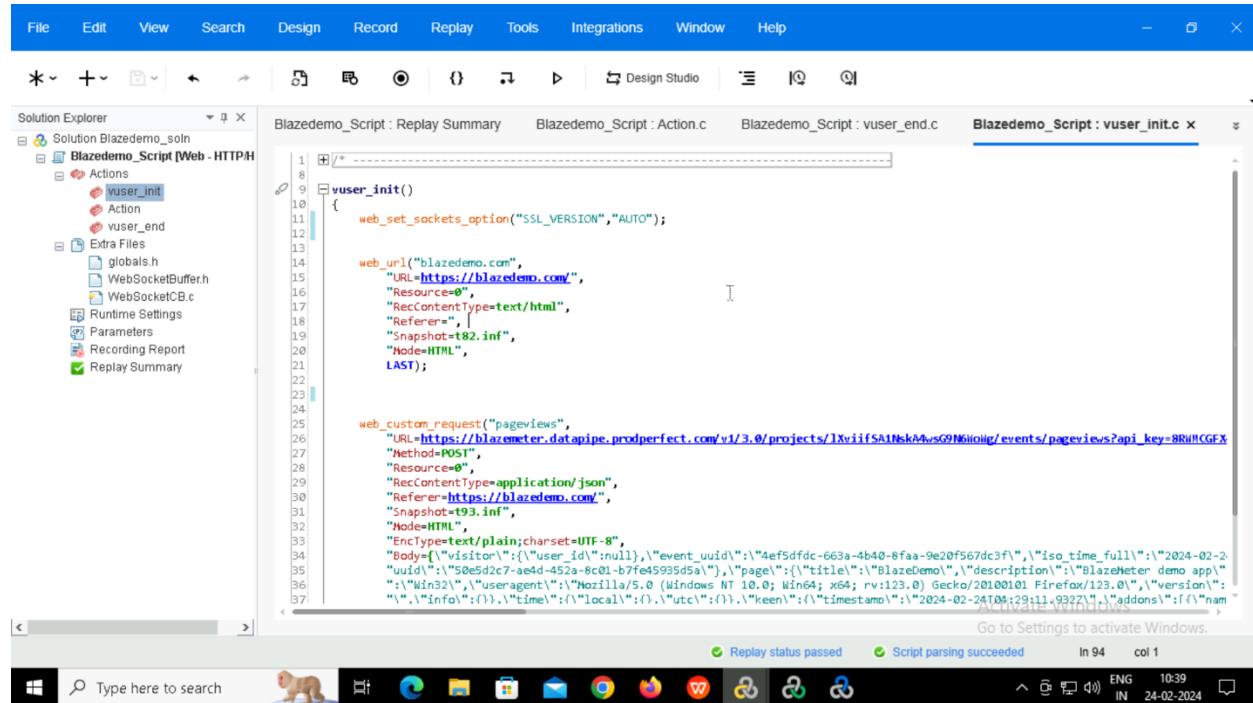


Performance Testing, Monitoring and Analysis with LoadRunner For BlazeDemo website

Designing Loadrunner to simulate realistic user scenarios, including loading the site, login in the user and logging out the user.

Creating Scripts in LoadRunner Vugen



The screenshot shows the LoadRunner Vugen interface. The menu bar includes File, Edit, View, Search, Design, Record, Replay, Tools, Integrations, Window, and Help. The toolbar has various icons for file operations. The main window has tabs for Replay Summary, Action.c, vuser_end.c, and vuser_init.c. The vuser_init.c tab is active, displaying C code for a web test. The code initializes sockets and performs a POST request to https://blazemeter.datapipe.prodperfect.com/v1/3.0/projects/1xviifSA1NskMwsG9Nkioig/events/pageviews?api_key=8RNHCGX. The Solution Explorer on the left shows the project structure: Blazemeter_Script [Web - HTTP/H] containing Actions (vuser_init, Action, vuser_end), Extra Files (globals.h, WebSocketBuffer.h, WebSocketCB.c), Runtime Settings, Parameters, Recording Report, and Replay Summary.

```
/* -----
 *-----*/
vuser_init()
{
    web_set_sockets_option("SSL_VERSION","AUTO");

    web_url("blazemeter.datapipe.prodperfect.com/v1/3.0/projects/1xviifSA1NskMwsG9Nkioig/events/pageviews?api_key=8RNHCGX",
        "URL=https://blazemeter.datapipe.prodperfect.com/v1/3.0/projects/1xviifSA1NskMwsG9Nkioig/events/pageviews?api_key=8RNHCGX",
        "Method=POST",
        "Resource=0",
        "RecContentType=text/html",
        "Referer=https://blazemeter.com",
        "Snapshot=t92.inf",
        "Mode=HTML",
        LAST);

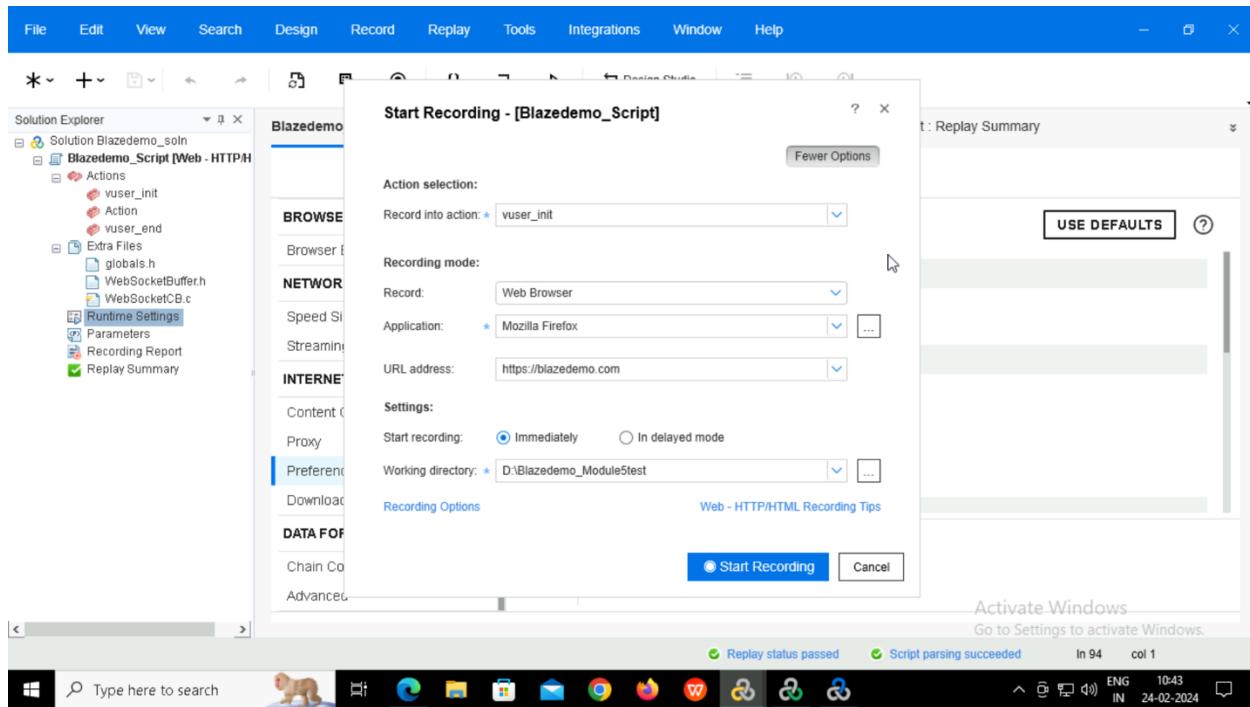
    web_custom_request("pageviews",
        "URL=https://blazemeter.datapipe.prodperfect.com/v1/3.0/projects/1xviifSA1NskMwsG9Nkioig/events/pageviews?api_key=8RNHCGX",
        "Method=POST",
        "Resource=0",
        "RecContentType=application/json",
        "Referer=https://blazemeter.com",
        "Snapshot=t93.inf",
        "Mode=HTML",
        "EncType=text/plain; charset=UTF-8",
        "Body={"visitor": {"user_id": "null"}, "event_uuid": "\\\\4ef5dfdc-663a-4b40-8faa-9e20f567dc3f", "iso_time_full": "2024-02-27T08:58:52Z", "uuid": "\\\\50e5d2c7-a4ad-452a-8c01-b7fe45935d5a"}, "page": {"title": "Blazemeter demo app", "url": "\\\\Windows\\UserAgent": "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:123.0) Gecko/20100101 Firefox/123.0", "version": "\\\\UserAgent": "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:123.0) Gecko/20100101 Firefox/123.0", "info": {}}, "Time": {"local": {}, "utc": {}}, "keen": {"timestamp": "2024-02-24T04:29:11.932Z"}, "addons": [{"name": "Blazemeter demo app", "version": "1.0"}]}
```

Setting the runtime settings

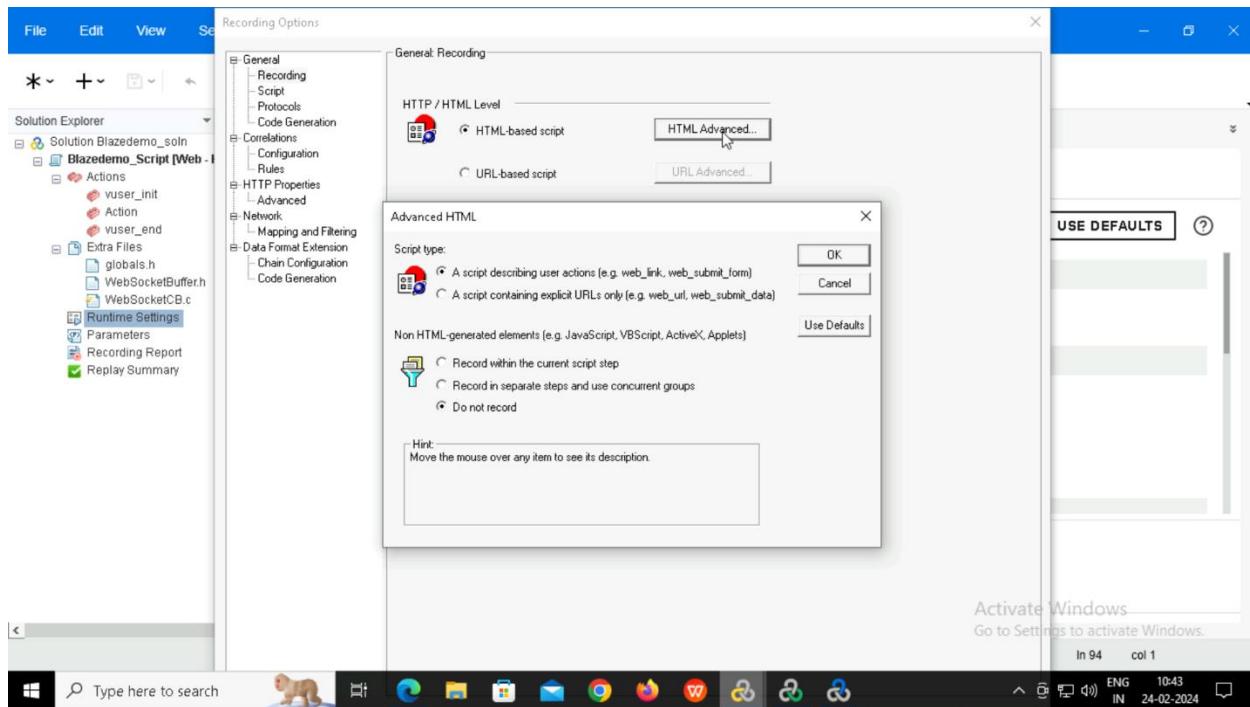
The screenshot shows the Blazemeter Test Studio interface with the "Blazedemo_Script : Runtime Settings" tab selected. In the left sidebar, under the "Blazedemo_Script [Web - HTTP]" project, the "Runtime Settings" item is highlighted. The main panel displays the "Run Logic" configuration. The "GENERAL" section is visible on the left, and the "Run Logic" configuration is shown on the right. The "Run Logic" section includes fields for "Number of iterations" (set to 1) and a "Run Logic View" hint. Below the "Run Logic" section, there are sections for "initialize", "run", and "finalize". The "run" section contains an "Action" entry. A "Hint" box provides information about the Run Logic View.

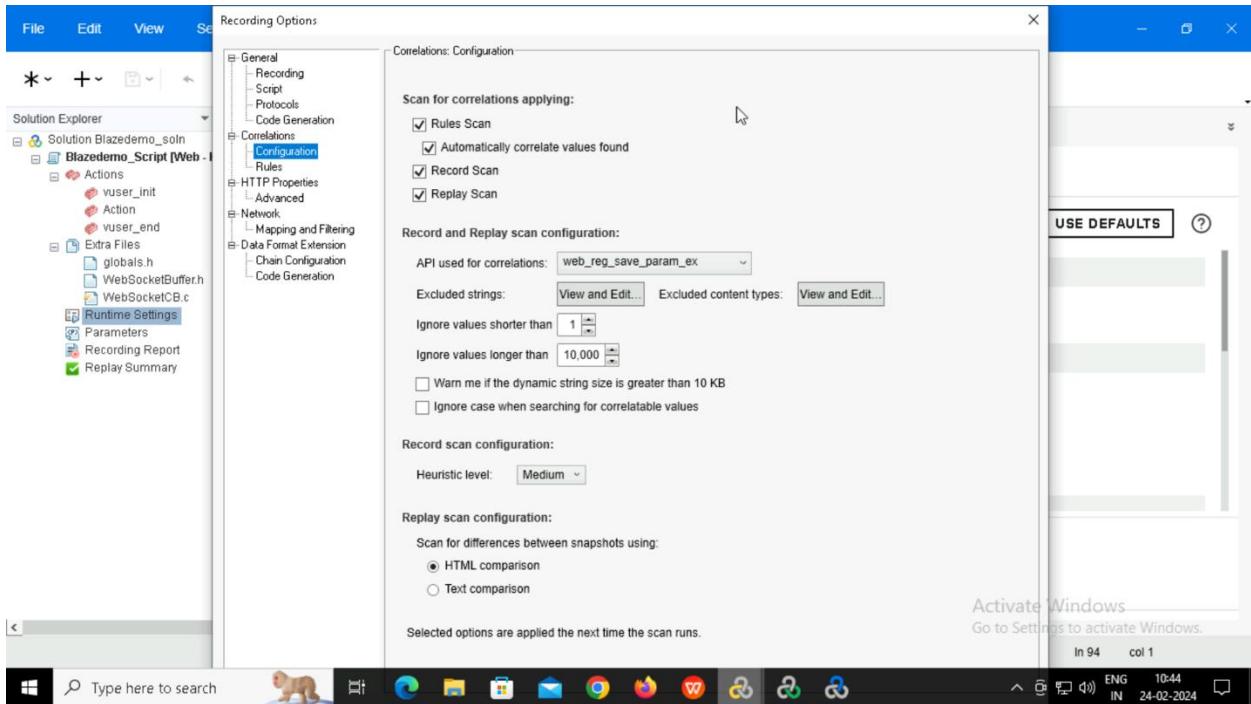
The screenshot shows the Blazemeter Test Studio interface with the "Blazedemo_Script : Runtime Settings" tab selected. In the left sidebar, under the "Blazedemo_Script [Web - HTTP]" project, the "Runtime Settings" item is highlighted. The main panel displays the "Log" configuration. The "GENERAL" section is visible on the left, and the "Log" configuration is shown on the right. The "Log" section includes a "USE DEFAULTS" button and a "Log" configuration area. The "Log" configuration area contains a radio button for "Log when error occurs and limit log cache to 1 KB" and a "Detail Level" section. The "Detail Level" section contains several options: "Standard log" (radio button), "Extended log" (radio button), "Parameter substitution" (checkbox checked), "Data returned by server" (checkbox unchecked), "Advanced trace" (checkbox unchecked), and "Include environment information" (checkbox checked). A "Hint" box provides information about the Extended log setting.

Recording the website

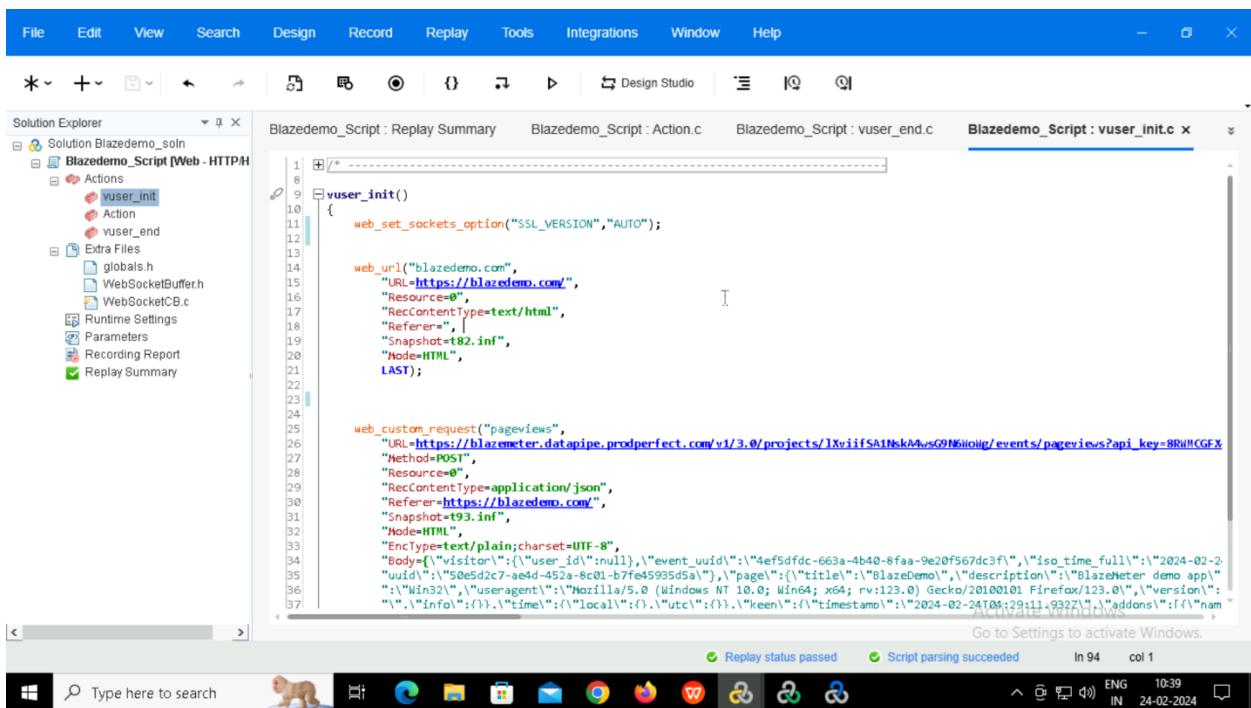


Recording options





After recording codes appearing in vuser init, actions and vuser end



Solution Explorer Blazedemo_Script : Replay Summary Blazedemo_Script : Action.c Blazedemo_Script : vuser_end.c Blazedemo_Script : vuser_init.c

```

1  Blazedemo_Script : Action.c
2  {
3      /* click home */
4
5      web_custom_request("clicks",
6          "URL=https://blazemeter.datapipe.prodperfect.com/v1/3.0/projects/lxvijfSA1NskAAwsG9N6ioig/events/clicks?api_key=8RuiHCGF4X0",
7          "Method=POST",
8          "Resource=0",
9          "ReContenttype=application/json",
10         "Referer=https://blazedemo.com",
11         "Snapshot=t94.inf",
12         "Mode=HTML",
13         "EncType=text/plain;charset=UTF-8",
14         "Body>{"visitor": {"user_id": null}, "event_uuid": "533fc751-3d44-4ba9-8160-7117d61c539f", "iso_time_full": "2024-02-2-2024-02-2T10:45:28.000Z", "page": {"title": "BlazeMeter demo app", "full": "\u00d7"}, "useragent": "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:123.0) Gecko/20100101 Firefox/123.0", "time": {"utc": {}}, "keen": {"date_time_parser": {"input": {"date_time": "local_time_full"}, "output": "time.local"}, {"name": "keen:date_time_parser", "type": "function", "parents": [{"class": "container", "href": null, "id": null, "name": null}, {"class": "all_attributes", "type": "function", "parent": "#"}, {"class": "navbars navbar-inverse", "href": null, "id": null, "name": null}, {"class": "all_attributes", "type": "function", "parent": "#"}]}, "last": true},
15
16      web_custom_request("pageuploads",
17          "URL=https://blazemeter.datapipe.prodperfect.com/v1/3.0/projects/lxvijfSA1NskAAwsG9N6ioig/events/pageuploads?api_key=8RuiHCGF4X0",
18          "Method=POST",
19          "Resource=0",
20          "ReContenttype=application/json",
21          "Referer=https://blazedemo.com",
22
23      LAST;
24
25
26
27
28
29
30
31

```

Activate Windows
Go to Settings to activate Windows.

Replay status passed Script parsing succeeded In 94 col 1

Type here to search                           

File Edit View Search Design Record Replay Tools Integrations Window Help

Solution Explorer Blazedemo_Script : Replay Summary Blazedemo_Script : Action.c Blazedemo_Script : vuser_end.c Blazedemo_Script : vuser_init.c

```

1  Blazedemo_Script : vuser_end.c
2  {
3      /* logout */
4
5      web_submit_data("logout",
6          "Action=https://blazedemo.com/logout",
7          "Method=POST",
8          "ReContenttype=text/html",
9          "Referer=https://blazemeter.com/home",
10         "Snapshot=t102.inf",
11         "Mode=HTML",
12         "ITEMDATA",
13         "Name=_token", "Value={_token_1}", ENDITEM,
14         LAST);
15
16
17      web_custom_request("pageviews_2",
18          "URL=https://blazemeter.datapipe.prodperfect.com/v1/3.0/projects/lxvijfSA1NskAAwsG9N6ioig/events/pageviews?api_key=8RuiHCGF4X0",
19          "Method=POST",
20          "Resource=0",
21          "ReContenttype=application/json",
22          "Referer=https://blazemeter.com",
23          "Snapshot=t103.inf",
24          "Mode=HTML",
25          "EncType=text/plain;charset=UTF-8",
26          "Body>{"visitor": {"user_id": null}, "event_uuid": "9bb0a43d-9973-422c-af85-e55d69d49", "iso_time_full": "2024-02-2-2024-02-2T10:45:28.000Z", "page": {"title": "BlazeDemo", "description": "BlazeMeter demo app", "full": "\u00d7"}, "useragent": "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:123.0) Gecko/20100101 Firefox/123.0", "version": "123.0", "time": {"utc": {}}, "keen": {"date_time_parser": {"input": {"date_time": "keen.timestamp"}, "output": "time.utc"}, {"name": "keen:date_time_parser", "type": "function", "parent": "#"}, {"input": {"date_time": "keen.date_time_full"}, "output": "date_time_full"}, {"name": "keen:date_time_full", "type": "function", "parent": "#"}]}, "last": true},
27
28
29
30
31

```

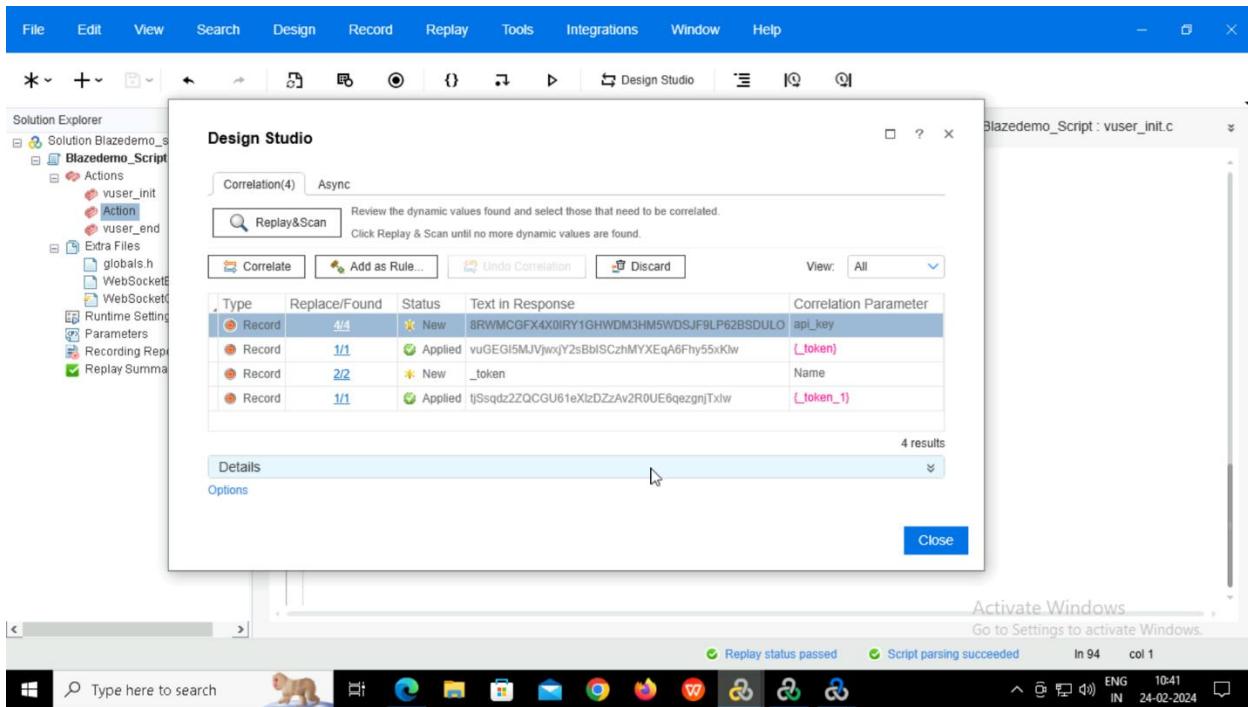
Activate Windows
Go to Settings to activate Windows.

Replay status passed Script parsing succeeded In 94 col 1

Type here to search                           

File Edit View Search Design Record Replay Tools Integrations Window Help

Setting up the auto correlation



The screenshot shows the Blazemeter Design Studio interface with the "Action.c" script editor open. The code contains several correlation statements:

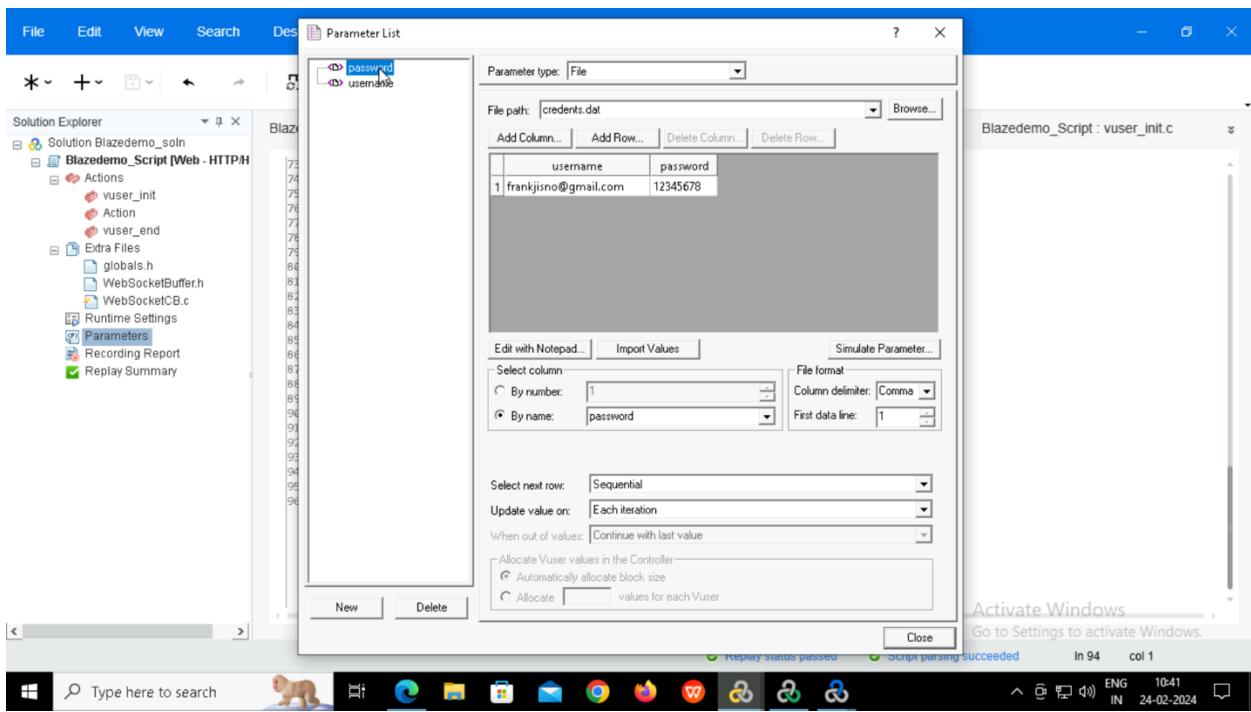
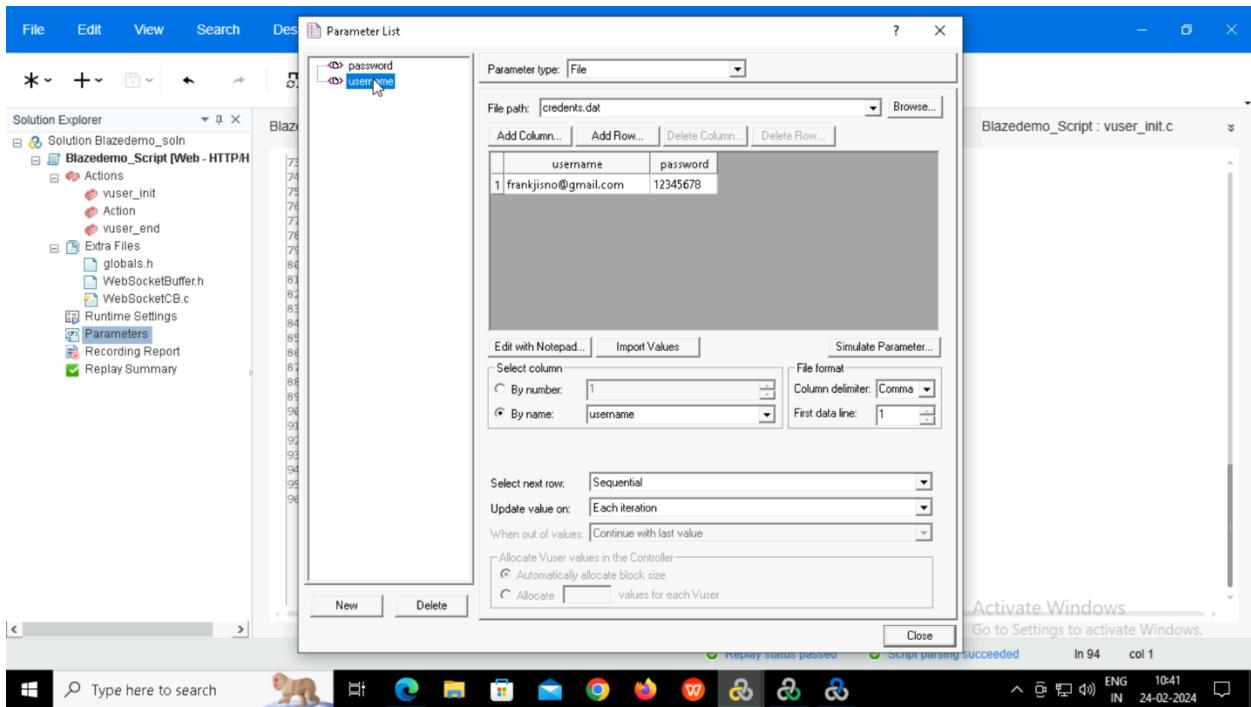
```

40 );
41
42 web_add_cookie("prodperfect_session=%22session_uuid%22:%22b3316af3-825c-4417-97e1-dad1d2248582%22; DOMAIN=blazemeter.com");
43
44 web_add_cookie("keen=%22uuid%22:%2250e5d2c7-ae4d-452a-8c01-b7fe45935d5a%22%2C%22initialReferrer%22:null; DOMAIN=blazemeter.com
45
46 /*Correlation comment - Do not change! Original value='vuGEGI5MJVjwxjY2sBbISCzhNYXEqA6Fhy55xKw' Name = '_token' Type ='ResponseBasic'
47 web_reg_save_param_ex(
48     "ParamName=_token",
49     "LB=>\n\n",
50     "RB=>\n\n",
51     "Ordinal=2",
52     "SEARCH_FILTERS",
53     "Scope=body",
54     "IgnoreRedirections=Yes",
55     "RequestUrl=*login",
56     LAST);
57
58 web_url("home",
59     "URL=https://blazemeter.com/home",
60     "Resource=0",
61     "RecContentType=text/html",
62     "Referer=https://blazemeter.com/",
63     "Snapshot=t96.inf",
64     "Mode=HTML",
65     LAST);
66
67 /*Correlation comment - Do not change! Original value='tjSsqdz2ZQCGU61eXlzDzzAv2R0UE6qezgnjTxIw' Name = '_token_1' Type ='ResponseBasic
68 web_reg_save_param_ex(
69     "ParamName=_token_1";
70

```

The code editor has syntax highlighting and line numbers. Below the editor, the status bar shows: "Replay status passed", "Script parsing succeeded", "In 94 col 1", and the date/time "24-02-2024 10:41".

Parameterization – parameterizing the 2 variables username and password



The screenshot shows the Blazedemo Script Action.c file in the Design Studio interface. The code defines an action named 'Action' that performs a POST request to 'https://blazedemo.com/login'. It includes parameters for token, email, and password, and captures a snapshot named 't@1.inf'. The code is as follows:

```
73     "Ordinal=2",
74     "SEARCH_FILTERS",
75     "Scope=Body",
76     "IgnoreRedirections=Yes",
77     "RequestURL=/home",
78     LAST);

79 web_submit_data("login",
80     "Action=https://blazedemo.com/login",
81     "Method=POST",
82     "EncodeAtSign=YES",
83     "RecContentType=text/html",
84     "Referer=",
85     "Snapshot=t@1.inf",
86     "Nodes=HTML",
87     ITEMDATA,
88     "Name=_token", "Value={_token}", ENDITEM,
89     "Name=email", "Value={username}", ENDITEM,
90     "Name=password", "Value={password}", ENDITEM,
91     LAST);

92
93 return 0;
94
95 }
```

The Solution Explorer on the left shows the project structure, including files like 'globals.h', 'WebSocketBuffer.h', 'WebSocketCB.c', 'Runtime Settings', 'Parameters', 'Recording Report', and 'Replay Summary'. The Replay Summary tab is also visible.

Replaying the recorded script

A screenshot of the Blazedemo Script application interface. The top menu bar includes File, Edit, View, Search, Design, Record, Replay, Tools, Integrations, Window, and Help. Below the menu is a toolbar with various icons. The left sidebar is the Solution Explorer, showing a solution named 'Blazedemo_demo_sln' containing a project 'Blazedemo_Script [Web - HTTP/HyperText]'. This project contains several files: Actions (vuser_init, Action, vuser_end), Extra Files (globals.h, WebSocketBuffer.h, WebSocketCB.c), Runtime Settings, Parameters, Recording Report, and the current selected item, Replay Summary. The main content area displays the 'Replay Summary' for the 'Blazedemo_Script' action. It shows a green checkmark icon next to 'Script passed'. Below this, it lists the 'Elapsed time: 00:00:11.076 hh:mm:ss.ms' and the 'Started at: 24-02-2024 10:10:45' and 'Ended at: 24-02-2024 10:10:56'. There is a note about generating an NV Insights Report and a link to 'Tools > Options > Scripting > Replay (select "Display NV Insights Report")'. A mouse cursor is hovering over this link. Below this, it says 'This report includes network traffic statistics and analysis.' At the bottom, there are two informational links: 'Open the Runtime Settings to modify Vuser behavior during replay' and 'Open the Content Check Rules to check websites for content during replay'. The status bar at the bottom right shows 'Activate Windows Go to Settings to activate Windows.', 'Replay status passed', 'Script parsing succeeded', 'In 94 col 1', and system status indicators for battery, signal, and language (ENG IN 24-02-2024).

Token is correlating and parameterization also works

The screenshot shows the Blazemeter Test Studio interface. The top menu bar includes File, Edit, View, Search, Design, Record, Replay, Tools, Integrations, Window, and Help. The main window displays a 'Replay Summary' for a script named 'Blazememo_Script'. The summary indicates 'Script passed' with a green checkmark. Below this, it shows the 'Elapsed time: 00:00:08.563 hh:mm:ss.ms' and the 'Started at: 24-02-2024 10:53:21' and 'Ended at: 24-02-2024 10:53:30'. A large yellow-highlighted section contains the replay log output:

```

Action.c:(58): Found resource "https://blazememo.com/app.js" in HTML "https://blazememo.com/login" [MsgId: MMSG-26659]
Action.c:(58): Notify: Saving Parameter "_token" = 5Ex5mlo0TeGd5ZzL2KBv1beGEJaFYafCnghKzef4".
Action.c:(58): web_url("home") was successful, 119493 body bytes, 3043 header bytes [MsgId: MMSG-26386]
Action.c:(67): web_submit_data("login") started [MsgId: MMSG-26355]
Action.c:(67): Notify: Parameter Substitution: parameter "_token" = "5Ex5mlo0TeGd5ZzL2KBv1beGEJaFYafCnghKzef4"
Action.c:(67): Notify: Parameter Substitution: parameter "username" = "frankjiso@gmail.com"
Action.c:(67): Notify: Parameter Substitution: parameter "password" = "12345678"
Action.c:(67): Warning -26665: HTTP Status Code is missing or invalid. Assuming "200 OK" [MsgId: MMSG-26665]

```

The bottom status bar shows 'Replay status passed' and 'Script parsing succeeded'.

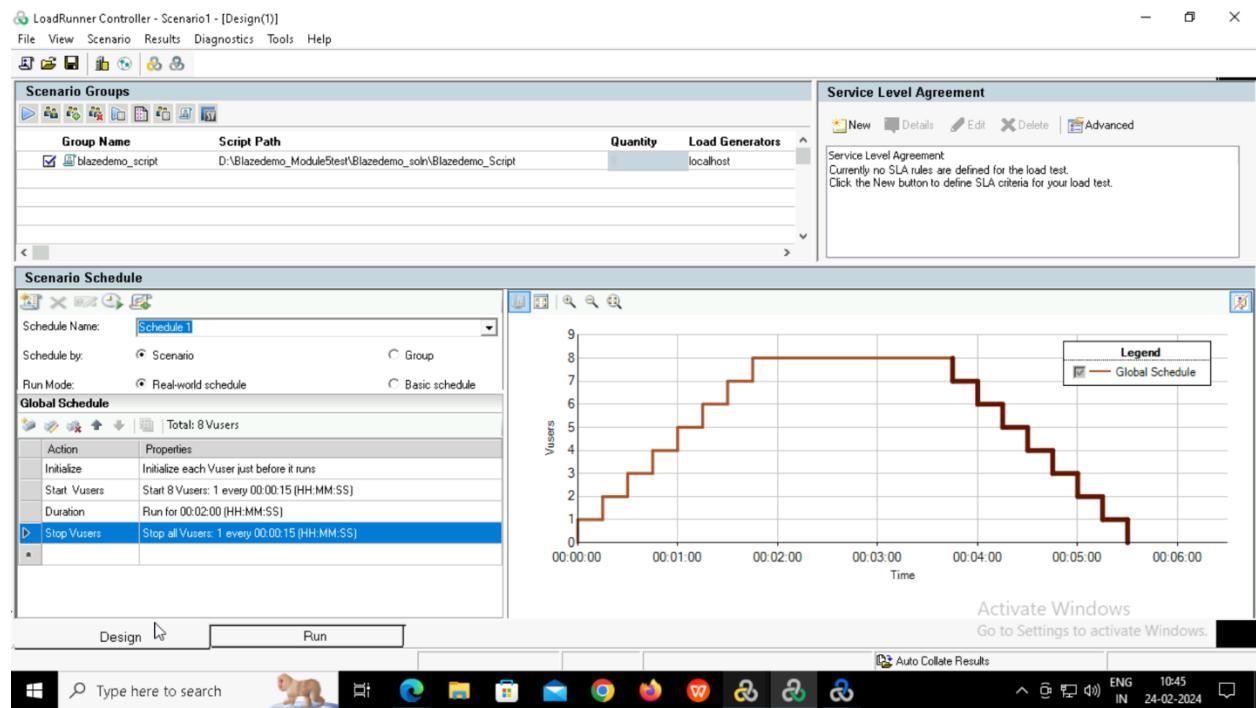
Recording Report

The screenshot shows the Blazemeter Test Studio interface with a 'Recording Rep...' tab selected. The left sidebar shows a 'Recording Report' node under 'Actions'. The main panel displays a summary table with the following data:

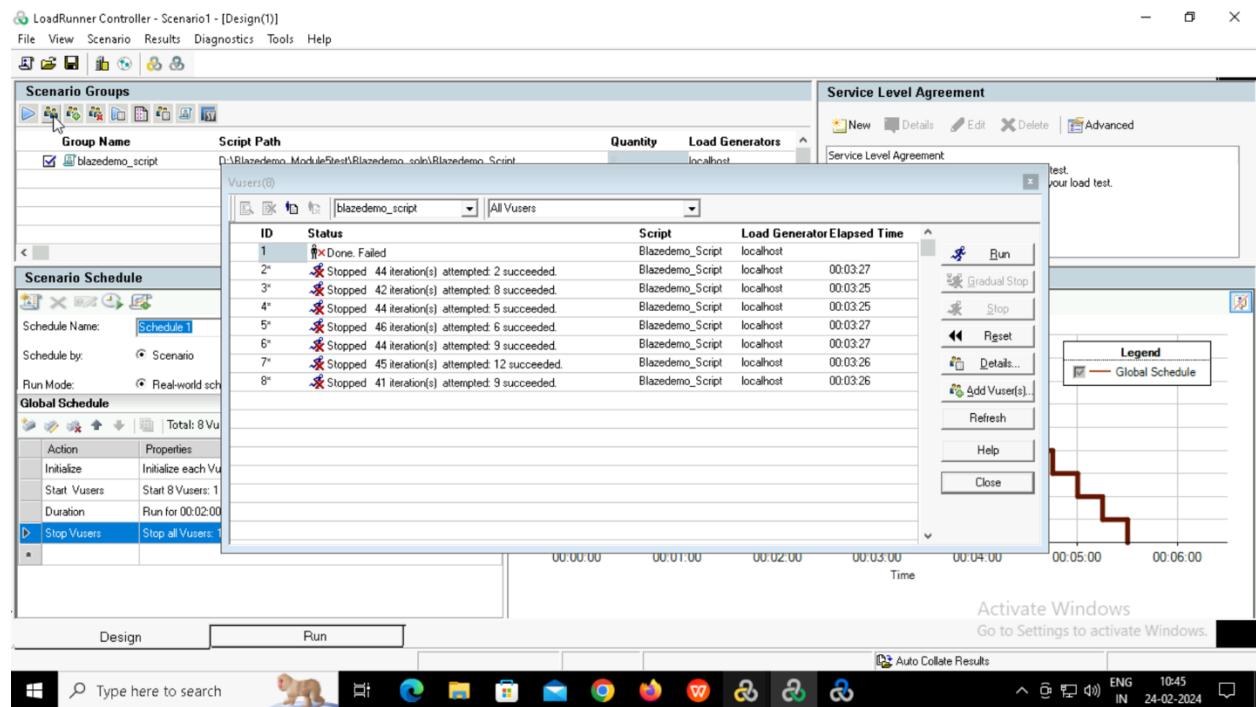
TOTAL SIZE	SENT	RECEIVED	REQUESTS	CONNECTIONS	DATE & TIME	RECORDING DATE	DURATION
51.348 KB	705.24 KB		63	34	24/02/2024	24/02/2024	00:01:11

Below the table, there are sections for 'Headers' (22 Headers were recorded), 'Hosts' (listing blazememo.com, firefox.com, ocsp.pki.goog, and 10.20.30.1), and a 'Content' section. The bottom status bar shows 'Replay status passed' and 'Script parsing succeeded'.

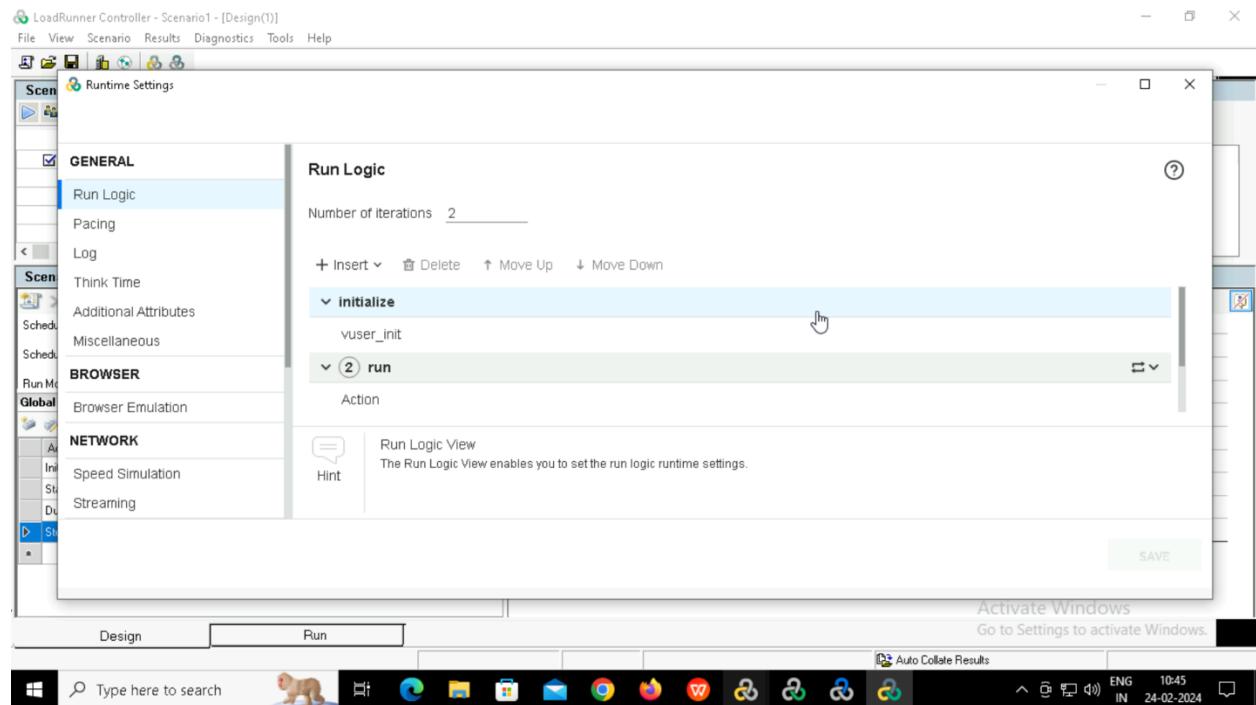
Opening the LoadRunner controller and setting it up



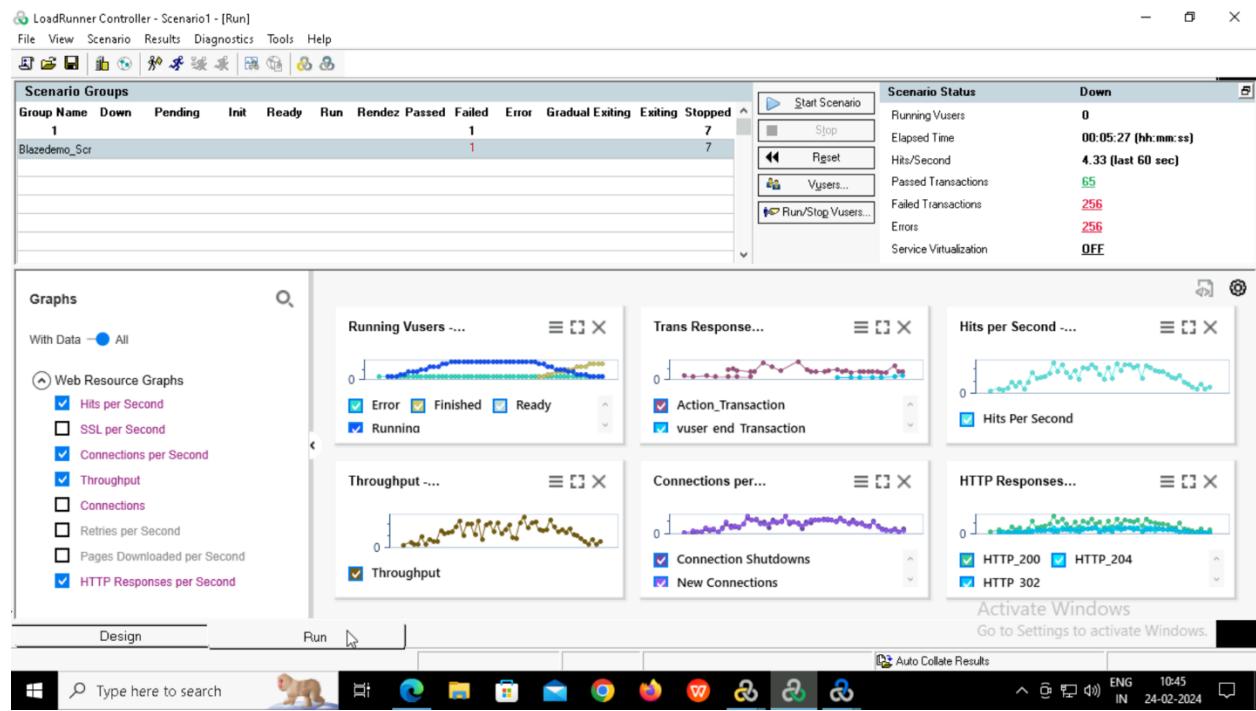
Setting up the number of users



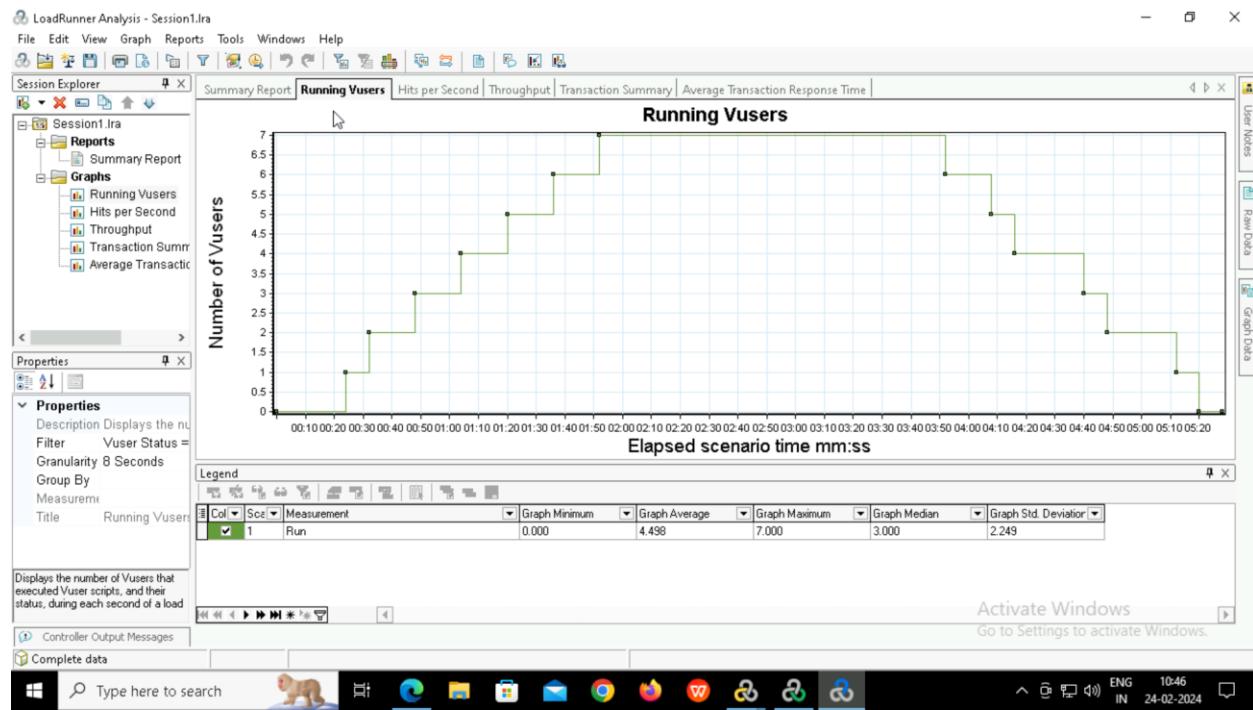
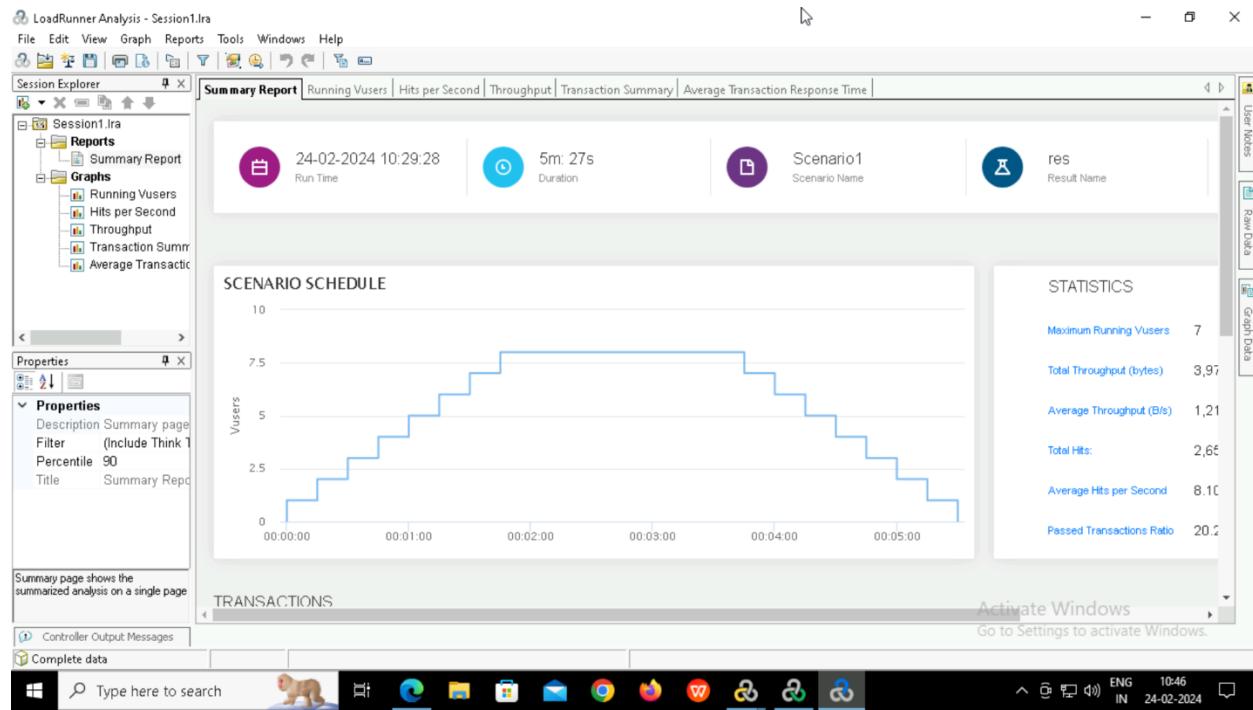
Runtime settings

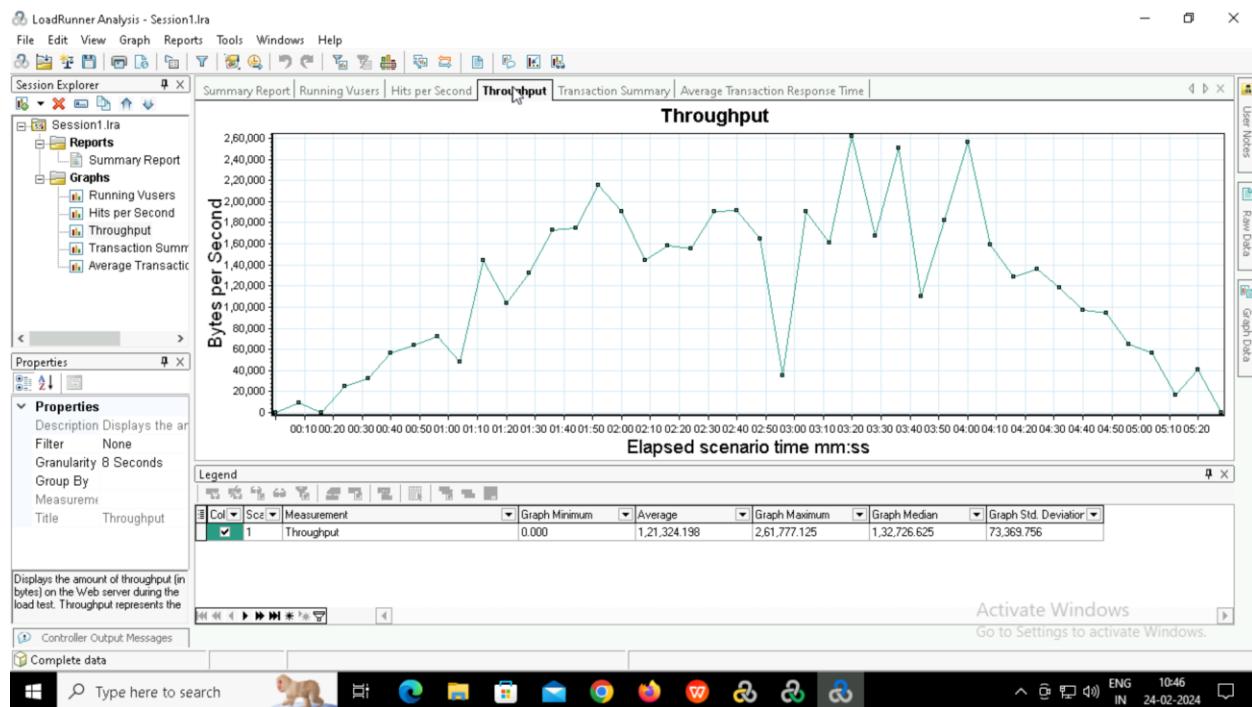
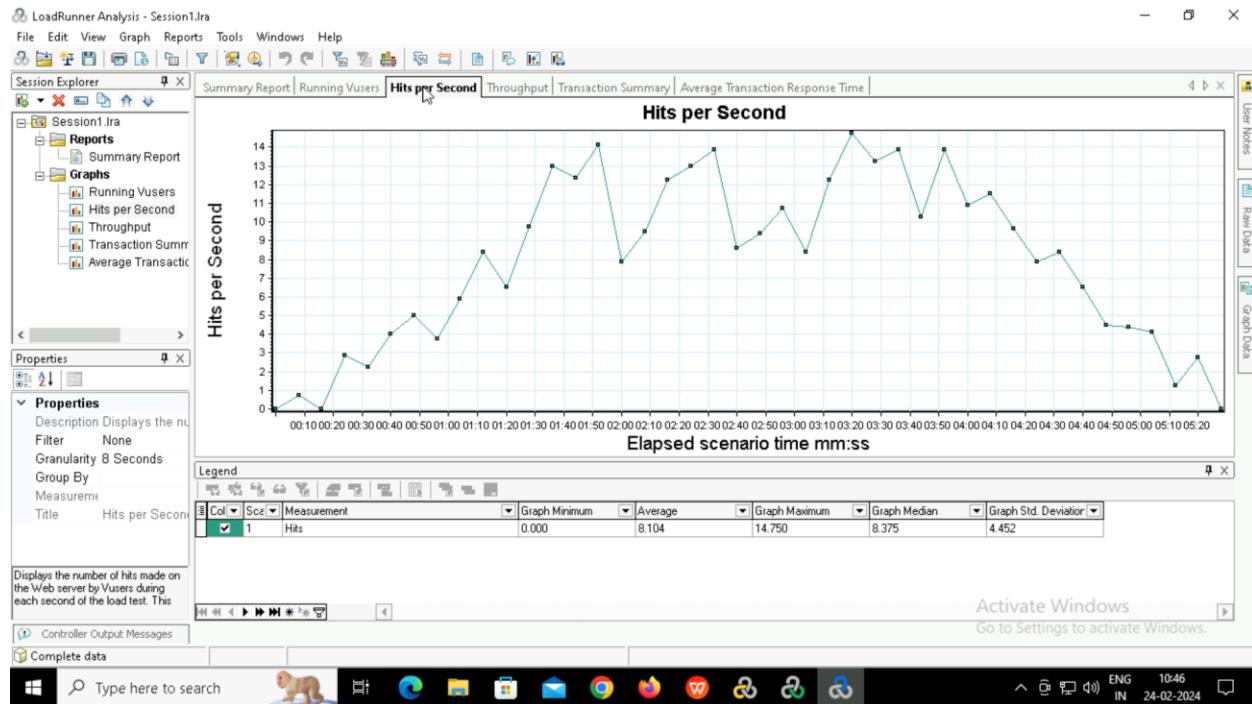


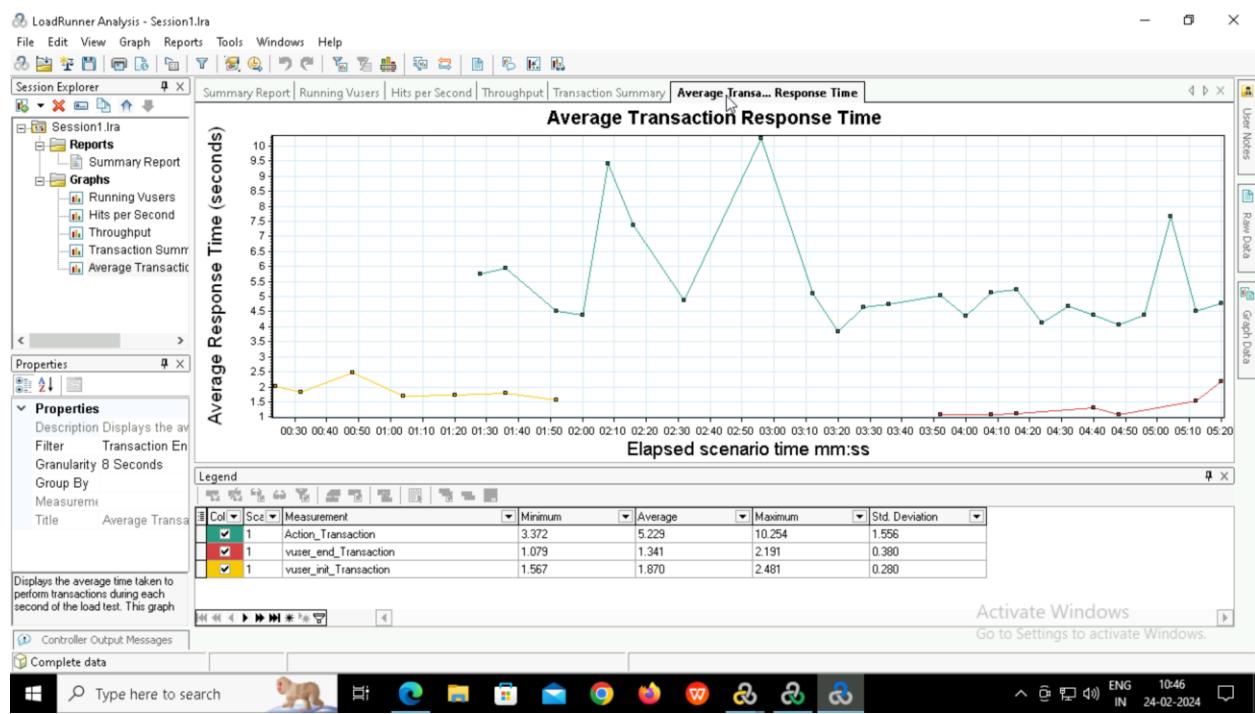
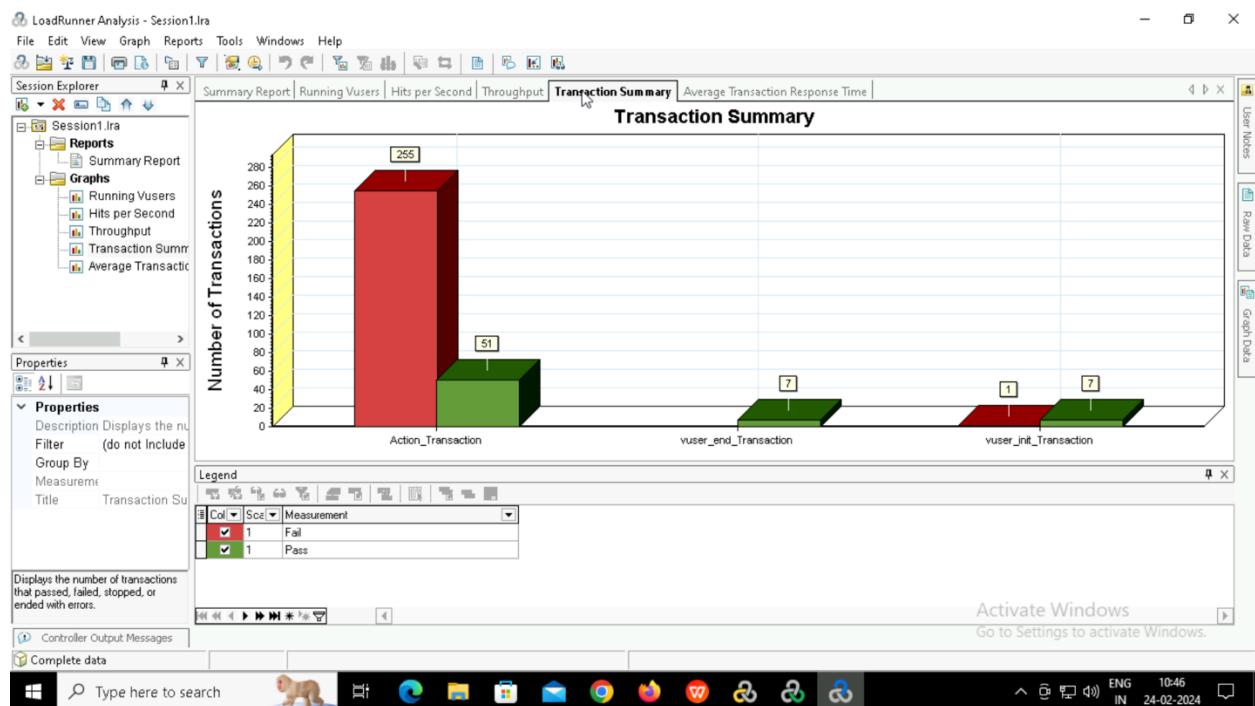
Running the scenario and applying different graphs



Opening the Loadrunner Analysis and viewing the graph







Generating the html report for viewing

