



# Automation

Boost your productivity a thousand times

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# Automation

Automate Innopac by Expect


Automate Millennium by Autolt

New ways to program Expect

New ways to program Autolt

Sierra automation

# Usage of automation

- 1 Create review list (of bib, item, patron, etc) 
- 2 Updating records (when global/rapid updates cannot help)
- 3 Loading/Exporting records
- 4 Generating statistics files, reports, etc
- 5 FTP upload/download
- 6 \*Any\* repeating tasks

# Tools

Automate Innopac by **Expect**

Automate Millennium by **Autolt**



**Expect** is a Unix automation and testing tool, an extension to the Tcl scripting language, for interactive applications such as telnet, ftp, ssh...



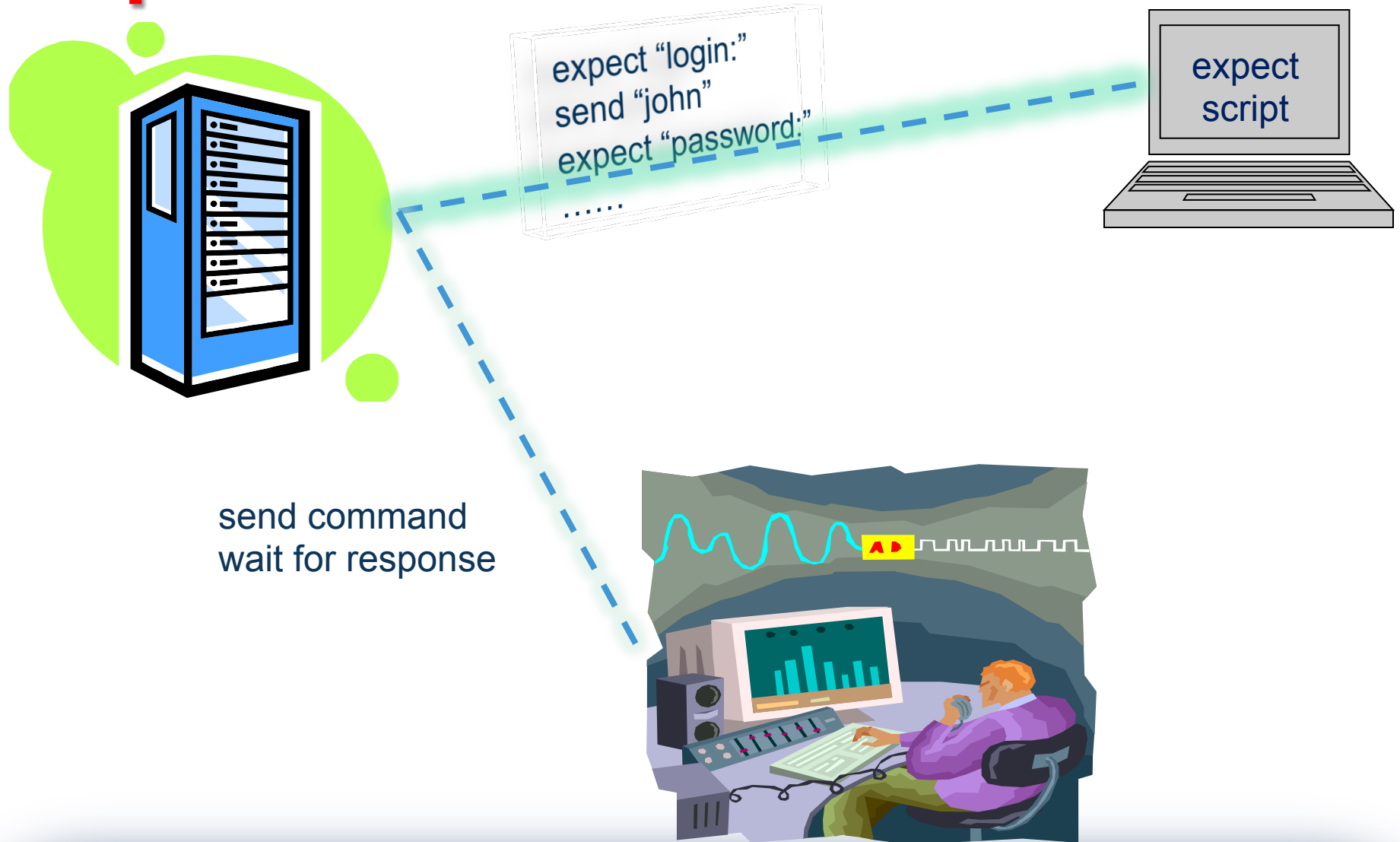
# Tcl & Expect

**T**ool  
**c**ommand  
**l**anguage

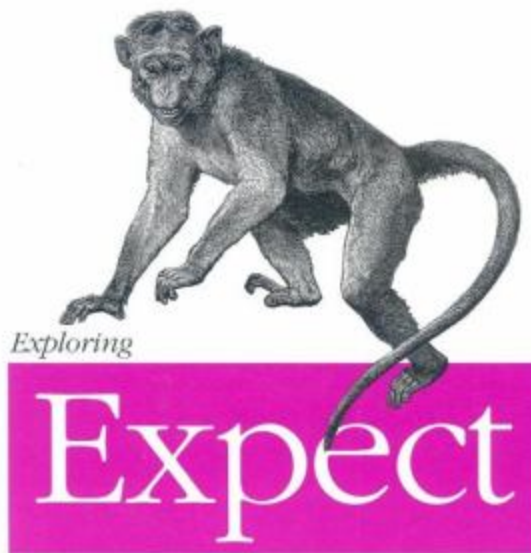
For controlling  
and extending  
applications

Expect is an  
**extension** of  
Tcl

# **expect** – automates “talks” to servers



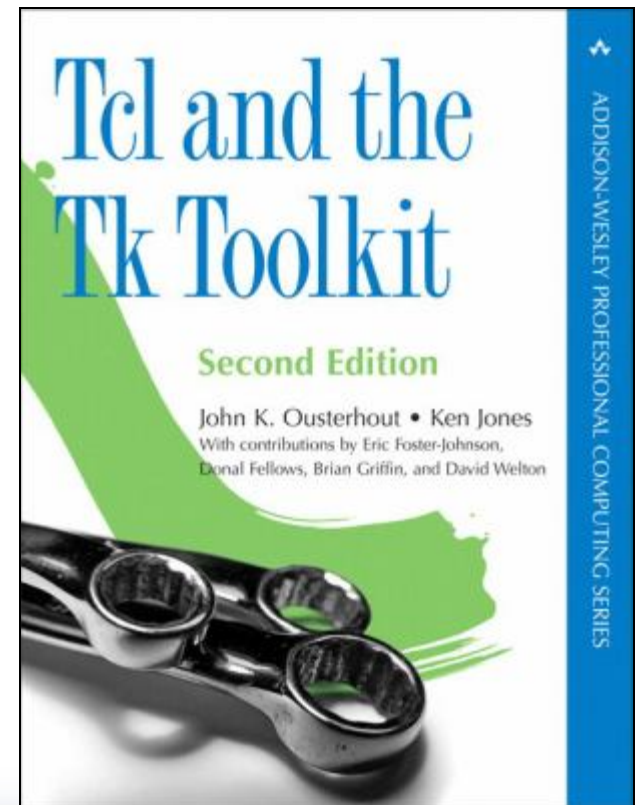
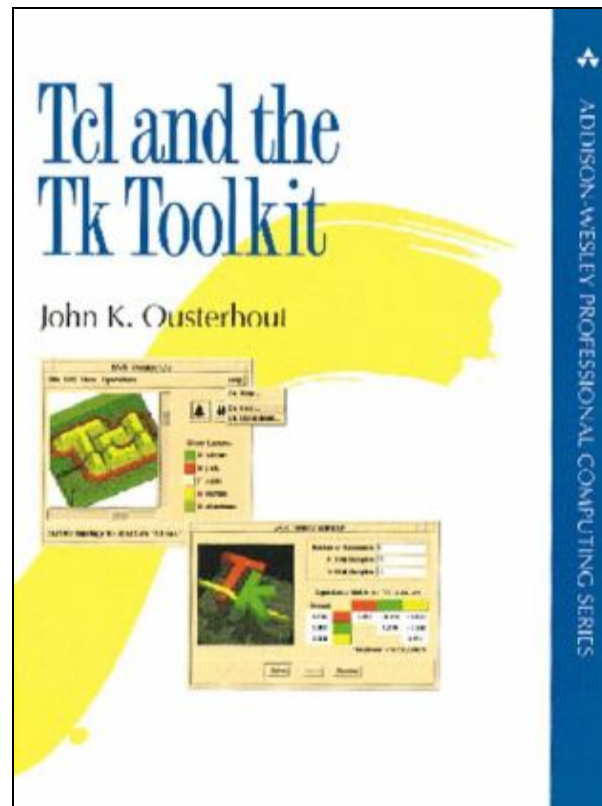
A Tcl-based Toolkit for Automating Interactive Programs



O'REILLY®

Don Libes

# Bibles of Tcl and Expect



# Ways to write Expect-style programs

expect  
(Tcl)

- reliable, in a less popular language
- <http://www.nist.gov/el/msid/expect.cfm>

expect4j  
(Java)

- Excellent
- <http://code.google.com/p/expect4j/>



expectj  
(Java)

- works for light duty tasks only
- <http://expectj.sourceforge.net/>

# Ways to write Expect-style programs

**enchanter**

(Python, Ruby,  
BeanShell)

- Excellent
- <http://code.google.com/p/enchanter/>

**expect in  
php** (PECL  
extension)

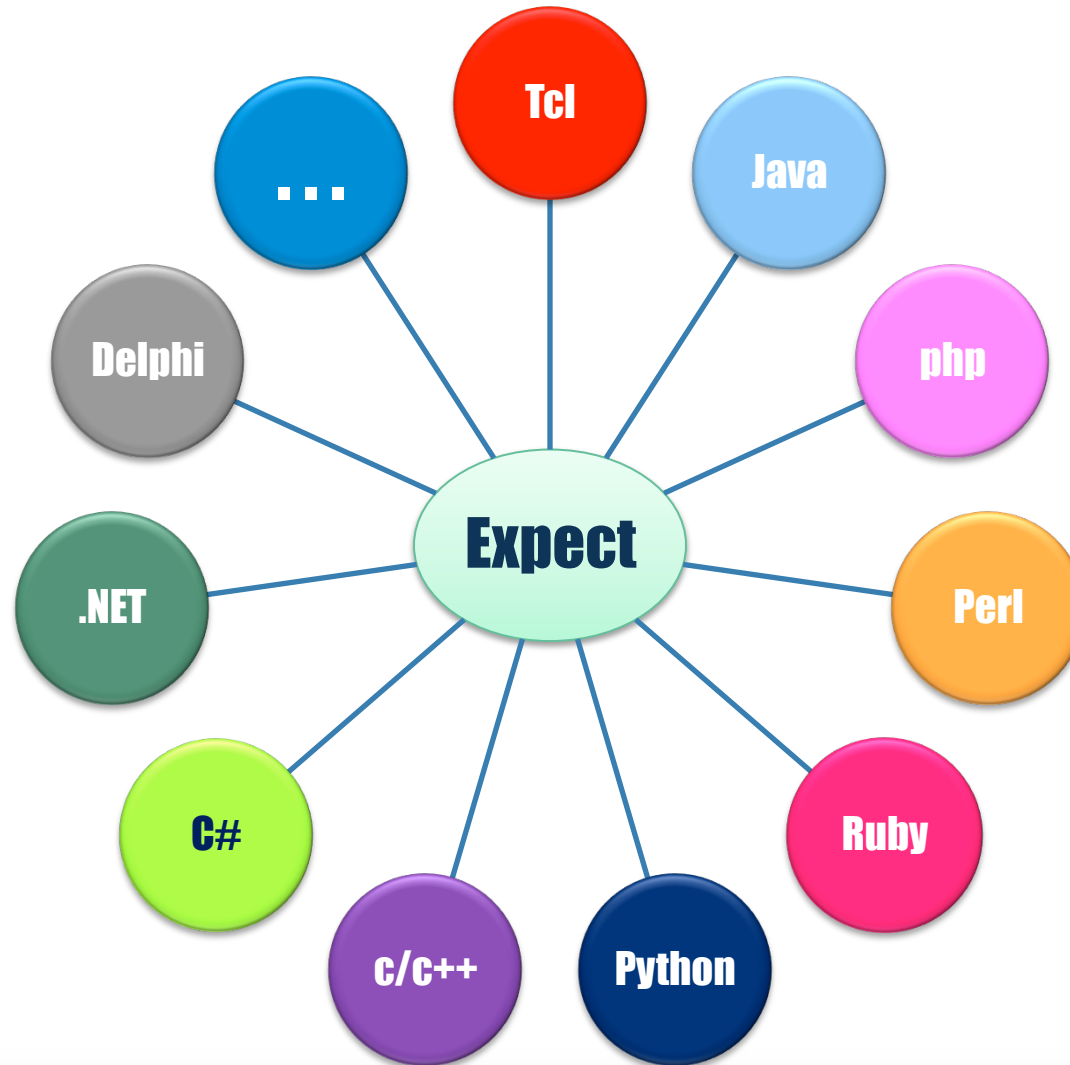
- <http://php.net/manual/en/book.expect.php>

**Expect.pm**  
(perl expect module)

- <http://search.cpan.org/~rgiersig/Expect-1.15/Expect.pod>

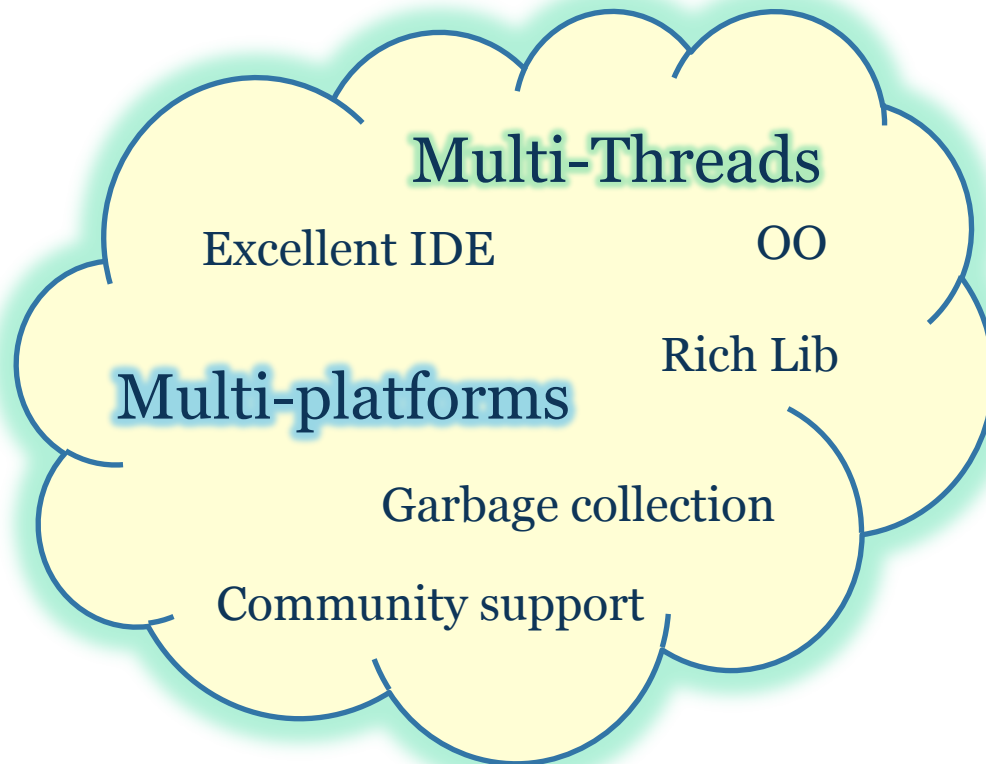


# Expect programmers, don't limit yourself to Tcl



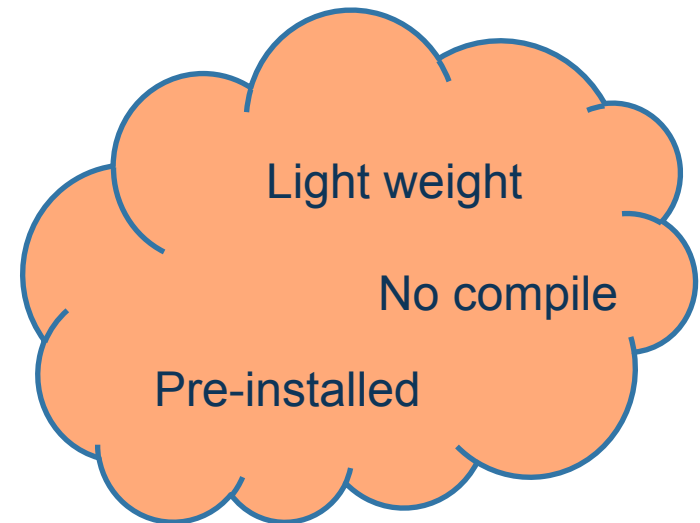
# Java JVM > Tcl interpreter

## Java



Can run everywhere

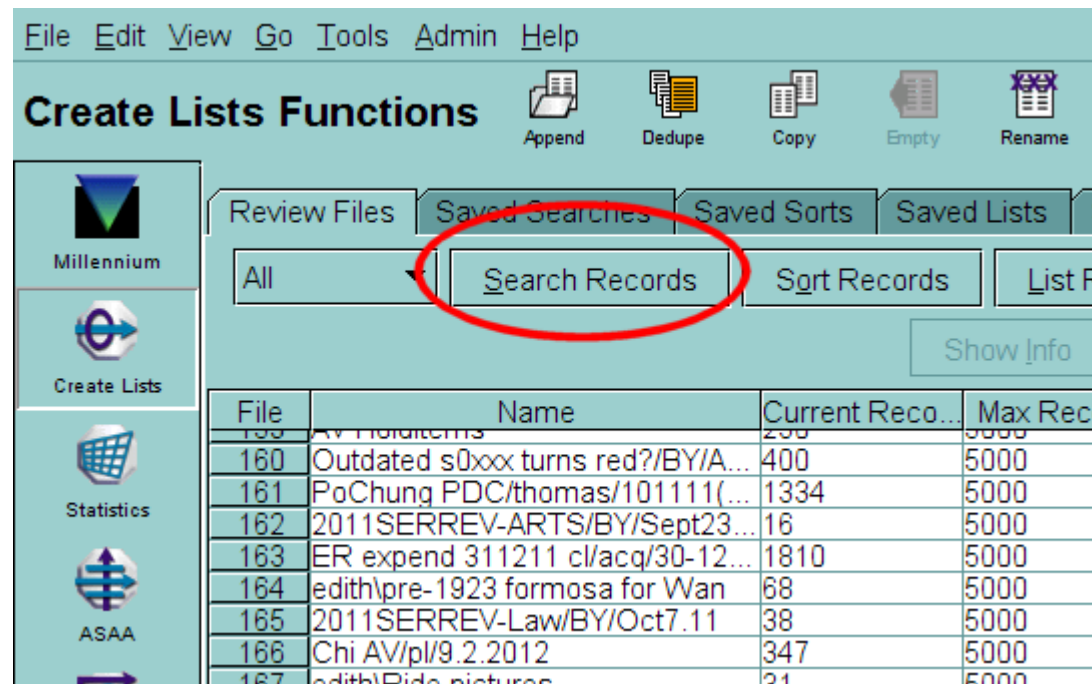
## Tcl



Tcl/Expect  
Cannot spawn in DOS  
Cannot run in Windows

# Weakness in Mill

Create Review File ONLY by Boolean search



# Missing feature in Mill

Create Review File by a given list of numbers

Bib rec#  
Item rec#  
Patron rec#  
Order rec#  
.....



ISSN/ISBN  
Call numbers  
Barcodes  
Card numbers  
Invoice numbers  
Course codes  
.....

**Review File?**

# Demo



## CREATURE

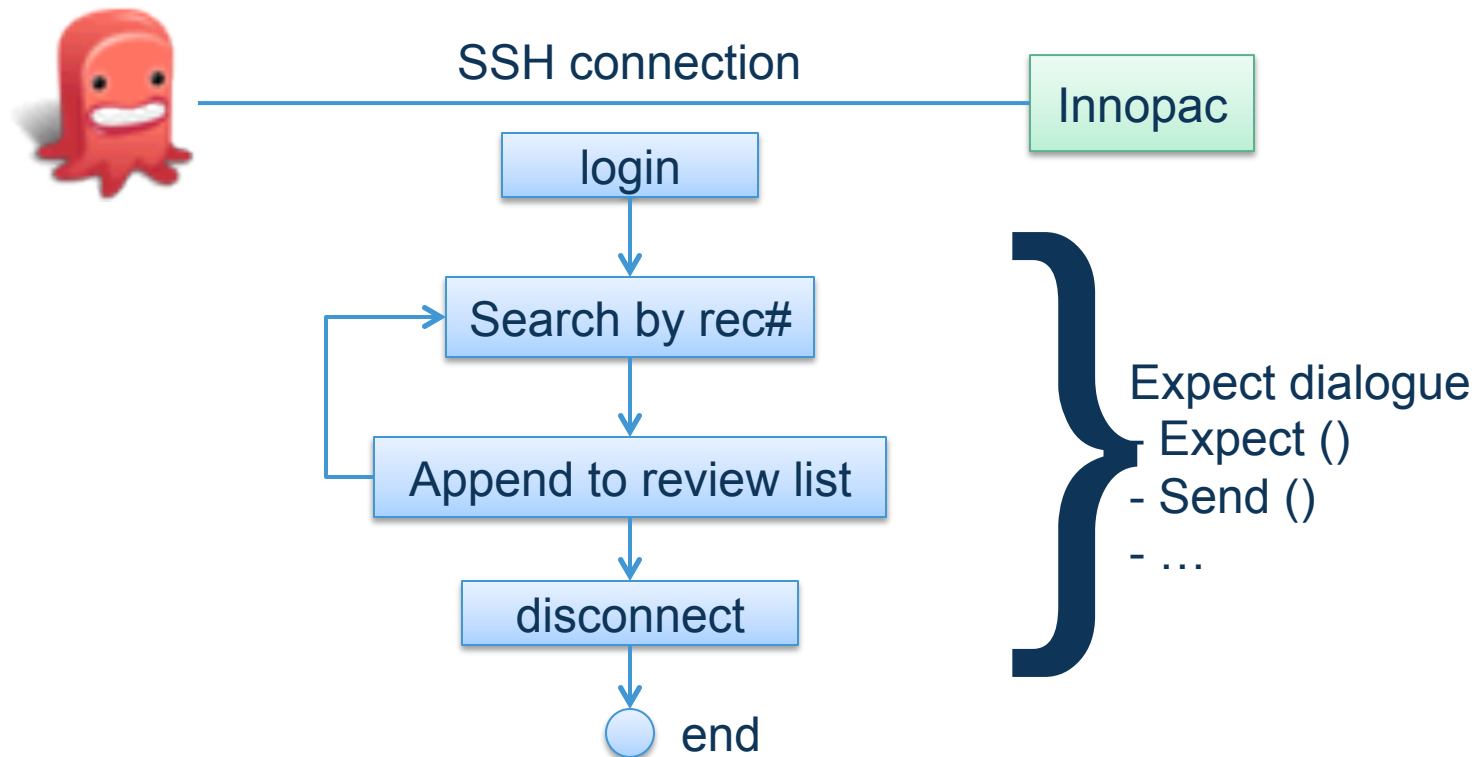
For creating review files from rec#, ISN, BC

A Java program with GUI  
Using expect4j to control Innopac  
Wrapped in exe  
Runs directly in Windows

**Flexible and powerful - Java/expect**



# Howto 1: Search by rec#



# Gen Review File using Rec#

```
*** INNOPAC -- Copyright 1999, Innovative Interfaces Inc ***  
*** MANAGEMENT INFORMATION ***  
  
I > INFORMATION about the system  
A > ANALYZE patron searches  
G > GATEWAY usage  
P > Read PATRON suggestions  
R > Read patron REQUESTS  
  
C > CIRCULATION statistics  
L > Create LISTS of records  
S > Create STATISTICAL reports  
M > MISC. Acquisitions and Serials  
O > Send PRINT file OUT of INNOPAC using ftp  
  
Q > QUIT  
  
Choose one (I,A,G,P,R,C,L,S,M,O,Q) █
```

```
BOOLEAN SEARCH of FILE to create a LIST of records  
  
Choose what kind of list you want to produce:  
B > BIBLIOGRAPHIC list  
O > ORDER list  
C > CHECKIN list  
A > AUTHORITY list  
I > ITEM list  
P > PATRON list  
R > COURSE list  
V > VENDOR list  
N > INVOICE list  
Q > QUIT the Boolean Search Routine  
Choose one (B,O,C,A,I,P,R,V,N,Q) █
```

# Gen Review File using Rec#

```

BOOLEAN SEARCH of BIBLIOGRAPHIC FILE to create a LIST of records
01 LANG:      04 CAT DATE:  07 BCODE3:  10 RECORD #:  12 UPDATED:
02 SKIP:      05 BCODE1:   08 COUNTRY:  11 CREATED:   13 REVISIONS:
03 LOCATION:  06 MAT FORMAT: 09 MARCTYPE:

/6 INNOPAC #:  e EDITION:      m VAR. TITLE:  t TITLE:      ^ LINKED_REC:
/8 HOLD:      f CURR. FREQ:   n NOTE:        u ALT TITLE:  ? Other Types:
_ LEADER:     g OTHER CALL#:  o BIB UTIL #:  v DATE/VOL:    ! MARC Tag:
a AUTHOR:    h LIB. HAS:     p IMPRINT:     w RELATED TO: @ Sp Field:
b ALT AUTHOR: i ISBN/ISSN:   q CNTNTS TAB: x CONTINUES: \ Set Range:
c CALL #:    j INDEXED BY:   r DESCRIPT.:  y MARC:      % Save Search:
d SUBJECT:   l LC CTRL. #:  s SERIES:     z CONT'D BY:

Present search range: b3505747x to b3505747x
Find BIBLIOGRAPHIC records that satisfy the following conditions
RECORD # = 3505747
Search records contained in another review file? (y/n) n
Enter starting record # : .b35057476
Enter ending record # : .b35057476
Is the range correct? (y/n) █
    
```

```

-----LIST RECORDS-----                                allen
Your review file, bib list,
has 1 records in it ready to be listed

T > Display review file on TERMINAL
P > PRINT all of the data in the review file records
A > APPEND more records to review file
E > EMPTY your review file, bib list
R > RENAME your review file, bib list
L > LIST some of the data in the review file records
X > EXPORT your review file
O > Release OWNERSHIP of review file
N > NEW BOOLEAN search, delete the review file
C > COPY a review file
U > Output USER-selected format
Q > QUIT
Choose one (T,P,A,E,R,L,X,O,N,C,U,Q)
    
```

# Gen Review File using Rec#

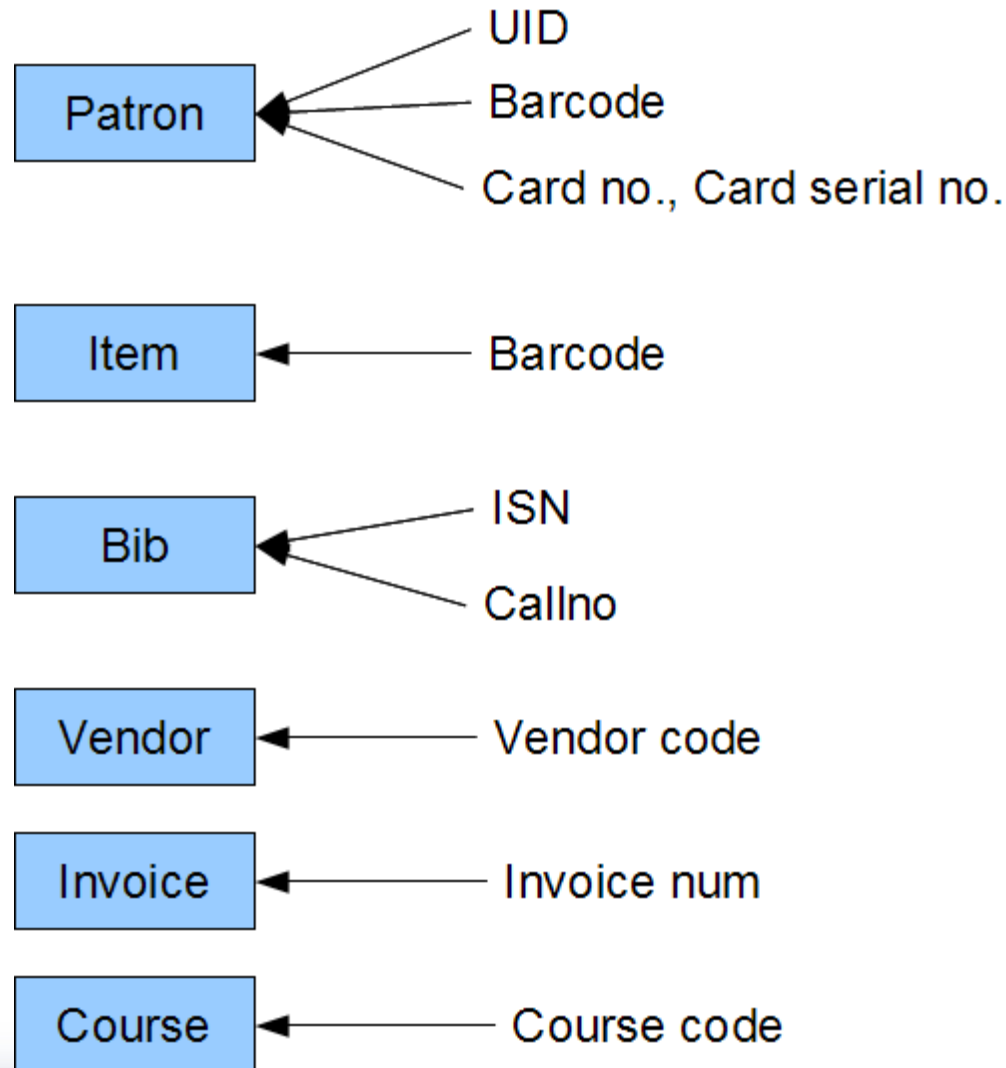
Loop



```
...
ssh.expect("Enter boolean condition");
ssh.send("=");
ssh.expect("RECORD # =");
ssh.send(".") + recnum + "\n";
ssh.expect("to enter a range for searching");
ssh.send("\n");
ssh.expect("Search records contained in another review file");
ssh.send("\n");
ssh.expect("Enter starting record");
ssh.send(recnum + "\n");
ssh.expect("Enter ending");
ssh.send(recnum + "\n");
ssh.expect("Is the range correct");
ssh.send("y");
ssh.expect("Enter action");
ssh.send("s");
ssh.expect("What name would you like");
ssh.send(slotTitle + "\n");
ssh.expect("Press <SPACE> to continue");
ssh.send(" ");
```

Source code in java

# Indexed fields other than Rec#





# OPAC search to build review file

```

*** INNOPAC -- Copyright 1999, Innovative Interfaces Inc ***
*** MAIN MENU ***

S > SEARCH the catalogues

D > Catalogue DATABASE STAFF SEARCH of Hong Kong University Library DATABASE

C > CIRCULATION subsys
B > Materials BOOKING
M > MANAGEMENT informa

A > ADDITIONAL system
X > Change language to
Q > QUIT

Choose one (S,D,C,B,M,

A > AUTHOR
T > TITLE
S > SUBJECT
I > ISN
N > Call NUMBER
R > RECORD #
O > CONTROL #
W > English WOR
B > BARCODE
K > STACK #
P > Library Cat
C > CONNECT to
L > RESERVE Mat
Z > Inter-Libra
X > Change LANG

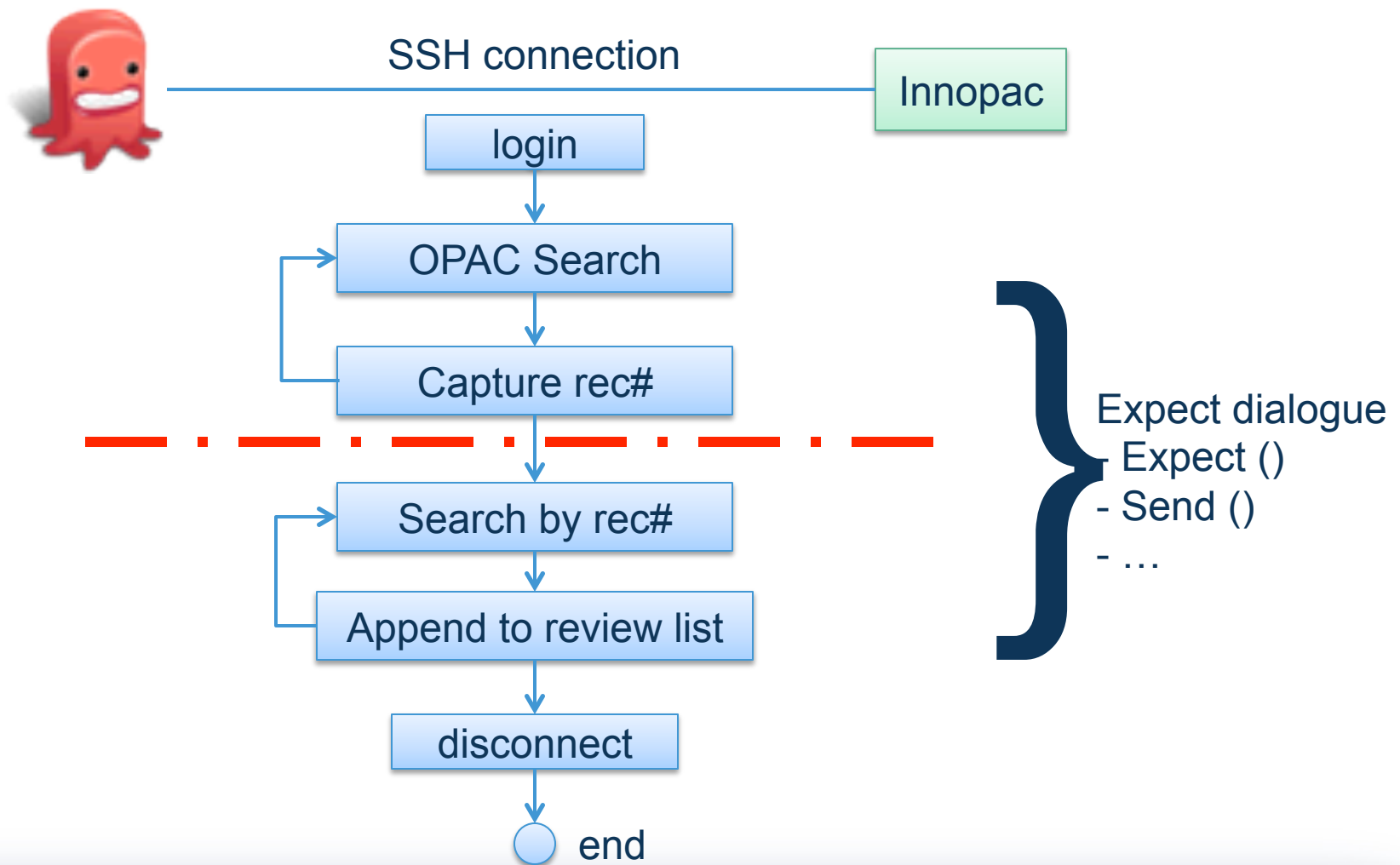
Q > QUIT
Choose one (A,T,S,I,M,

You searched for the BARCODE: x62022958
B45914254 BIBLIOGRAPHIC Information
CALL # 005.117 C542 o12
AUTHOR Chisnall, David.
TITLE Objective-C phrasebook / David Chisnall.
IMPRINT Upper Saddle River, NJ : Addison-Wesley, c2011.

I43556796 ITEM Information
COPY # 3 PATRON#: 1310165 IUSE3: 0 STATUS: -
LPATRON: 1340212 RECAL DATE: - - INTL USE: 0
LCH:30-11-11 16:05 TOT CHKOUT: 2 COPY USE: 1061
INVA: - - TOT RENEW: 1 IMESSAGE:
LOU:30-08-11 16:39 OPACMSG:
LOCATION: maixx YTDCIRC: 2
LOANRULE: 3 LYRCIRC: 0
PRICE: $0.00 IN LOC: 910
OUT:02-12-11 15:08 # RENEWALS: 0
OUT LOC: 910 # OVERDUE: 0
DUE DATE: 31-01-12 ODU DATE: - -
CALL # 005.117 C542 o12
BARCODE X62022958

U > Show BIBLIOGRAPHIC Record
T > Display MARC Record
E > Mark item for EXPORT
+ > ADDITIONAL options
Choose one (R,N,A,S,Z,I,P,U,T,E,+)
  
```

# Howto 2: OPAC search



# Tools

Automate Innopac by **Expect**

Automate Millennium by **Autolt**



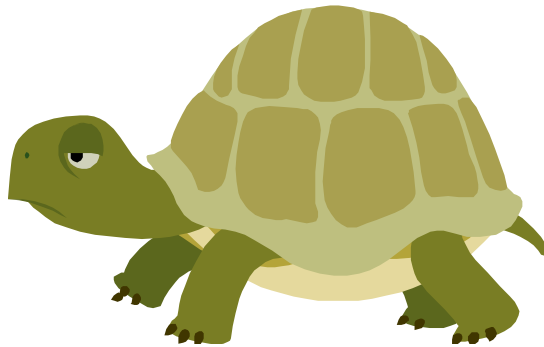
**Autolt** is a freeware scripting language designed for automating the Windows GUI. It uses a combination of simulated keystrokes, mouse movement and window/control manipulation...



# automate Millennium by **Autolt**

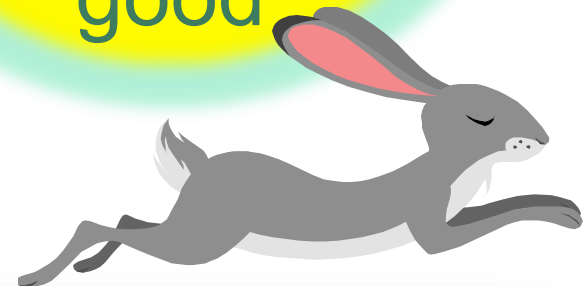
(Windows Only)

- ☐ Slow
- ☐ Unpredictable response time

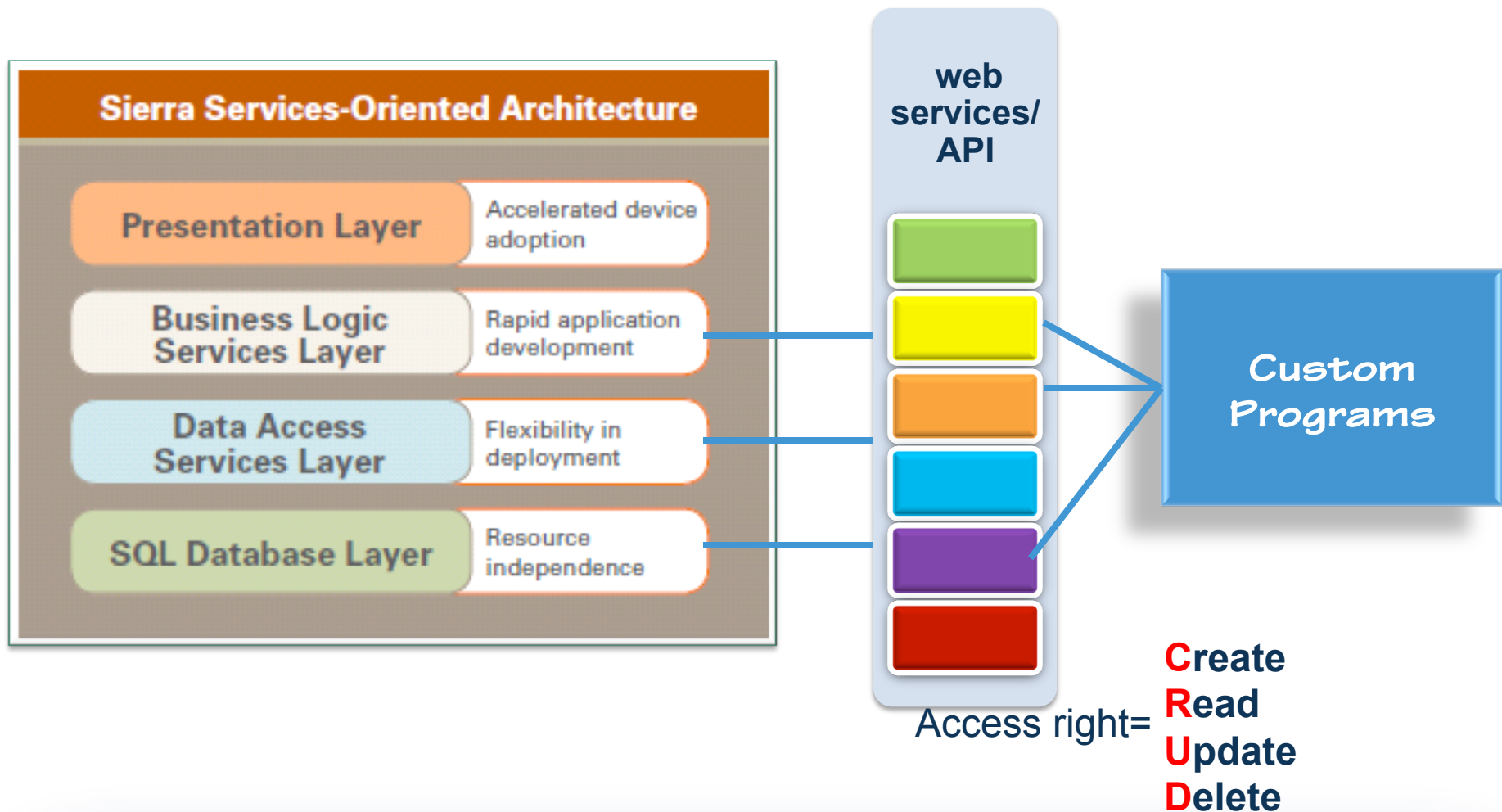


- ☐ Bad for long sequence of  
**iterative actions**

But  
automating  
**linear**  
**sequential**  
**tasks** is  
good



# Automation in the Sierra era





# Automation in the Sierra era

## web services

Patron WS

Item WS

Bib WS

ReviewFile WS

Admin WS

etc ??

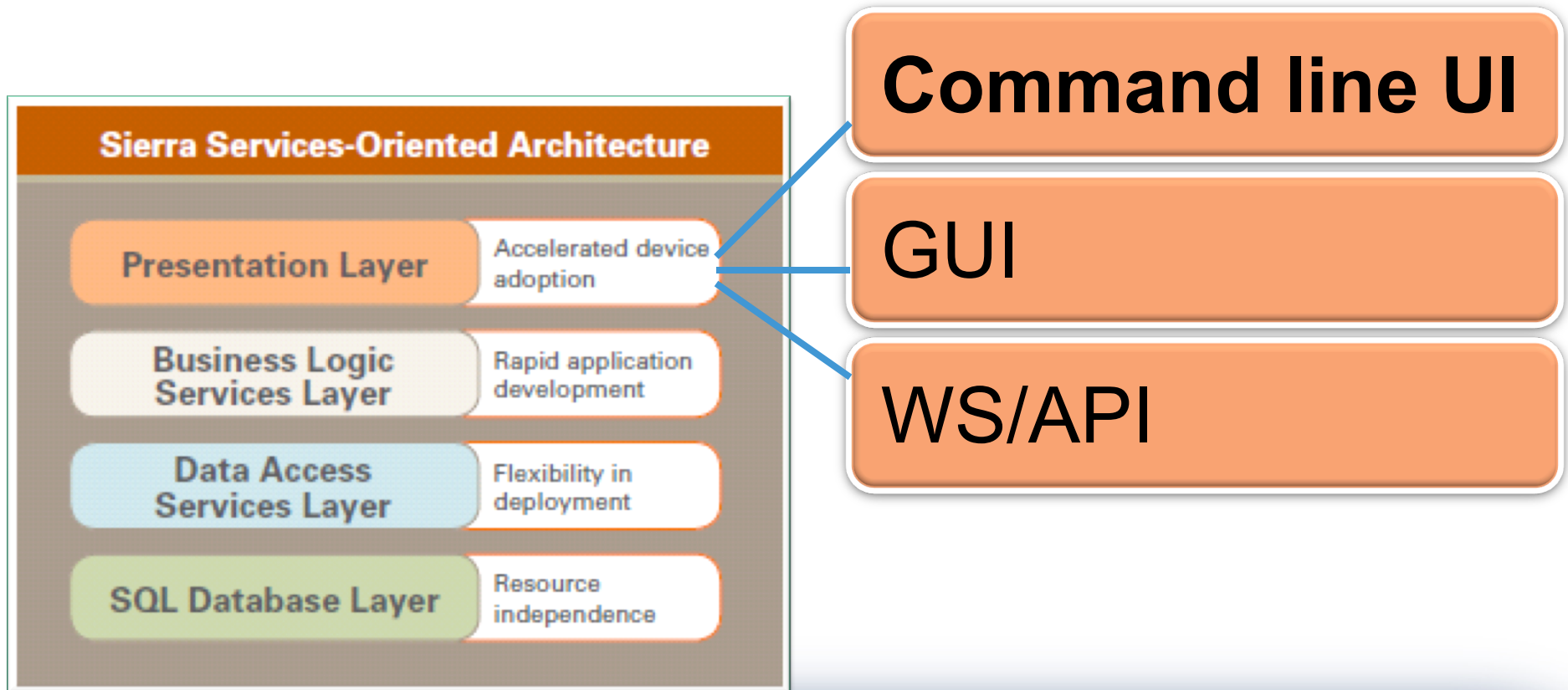
RW access to  
DB layer?

Comprehensive  
enough?  
Price?

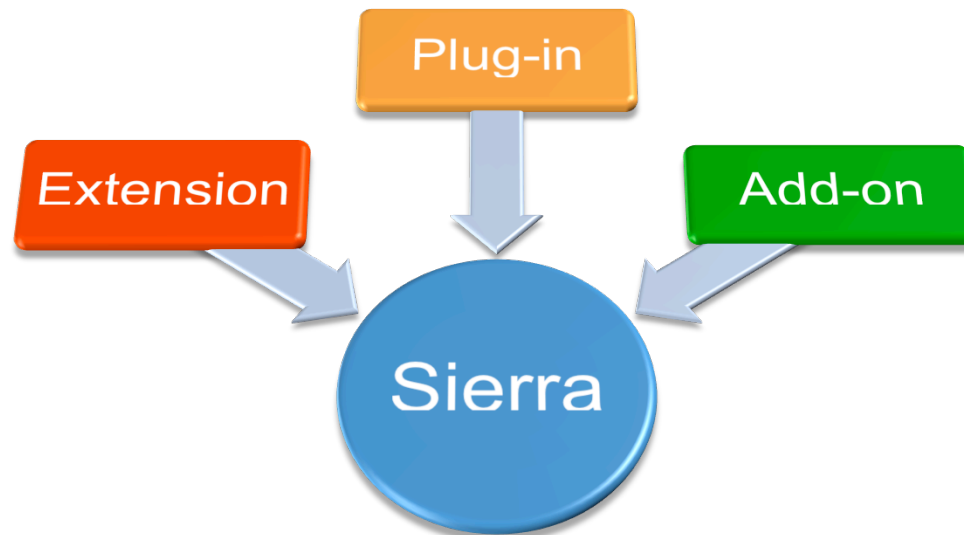
# Char-based UI (Innopac) replaced by Command line UI?

**We wish...**

Every single command can be accomplished equally by  
different interfaces



# Make Sierra an Open Platform



Let community programmers  
contribute to Sierra

# Summary 1

Automate Innopac by Expect

Automate Millennium by Autolt

Expect can be written in many languages

Autolt has limitations

Autolt works well with Java

Autolt works best with non-iterative solutions

# Summary 2

Methods to create review files from list

Demo programs



Sierra's WS allows another form of automation

- Can Sierra also give us a command-line interface?
- Open platform is the trend

The background is a dark blue grid. A large, glowing, upward-pointing arrow is composed of a series of small, colorful rectangular blocks. A wavy line, also made of similar blocks, curves across the lower part of the image. On the right side, there is a vertical axis with numerical labels from 8 to 19.

# Thank You