

Building a better Clojure **REPL**

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Problems with the **standard** REPL

No **line** editing

No **external** editor

No **tab** completion

No **Ctrl-C** handling

No **history**

No **useful** shortcuts

Lack of **color**

Building a better **solution**

What is a REPL?

Read **E**val **P**rint **L**oop

```
while (true) {  
    input = read();  
    if (input == null) {  
        continue;  
    }  
    output = eval(input);  
    print(output);  
}
```

Handling

input / output

jline 2

github.com/jline/jline2

jansi

jansi.fusesource.org


```
new ConsoleReader ( )
```

```
RT.readString (reader.readLine ("=>"))
```

Handling **history**

```
String home = getProperty("user.home");  
histFile = new File(home, ".repl_history");  
reader.setHistory(new FileHistory(histFile));
```

Tab **completion**

clojure-complete

github.com/ninjudd/clojure-complete

```
reader.addCompleter(new ClojureCompleter());
```

```
public class ClojureCompleter {
    private Var completions;
    private Var eval;

    public ClojureCompletionWrapper() {
        RT.load("complete");
        this.eval = RT.var("clojure.core", "eval");
        this.completions = RT.var("complete", "completions");
    }

    public List<String> getCompletionsForString(String toComplete) {
        List<String> returnThis = new ArrayList<String>();

        LazySeq results = completions.invoke(toComplete);
        for (Object result : asList(results.toArray())) {
            returnThis.add((String) result);
        }

        return returnThis;
    }
}
```

Bells & whistles

Useful **shortcuts**

View docs

?function => (doc function)

View **source**

??function => (source function)

Input / output **caching**

user[11] : (+ 2 2)

user[11] = 4

user[12] : (input 11)

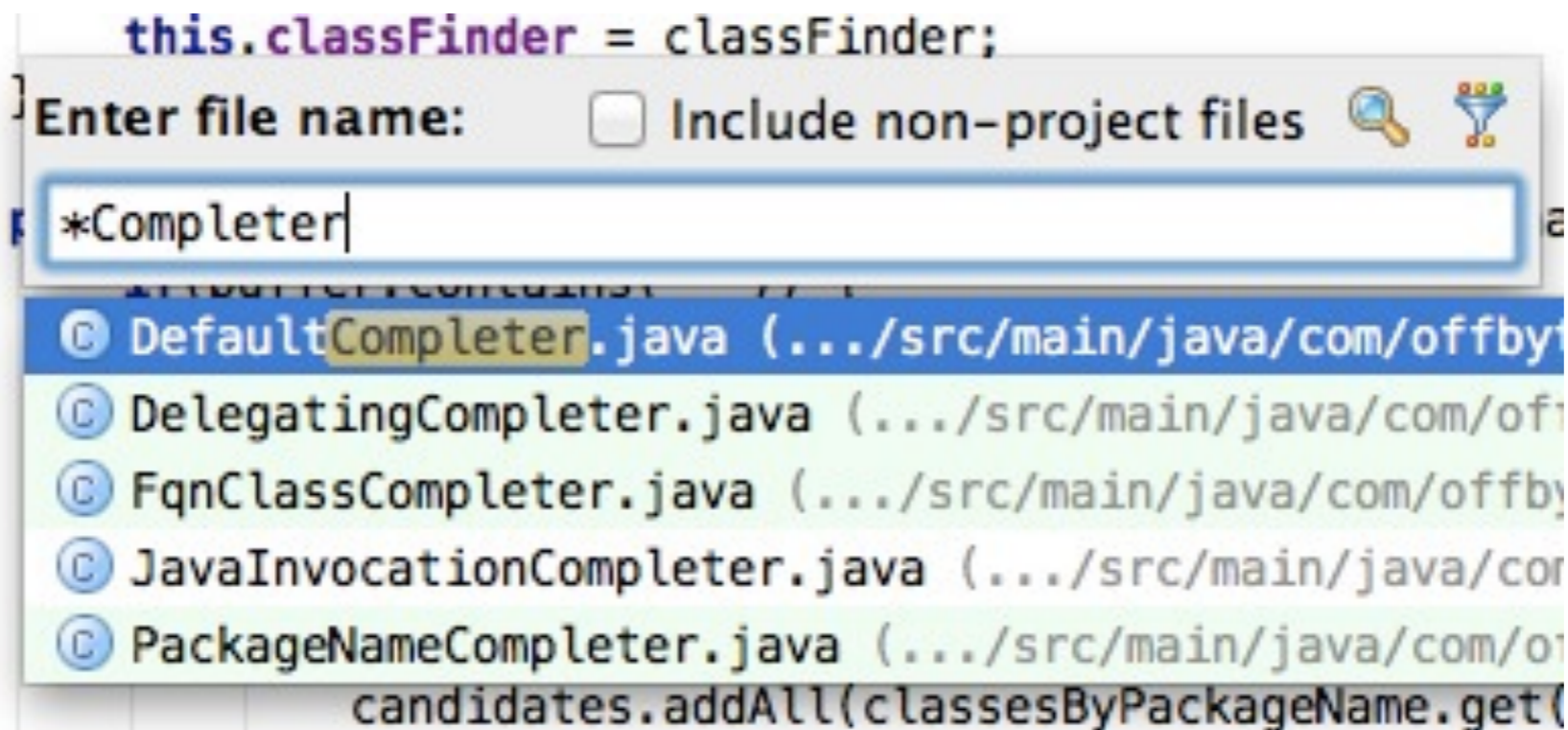
user[12] = (+ 2 2)

user[13] : (output 11)

user[13] = 4

Java interop

Find **classes** by name



class-finder

github.com/cosmin/class-finder

Find **classes** by name

```
%f Pattern
```

```
java.util.regex.Pattern
```

```
%f *Set java.util
```

```
java.util.HashSet
```

```
java.util.LinkedHashSet
```

Inspect **Java** objects

```
reader.  
  (m) print(CharSequence s) void  
re (m) ? println() void  
co (m) ? killLine() boolean  
  (m) ? setCursorPosition(int posi... boolean  
ne (m) ? equals(Object) boolean  
fi (m) ? getClass() Class<?>  
ne (m) ? hashCode() int  
pr (m) ? notify() void  
lo (m) ? notifyAll() void  
re (m) ? toString() String  
  (m) ? wait() void π  
itcn (IOException e) {
```

Inspect **Java** objects

```
%d name
```

```
<init> java.lang.String()
```

```
...
```

```
static String valueOf(int)
```

```
...
```

```
char charAt(int)
```

```
...
```

Nicer **stacktraces**

user[16]: (.toLowerCase name)

```
java.lang.NullPointerException: null
    Reflector.java:314 clojure.lang.Reflector.invokeNoArgInstanceMember
      (Unknown Source) user/eval326
    Compiler.java:6469 clojure.lang.Compiler.eval
    Compiler.java:6435 clojure.lang.Compiler.eval
    IClojureRepl.java:117 com.offbytwo.iclojure.repl.IClojureRepl.eval
    IClojureRepl.java:152 com.offbytwo.iclojure.repl.IClojureRepl.loop
      Main.java:63 com.offbytwo.iclojure.Main.main
      (Unknown Source) sun.reflect.NativeMethodAccessorImpl.invoke0
    NativeMethodAccessorImpl.java:39 sun.reflect.NativeMethodAccessorImpl.invoke
    DelegatingMethodAccessorImpl.java:25 sun.reflect.DelegatingMethodAccessorImpl.invoke
      Method.java:597 java.lang.reflect.Method.invoke
    ExecJavaMojo.java:297 org.codehaus.mojo.exec.ExecJavaMojo$1.run
    Thread.java:680 java.lang.Thread.run
```

NullPointerException: null

Ctrl-C handling

```
public class ControlCSignalHandler
    implements SignalHandler {

    public void install() {
        Signal signal = new Signal("INT");
        Signal.handle(signal, this);
    }

    public void handle(Signal signal) {
        repl.abortCurrentRead();
    }
}
```

The result?

 **iclojure**

iclojure.com

Also supports

clojure-maven-plugin

leiningen

Next steps

External editor

Runtime .exec()

No

TTY

Native wrapper?

jark

icylisper.in/jark/

Downloads

	X86	AMD64	SPARC
GNU/Linux	0.4-pre	0.4-pre (300 KB)	
Darwin (Mac OS X)	0.4-pre	0.4-pre (900 KB)	
FreeBSD	0.4-pre	0.4-pre	
NetBSD	0.4-pre	0.4-pre	
Solaris			
Windows	0.4-pre	0.4-pre	

Smarter completions

Read **incomplete** forms

```
( import 'java.util
```

```
( def name "Cosmin" )
```

```
( . name toL
```

```
(let [inc2 #( + %1 2 )]  
  (in
```

clojure-reader

github.com/cosmin/clojure-reader

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