CSC309: Introduction to Web Programming

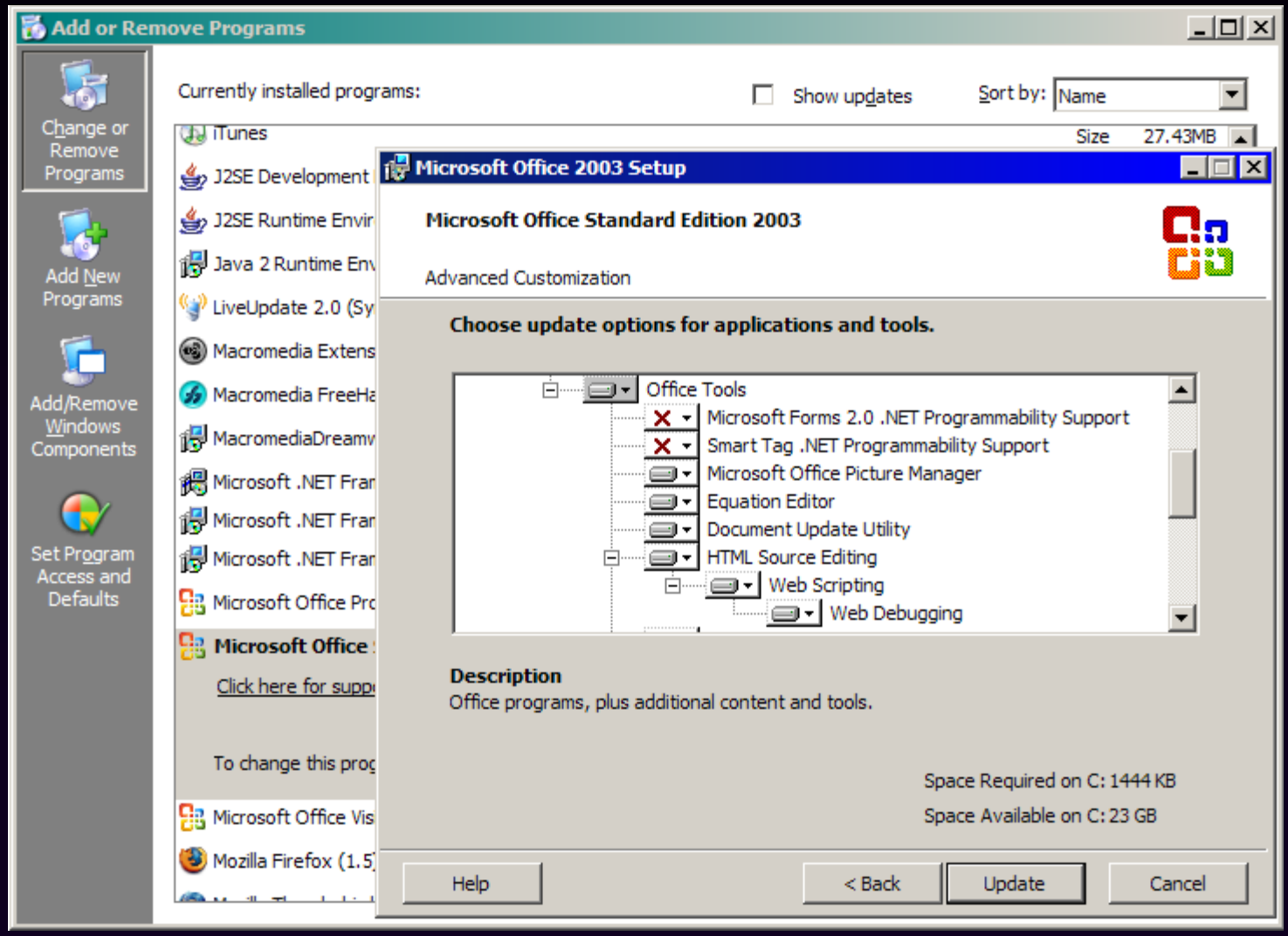
Lecture 5

Wael Aboulsaadat

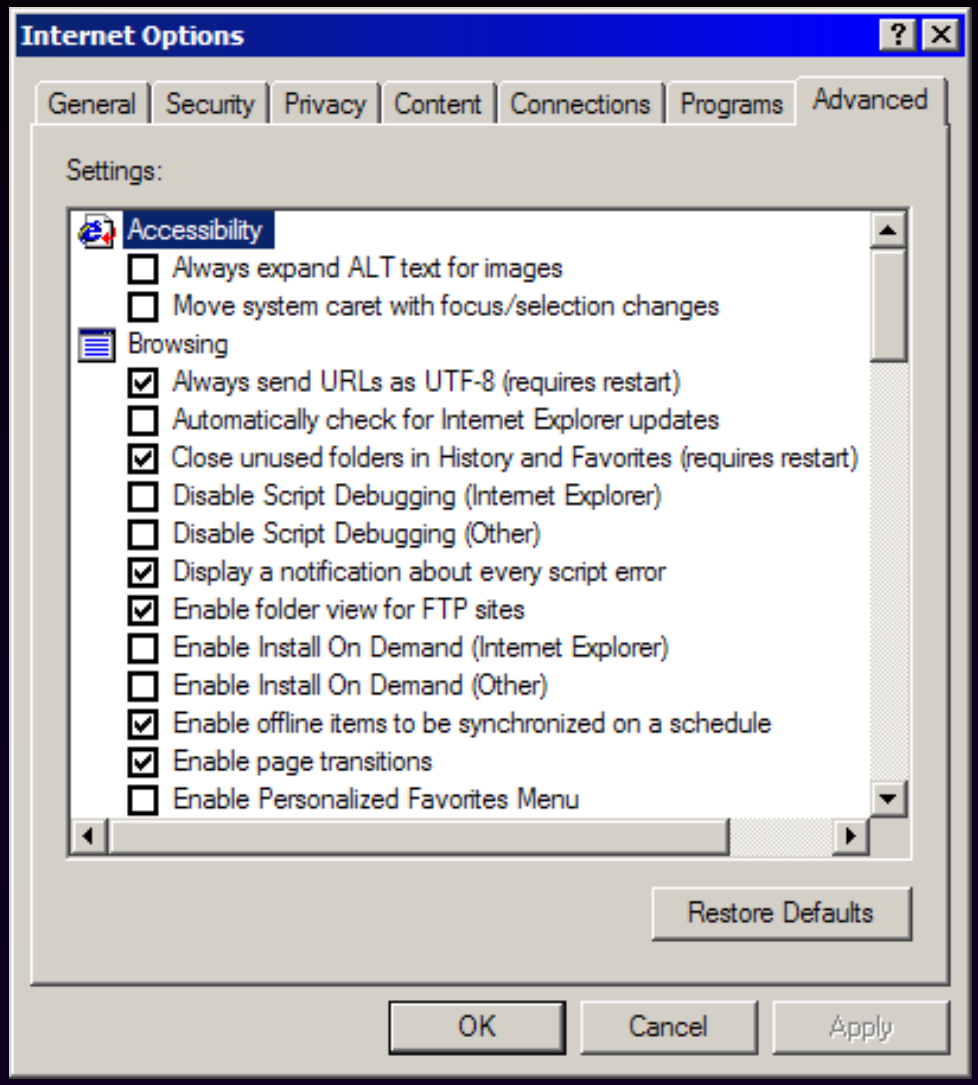
Debugging

- IE
  - Microsoft Script Debugger
    - Office 2003
    - Visual Studio
- Mozilla
  - Venkman
  - Firebug
- Safari
  - Drosera

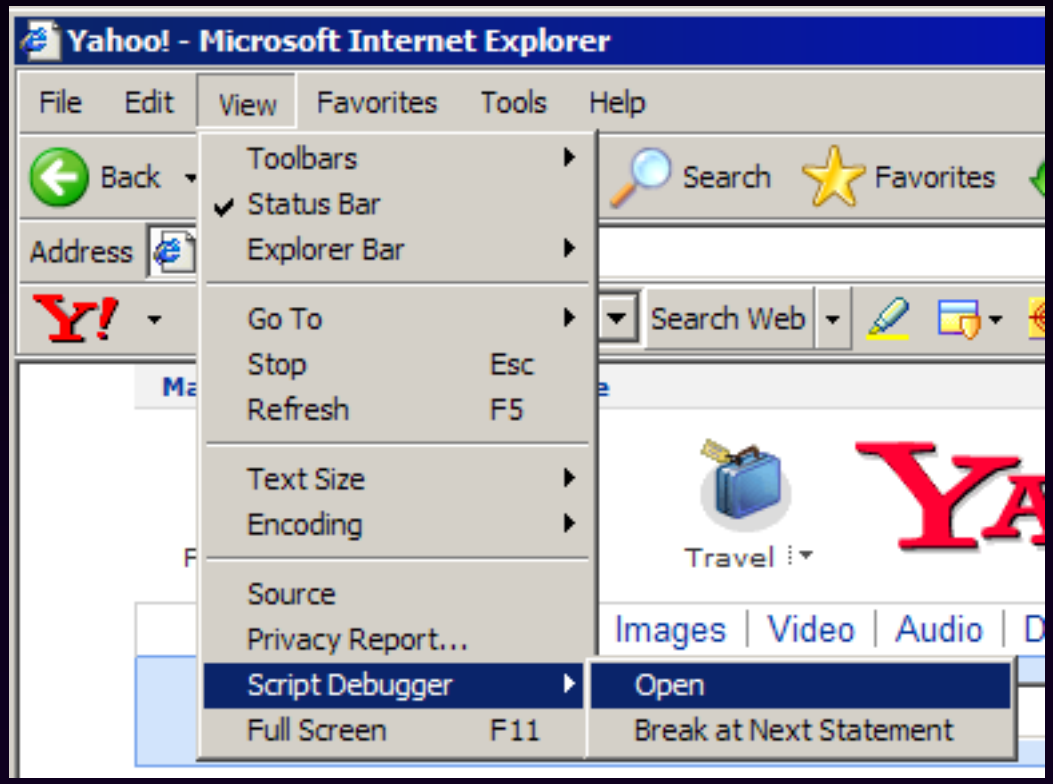
Microsoft Script Debugger



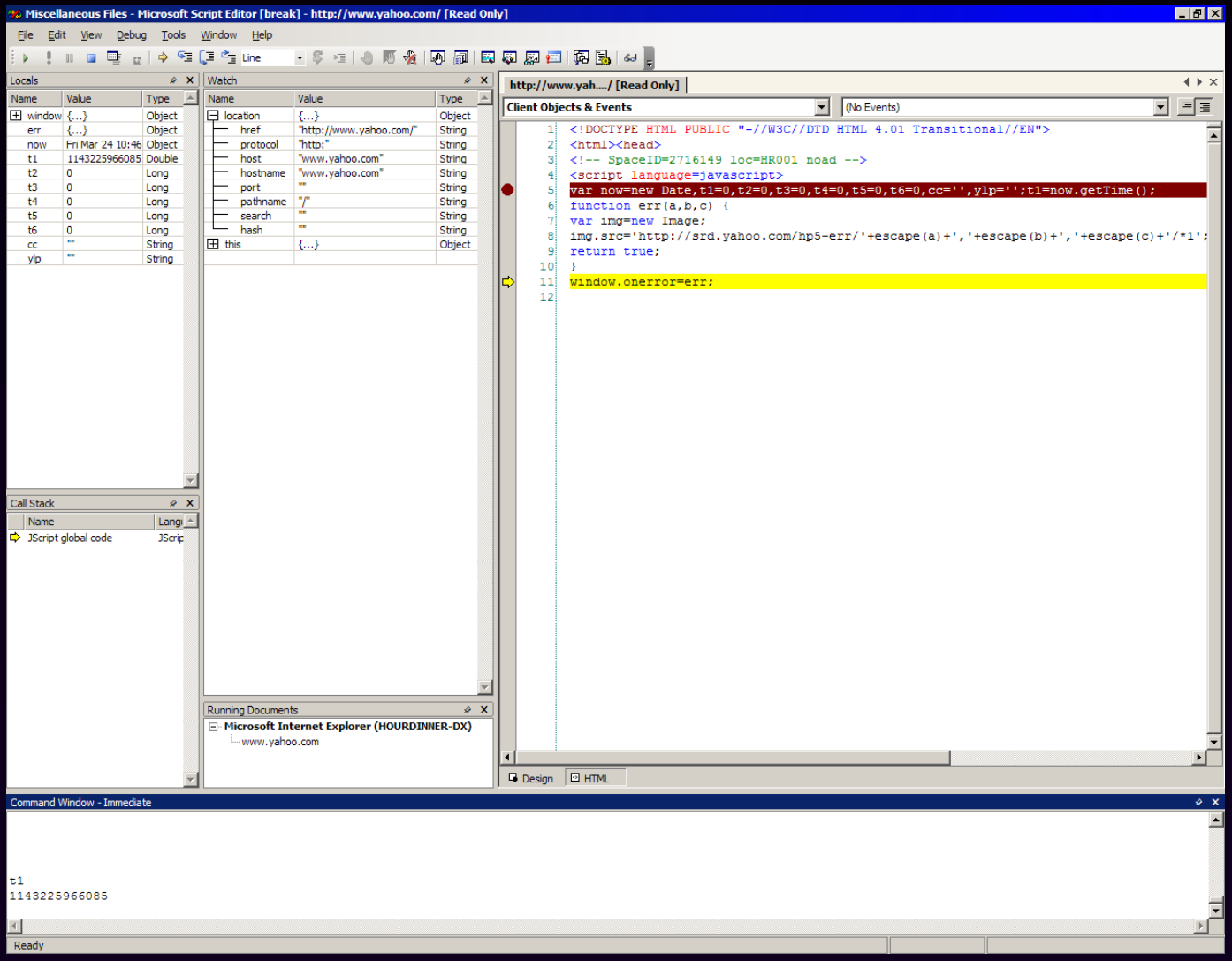
Microsoft Script Debugger



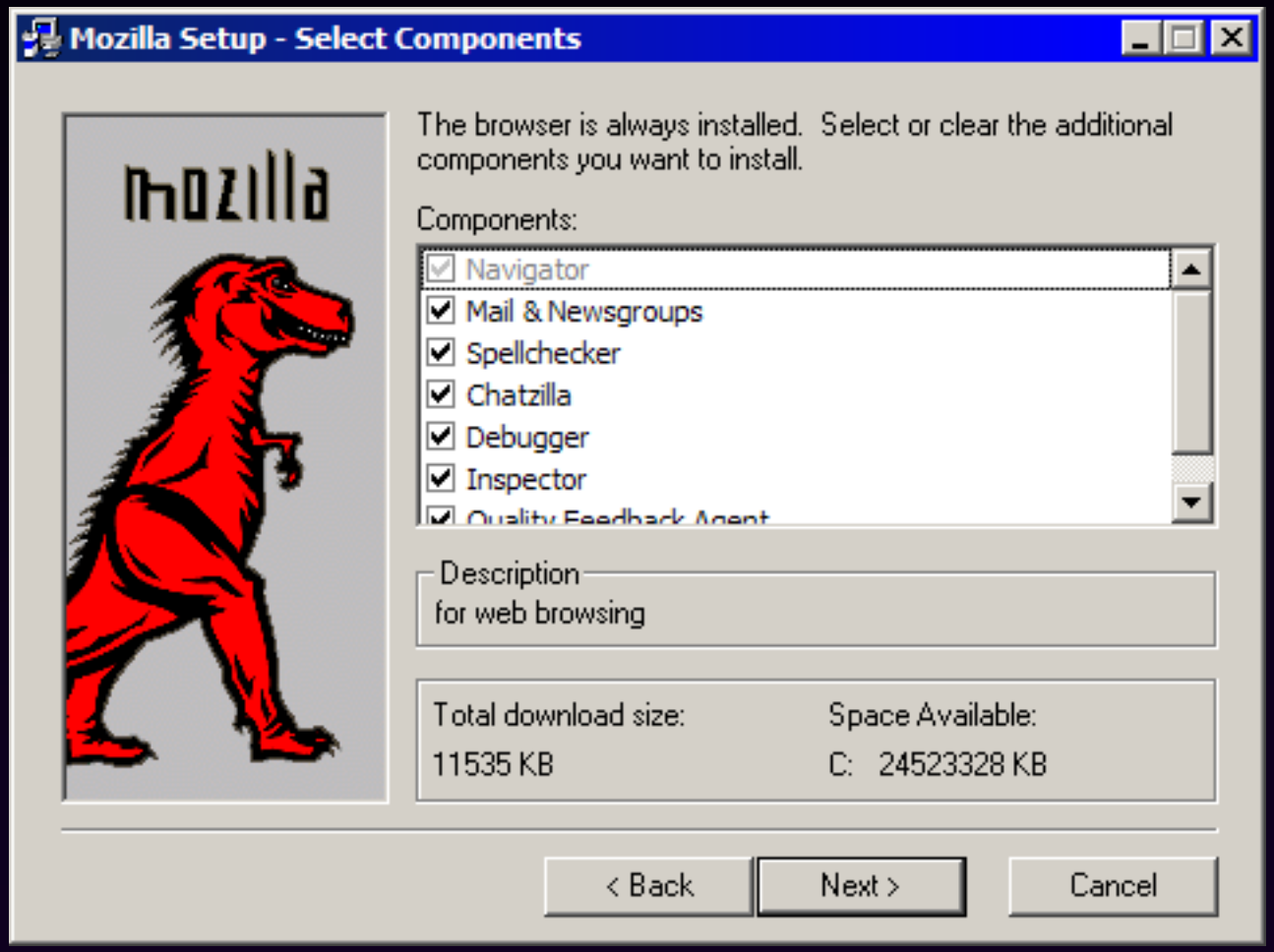
Microsoft Script Debugger



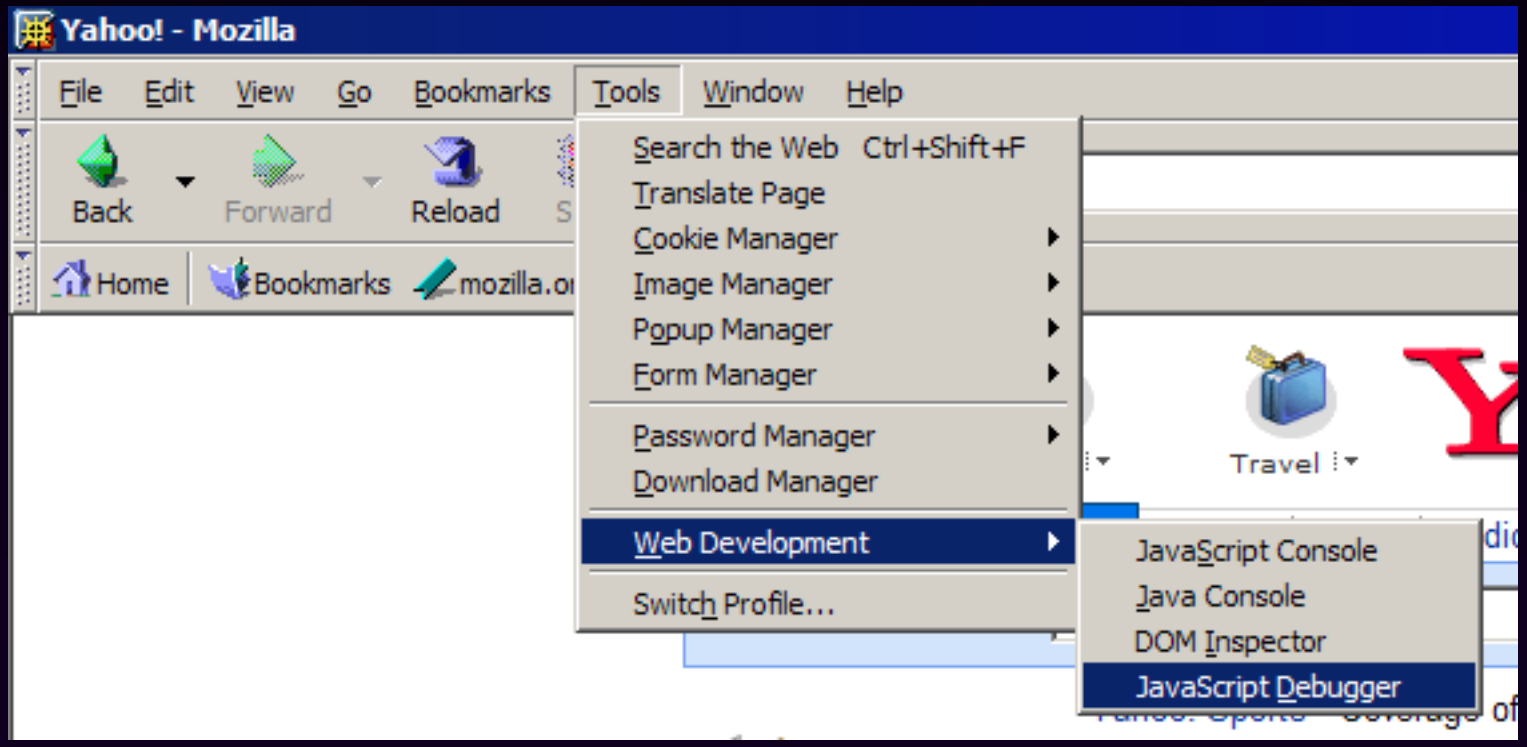
Microsoft Script Debugger



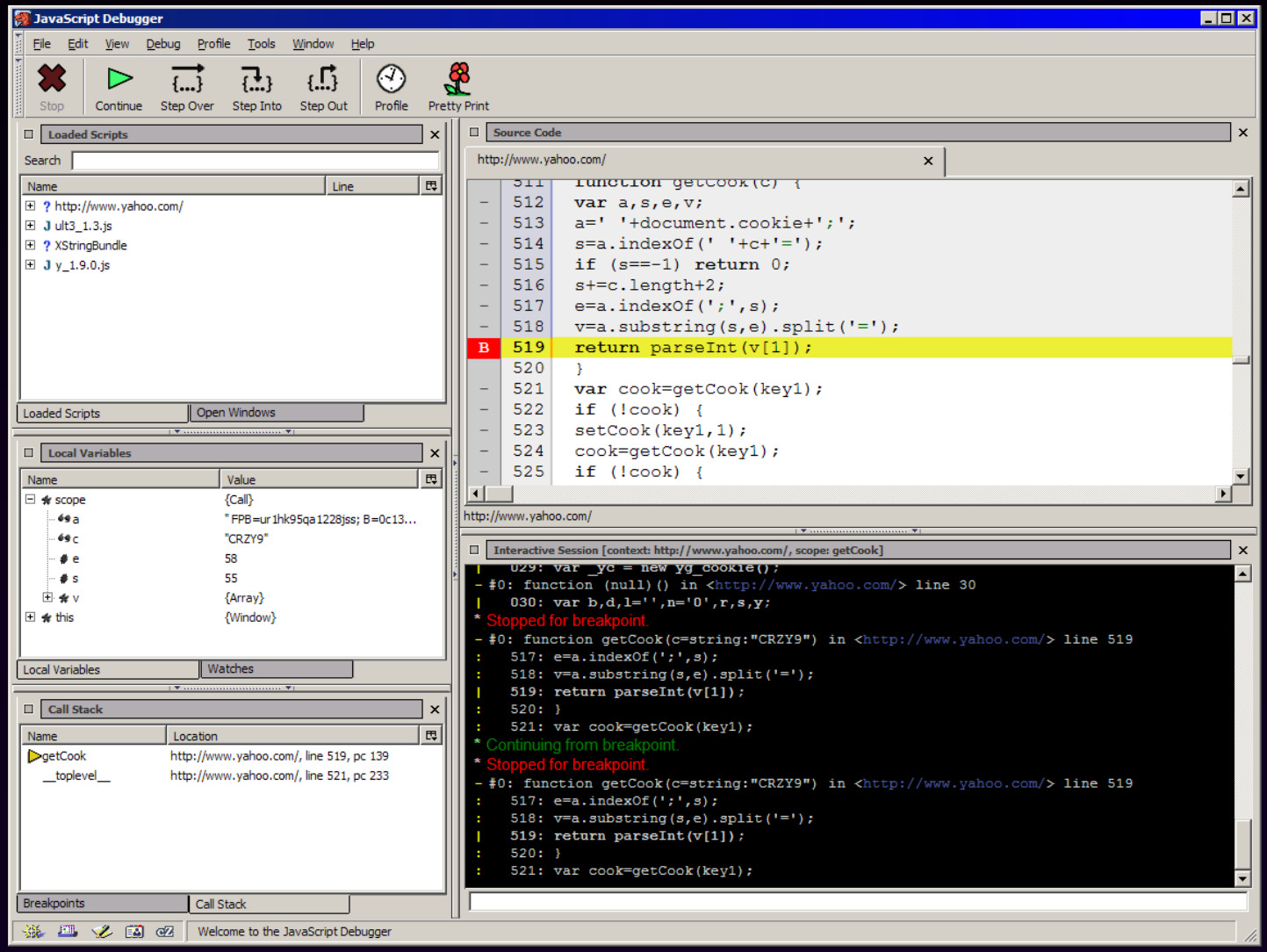
Venkman


Mozilla Setup - Select Components
mozilla
The browser is always installed. Select or clear the additional components you want to install.
Components:
Navigator
Mail & Newsgroups
Spellchecker
Chatzilla
Debugger
Inspector
Description
for web browsing
Total download size:
11535 KB
Space Available:
C: 24523328 KB
< Back
Next >
Cancel

Venkman


Yahoo! - Mozilla
File
Edit
View
Go
Bookmarks
Tools
Window
Help
Back
Forward
Reload
Home
Bookmarks
Search the Web Ctrl+Shift+F
Translate Page
Cookie Manager
Image Manager
Popup Manager
Form Manager
Password Manager
Download Manager
Web Development
Switch Profile...
JavaScript Console
Java Console
DOM Inspector
JavaScript Debugger
Travel

Venkman


JavaScript Debugger
File Edit View Debug Profile Tools Window Help
Stop Continue Step Over Step Into Step Out Profile Pretty Print
Loaded Scripts
Search
Name Line
http://www.yahoo.com/
ult3_1.3.js
XStringBundle
y_1.9.0.js
Loaded Scripts Open Windows
Local Variables
Name Value
scope {Call}
a " FPB=ur1hk95qa1228jss; B=0c13...
c "CRZY9"
e 58
s 55
v {Array}
this {Window}
Local Variables Watches
Call Stack
Name Location
getCook http://www.yahoo.com/, line 519, pc 139
__toplevel__ http://www.yahoo.com/, line 521, pc 233
Breakpoints Call Stack
Source Code
http://www.yahoo.com/
512 var a,s,e,v;
513 a=' '+document.cookie+';';
514 s=a.indexOf(' '+c+'=');
515 if (s==-1) return 0;
516 s+=c.length+2;
517 e=a.indexOf(';',s);
518 v=a.substring(s,e).split('=');
519 return parseInt(v[1]);
520 }
521 var cook=getCook(key1);
522 if (!cook) {
523 setCook(key1,1);
524 cook=getCook(key1);
525 if (!cook) {
http://www.yahoo.com/
Interactive Session [context: http://www.yahoo.com/, scope: getCook]
#0: function (null)() in <http://www.yahoo.com/> line 30
030: var b,d,l='',n='0',r,s,y;
Stopped for breakpoint.
#0: function getCook(c=string:"CRZY9") in <http://www.yahoo.com/> line 519
517: e=a.indexOf(';',s);
518: v=a.substring(s,e).split('=');
519: return parseInt(v[1]);
520: }
521: var cook=getCook(key1);
Continuing from breakpoint.
Stopped for breakpoint.
#0: function getCook(c=string:"CRZY9") in <http://www.yahoo.com/> line 519
517: e=a.indexOf(';',s);
518: v=a.substring(s,e).split('=');
519: return parseInt(v[1]);
520: }
521: var cook=getCook(key1);
Welcome to the JavaScript Debugger

Debugging

- Check the browser's error console message
- With Firefox
  - Check the DOM in Venkman (or Firebug)
  - Use `console.log("message");` to write to the console

Coding Efficiency Tips

- Common subexpression removal
- Loop invariant removal

Before

```
for (var i = 0; i < divs.length; i += 1) {
    divs[i].style.color = "black";
    divs[i].style.border = thickness +
        'px solid blue';
    divs[i].style.backgroundColor = "white";
}
```

After

```
var border = thickness + 'px solid blue',
    nrDivs = divs.length;

for (var i = 0; i < nrDivs; i += 1) {
    var ds = divs[i].style;
    ds.color = "black";
    ds.border = border;
    ds.backgroundColor = "white";
}
```

Strings

- Concatenation with **+**
  - Each operation allocates memory

```
foo = a + b;
```

- Concatenate with array**.join('')**
  - The contents of an array are concatenated into a single string

```
foo = [a, b].join('');
```

Minification vs Obfuscation

- Reduce the amount of source code to reduce download time.
- Minification deletes whitespace and comments.
- Obfuscation also changes the names of things.
- Obfuscation can introduce bugs.

<script></script>

- Script files can have a big impact on page loading time.

1. Place **<script src>** tags as close to the bottom of the body as possible. (Also, place CSS **<link>** as high in the head as possible.)

2. Minify and gzip script files.

3. Reduce the number of script files as much as possible.

<script></script>

- **<!-- // -->**
  Hack for Mosaic and Navigator 1.0.

- **language=javascript**
  Deprecated.

- **type=text/javascript**
  Ignored.

- **src=**URL
  Highly recommended.
  Don't put code on pages.