

Hacking iTunes

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Overview

- Scripting
- Sharing (with other machines)
- Sharing (with other apps)

Scripting



Macs only

- Well, there is Windows COM scripting
- but that looks complicated

```
var iTunesApp = WScript.CreateObject("iTunes.Application");
var mainLibrary = iTunesApp.LibraryPlaylist;
var tracks = mainLibrary.Tracks;
var i;

for (i = 1; i <= numTracks; i++)
{
    var currTrack = tracks.Item(i);
    WScript.Echo(currTrack.Name + " by " + currTrack.Artist);
}
```

AppleScript

- Old as the hills
- “English-like”

```
tell application "iTunes"  
    repeat with currTrack in every track in the current playlist  
        log name of currTrack & " by " & artist of currTrack  
    end repeat  
end tell
```

Fun things to do

- Fix up metadata tags
- Create playlists
- Control iTunes
 - hotkeys, over Bluetooth, over SSH
- <http://www.dougscripts.com/itunes/>
 - Loads of useful scripts there

Limitations

- Can be terribly slow
 - Try to minimise what you're doing
 - Don't manipulate entire library
- Some things aren't scriptable
 - eg shared library connection
 - eg selection is read-only

Sharing (with other computers)

Look for shared music

Share my music

Share entire library

Share selected playlists:

- Purchased Music
- My Top Rated
- Recently Played

iTunes Library Sharing

- Er, shares iTunes libraries. Read only.
- Protocol is called DAAP
- Binary encoding
 - Well understood (now)
- Discovery over Rendezvous Bonjour

How it works

- Connect to a machine
- Request a list of supported fields
- Log in
- Get listing of all tracks, then playlists

Sharing Not Streaming

- Clients can request any track they like
- Skip around within track
- Search for song info
 - Pretty much works like a local library
 - except...

Limitations

- Can't edit track info
- Can't copy tracks
- Can't add to local playlists
- Can't edit remote playlists

Other Software

- mt-daapd is a non-Apple DAAP server
- various apps allow copying
 - Blue Coconut, GIT, AppleRecords, OurTunes
- media centres often support DAAP
 - Xbox, slimserver...

Digression

- DAAP sometimes breaks
 - Apple change the authorisation
 - Apple limit number of clients per server
 - Apple do not threaten to sue people
 - Unless you rip off their plugin code
 - Don't do that then

Sharing (with other apps)

```
<!DOCTYPE plist PUBLIC "-//Apple Computer//DTD PLIST 1.0//EN"
"http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
  <key>Major Version</key>
  <integer>1</integer>
  <key>Minor Version</key>
  <integer>1</integer>
  <key>Application Version</key>
  <string>3.0.1</string>
  <key>Tracks</key>
  <dict>
    <key>115</key>
    <dict>
      <key>Track ID</key>
      <integer>115</integer>
      <key>Name</key>
      <string>Baby Goes To Eleven</string>
    
```

XML XML XML

- iTunes Music Library.xml is the key here
- Funky NeXT plist, but you'll cope
- ... especially if you can use Cocoa

```
library = [NSDictionary dictionaryWithContentsOfFile:@...]
```

- Typically in ~/Music/iTunes/
- Details tracks and playlists

Limitations

- Changes to XML don't change library
 - It's purely a backup of the real thing
 - and that's horrible binary
- Gets big
 - You may not want it all in memory

Conclusion

- iTunes isn't extensible like Winamp
- It's not completely hermetic either
- AppleScript is slow but useful for changes
- XML is useful for finding local music
- DAAP is handy for networks

Thank You

Bonus Slides

(aka I wrote these and didn't want them to go to waste)

Smart Playlists

Playlists, but, er, Smart

- type Command Option N
- or click the little cog while holding Option
- or File > New Smart Playlist

Choose Your Weapons

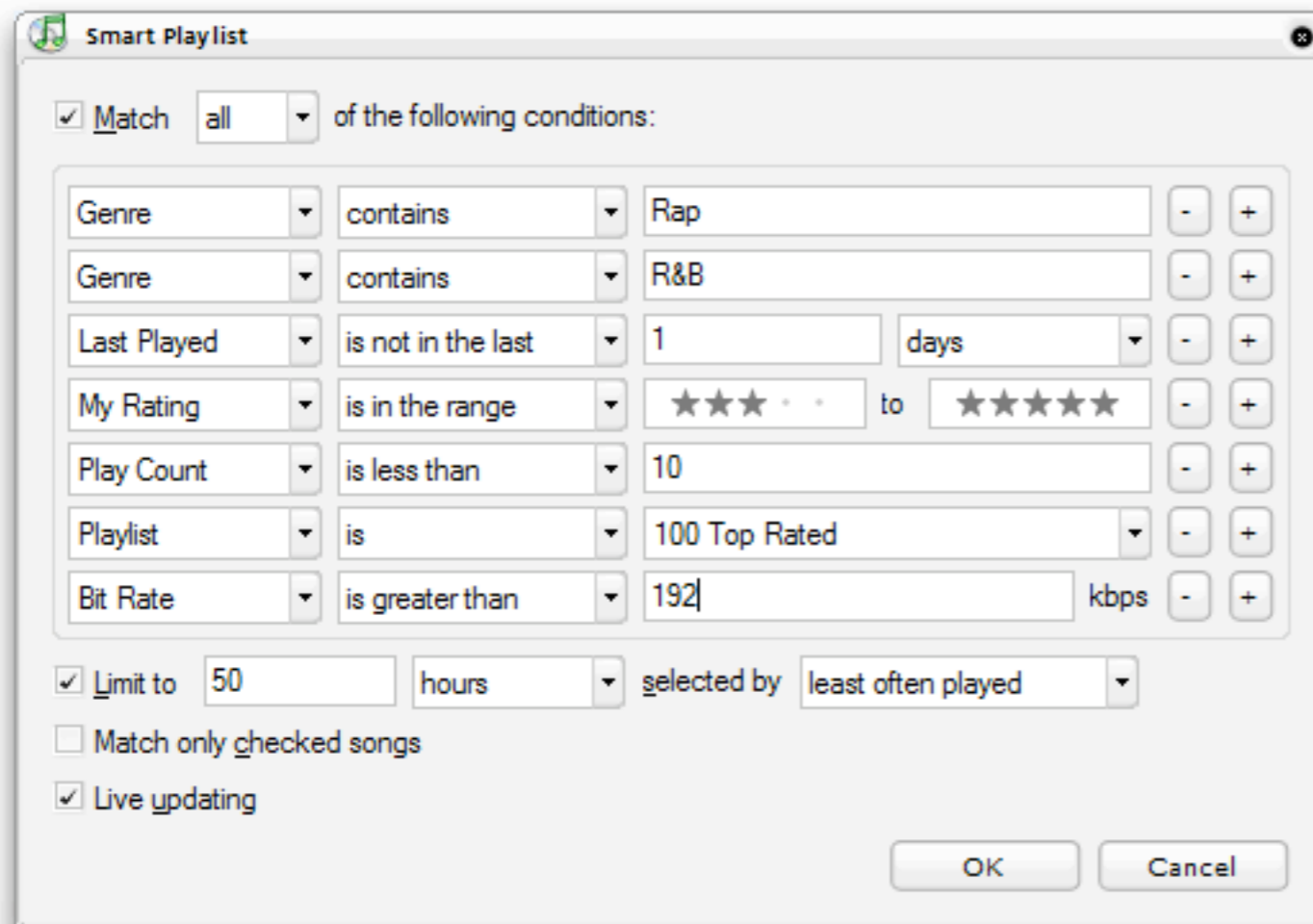
- Select From Criteria
 - Rating
 - Last Played
 - Play Count

Choose Your Weapons

- Limit
 - number
 - file size
 - length
- Randomly?

Combine Harvester

- This is the really clever bit
- Playlists can reference others
- Make your own radio station



- playlists can contain any number of conditions
- playlists are live (updating)
- playlists can appear in conditions

***FreshMix:**

- match any of...**
- playlist is ~Infuser
 - playlist is ~Sprinkler
 - playlist is ~Rehydrater

~Core:

- match any of...**
- genre contains Rap
 - genre contains Hip-Hop

~Sprinkler:

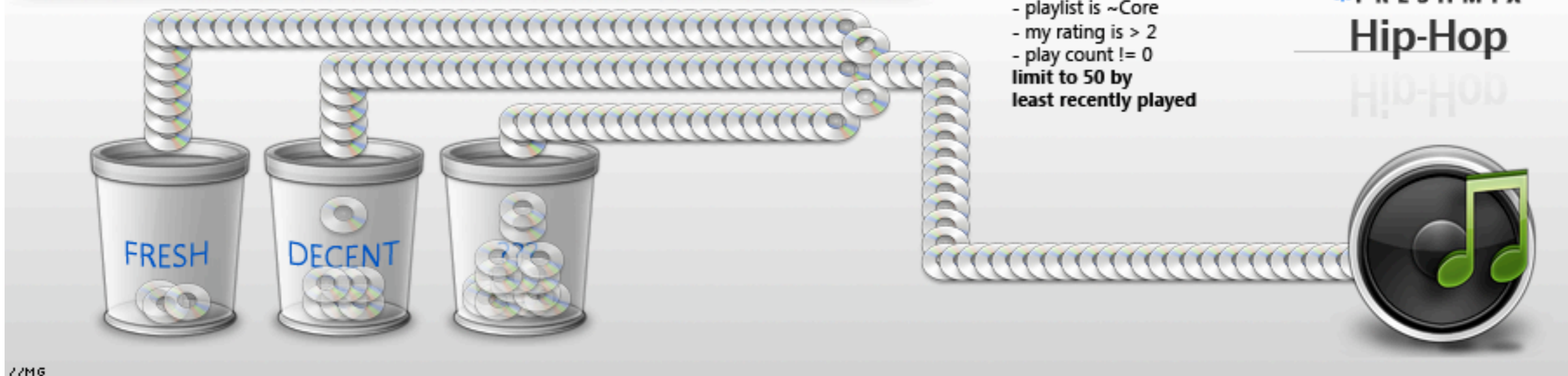
- match all of...**
- playlist is ~Core
 - my rating is not 1 OR 2
 - not played in last day
 - play count > 3
- limit to 200 by least recently played**

~Infuser:

- match all of...**
- playlist is ~Core
 - my rating is not 1 OR 2
 - play count < 5

~ReHydrater:

- match all of...**
- playlist is ~Core
 - my rating is > 2
 - play count != 0
- limit to 50 by least recently played**



<http://www.deviantart.com/view/17666381/>

http://www.codepoetry.net/archives/2005/01/15/doityourself_smart_radio_station.php

