



Module16: APL Web Clients

§ 16.1 Getting to the outside World

§§ 16.1.1 Direct Connection through your Internet Service Provider

You might not want to host a web server. All you might want to do is get stuff directly off the Internet, or browse the Internet through a Dyalog APL *TCPSocket* object circumventing IE.

If you are connected directly to the Internet, by broadband or narrowband, wireless or wired, then you can set the *RemoteAddrName* of a socket to any domain name on the Internet, *RemotePort* 80, and you obtain an immediate connection.

16.1.1.1 If you have a direct connection, try connecting a socket to any domain on the Internet.

§§ 16.1.2 Proxy Servers and Firewalls

If you are connected to the Internet through a proxy server, then the only remote address that you may use is the address of the proxy itself. It then passes your request on to the outside world – the Internet. To discover the IP address of your proxy you can use nslookup on the proxy server name or make use of *RemoteAddrName* and *TCPGotAddr*. The name of the proxy is normally easily available – for example it is sometimes used for the realm in the login dialog box.

16.1.2.1 If you connect through a proxy, try to connect a socket to it.

§ 16.2 Asking the Web

§§ 16.2.1 Connecting and sending the Question

16.2.1.1 Write a function that returns a CRLF separated list of commands, ending with CRLF CRLF, eg

```
GET http://www.google.co.uk HTTP/1.1
Host: www.google.co.uk
```

including a suitably encoded Proxy-Authorization command, if necessary,

```
Proxy-Authorization: Basic QWxhZGRpbjpvcGVuIHNlc2FtZQ==
```

16.2.1.2 Create a socket on port 80 with *RemoteAddrName* www.google.co.uk, or the name of your proxy server if you have a firewall. Send the above commands when the *TCPConnect* event triggers.

Hint: See workspace www.dws, namespace #.BROWSER for guidance.

§§ 16.2.2 Receiving and interpreting the Answer

16.2.1.1 Use google.co.uk in IE to search for `dragons+castles` and notice that the address bar now contains the string `http://www.google.co.uk/search?hl=en&q=dragons%2Bcastles&meta=`
Put this string into a direct socket request via:

```
GET http://www.google.co.uk/search?hl=en&q=dragons%2Bcastles&meta= HTTP/1.1
Host: www.google.co.uk
```

Capture the message from *TCPRecv* and check that the response begins with HTTP/1.1 200 OK.



16.2.2.2 Copy the HTML text from the received message above and, using Notepad, paste it into a new file called hoo.htm. Open IE and browse to that file using [File][Open]. Compare the display with the original Google results page. Note that pictures are sent in raw sockets and must be received in sockets of *style raw*.

16.2.2.3 Dig out the Last Trade price for the Boeing Company from Yahoo using command line

```
http://finance.yahoo.com/q?s=BA&d=t
```

in a Dyalog APL stream socket.

16.2.2.4 Get some historical prices from Yahoo using command line

```
http://chart.yahoo.com/t?a=01&b=01&c=1900&d=05&e=18&f=2001&g=d&s=jdsu&y=0&z=jdsu&q=q
```

Use the function `▽htx▽` in the DFNS.DWS workspace, or any other method, to extract the numbers from the HTML table.

16.2.2.5 Send the following HTTP request, with appropriate Proxy-Authorization: or Authorization: header field, if necessary

```
GET http://finance.yahoo.com/bonds/market_summary HTTP/1.0
Host: www.yahoo.com
Proxy-Authorization: Basic QWxhZGRpbjpvGVuIHNIc2FtZQ==
User-Agent: Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; .NET CLR 1.1.4322)
Accept: */*
Accept-Language: en-gb
Proxy-Connection: Keep-Alive
User-Agent: Mozilla/3.0Gold (Win95; I)
```

and check the response looks something like:

```
Finance
File Edit View
HTTP/1.1 200 OK
00Via: 1.1 OURPRXY
00Date: Thu, 30 Mar 2006 16:22:59 GMT
00Content-Type: text/html
00P3P: policyref="http://p3p.yahoo.com/w3c/p3p.xml", CP="CAD DSP COR CUR ADM DEV TAI PSA PSD IVAI IUDI CONI TELo OTPi OUR DELi SAMi OTRI
00Set-Cookie: PRF=; expires=Sun, 27 Mar 2016 08:22:59 GMT; path=/; domain=finance.yahoo.com
00Set-Cookie: B=cbahv8d22o1f3&b=3&s=90; expires=Tue, 02-Jun-2037 20:00:00 GMT; path=/; domain=.yahoo.com
0
0<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd"><html><head><meta http-equiv="Content-Typ
Modified Charact... Shape: 24157 (Depth: 1) Pos: 1,17
```

16.2.2.6 Please ask for the next module on [Dyalog.Net](http://www.dyalog.com) 😊.