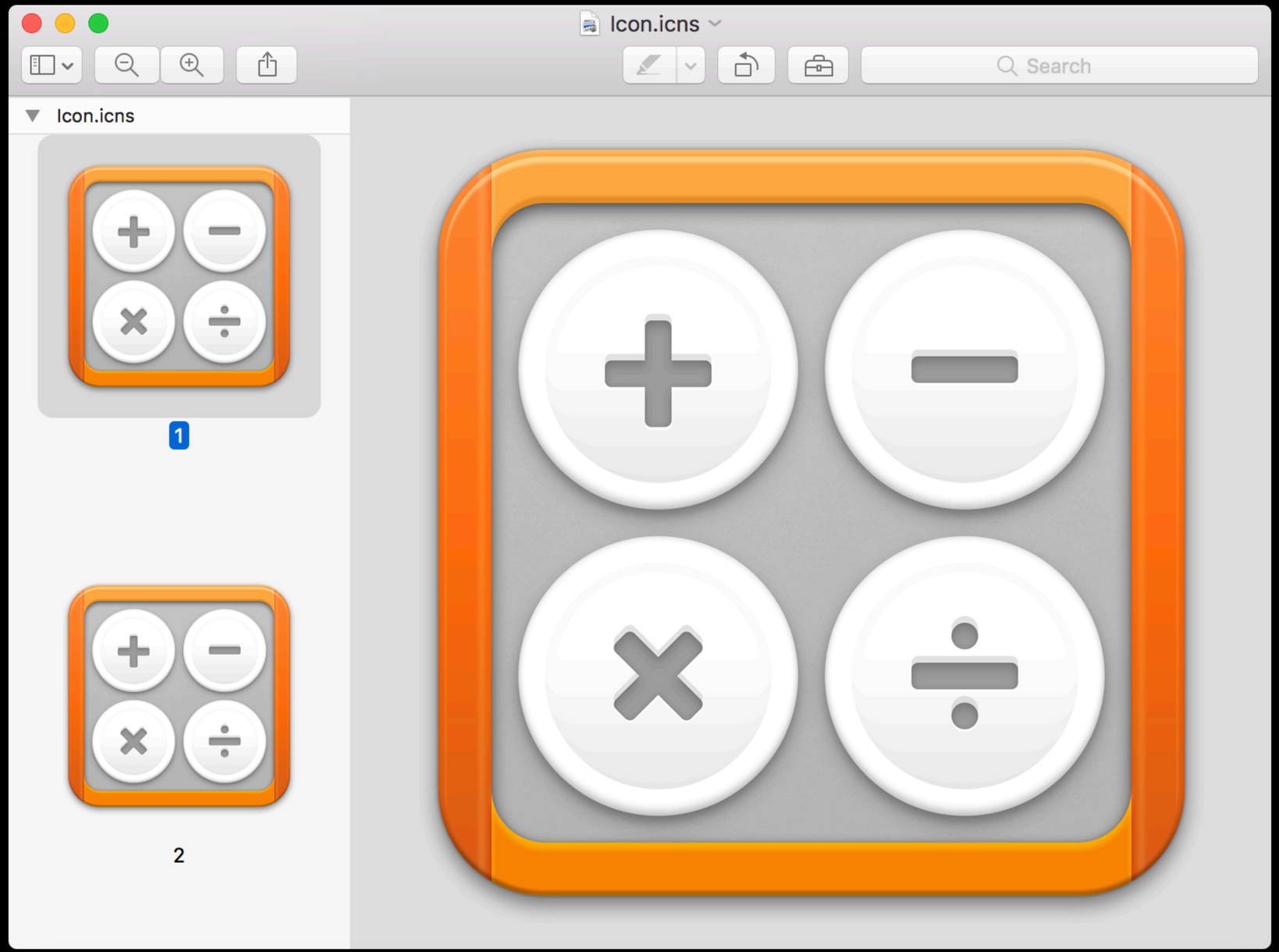
```
$find /Library -iname *.icns -print

…
/Library//Widgets/Calculator.wdgt/Icon.icns
/Library//Widgets/Calendar.wdgt/Icon.icns
/Library//Widgets/Contacts.wdgt/Icon.icns
/Library//Widgets/Dictionary.wdgt/Icon.icns
/Library//Widgets/ESPN.wdgt/Icon.icns
…
```

find

```
$ open /Library/Widgets/Calculator.wdgt/Icon.icns
```

find


Icon.icns
Search
Icon.icns
1
2

```
$ find ~/Documents -mtime +130 -print
/Users/marczak/Documents/.localized
/Users/marczak/Documents/Adobe
/Users/marczak/Documents/Adobe/
dynamiclinkmediaserver
/Users/marczak/Documents/Adobe/
dynamiclinkmediaserver/7.0
/Users/marczak/Documents/test.dmg
```

find

Where is all of the cool stuff?

```
$ find /System/Library/CoreServices -type f -perm +111 -print
/System/Library/CoreServices/AddPrinter.app/Contents/MacOS/AddPrinter
/System/Library/CoreServices/AddPrinter.app/Contents/PlugIns/Advanced.plugin/Contents/MacOS/Advanced
/System/Library/CoreServices/AddPrinter.app/Contents/PlugIns/IP.plugin/Contents/MacOS/IP
…
/System/Library/CoreServices/WiFiAgent.app/Contents/MacOS/WiFiAgent
/System/Library/CoreServices/ZoomWindow.app/Contents/Frameworks/ZoomWindow.framework/Versions/A/ZoomWindow
/System/Library/CoreServices/ZoomWindow.app/Contents/MacOS/ZoomWindowStarter
```

find

```
/bin
/sbin
/usr/bin
/usr/sbin
/usr/libexec
/System/Library/CoreServices
```

Known system paths

textutil

```
textutil -convert txt ~/Documents/ConfNotes.rtf
```

textutil

Rich Text Document
Rich Text Document with Attachments
Web Page (.html)
Web Archive Document
OpenDocument Text (.odt) Document
Word 2007 (.docx) Document
Word 2003 (.xml) Document
Word 97 (.doc) Document

afconvert

```
/usr/bin/afconvert -f AIFF -d I8 sound.caf
```

afconvert

```
for FILE in *; do
  /usr/bin/afconvert -f caff -d LEI16 "$FILE"
  echo "$FILE converted"
done
```

afconvert

```
3gpp
3gp2
adts
ac-3
AIFC
AIFF
amrf
m4af
m4bf
caff
ec-3
MPG1
MPG2
MPG3
mp4f
NeXT
Sd2f
WAVE
```

afconvert

say/afplay

```
say 'Good morning Gothenburg!'
```

say/afplay

```
say -v Alva "Hej, jag heter Alva och jag kommer att försöka vara rolig på svenska"
```

say/afplay

```
afplay [option...] audio_file

  {-v | --volume} VOLUME
    set the volume for playback of the file
  {-t | --time} TIME
    play for TIME seconds
  {-r | --rate} RATE
    play at playback rate
  {-q | --rQuality} QUALITY
    set the quality used for rate-scaled playback (default is
0 - low quality, 1 - high quality)
```

say/afplay

```
find /System/Library/Sounds/ -iname
*.aiff -exec afplay {} \;
```

say/afplay

```
find /'Library/Audio/Apple Loops/Apple/
Final Cut Pro Sound Effects/Explosions'
-exec afplay -t 1 '{}' \;
```

say/afplay

```
for SOUND in $(find /System/Library/
Sounds/ -iname *.aiff);
   do echo $SOUND;
   afplay -t 1 $SOUND;
done
```

say/afplay

What can you do?

Command Line Tools for macOS

Ed Marczak & Greg Neagle