**Paper 73-28**

# The URL-y Show: *Using SAS® LE and the URL Access Method to Retrieve Stock Quotes*
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## ABSTRACT

A brief SAS program and short macro are presented that illustrate ways that the SAS URL access method can be used to retrieve stock quotes from the Web. This technique, which can be used to retrieve all kinds of data from Intranet and Internet sites, may be of interest to anyone who uses SAS LE or Base SAS on the PC platform.

## INTRODUCTION

Maybe you're one of those folks who still feels compelled to constantly check on stock quotes!

Perhaps you're a Homer Simpson-type, looking for a way to automate the back-breaking labor of pressing the 'refresh' button on your web browser!

Or maybe you're just looking for a simple working example of the SAS URL access method to see if you or your company could put it to good use!

In any event, you've come to the right place!

## SAS URL ACCESS METHOD IN A NUTSHELL

By providing access via the **filename** and **infile** statements, SAS has made reading web pages almost as easy as reading a sequential file:

> **filename** *fileref*  **url "http://**www..."**;**
> **infile** *fileref  options*  **termstr=crlf;**
> **input** …**;**

## A FEW CAVEATS

Depending on how your PC's been configured, you may have to specify a port number (usually :80) after the domain name in the URL:

> **filename** *fileref*  **url "http://**www.sas.com**:80**/..."**;**

This will not be required if your PC's **ETC SERVICES** file contains a **httpd** port entry:

> **httpd   80/tcp   #** World Wide Web Access

If your Internet access is through a corporate firewall, you may also have to specify values for the normally optional **user=**, **pass=**, and **proxy=** keywords of the **filename** statement:

> **filename** *fileref*  **url "http://**www.sas.com**:80**/..."
>          **proxy='http://proxy.**…..**com:***port***'**
>          **user='**…**' pass='**…**';**

On most web pages, the data returned will include HTML formatting, so be aware that you'll probably have to do some character string manipulation to get the desired data.

## A COUPLE OF WORKING EXAMPLES

Two programs are provided in the following sections together with sample output to illustrate how the URL access method can be used to retrieve stock quotes from the web:

*Ticker.sas* is a simple program that retrieves and prints quotes for the specified symbols.

*TickerMacro.sas* is a bit more complicated, but it also includes a macro that allows one to specify:

1.  Which stock quotes should be displayed

2.  How frequently the stock quotes will be refreshed

3.  How many times the stock quotes will be refreshed

The macro also appends the stock quotes to a SAS data set that is used to produce a cumulative comparison report after each refresh.

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### *Ticker.sas  – A Simple Stock Quote Retrieval Program*

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```
*--> Simple Stock Quote Program

   Gets & Prints Quotes For Yahoo, IBM, HP From Yahoo.com;

filename in url
"http://finance.yahoo.com:80/d/quotes.txt?s=YHOO+IBM+HPQ&f=sl1d1t1c1ohg
v&e=.txt)";

data;
infile in dsd end=eof termstr=crlf;
input Ticker : $4. Price TradeDate : $10. TradeTime: $7. Change Open Hi Lo
Volume;

options nodate nonumber nocenter ls=70;

proc print uniform;
Title Stock Quotes;
id Ticker;
run;
```

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### *Ticker.sas  – Sample Output*

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```
Stock Quotes

                        Trade
Ticker Price TradeDate   Time   Change Open  Hi    Lo    Volume

 YHOO  17.50 12/16/2002 11:20am   0.10 17.38 17.59 17.27 3155820
 IBM   79.74 12/16/2002 11:16am  -0.26 79.60 80.00 79.05 2674300
 HPQ   18.87 12/16/2002 11:16am   0.37 18.91 19.00 18.65 2956700
```

## *TickerMacro.sas  – Stock Quote Retrieval With Refresh*

```
*--> Enhanced Stock Quote Program

   Gets & Prints Quotes For Specified Stocks From Yahoo.com

   Parameters:

         SYMBOLS  Stock Symbols
         SLEEP    Seconds Between Stock Quote Refreshes
         MAX      Number Of Times To Refresh Stock Quotes
         OUT      SAS Data Set Name Containing Stock Quotes;

%macro GetQuotes(Symbols=, Sleep=1, Max=10,Out=work.getquotes);

*--> Fetch Stock Quotes Specified Number Of Times;

%do i=1 %to &max;

filename in url
"http://finance.yahoo.com:80/d/quotes.txt?s=&symbols.&f=sl1d1t1c1ohgv&e=.txt
)";

*--> Retrieve Stock Quotes From Yahoo;

data;
infile in dsd end=eof termstr=crlf;
input Ticker : $4. Price TradeDate : $10. TradeTime: $7. Change Open Hi Lo
Volume;
AsOf=put(today(),yymmdd10.)||' At '|| put(time(),time8.);

*--> Add Stock Quotes To SAS Data Set;

proc append base=&out data=_last_;

options nodate nonumber nocenter ls=70 ps=1000;

*--> Produce Cumulative Stock Quote Comparison Report;

proc tabulate data=GetQuotes;
Title Stock Quotes By Ticker;
class Ticker AsOf TradeDate TradeTime;
var Price Change;
tables Ticker*AsOf*TradeDate*TradeTime, (Price Change)*f=7.2 / rts=50;
keylabel sum=' ';

*--> Pause Specified Number Of Seconds Between Refreshes;

data;
%if &i<=&max %then
x=sleep(&sleep);;
run;

%end;

%mend;

*--> Get Quotes For Yahoo, IBM, and Hewlett Packard

   Wait 10 Minutes (600 Seconds) Before Refreshing Stock Quotes

   Refresh Quotes Six Times;

%GetQuotes(Symbols=YHOO+IBM+HPQ, Sleep=600, Max=6);
```

## *TickerMacro.sas  – Sample Output*

```
Stock Quotes By Ticker
```

| Ticker | AsOf | TradeDate | TradeTime | Price | Change |
|--------|------|-----------|-----------|-------|--------|
| HPQ | 2002-12-16 At 10:36:46 | 12/16/2002 | 11:16am | 18.87 | 0.37 |
| | 2002-12-16 At 10:46:46 | 12/16/2002 | 11:26am | 18.89 | 0.39 |
| | 2002-12-16 At 10:56:47 | 12/16/2002 | 11:36am | 18.94 | 0.44 |
| | 2002-12-16 At 11:06:47 | 12/16/2002 | 11:46am | 18.89 | 0.39 |
| | 2002-12-16 At 11:16:47 | 12/16/2002 | 11:56am | 18.88 | 0.38 |
| | 2002-12-16 At 11:26:48 | 12/16/2002 | 12:06pm | 18.90 | 0.40 |
| IBM | 2002-12-16 At 10:36:46 | 12/16/2002 | 11:16am | 79.74 | -0.26 |
| | 2002-12-16 At 10:46:46 | 12/16/2002 | 11:26am | 79.72 | -0.28 |
| | 2002-12-16 At 10:56:47 | 12/16/2002 | 11:36am | 79.68 | -0.32 |
| | 2002-12-16 At 11:06:47 | 12/16/2002 | 11:46am | 79.95 | -0.05 |
| | 2002-12-16 At 11:16:47 | 12/16/2002 | 11:56am | 79.94 | -0.06 |
| | 2002-12-16 At 11:26:48 | 12/16/2002 | 12:06pm | 80.40 | 0.40 |
| YHOO | 2002-12-16 At 10:36:46 | 12/16/2002 | 11:20am | 17.50 | 0.10 |
| | 2002-12-16 At 10:46:46 | 12/16/2002 | 11:31am | 17.55 | 0.15 |
| | 2002-12-16 At 10:56:47 | 12/16/2002 | 11:41am | 17.51 | 0.11 |
| | 2002-12-16 At 11:06:47 | 12/16/2002 | 11:51am | 17.47 | 0.07 |
| | 2002-12-16 At 11:16:47 | 12/16/2002 | 12:01pm | 17.49 | 0.09 |
| | 2002-12-16 At 11:26:48 | 12/16/2002 | 12:11pm | 17.46 | 0.06 |

## CONCLUSION

With the addition of the URL access method, SAS has really made reading web pages a breeze - see what you can come up with!

## CONTACT INFORMATION

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