LoadRunner Scripting Guide for ServiceCenter 6.2 Windows Clients

How to do performance testing on ServiceCenter using HP's LoadRunner tool

HP® Management Software **Service Management**

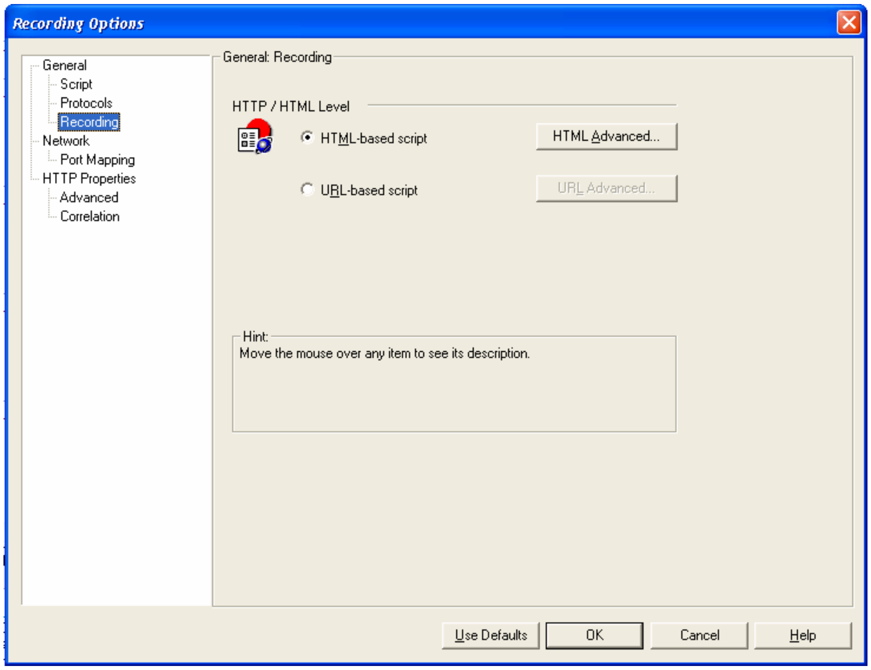
Introduction

This white paper will show how to set up LoadRunner to test load and performance on ServiceCenter 6.2.

Setting up LoadRunner

Mercury Virtual User Generator Recording Options Setup:

From the Menu bar, select **Tools -> Recording Options**. In the **General** tree, select **Recording.**



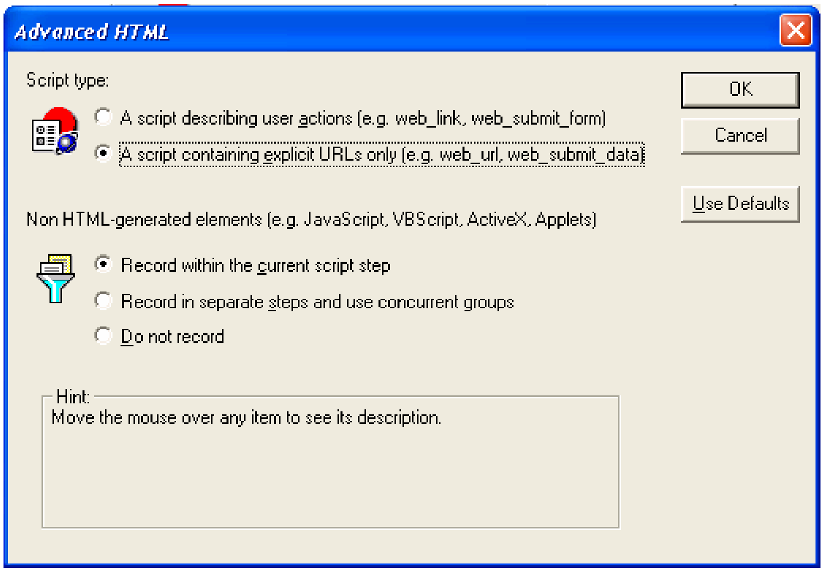
● HTML-based script

○ URL-based script

Hint:
Move the mouse over any item to see its description.

Click to Select **HTML-based script**

Click on the **HTML Advanced...** button.



Advanced HTML

Script type:

○ A script describing user actions (e.g. web_link, web_submit_form)

● A script containing explicit URLs only (e.g. web_url, web_submit_data)

Non HTML-generated elements (e.g. JavaScript, VBScript, ActiveX, Applets)

● Record within the current script step

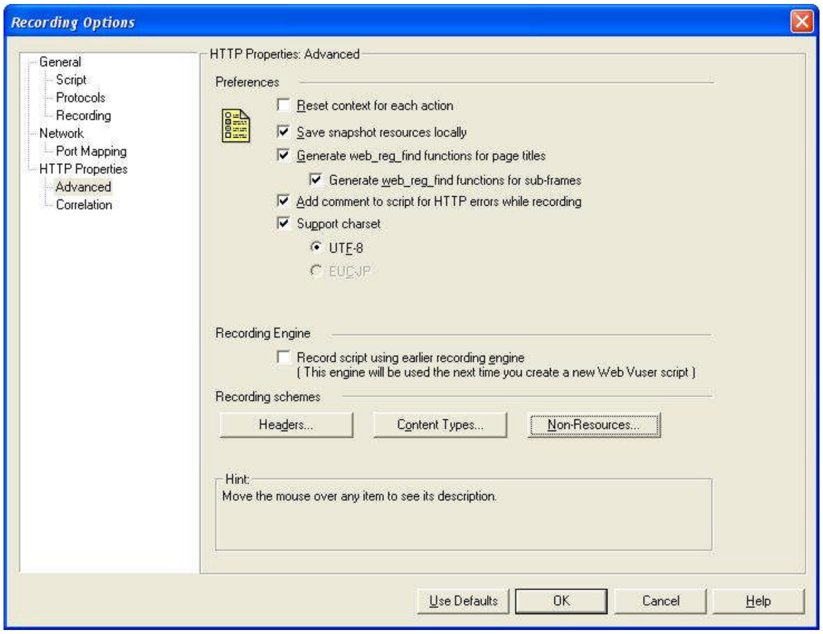
○ Record in separate steps and use concurrent groups

○ Do not record

Hint:
Move the mouse over any item to see its description.

Select the options as shown above, then click **OK**.

Under the **HTTP Properties** tree, select **Advanced**



Recording Options

HTTP Properties: Advanced

Preferences

☐ Reset context for each action

☑ Save snapshot resources locally

☑ Generate web_reg_find functions for page titles

☑ Generate web_reg_find functions for sub-frames

☑ Add comment to script for HTTP errors while recording

☑ Support charset

● UTF-8

○ EUC-JP

Recording Engine

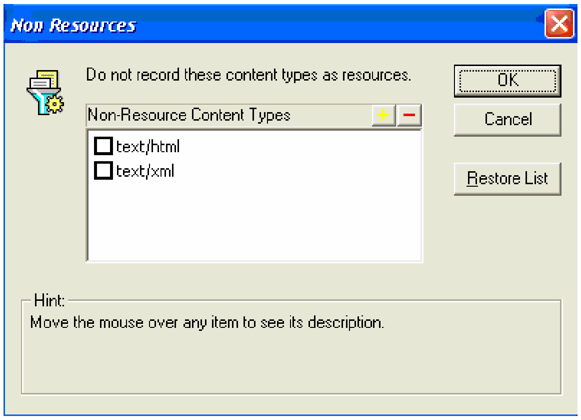
☐ Record script using earlier recording engine
(This engine will be used the next time you create a new Web Vuser script)

Recording schemes

Hint:
Move the mouse over any item to see its description.

Select the options as shown above, then click on the **Non-Resources...** button

In the dialog window, **uncheck** both checkboxes for the **text** content types.



Do not record these content types as resources.

Non-Resource Content Types

☐ text/html
☐ text/xml

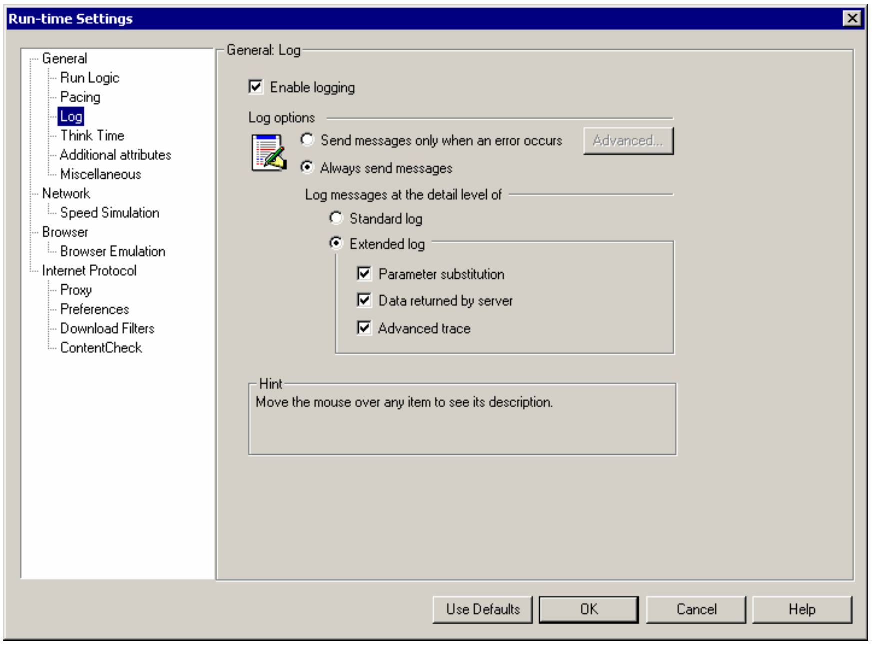
Hint:
Move the mouse over any item to see its description.

Click **OK** to save the Non-Resources settings.

Click **OK** to exit the Recording Options screen.

Mercury Virtual User Generator Runtime Settings Setup:

From the Menu bar, select **VUser** -> **Runtime settings**. In the **General** tree, select **Log**.



General: Log

☑ Enable logging

Log options

○ Send messages only when an error occurs

● Always send messages

Log messages at the detail level of

○ Standard log

● Extended log

☑ Parameter substitution

☑ Data returned by server

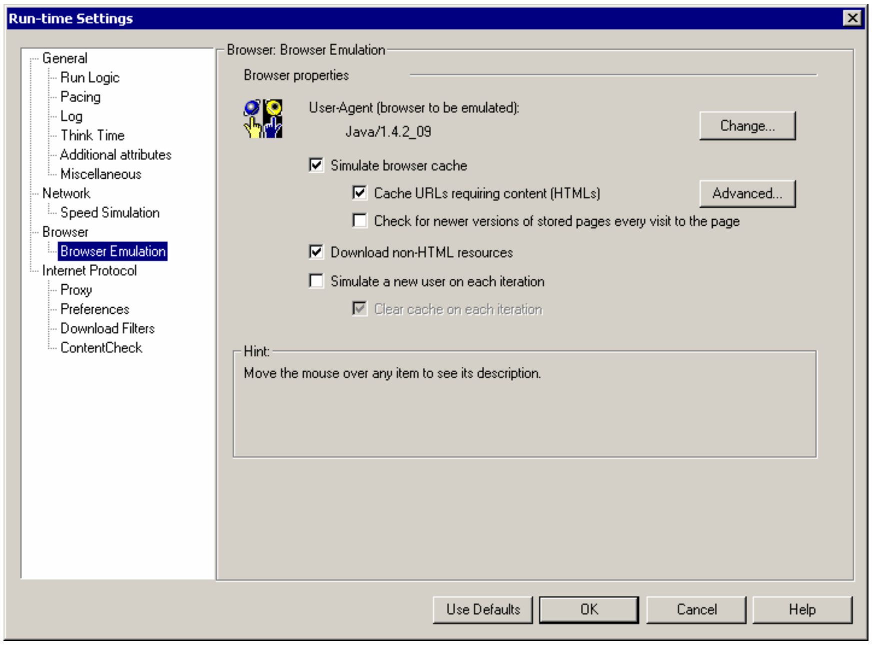
☑ Advanced trace

Hint
Move the mouse over any item to see its description.

Enable **Extended log** and turn on all options.

Note: Activate "Always send messages" only during script creation and testing. When running the script it should be set to "Send messages only when an error occurs".

In the **Browser** tree, select **Browser Emulation**.



Browser: Browser Emulation

Browser properties

User-Agent (browser to be emulated):
Java/1.4.2_09

☑ Simulate browser cache

☑ Cache URLs requiring content (HTMLs)

□ Check for newer versions of stored pages every visit to the page

☑ Download non-HTML resources

□ Simulate a new user on each iteration

☑ Clear cache on each iteration

Hint:
Move the mouse over any item to see its description.

Uncheck **Simulate a new user on each iteration**.

These Run-time settings are set separately in the LoadRunner Controller as well.

Recording a script for the SC Windows client connecting to the SC Classic Listener

Script Content Overview

- The login should be recorded into vuser_init.
- The activities in the script should be recorded into Action at a minimum.
- The activities should include a shutdown of all tabs and return to the same point where recording of Action began – the user's startup screen.
- The logout should be recorded into vuser_end.

Note: These are the minimum recommendations for scripting. The user is free to create multiple action-based sections.

Pre-Recording Setup

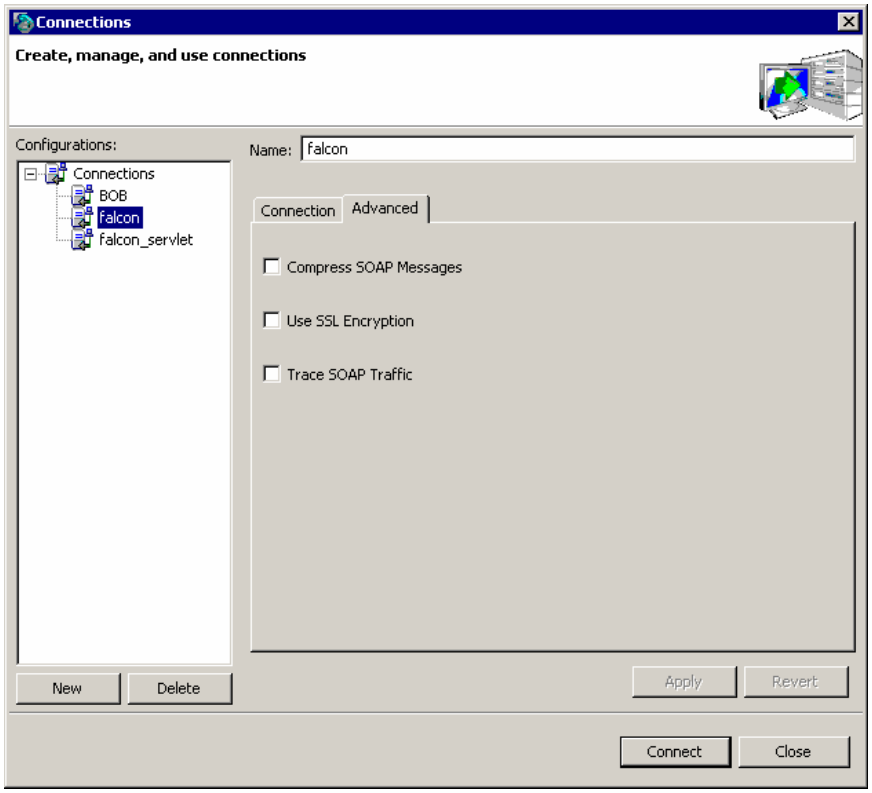
Prior to starting the ServiceCenter server, **recordtestscript:1** needs to be added to the sc.ini file.

Prior to recording a script, there are changes that need to be made to the ServiceCenter client configuration.

- The Windows Client needs the following arguments to the Servicecenter.exe program in the client shortcut: **-data workspace -vmargs -Xmx128M -DFastInfoset=false**
- For successful recording of script actions, SOAP Compression and SSL Encryption must be turned off in the client.

  To turn off these settings, launch the ServiceCenter client and open the **Connection Manager**. Go to the **Advanced** tab for the connection you will be using.

  Uncheck **Compress SOAP Messages** and **Use SSL Encryption** to turn these options **off**.



Connections

Create, manage, and use connections

Configurations:

- Connections
  - BOB
  - falcon
  - falcon_servlet

Name: falcon

□ Compress SOAP Messages

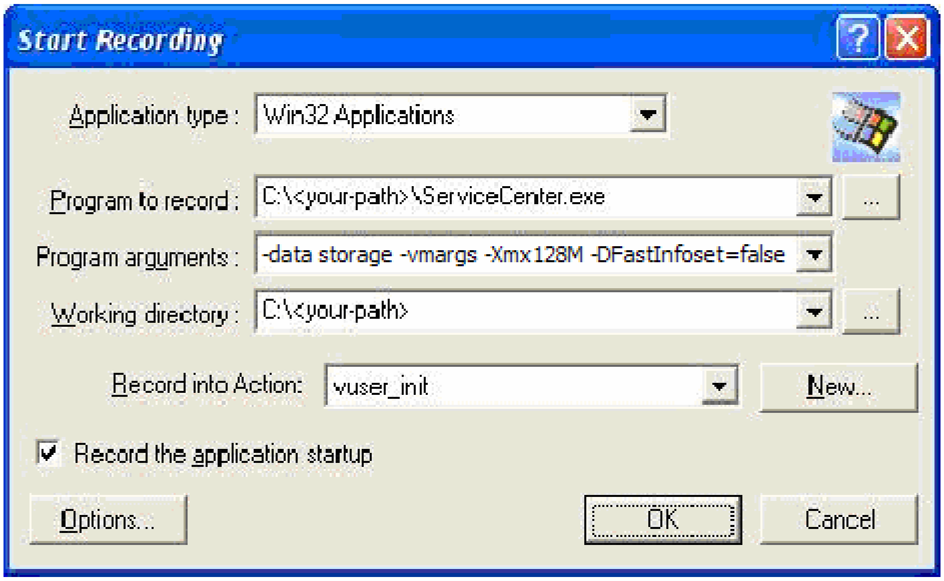
□ Use SSL Encryption

□ Trace SOAP Traffic

Click **Apply** to save the settings.

Start the Recording

In the LoadRunner Virtual User Generator, select **Start Record** from the Toolbar. Enter the correct path to the ServiceCenter.exe, program arguments, and working directory.



Start Recording

Application type : Win32 Applications

Program to record : C:\<your-path>\ServiceCenter.exe

Program arguments : -data storage -vmargs -Xmx128M -DFastInfoset=false

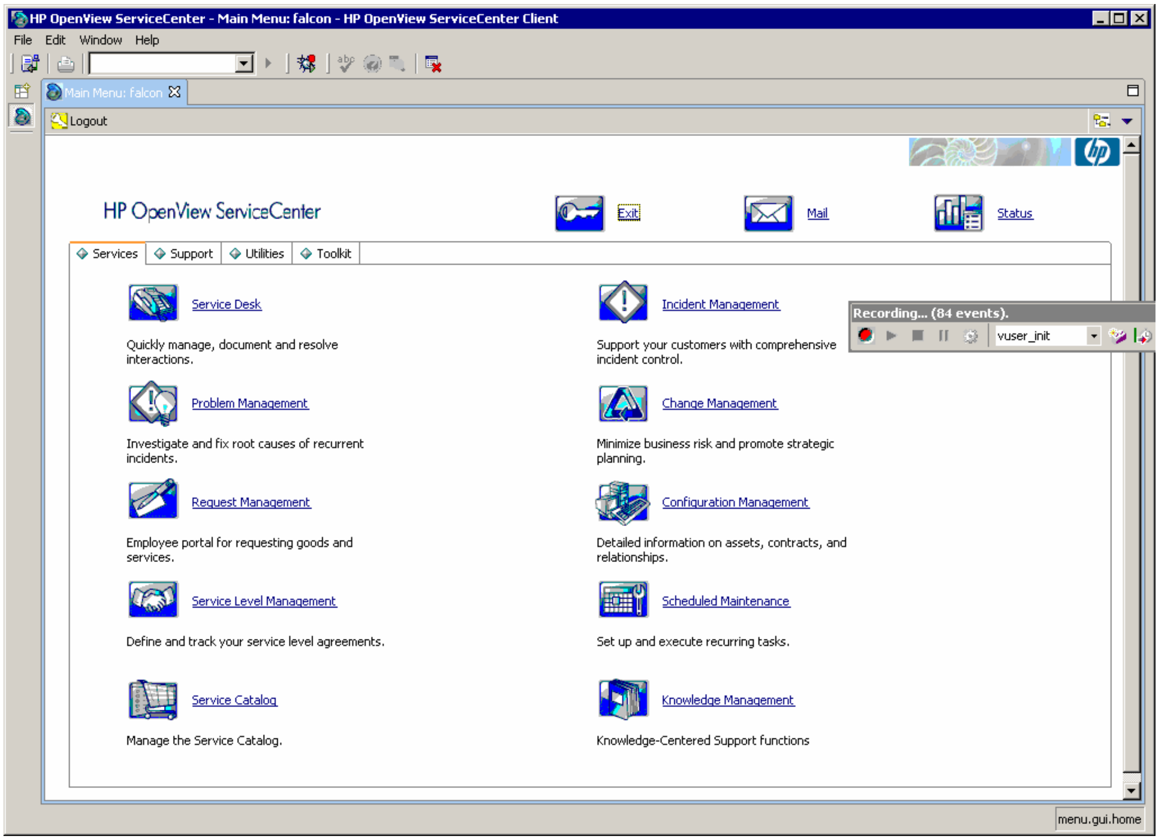
Working directory : C:\<your-path>

Record into Action: vuser_init

☑ Record the application startup

Click **OK** to begin recording.

Take note of the screen at the time of login – in this case the home menu with the Services tab shown



HP OpenView ServiceCenter - Main Menu: falcon - HP OpenView ServiceCenter Client
File Edit Window Help
Main Menu: falcon
Logout
HP OpenView ServiceCenter
Exit
Mail
Status
Services
Support
Utilities
Toolkit
Recording... (84 events).
vuser_init
menu.gui.home

Service Desk

Quickly manage, document and resolve interactions.

Incident Management

Support your customers with comprehensive incident control.

Problem Management

Investigate and fix root causes of recurrent incidents.

Change Management

Minimize business risk and promote strategic planning.

Request Management

Employee portal for requesting goods and services.

Configuration Management

Detailed information on assets, contracts, and relationships.

Service Level Management

Define and track your service level agreements.

Scheduled Maintenance

Set up and execute recurring tasks.

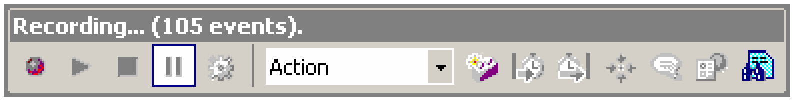
Service Catalog

Manage the Service Catalog.

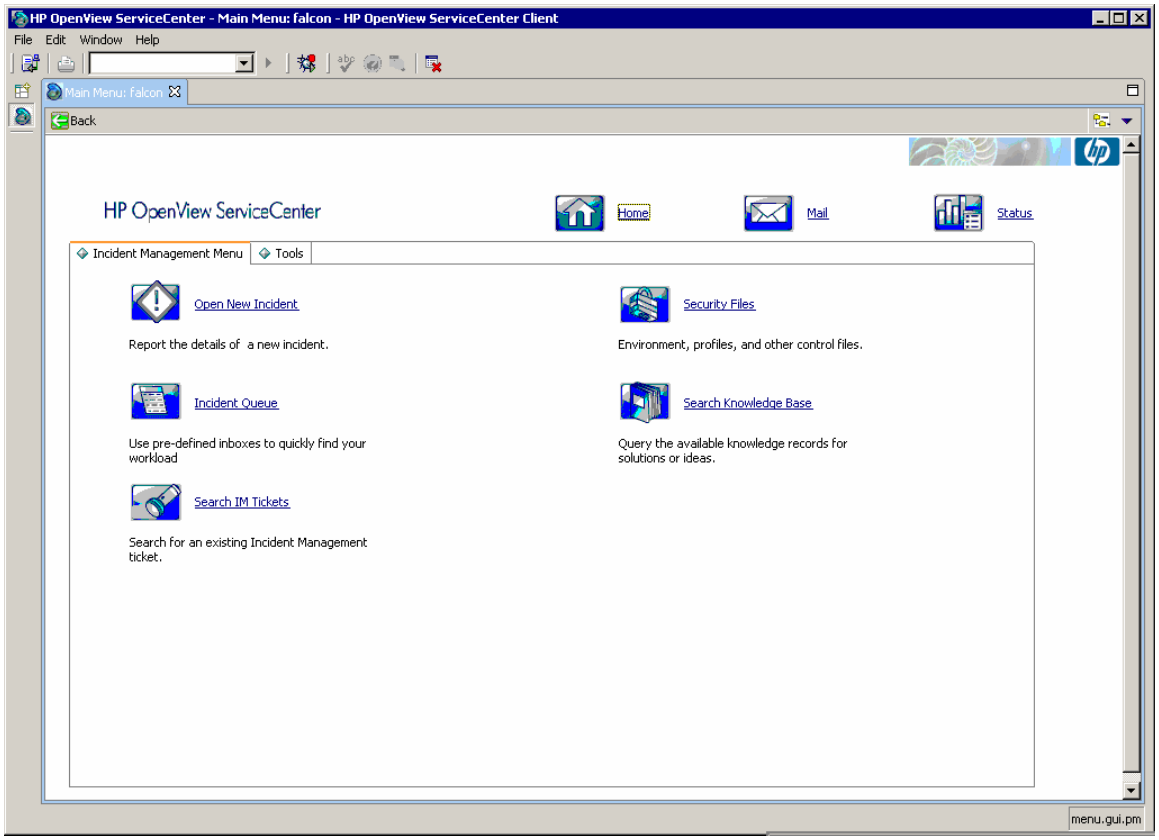
Knowledge Management

Knowledge-Centered Support functions

Switch from vuser_init to **Action** in the LoadRunner recording control bar before you continue.



Perform all your planned activities in ServiceCenter. In the sample screen shot, the user has navigated into the Incident Management Menu where he can open, search, or update Incident Management tickets.


HP OpenView ServiceCenter - Main Menu: falcon - HP OpenView ServiceCenter Client
File
Edit
Window
Help
Main Menu: falcon
Back
HP OpenView ServiceCenter
Home
Mail
Status
Incident Management Menu
Tools
menu.gui.pm

Open New Incident

Report the details of a new incident.

Security Files

Environment, profiles, and other control files.

Incident Queue

Use pre-defined inboxes to quickly find your workload

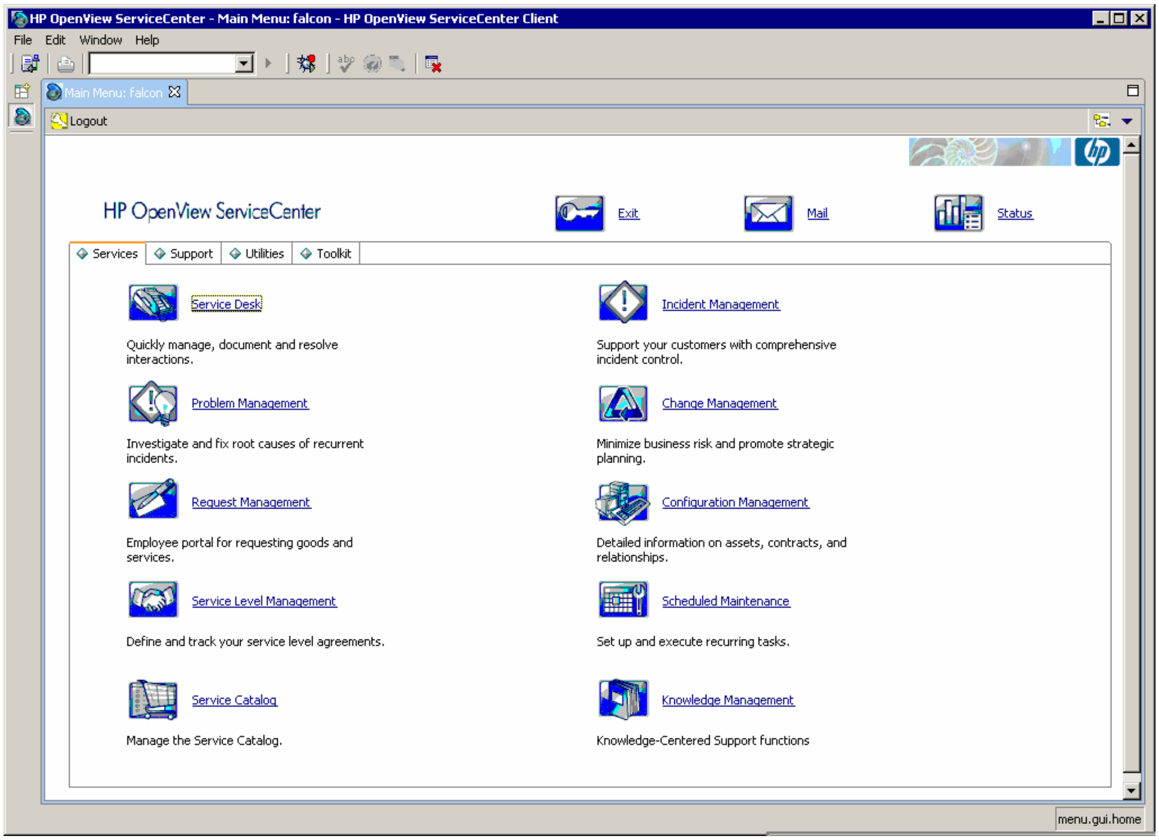
Search Knowledge Base

Query the available knowledge records for solutions or ideas.

Search IM Tickets

Search for an existing Incident Management ticket.

Important: Once the planned activities in ServiceCenter are completed, be sure to navigate back to the Home menu. Doing this will facilitate easier script iteration and modification in the future.


HP OpenView ServiceCenter - Main Menu: falcon - HP OpenView ServiceCenter Client
File
Edit
Window
Help
Main Menu: falcon
Logout
HP OpenView ServiceCenter
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menu.gui.home

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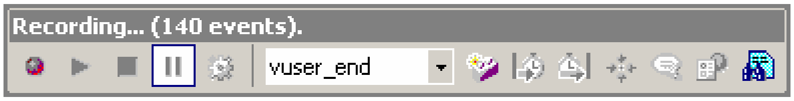
Knowledge Management

Knowledge-Centered Support functions

Once back at the ServiceCenter Home Menu, switch the script module from Action to **vuser_end** in the LoadRunner control bar.

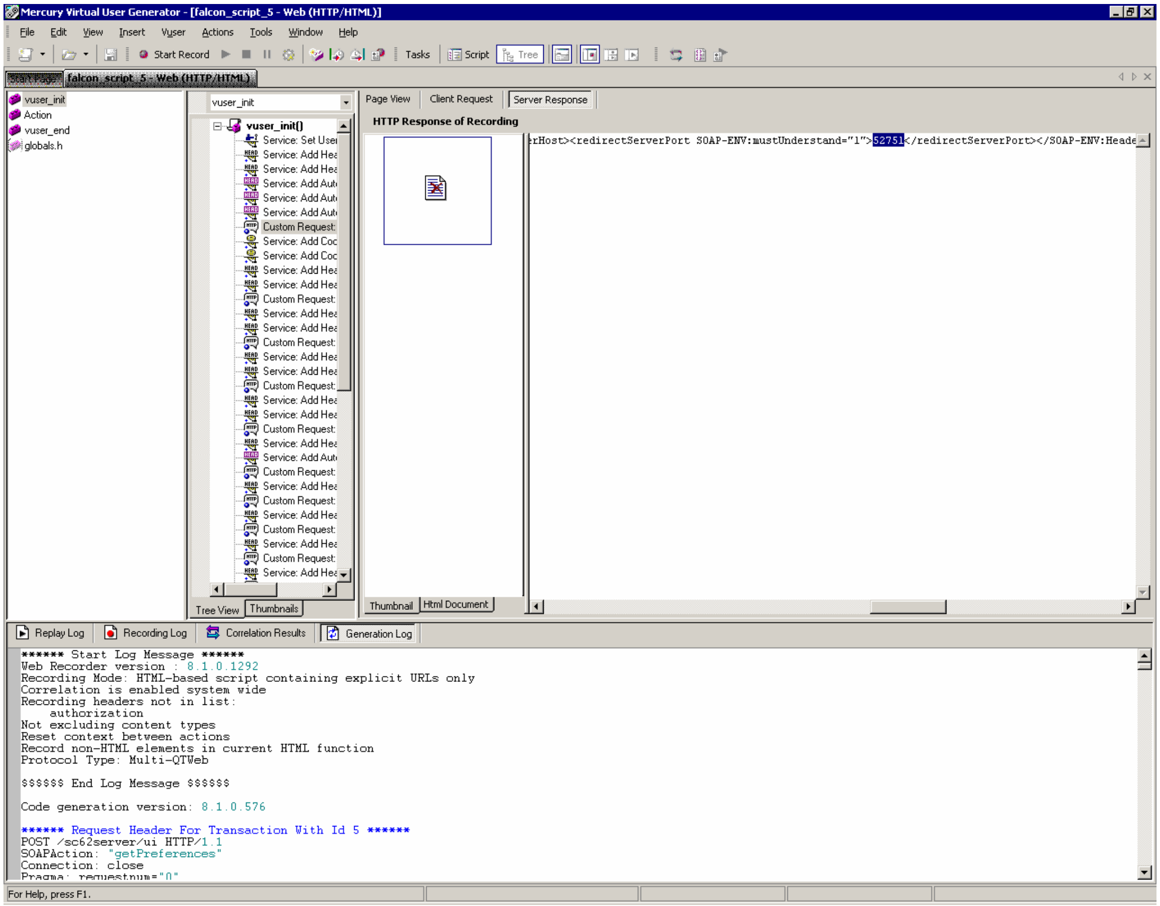


Click **Logout** twice to log out of ServiceCenter.

Select **Stop** in the LoadRunner recording control bar.

Editing the recorded script prior to playback:

Save the newly recorded script and enter Tree View.



```
rHost><redirectServerPort SOAP-ENV:mustUnderstand="1">52751</redirectServerPort></SOAP-ENV:Heade
```

```
****** Start Log Message ******
Web Recorder version : 8.1.0.1292
Recording Mode: HTML-based script containing explicit URLs only
Correlation is enabled system wide
Recording headers not in list:
    authorization
Not excluding content types
Reset context between actions
Record non-HTML elements in current HTML function
Protocol Type: Multi-QTWeb

$$$$$$ End Log Message $$$$$$

Code generation version: 8.1.0.576

****** Request Header For Transaction With Id 5 ******
POST /sc62server/ui HTTP/1.1
SOAPAction: "getPreferences"
Connection: close
Pragma: requestnum="0"
```

Navigate to the first **CustomRequest:ui** in the vuser_init() tree.

Scroll across the response tab until you find the server redirect port which will look something like this:

```
<redirectServerPort SOAP-
ENV:mustUnderstand="1">52751</redirectServerPort>
```

Highlight the port number (in this case 52751).

Right click on the highlighted text.

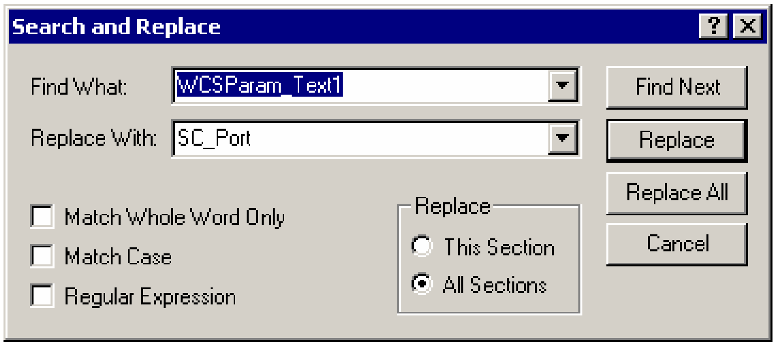
Click on **Create Parameter**

Click **Yes** when asked if you want to replace all values.

Return to script view.

Find the comment that was added to annotate the new parameter.

```
// [WCSPARAM WCSParam_Text1 5 52751] Parameter {WCSParam_Text1} created
by Correlation Studio
```



Search and Replace

Find What: WCSParam_Text1

Replace With: SC_Port

□ Match Whole Word Only

□ Match Case

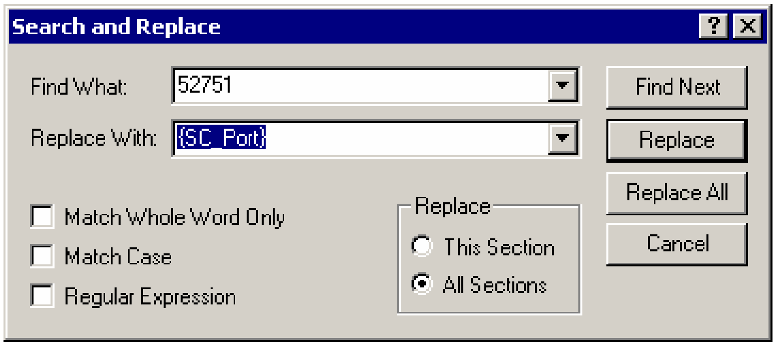
□ Regular Expression

Replace: ○ This Section ● All Sections

Replace the parameter with a more meaningful label, such as **SC_Port**.

Click **Replace All**. Check to make sure the replace was also done in the Action and vuser_end sections of the script.

If the change was not made go to the Action section:



Search and Replace

Find What: 52751

Replace With: {SC_Port}

□ Match Whole Word Only

□ Match Case

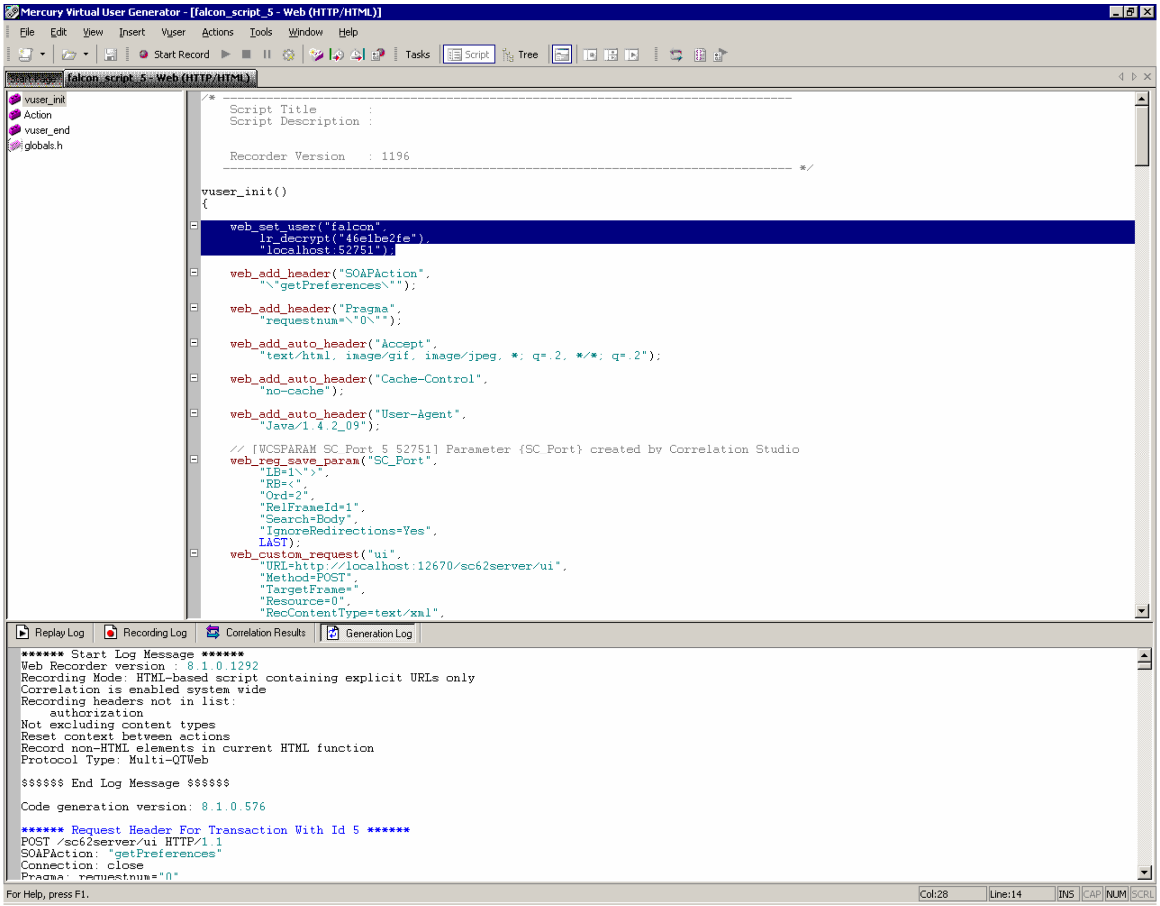
□ Regular Expression

Replace: ○ This Section ● All Sections

Make sure you have the curly brackets around **{SC_Port}** and click **Replace All**. Check to make sure the changes were also made to the vuser_end section.

Save the script.

Select the **web_set_user** entry and use cut/paste to move these three lines to a point immediately after the first custom request.



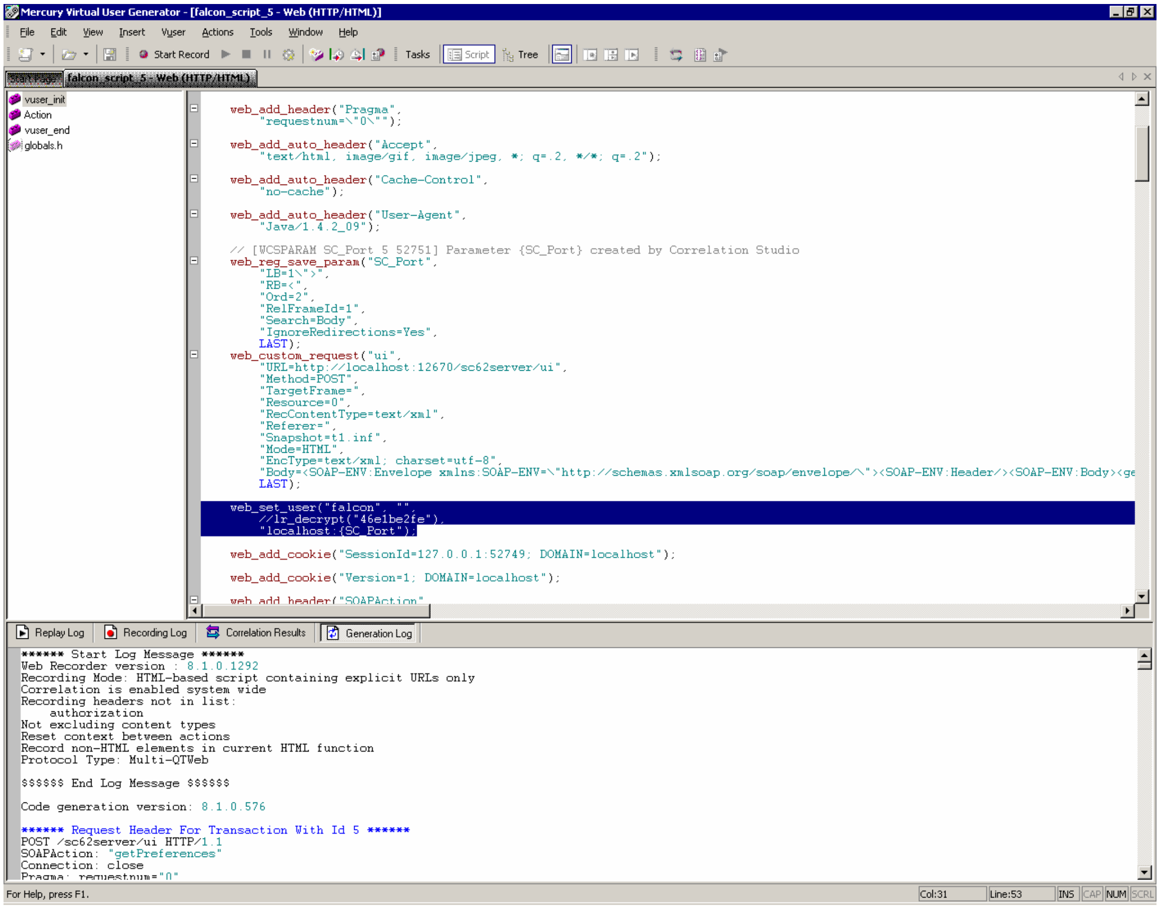
```
/* ----------------------------------------------------------------------------------------------
    Script Title        :
    Script Description  :


    Recorder Version    : 1196
   ---------------------------------------------------------------------------------------------- */

vuser_init()
{

    web_set_user("falcon",
        lr_decrypt("46e1be2fe"),
        "localhost:52751");

    web_add_header("SOAPAction",
        "\"getPreferences\"");

    web_add_header("Pragma",
        "requestnum=\"0\"");

    web_add_auto_header("Accept",
        "text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2");

    web_add_auto_header("Cache-Control",
        "no-cache");

    web_add_auto_header("User-Agent",
        "Java/1.4.2_09");

    // [WCSPARAM SC_Port 5 52751] Parameter {SC_Port} created by Correlation Studio
    web_reg_save_param("SC_Port",
        "LB=1\">",
        "RB=<",
        "Ord=2",
        "RelFrameId=1",
        "Search=Body",
        "IgnoreRedirections=Yes",
        LAST);
    web_custom_request("ui",
        "URL=http://localhost:12670/sc62server/ui",
        "Method=POST",
        "TargetFrame=",
        "Resource=0",
        "RecContentType=text/xml",
```

```
****** Start Log Message ******
Web Recorder version : 8.1.0.1292
Recording Mode: HTML-based script containing explicit URLs only
Correlation is enabled system wide
Recording headers not in list:
    authorization
Not excluding content types
Reset context between actions
Record non-HTML elements in current HTML function
Protocol Type: Multi-QTWeb

$$$$$$ End Log Message $$$$$$

Code generation version: 8.1.0.576

****** Request Header For Transaction With Id 5 ******
POST /sc62server/ui HTTP/1.1
SOAPAction: "getPreferences"
Connection: close
Pragma: requestnum="0"
```

Add **"",** to the end of the first of the three lines.

Comment out the second of the three lines.

Change the port number in the third line to **{SC_Port}**.



```
    web_add_header("Pragma",
        "requestnum=\"0\"");

    web_add_auto_header("Accept",
        "text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2");

    web_add_auto_header("Cache-Control",
        "no-cache");

    web_add_auto_header("User-Agent",
        "Java/1.4.2_09");

    // [WCSPARAM SC_Port 5 52751] Parameter {SC_Port} created by Correlation Studio
    web_reg_save_param("SC_Port",
        "LB=1\">",
        "RB=<",
        "Ord=2",
        "RelFrameId=1",
        "Search=Body",
        "IgnoreRedirections=Yes",
        LAST);
    web_custom_request("ui",
        "URL=http://localhost:12670/sc62server/ui",
        "Method=POST",
        "TargetFrame=",
        "Resource=0",
        "RecContentType=text/xml",
        "Referer=",
        "Snapshot=t1.inf",
        "Mode=HTML",
        "EncType=text/xml; charset=utf-8",
        "Body=<SOAP-ENV:Envelope xmlns:SOAP-ENV=\"http://schemas.xmlsoap.org/soap/envelope/\"><SOAP-ENV:Header/><SOAP-ENV:Body><ge
        LAST);

    web_set_user("falcon", "",
        //lr_decrypt("46e1be2fe"),
        "localhost:{SC_Port}");

    web_add_cookie("SessionId=127.0.0.1:52749; DOMAIN=localhost");

    web_add_cookie("Version=1; DOMAIN=localhost");

    web_add_header("SOAPAction",
```

```
****** Start Log Message ******
Web Recorder version : 8.1.0.1292
Recording Mode: HTML-based script containing explicit URLs only
Correlation is enabled system wide
Recording headers not in list:
    authorization
Not excluding content types
Reset context between actions
Record non-HTML elements in current HTML function
Protocol Type: Multi-QTWeb

$$$$$$ End Log Message $$$$$$

Code generation version: 8.1.0.576

****** Request Header For Transaction With Id 5 ******
POST /sc62server/ui HTTP/1.1
SOAPAction: "getPreferences"
Connection: close
Pragma: requestnum="0"
```

Example of the changes to perform:

Before

```
   web_set_user("falcon",
       lr_decrypt("46e1be2fe"),
       "localhost:52751");
```

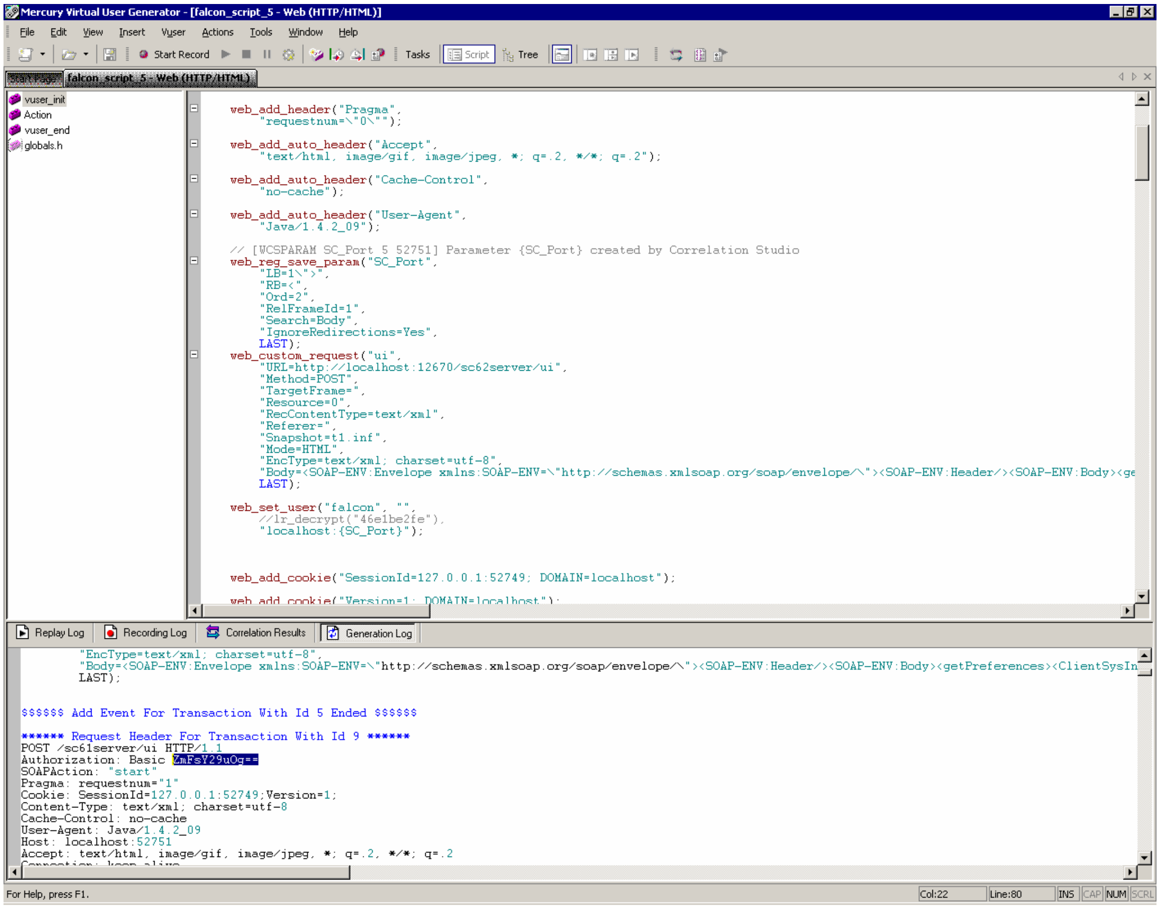
After

```
   web_set_user("falcon", "",
       //lr_decrypt("46e1be2fe"),
       "localhost:{SC_Port}");
```

Save the script.

Find **Authorization** in the Generation Log.

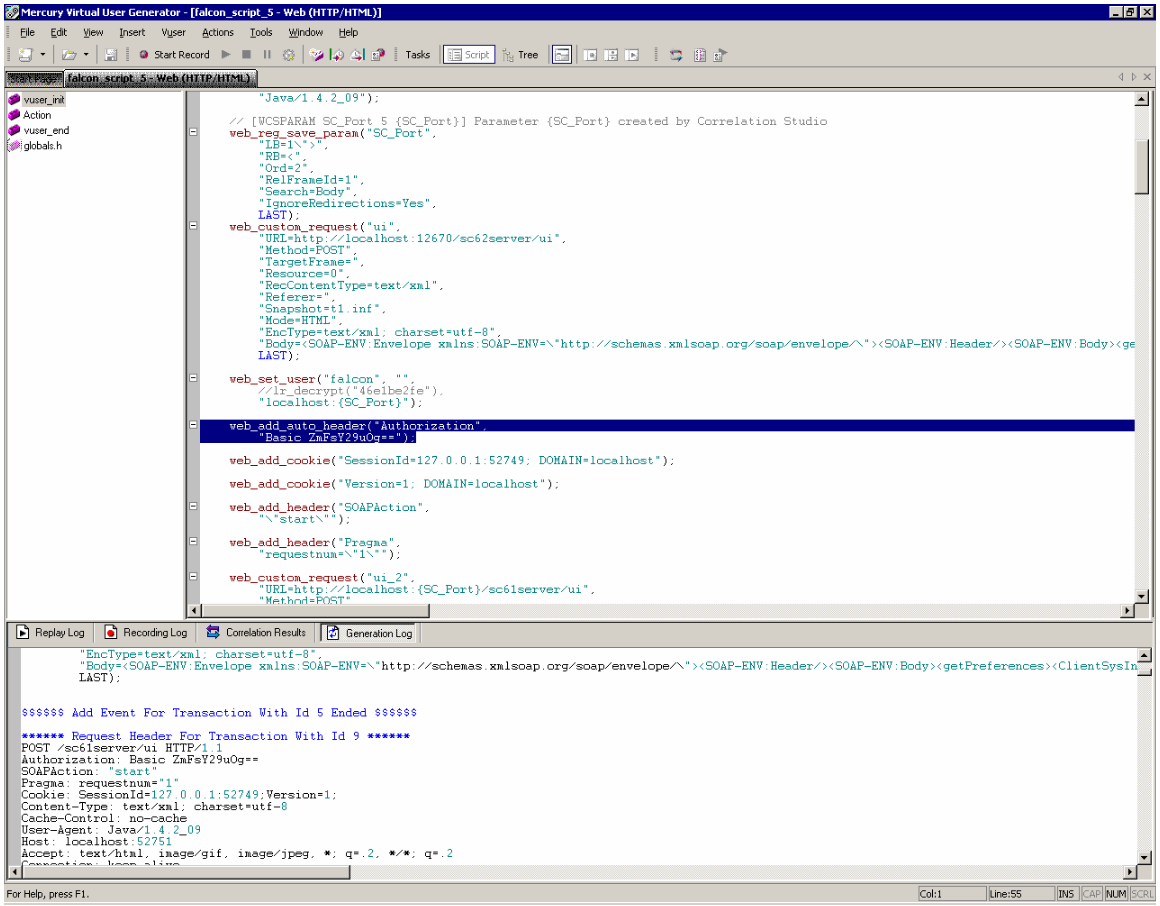
Copy the tag at the end of the line, in this case **Basic ZmFsY29uOg==**



```
    web_add_header("Pragma",
        "requestnum=\"0\"");

    web_add_auto_header("Accept",
        "text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2");

    web_add_auto_header("Cache-Control",
        "no-cache");

    web_add_auto_header("User-Agent",
        "Java/1.4.2_09");

    // [WCSPARAM SC_Port 5 52751] Parameter {SC_Port} created by Correlation Studio
    web_reg_save_param("SC_Port",
        "LB=1\">",
        "RB=<",
        "Ord=2",
        "RelFrameId=1",
        "Search=Body",
        "IgnoreRedirections=Yes",
        LAST);
    web_custom_request("ui",
        "URL=http://localhost:12670/sc62server/ui",
        "Method=POST",
        "TargetFrame=",
        "Resource=0",
        "RecContentType=text/xml",
        "Referer=",
        "Snapshot=t1.inf",
        "Mode=HTML",
        "EncType=text/xml; charset=utf-8",
        "Body=<SOAP-ENV:Envelope xmlns:SOAP-ENV=\"http://schemas.xmlsoap.org/soap/envelope/\"><SOAP-ENV:Header/><SOAP-ENV:Body><ge
        LAST);

    web_set_user("falcon", "",
        //lr_decrypt("46e1be2fe"),
        "localhost:{SC_Port}");



    web_add_cookie("SessionId=127.0.0.1:52749; DOMAIN=localhost");

    web_add_cookie("Version=1; DOMAIN=localhost");
```

```
        "EncType=text/xml; charset=utf-8",
        "Body=<SOAP-ENV:Envelope xmlns:SOAP-ENV=\"http://schemas.xmlsoap.org/soap/envelope/\"><SOAP-ENV:Header/><SOAP-ENV:Body><getPreferences><ClientSysIn
        LAST);

$$$$$$ Add Event For Transaction With Id 5 Ended $$$$$$

****** Request Header For Transaction With Id 9 ******
POST /sc61server/ui HTTP/1.1
Authorization: Basic ZmFsY29uOg==
SOAPAction: "start"
Pragma: requestnum="1"
Cookie: SessionId=127.0.0.1:52749;Version=1;
Content-Type: text/xml; charset=utf-8
Cache-Control: no-cache
User-Agent: Java/1.4.2_09
Host: localhost:52751
Accept: text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2
Connection: keep-alive
```

Use the above authorization value to create a new **web_add_auto_header** immediately following **web_set_user**:



```
        "Java/1.4.2_09");

    // [WCSPARAM SC_Port 5 {SC_Port}] Parameter {SC_Port} created by Correlation Studio
    web_reg_save_param("SC_Port",
        "LB=1\">",
        "RB=<",
        "Ord=2",
        "RelFrameId=1",
        "Search=Body",
        "IgnoreRedirections=Yes",
        LAST);
    web_custom_request("ui",
        "URL=http://localhost:12670/sc62server/ui",
        "Method=POST",
        "TargetFrame=",
        "Resource=0",
        "RecContentType=text/xml",
        "Referer=",
        "Snapshot=t1.inf",
        "Mode=HTML",
        "EncType=text/xml; charset=utf-8",
        "Body=<SOAP-ENV:Envelope xmlns:SOAP-ENV=\"http://schemas.xmlsoap.org/soap/envelope/\"><SOAP-ENV:Header/><SOAP-ENV:Body><ge
        LAST);

    web_set_user("falcon", "",
        //lr_decrypt("46e1be2fe"),
        "localhost:{SC_Port}");

    web_add_auto_header("Authorization",
        "Basic ZmFsY29uOg==");

    web_add_cookie("SessionId=127.0.0.1:52749; DOMAIN=localhost");

    web_add_cookie("Version=1; DOMAIN=localhost");

    web_add_header("SOAPAction",
        "\"start\"");

    web_add_header("Pragma",
        "requestnum=\"1\"");

    web_custom_request("ui_2",
        "URL=http://localhost:{SC_Port}/sc61server/ui",
        "Method=POST",
```

```
        "EncType=text/xml; charset=utf-8",
        "Body=<SOAP-ENV:Envelope xmlns:SOAP-ENV=\"http://schemas.xmlsoap.org/soap/envelope/\"><SOAP-ENV:Header/><SOAP-ENV:Body><getPreferences><ClientSysIn
        LAST);


$$$$$$ Add Event For Transaction With Id 5 Ended $$$$$$

****** Request Header For Transaction With Id 9 ******
POST /sc61server/ui HTTP/1.1
Authorization: Basic ZmFsY29uOg==
SOAPAction: "start"
Pragma: requestnum="1"
Cookie: SessionId=127.0.0.1:52749;Version=1;
Content-Type: text/xml; charset=utf-8
Cache-Control: no-cache
User-Agent: Java/1.4.2_09
Host: localhost:52751
Accept: text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2
Connection: keep-alive
```

Example:

```
web_add_auto_header("Authorization",
      "Basic ZmFsY29uOg==");
```

Save the script.

Test the script by using the **Play** button in the toolbar of **VuGen**. Any errors will be logged in the Replay Log at the bottom of the VUGen interface.

Recording a script using the Windows Client connecting to the servlet listener:

Overview

- The login should be recorded into vuser_init.
- The activities in the script should be recorded into Action at a minimum.
- The activities should include a shutdown of all tabs and return to the same point where recording of Action began – the user's startup screen.
- The logout should be recorded into vuser_end.

Note: These are the minimum recommendations for scripting. The user is free to create multiple action-based sections.

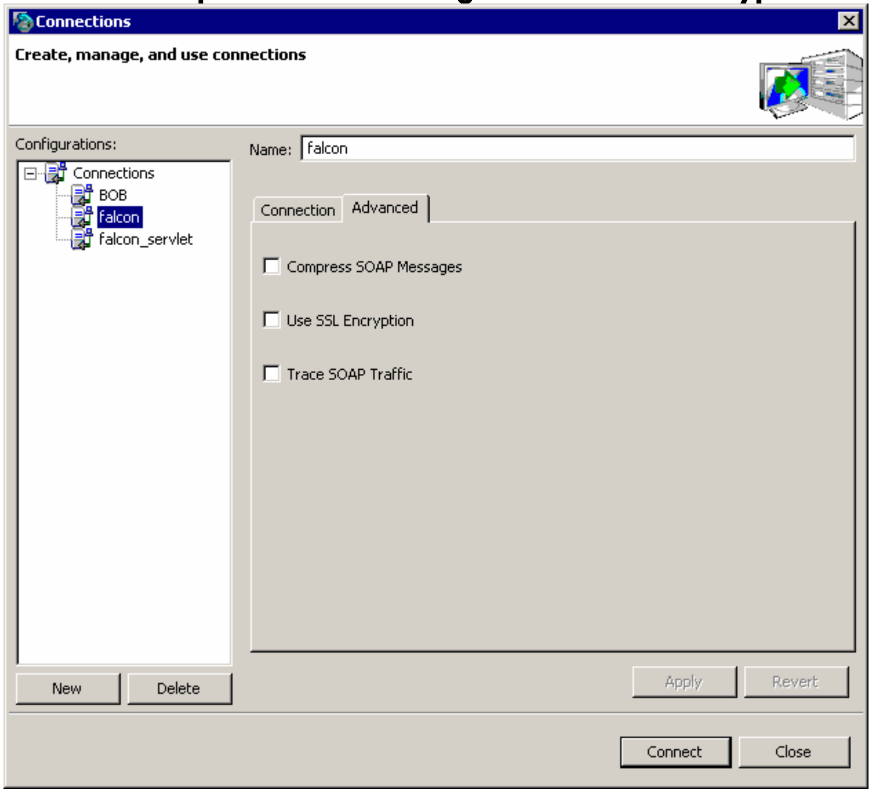
Pre-Recording Setup

- Prior to starting the ServiceCenter server, **recordtestscript:1** needs to be added to the sc.ini file.
- Servicecenter.exe program arguments are **-data workspace -vmargs -Xmx128M -DFastInfoset=false**

- For successful recording of script actions, SOAP Compression and SSL Encryption must be turned off in the client.

  To turn off these settings, launch the ServiceCenter client and open the **Connection Manager**. Go to the **Advanced** tab for the connection you will be using.

  Uncheck **Compress SOAP Messages** and **Use SSL Encryption** to turn these options **off**.



Name: falcon

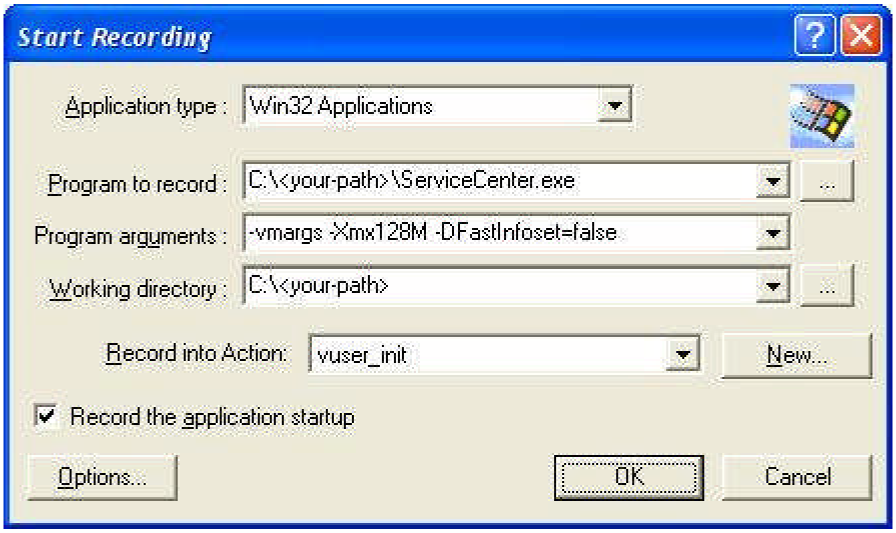
☐ Compress SOAP Messages

☐ Use SSL Encryption

☐ Trace SOAP Traffic

Click **Apply**.

In the LoadRunner Virtual User Generator, select **Start Record** from the Toolbar. Enter the correct path to the ServiceCenter.exe, program arguments, and working directory.



Application type : Win32 Applications

Program to record : C:\<your-path>\ServiceCenter.exe

Program arguments : -vmargs -Xmx128M -DFastInfoset=false

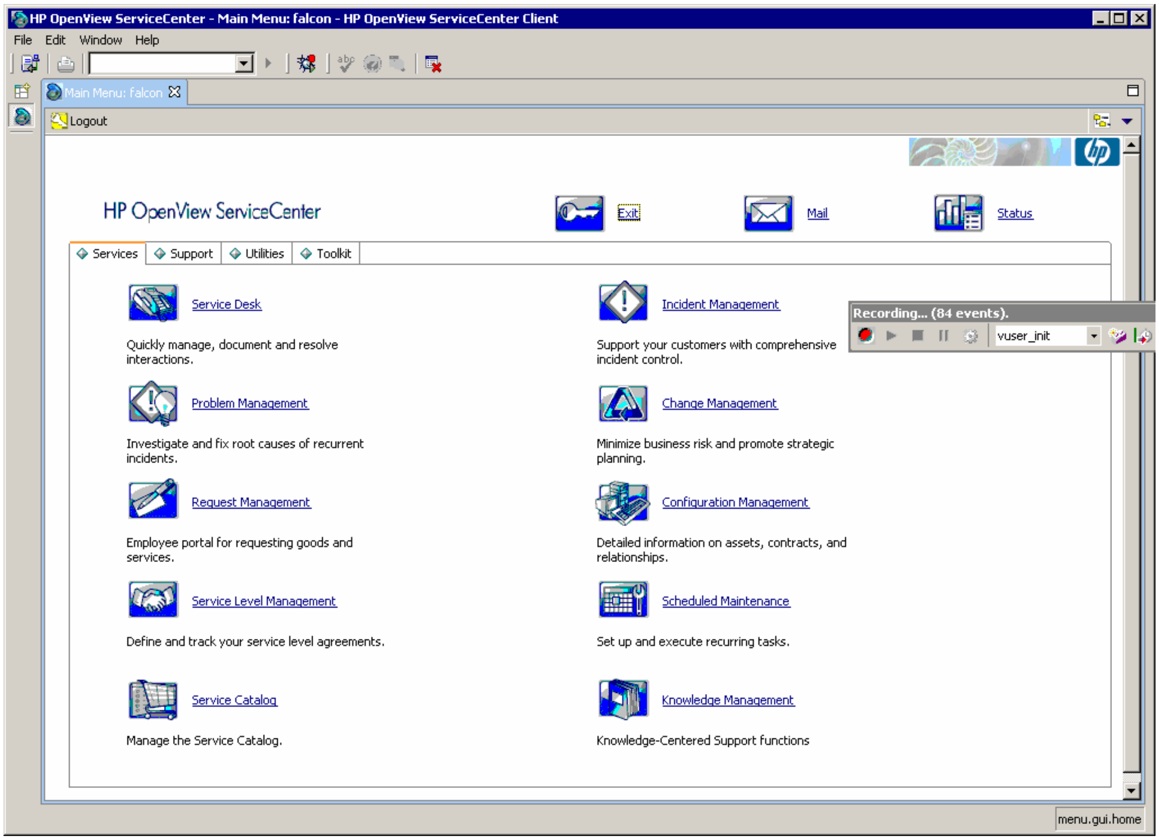
Working directory : C:\<your-path>

Record into Action: vuser_init

☑ Record the application startup

Click **OK** to begin recording.

Take note of the screen at the time of login – in this case the **Home** menu with the Services tab shown


HP OpenView ServiceCenter - Main Menu: falcon - HP OpenView ServiceCenter Client
File
Edit
Window
Help
Main Menu: falcon
Logout
HP OpenView ServiceCenter
Exit
Mail
Status
Services
Support
Utilities
Toolkit
Recording... (84 events).
vuser_init
menu.gui.home

Service Desk

Quickly manage, document and resolve interactions.

Incident Management

Support your customers with comprehensive incident control.

Problem Management

Investigate and fix root causes of recurrent incidents.

Change Management

Minimize business risk and promote strategic planning.

Request Management

Employee portal for requesting goods and services.

Configuration Management

Detailed information on assets, contracts, and relationships.

Service Level Management

Define and track your service level agreements.

Scheduled Maintenance

Set up and execute recurring tasks.

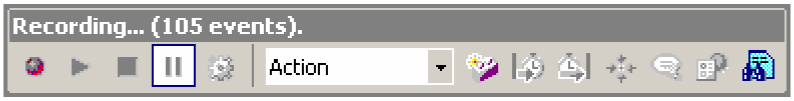
Service Catalog

Manage the Service Catalog.

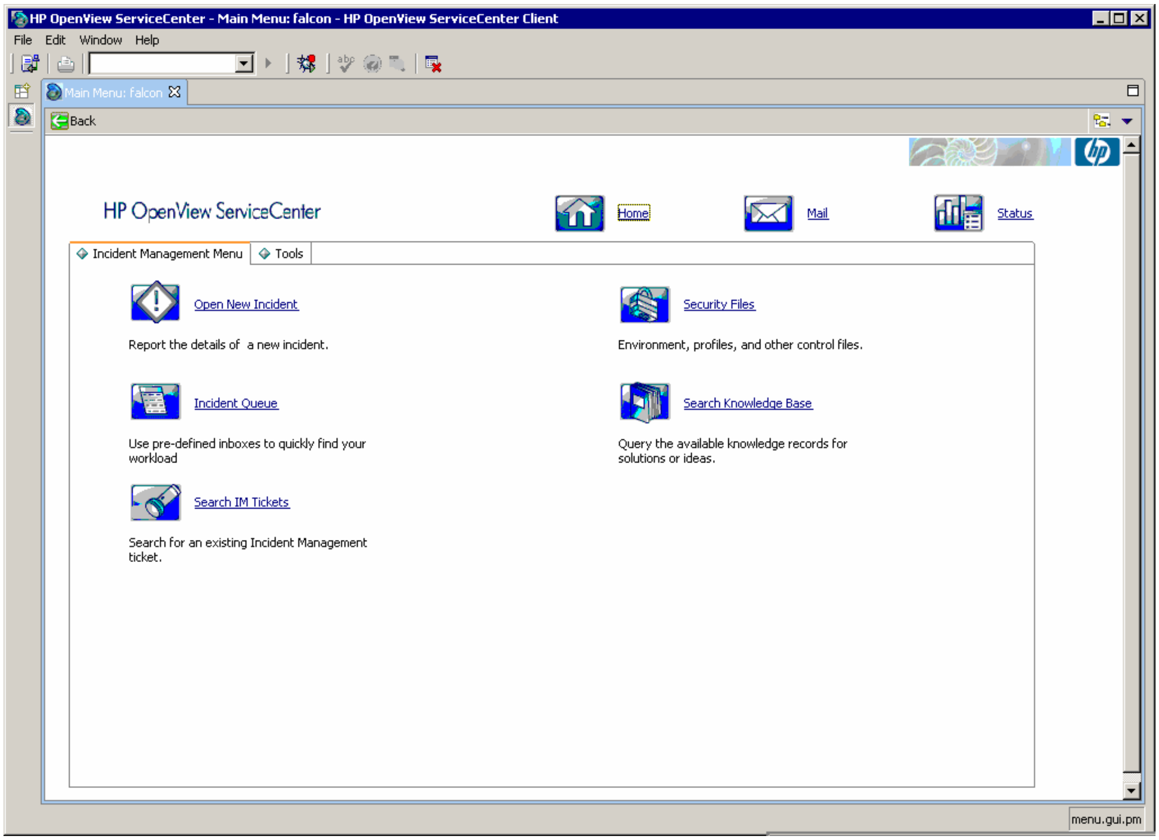
Knowledge Management

Knowledge-Centered Support functions

Switch from vuser_init to **Action** in the LoadRunner recording control bar.



Perform your planned activities in ServiceCenter. In this sample screen shot, the user has navigated into the Incident Management Menu where he can open, search, or update Incident Management tickets.


HP OpenView ServiceCenter - Main Menu: falcon - HP OpenView ServiceCenter Client
File Edit Window Help
Main Menu: falcon
Back
HP OpenView ServiceCenter
Home
Mail
Status
Incident Management Menu
Tools
menu.gui.pm

Open New Incident

Report the details of a new incident.

Security Files

Environment, profiles, and other control files.

Incident Queue

Use pre-defined inboxes to quickly find your workload

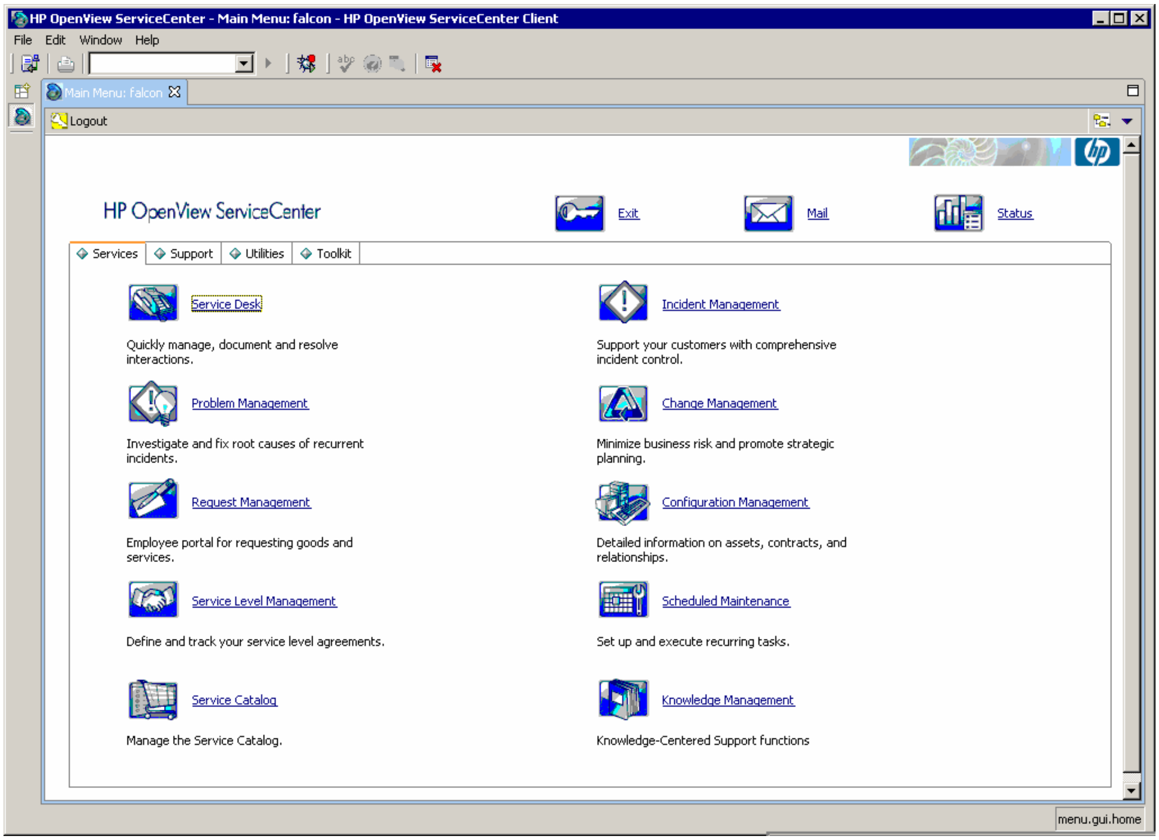
Search Knowledge Base

Query the available knowledge records for solutions or ideas.

Search IM Tickets

Search for an existing Incident Management ticket.

Once the planned activities in ServiceCenter are completed, be sure to navigate back to the home menu screen. Doing this will facilitate easier script iteration and modification in the future.


HP OpenView ServiceCenter - Main Menu: falcon - HP OpenView ServiceCenter Client
File Edit Window Help
Main Menu: falcon
Logout
HP OpenView ServiceCenter
Exit
Mail
Status
Services
Support
Utilities
Toolkit
menu.gui.home

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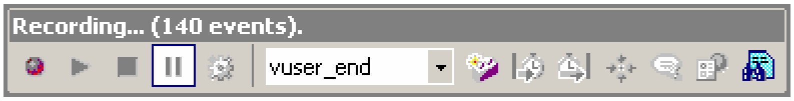
Knowledge Management

Knowledge-Centered Support functions

Once back at the ServiceCenter Home menu, switch the script module from Action to **vuser_end** in the LoadRunner control bar.



Click **Logout** twice to log out of ServiceCenter.

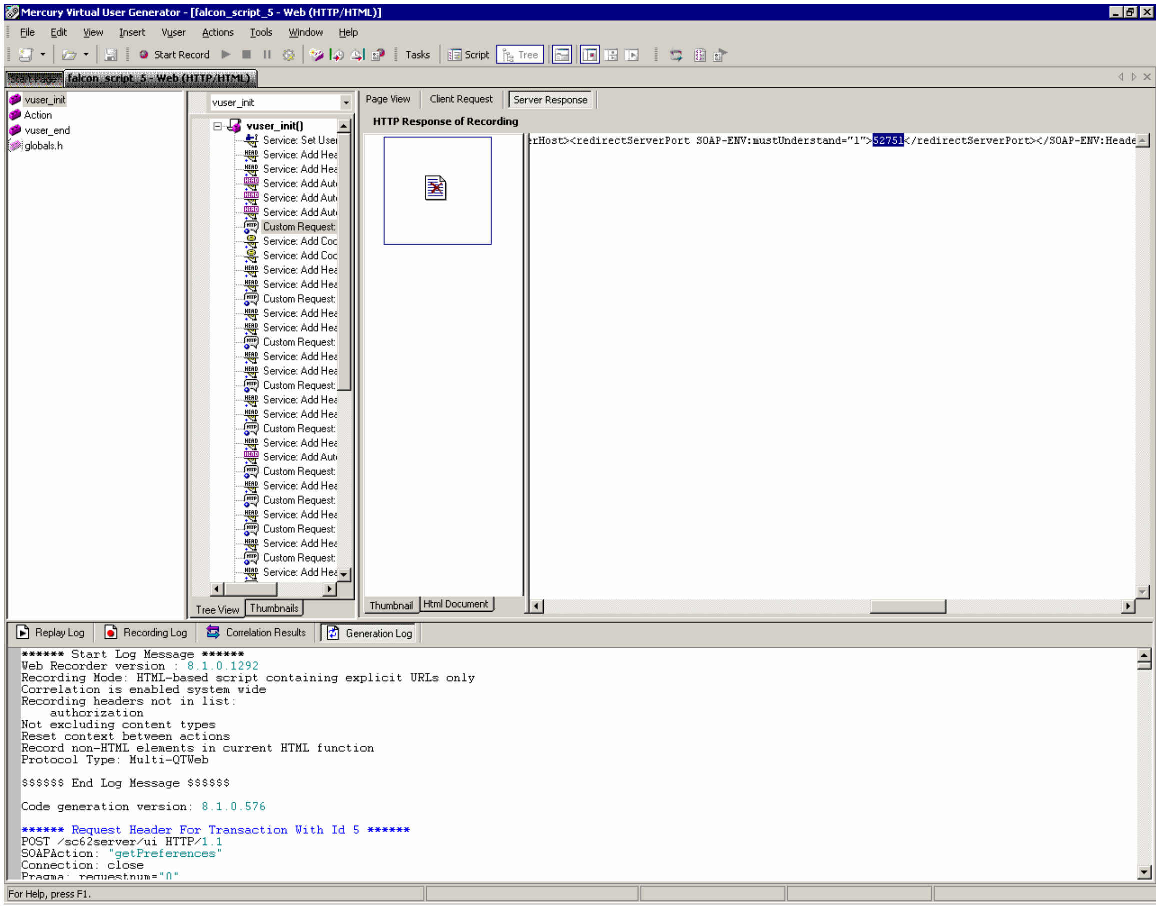
Select **Stop** in the LoadRunner recording control bar.

Editing the recorded script prior to playback

The initial script editing steps differ depending on whether the system is configured for single servlet or multi-servlet, or clustered mode operation. After these initial changes for each mode are done, the remaining steps are identical and start with the heading *Common Script Changes*.

Vertical Scaling – Single and Multi Servlet:

Save the previously recorded script and enter **Tree View**.



```
erHost><redirectServerPort SOAP-ENV:mustUnderstand="1">52751</redirectServerPort></SOAP-ENV:Heade
```

```
****** Start Log Message ******
Web Recorder version : 8.1.0.1292
Recording Mode: HTML-based script containing explicit URLs only
Correlation is enabled system wide
Recording headers not in list:
    authorization
Not excluding content types
Reset context between actions
Record non-HTML elements in current HTML function
Protocol Type: Multi-QTWeb

$$$$$$ End Log Message $$$$$$

Code generation version: 8.1.0.576

****** Request Header For Transaction With Id 5 ******
POST /sc62server/ui HTTP/1.1
SOAPAction: "getPreferences"
Connection: close
Pragma: requestnum="0"
```

Navigate to the first **CustomRequest:ui** in the vuser_init() tree.

Scroll across the response tab until you find the server redirect port which will look something like this:

```
<redirectServerPort SOAP-
ENV:mustUnderstand="1">52751</redirectServerPort>
```

Highlight the port number (in this case 52751).

Right click on the highlighted text.

Select the context menu option **Create Parameter**

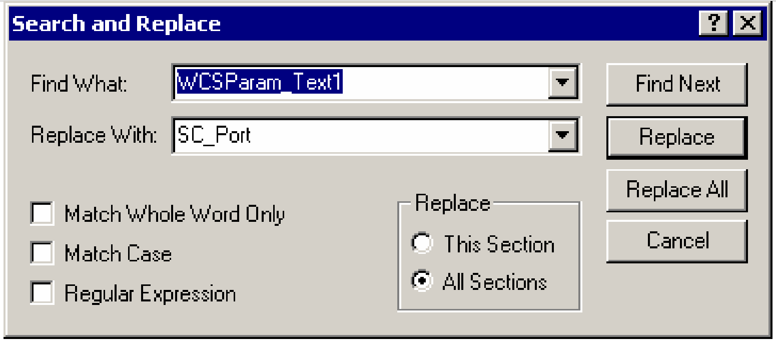
Click **Yes** when asked if you want to replace all values.

Do the same steps for the **redirectServerHost**.

Return to the script view.

Find the comment that was added to annotate the new parameter.

```
// [WCSPARAM WCSParam_Text1 5 52751] Parameter {WCSParam_Text1} created
by Correlation Studio
```



Find What: WCSParam_Text1

Replace With: SC_Port

□ Match Whole Word Only

□ Match Case

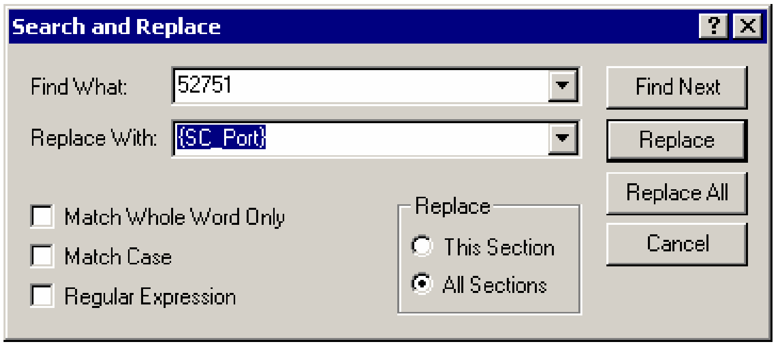
□ Regular Expression

Replace: ○ This Section ● All Sections

Replace the parameter with a more meaningful label, such as **SC_Port**.

Click **Replace All**.

Verify that the replace was also done in the Action and vuser_end sections of the script. If the change was not made go to the Action section



Find What: 52751

Replace With: {SC_Port}

□ Match Whole Word Only

□ Match Case

□ Regular Expression

Replace: ○ This Section ● All Sections

Make sure you have the curly brackets around **{SC_Port}** and click **Replace All**. Verify the changes were also made to the vuser_end section.

Save the script.

Horizontal Scaling (also called cluster mode):

Note: There is currently as issue with how LoadRunner 8.1 is handling HTTP 307 return codes. Due to this a small amount of manual scripting must be done when scripting against a system running in Horizontal Scaling mode.

1. Add a line to the script that instructs LoadRunner to not perform the redirect action automatically. The following line is added between the last 'web_add_auto_header' and the first 'web_custom_request'.

```
web_add_filter("Action=Exclude", "QueryPrefix=lbHost", LAST);
```

2. Manually add the Parameters for the Load Balancer host and port and servlet host and port as in the below example:

```
// [WCSPARAM SM_Host 27 servername.serverdomain.com] Parameter {SC_Host}
   web_reg_save_param("SC_Host",
      "LB=Location: http://",
      "RB=:",
      "Search=Headers",
      "IgnoreRedirections=No",
      LAST);
// [WCSPARAM SM_Port 5 52751] Parameter {SC_Port}
   web_reg_save_param("SC_Port",
      "LB=:",
      "RB=/sc62server",
      "Search=Headers",
      "IgnoreRedirections=No",
      LAST);
// [WCSPARAM LB_Host 27 servername.serverdomain.com] Parameter {LB_Host}
   web_reg_save_param("LB_Host",
      "LB=lbHost=",
      "RB=&",
      "Search=Headers",
      "IgnoreRedirections=No",
      LAST);
// [WCSPARAM LB_Port 5 52571] Parameter {LB_Port}
   web_reg_save_param("LB_Port",
      "LB=lbPort=",
      "RB=\r\n",
      "Search=Headers",
      "IgnoreRedirections=No",
      LAST);
```

Note: A full explanation of all the Parameter options is available in the LoadRunner documentation.

The data used to build these parameters is in the server response to the first client request and can be found in the Generation Log.

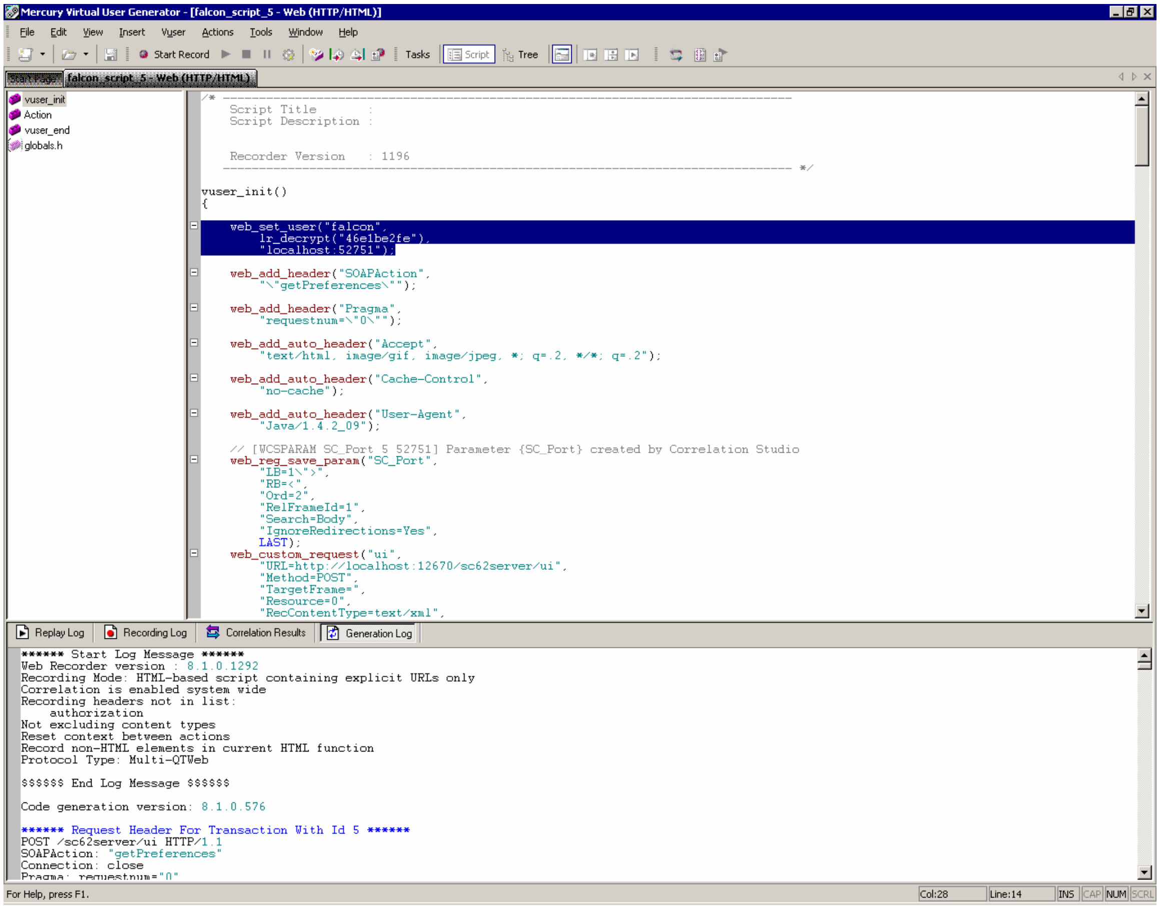
Using the **Search** function, find the first instance of **lbhost** and replace the value with **{LB_Host}** and replace the value of **lbport** with **{LB_Port}**. In both cases, make sure to select **All Sections** in the Search and Replace dialog box.

The same request that was found in the above step will also be the first place that needs the ServiceCenter server and port replaced. Replace the ServiceCenter server name with **{SC_Host}** and the ServiceCenter port number with **{SC_Port}**. In both cases, make sure to select **All Sections** in the Search and Replace dialog box.

Once the parameters above are created and placed throughout the script, the remaining steps are the same for both Horizontal and Vertical scaling.

Common Script Changes:

Select the **web_set_user** entry and use cut/paste to move these three lines to a point immediately after the first custom request.



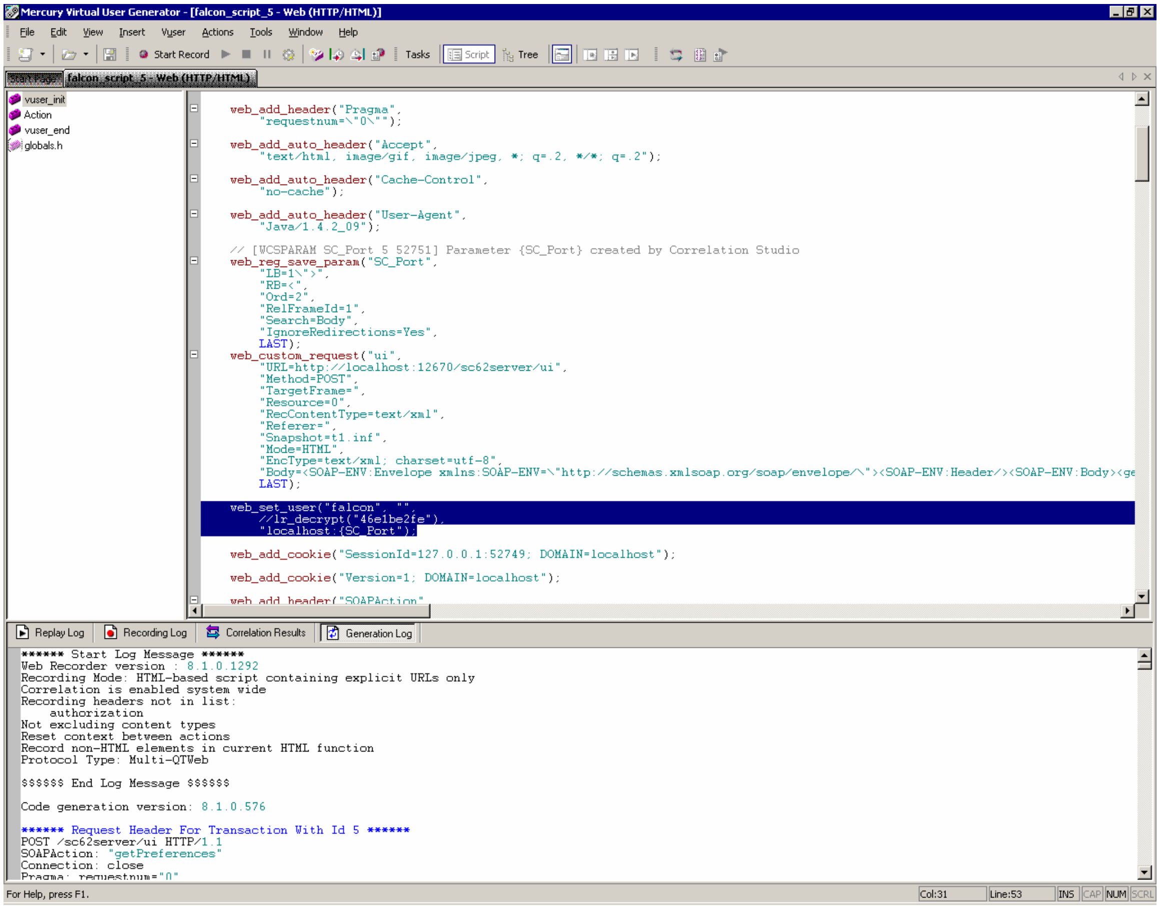
```
/* --------------------------------------------------------------------------------------------
    Script Title        :
    Script Description  :


    Recorder Version    : 1196
   -------------------------------------------------------------------------------------------- */

vuser_init()
{

    web_set_user("falcon",
        lr_decrypt("46e1be2fe"),
        "localhost:52751");

    web_add_header("SOAPAction",
        "\"getPreferences\"");

    web_add_header("Pragma",
        "requestnum=\"0\"");

    web_add_auto_header("Accept",
        "text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2");

    web_add_auto_header("Cache-Control",
        "no-cache");

    web_add_auto_header("User-Agent",
        "Java/1.4.2_09");

    // [WCSPARAM SC_Port 5 52751] Parameter {SC_Port} created by Correlation Studio
    web_reg_save_param("SC_Port",
        "LB=1\">",
        "RB=<",
        "Ord=2",
        "RelFrameId=1",
        "Search=Body",
        "IgnoreRedirections=Yes",
        LAST);
    web_custom_request("ui",
        "URL=http://localhost:12670/sc62server/ui",
        "Method=POST",
        "TargetFrame=",
        "Resource=0",
        "RecContentType=text/xml",
```

```
****** Start Log Message ******
Web Recorder version : 8.1.0.1292
Recording Mode: HTML-based script containing explicit URLs only
Correlation is enabled system wide
Recording headers not in list:
    authorization
Not excluding content types
Reset context between actions
Record non-HTML elements in current HTML function
Protocol Type: Multi-QTWeb

$$$$$$ End Log Message $$$$$$

Code generation version: 8.1.0.576

****** Request Header For Transaction With Id 5 ******
POST /sc62server/ui HTTP/1.1
SOAPAction: "getPreferences"
Connection: close
Pragma: requestnum="0"
```

Add **"",** to the end of the first of the three lines.

Comment out the second of the three lines.

Change the port number in the third line to **{SC_Port}**.



```
	web_add_header("Pragma",
		"requestnum=\"0\"");

	web_add_auto_header("Accept",
		"text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2");

	web_add_auto_header("Cache-Control",
		"no-cache");

	web_add_auto_header("User-Agent",
		"Java/1.4.2_09");

	// [WCSPARAM SC_Port 5 52751] Parameter {SC_Port} created by Correlation Studio
	web_reg_save_param("SC_Port",
		"LB=1\">",
		"RB=<",
		"Ord=2",
		"RelFrameId=1",
		"Search=Body",
		"IgnoreRedirections=Yes",
		LAST);
	web_custom_request("ui",
		"URL=http://localhost:12670/sc62server/ui",
		"Method=POST",
		"TargetFrame=",
		"Resource=0",
		"RecContentType=text/xml",
		"Referer=",
		"Snapshot=t1.inf",
		"Mode=HTML",
		"EncType=text/xml; charset=utf-8",
		"Body=<SOAP-ENV:Envelope xmlns:SOAP-ENV=\"http://schemas.xmlsoap.org/soap/envelope/\"><SOAP-ENV:Header/><SOAP-ENV:Body><ge
		LAST);

	web_set_user("falcon", "",
		//lr_decrypt("46e1be2fe"),
		"localhost:{SC_Port}");

	web_add_cookie("SessionId=127.0.0.1:52749; DOMAIN=localhost");

	web_add_cookie("Version=1; DOMAIN=localhost");

	web_add_header("SOAPAction",
```

```
****** Start Log Message ******
Web Recorder version : 8.1.0.1292
Recording Mode: HTML-based script containing explicit URLs only
Correlation is enabled system wide
Recording headers not in list:
    authorization
Not excluding content types
Reset context between actions
Record non-HTML elements in current HTML function
Protocol Type: Multi-QTWeb

$$$$$$ End Log Message $$$$$$

Code generation version: 8.1.0.576

****** Request Header For Transaction With Id 5 ******
POST /sc62server/ui HTTP/1.1
SOAPAction: "getPreferences"
Connection: close
Pragma: requestnum="0"
```

Here is an example of the changes:

Before

```
   web_set_user("falcon",
      lr_decrypt("46e1be2fe"),
      "localhost:52751");
```

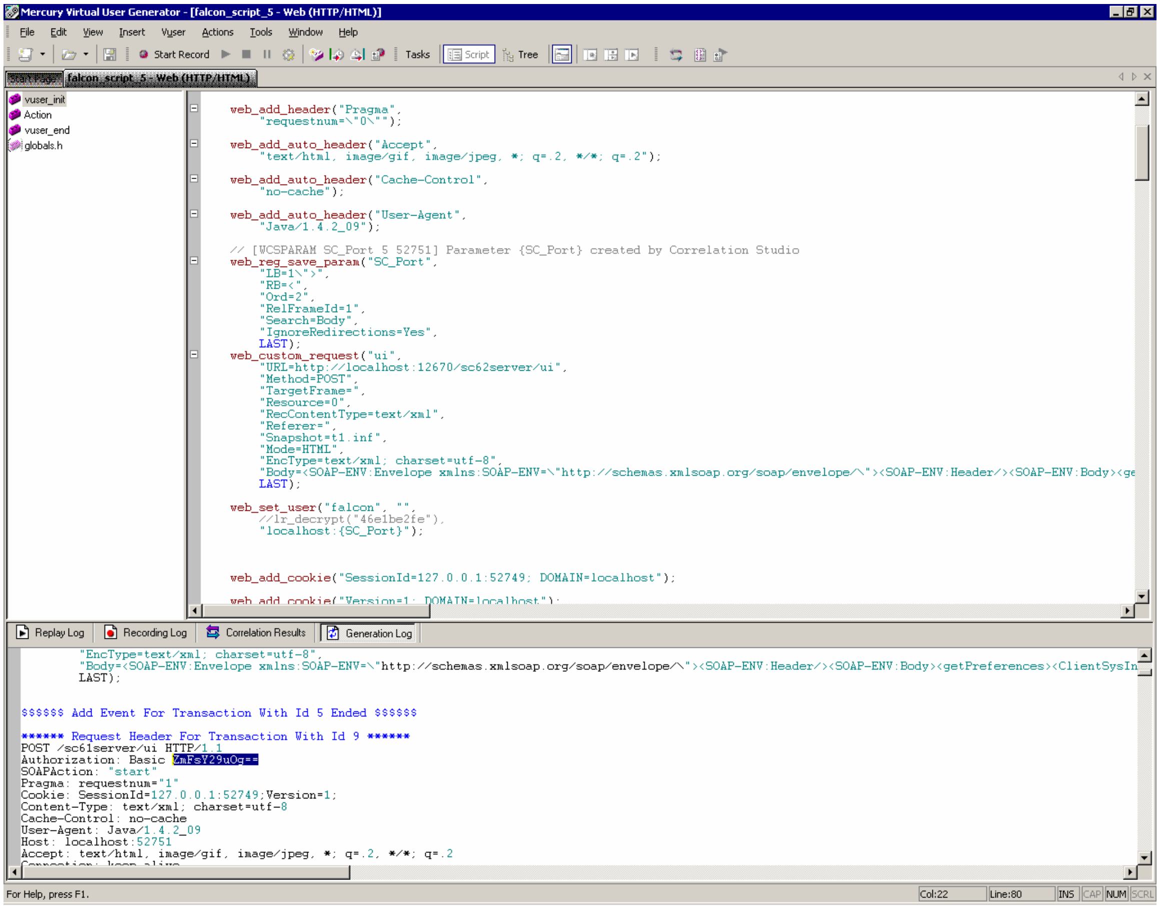
After

```
   web_set_user("falcon", "",
      //lr_decrypt("46e1be2fe"),
      "localhost:{SC_Port}");
```

Save the script.

Find **Authorization** in the Generation Log.

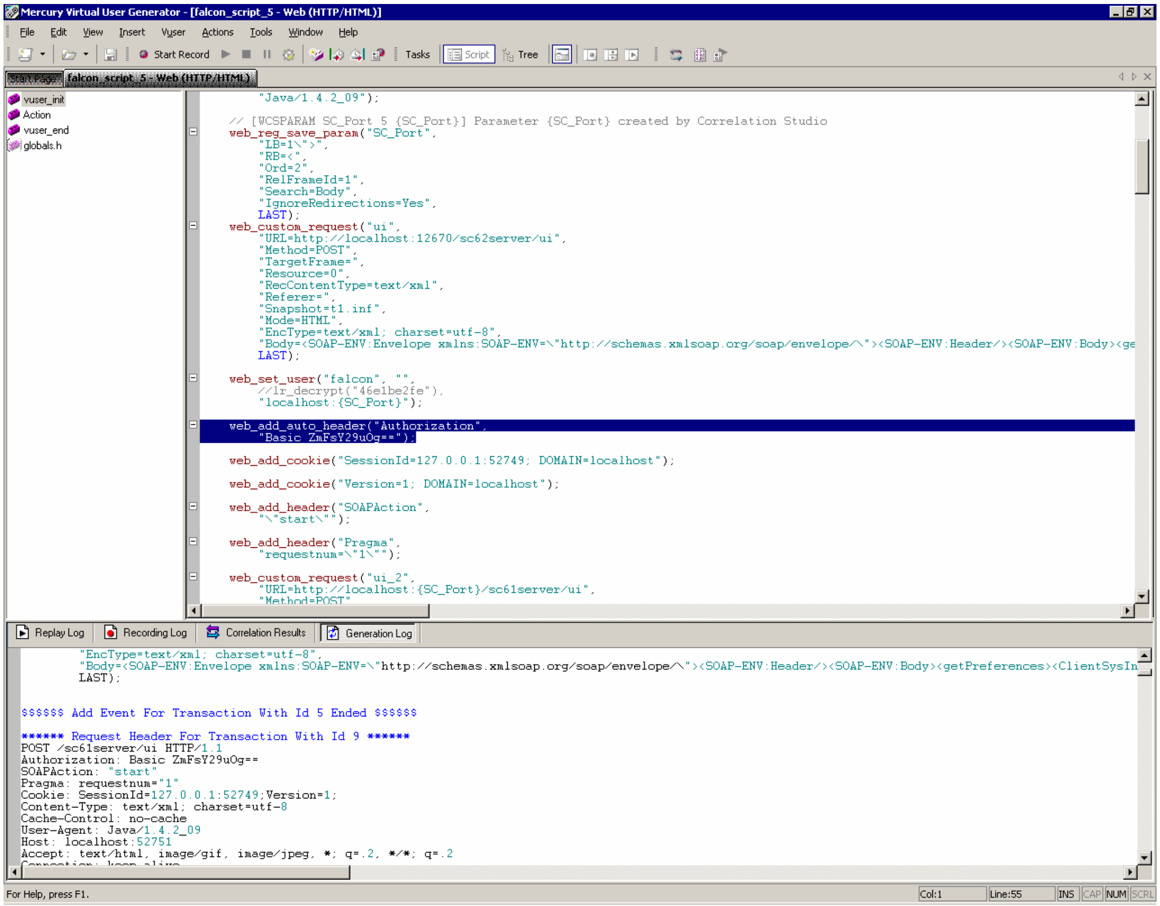
Copy the tag at the end of the line, in this case **Basic ZmFsY29uOg==**



```
    web_add_header("Pragma",
        "requestnum=\"0\"");

    web_add_auto_header("Accept",
        "text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2");

    web_add_auto_header("Cache-Control",
        "no-cache");

    web_add_auto_header("User-Agent",
        "Java/1.4.2_09");

    // [WCSPARAM SC_Port 5 52751] Parameter {SC_Port} created by Correlation Studio
    web_reg_save_param("SC_Port",
        "LB=1\">",
        "RB=<",
        "Ord=2",
        "RelFrameId=1",
        "Search=Body",
        "IgnoreRedirections=Yes",
        LAST);
    web_custom_request("ui",
        "URL=http://localhost:12670/sc62server/ui",
        "Method=POST",
        "TargetFrame=",
        "Resource=0",
        "RecContentType=text/xml",
        "Referer=",
        "Snapshot=t1.inf",
        "Mode=HTML",
        "EncType=text/xml; charset=utf-8",
        "Body=<SOAP-ENV:Envelope xmlns:SOAP-ENV=\"http://schemas.xmlsoap.org/soap/envelope/\"><SOAP-ENV:Header/><SOAP-ENV:Body><ge
        LAST);

    web_set_user("falcon", "",
        //lr_decrypt("46e1be2fe"),
        "localhost:{SC_Port}");



    web_add_cookie("SessionId=127.0.0.1:52749; DOMAIN=localhost");

    web_add_cookie("Version=1; DOMAIN=localhost");
```

```
        "EncType=text/xml; charset=utf-8",
        "Body=<SOAP-ENV:Envelope xmlns:SOAP-ENV=\"http://schemas.xmlsoap.org/soap/envelope/\"><SOAP-ENV:Header/><SOAP-ENV:Body><getPreferences><ClientSysIn
        LAST);

$$$$$$ Add Event For Transaction With Id 5 Ended $$$$$$

****** Request Header For Transaction With Id 9 ******
POST /sc61server/ui HTTP/1.1
Authorization: Basic ZmFsY29uOg==
SOAPAction: "start"
Pragma: requestnum="1"
Cookie: SessionId=127.0.0.1:52749;Version=1;
Content-Type: text/xml; charset=utf-8
Cache-Control: no-cache
User-Agent: Java/1.4.2_09
Host: localhost:52751
Accept: text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2
Connection: keep-alive
```

Use the above Authorization value to create a new **web_add_auto_header** immediately following web_set_user:



```
        "Java/1.4.2_09");

    // [WCSPARAM SC_Port 5 {SC_Port}] Parameter {SC_Port} created by Correlation Studio
    web_reg_save_param("SC_Port",
        "LB=1\">",
        "RB=<",
        "Ord=2",
        "RelFrameId=1",
        "Search=Body",
        "IgnoreRedirections=Yes",
        LAST);
    web_custom_request("ui",
        "URL=http://localhost:12670/sc62server/ui",
        "Method=POST",
        "TargetFrame=",
        "Resource=0",
        "RecContentType=text/xml",
        "Referer=",
        "Snapshot=t1.inf",
        "Mode=HTML",
        "EncType=text/xml; charset=utf-8",
        "Body=<SOAP-ENV:Envelope xmlns:SOAP-ENV=\"http://schemas.xmlsoap.org/soap/envelope/\"><SOAP-ENV:Header/><SOAP-ENV:Body><ge
        LAST);

    web_set_user("falcon", "",
        //lr_decrypt("46e1be2fe"),
        "localhost:{SC_Port}");

    web_add_auto_header("Authorization",
        "Basic ZmFsY29uOg==");

    web_add_cookie("SessionId=127.0.0.1:52749; DOMAIN=localhost");

    web_add_cookie("Version=1; DOMAIN=localhost");

    web_add_header("SOAPAction",
        "\"start\"");

    web_add_header("Pragma",
        "requestnum=\"1\"");

    web_custom_request("ui_2",
        "URL=http://localhost:{SC_Port}/sc61server/ui",
        "Method=POST"
```

```
        "EncType=text/xml; charset=utf-8",
        "Body=<SOAP-ENV:Envelope xmlns:SOAP-ENV=\"http://schemas.xmlsoap.org/soap/envelope/\"><SOAP-ENV:Header/><SOAP-ENV:Body><getPreferences><ClientSysIn
        LAST);


$$$$$$ Add Event For Transaction With Id 5 Ended $$$$$$

****** Request Header For Transaction With Id 9 ******
POST /sc61server/ui HTTP/1.1
Authorization: Basic ZmFsY29uOg==
SOAPAction: "start"
Pragma: requestnum="1"
Cookie: SessionId=127.0.0.1:52749;Version=1;
Content-Type: text/xml; charset=utf-8
Cache-Control: no-cache
User-Agent: Java/1.4.2_09
Host: localhost:52751
Accept: text/html, image/gif, image/jpeg, *; q=.2, */*; q=.2
Connection: keep-alive
```

Here is an example:

```
web_add_auto_header("Authorization",
      "Basic ZmFsY29uOg==");
```

Save the script.

Test the script by using the **Play** button in the toolbar of **VuGen**. Any errors will be logged in the Replay Log at the bottom of the VUGen interface.

For more information

Please visit the HP Management Software support Web site at:

www.hp.com/go/hpsoftwaresupport

This Web site provides contact information and details about the products, services, and support that HP Management Software offers.

HP Management Software online software support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued customer, you can benefit by being able to:

- Search for knowledge documents of interest
- Submit and track progress on support cases
- Submit enhancement requests online
- Download software patches
- Manage a support contract
- Look up HP support contacts
- Review information about available services
- Enter discussions with other software customers
- Research and register for software training

Note: Most of the support areas require that you register as an HP Passport user and sign in. Many also require an active support contract.

To find more information about support access levels, go to the following URL:

http://www.hp.com/managementsoftware/access_level

To register for an HP Passport ID, go to the following URL:

http://www.managementsoftware.hp.com/passport-registration.html

11/2007