



# Using IxLoad on Linux

Release 8.50-Update2

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# Introduction

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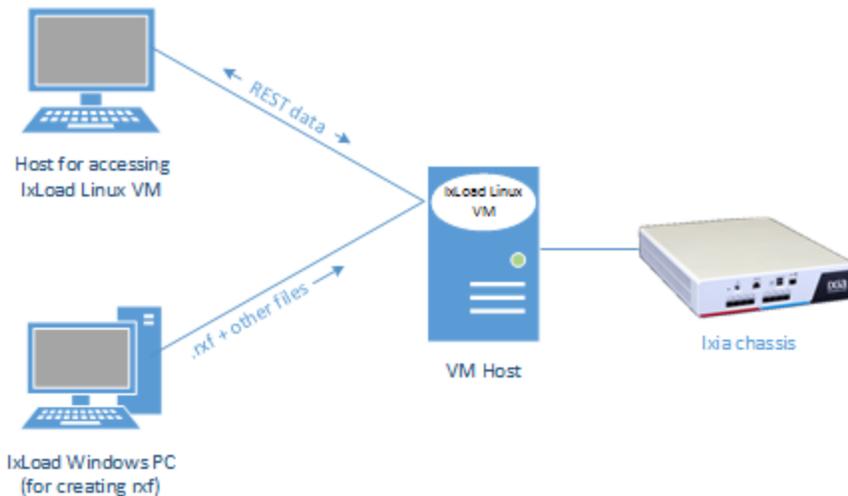
IxLoad can be used on Linux through the IxLoad REST API. Most, but not all, of the features supported from the REST API on Windows are also supported on Linux. See [IxLoad Features not supported from REST on Linux on the facing page](#) for details.

To use IxLoad on Linux, Ixia supplies VM images in two formats:

- OVA
- QCOW2

Both images have the following software pre-installed:

- IxLoad middleware (infrastructure software only, no UI support)
- IxLoad REST gateway service



## Workflow

The workflow for using IxLoad on Linux is:

1. Create a test in the IxLoad GUI, and save the .rxf file.
2. Deploy the OVA or QCOW2 image and start the VM.
3. Connect to the IxLoad REST gateway service on the VM.
4. Upload the rxf and supporting files to the VM.
5. Use the REST API to issue commands to start and run the test.

This section describes this workflow.

### **IxLoad Features not supported from REST on Linux**

- Creation of repositories (you can only run existing repository (.rxf) files, you cannot create them from Linux)
- AppLibrary protocols
- Resource Manager
- Profiles (e.g. Real files)
- IxReporter

## Part 1: Create the Test

1. On a Windows PC with the IxLoad client installed, create the test that you want to run.
2. Save the test repository (.rxf) file, along with any supporting files (sample audio files, traffic capture files, etc.) that the test requires in a location that can be accessed from the VM.

## Part 2: Deploy the image

Deploy the OVA or QCOW 2 image:

### OVA

1. Use the hypervisor of your choice to deploy the OVA, and start the VM.
2. Use the hypervisor's console to find the IP address of the VM.

### QCOW2

The QCOW2 image is embedded in a shell (.sh) script. This image is pre-configured with 4 vCPUs and 8 GB RAM. The name of the script identifies the image's IxLoad release. For example, for the 8.50 EA release, the script name is `IxLoad-8.50.0.465.sh`.

### Prerequisites

- To import the QCOW2 image, the `IxLoad .sh` file must be executable. Use the following command to change the permissions:
 

```
chmod +777 IxLoad-{version}.sh
```
- The following tools must be installed on the Linux system where you are extracting the QCOW2 image from the .sh file:
  - `virt-install`
  - `libvirt`

### Deploying the image

Based on the platform type you are using, use one of the following procedures to deploy the image:

KVM	OpenStack
<p>To import the QCOW2 image on KVM: Execute the <code>IxLoad-&lt;version&gt;.sh</code> script. After you accept the EULA terms, the script will extract and deploy the QCOW2 image.</p>	<p>To import the QCOW2 image on OpenStack:</p> <ol style="list-style-type: none"> <li>1. In any Linux environment, use the following command to accept the EULA terms and then extract the QCOW2 image:           <pre>run "IxLoad-{version}.sh -z"</pre> </li> <li>2. Copy and import the QCOW2 image into the OpenStack environment.</li> <li>3. OpenStack ignores the pre-configured CPU and RAM values. Therefore, you should manually specify at least 4 vCPUs and 8 GB RAM.</li> </ol>

## Part 3: Connect to the VM and Upload the Test

1. Using a browser extension or application (such as PuTTY), establish an SCP connection to the VM. When you connect to the VM, the default path is automatically set to a shared folder intended for transferring test files to and from the VM.
2. Upload the .rxfile and any supporting files to the VM. The maximum size of a file you can upload is 1GB.

There are two ways to upload files:

- Through a script
- Through a remote file browser

### Script method

To upload files from a script, the IxLoad REST API includes the `uploadFile` operation. You must create a script that includes `uploadFile`. You can use any scripting language that has libraries capable of HTTP file upload requests (such as `httpplib` on Python). You cannot use a GUI REST client to upload files.

IxLoad includes a sample Python REST script, `IxLoadUtils.py`, that demonstrates the use of `uploadFile`. `IxLoadUtils.py` and other sample REST scripts are stored on the IxLoad client installation path, in a subfolder named `RestScripts`.

To upload a file, the script executes a POST request on the following URL:

```
http://127.0.0.1:8080/api/v0/resources
```

The `uploadFile` operation in the script takes three parameters:

<code>filename</code>	represents the path of the local file to be uploaded to remote location
<code>uploadPath</code>	represents the path relative to the shared folder ( <code>/mnt/ixload_share</code> ) on the Linux VM. For example, if the upload path is: <code>uploads/SimpleRun.rxf</code> the file will be uploaded to: <code>/mnt/ixload_share/uploads/SimpleRun.rxf</code>
<code>overwrite</code>	determines whether or not an existing file on the remote location with the same name as the uploaded file is overwritten. The default value is <code>true</code> .

The image below shows an example of a script that uses the uploadFile operation.

```
import os
import requests

url = 'http://127.0.0.1:8080/api/v0/resources/'
headers = {'Content-Type': 'multipart/form-data'}

def uploadFile(fileName, uploadPath, overwrite=True):
    params = {'overwrite': overwrite, 'uploadPath': uploadPath}

    print('Uploading...')
    try:
        with open(fileName, 'rb') as f:
            resp = requests.post(url, data=f, params=params, headers=headers)
    except requests.exceptions.ConnectionError as e:
        print(
            'Upload file failed. Received connection error. One common cause for this error is the size of the file to be uploaded.'
            'The web server sets a limit of 1GB for the uploaded file size. Received the following error: %s' % str(e)
        )
    except IOError as e:
        print('Upload file failed. Received IO error: %s' % str(e))
    except Exception:
        print('Upload file failed. Received the following error: %s' % str(e))
    else:
        print('Upload file finished.')
        print('Response status code %s' % resp.status_code)
        print('Response text %s' % resp.text)

fileNamePath = 'SimpleRun.rxf'
relativeUploadPath = 'uploads/' + os.path.split(fileNamePath)[1]
overwrite = True

uploadFile(fileNamePath, relativeUploadPath, overwrite)
```

For full information on uploadFile and the other IxLoad REST commands, see the *IxLoad REST API Guide* (available from the Ixia website: <https://support.ixiacom.com/user-guide>).

### Remote file browser method

You can upload files using a remote file browser. To use this method, connect to /mnt/ixload\_ share and pass the following credentials:

Username:	ixload
Password:	ixia123

## Part 4: Run the Test

1. Start the REST client you want to use for the test.
2. Issue the REST commands to start and run the test. For information on the REST commands, see the *IxLoad REST API Guide* (available from the Ixia website: <https://support.ixiacom.com/user-guide>).

When used on Windows, REST API calls that operate on files (such as the .rxf file) require the full path to the file. The same is true on Linux -- you must use the full path to the file. The file path on the VM always begins with /mnt/ixload-share. Uploading programatically (i.e., from a script) or from a remote file browser must be done from this location.

For example, the `loadTest` operation loads the rxf file.

On Windows, the path might be:

```
{"fullPath": "C:\\path\\to\\files\\myTest.rxf"}
```

On Linux, the path might be:

```
{"fullPath": "/mnt/ixload-share/myTest.rxf"}
```

If the .rxf file includes references to any other files, make sure these files are also uploaded in the shared location on the VM. If the files referenced from the .rxf have absolute paths, you must modify them (for example, by doing a PATCH request) to point to their new location on /mnt/ixload-share.

# Using the Web UI

---

The IxLoad Linux OVA and qcow2 images include the IxLoad Web UI, an IxLoad GUI that you access from a web browser.

The Web UI uses the IxLoad REST API for all of its functions, meaning that all IxLoad Web UI sessions are IxLoad REST sessions.

The Windows version of IxLoad does not include the Web UI.

## Supported features

You can perform the following functions in the IxLoad Web UI:

- Launch and connect to an IxLoad Web session
- Load (and upload) configuration files in the IxLoad Web session
- Add new chassis to the configuration
- Remap ports
- Modify L47 activity objectives and timeline options
- Enable Analyzer on ports
- Launch the IxLoad API Browser (which allows you to view and change the IxLoad traffic configuration)
- View IxLoad logs in real time
- Run a test
- View real time statistics
- Download port capture files locally

The scenario editor is not available in the Web UI, so there is no visual representation of the NetTraffics and L2-3 and L4-7 activities. Instead, you can use the API Browser in the Web UI to view and change these parameters.

## Workflow

The workflow for running a test in the Web UI is:

1. Start the IxLoad VM, and connect to the Web UI.
2. Select a test configuration, then create a test session for it.
3. Select the ports for the test.
4. Start the test, and view the statistics.

## Before you begin

The IxLoad Web UI is not integrated with Ixia User Management. Therefore, on the IxLoad Gateway service, authentication must be disabled.

## Connecting to the Web UI

To connect to the Web UI:

1. Start the IxLoad VM.
2. In a web browser's URL field, enter the IxLoad VM's IP address.

 **Note:** The Web UI listens on the default HTTPS port (443).



When you connect to the Web UI, IxLoad displays the Sign In window.



3. Enter the following credentials:

Username	admin
Password	admin

then click Sign In.

## Creating a new session

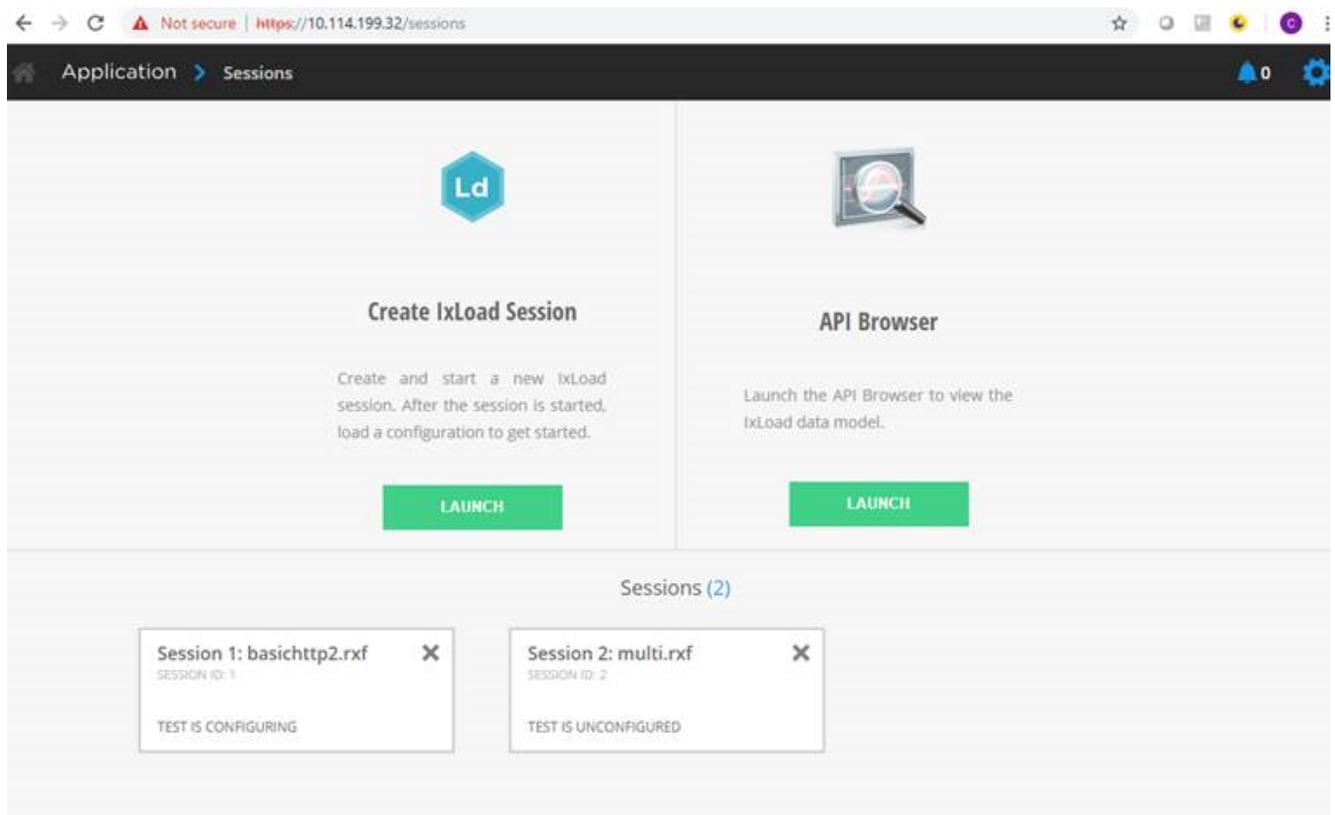
After you login, the Sessions window displays.

The Sessions window displays the sessions that are currently in progress, and allows you start a new session.

For sessions in progress, a card displays their status, and the name of the configuration file they are using. You can click on a session's card and display its configuration page, which allows you to view the currently loaded .configuration file or select a new one.

To create a new session:

## 1. Click Launch.



## 2. Specify the .test configuration file to use.

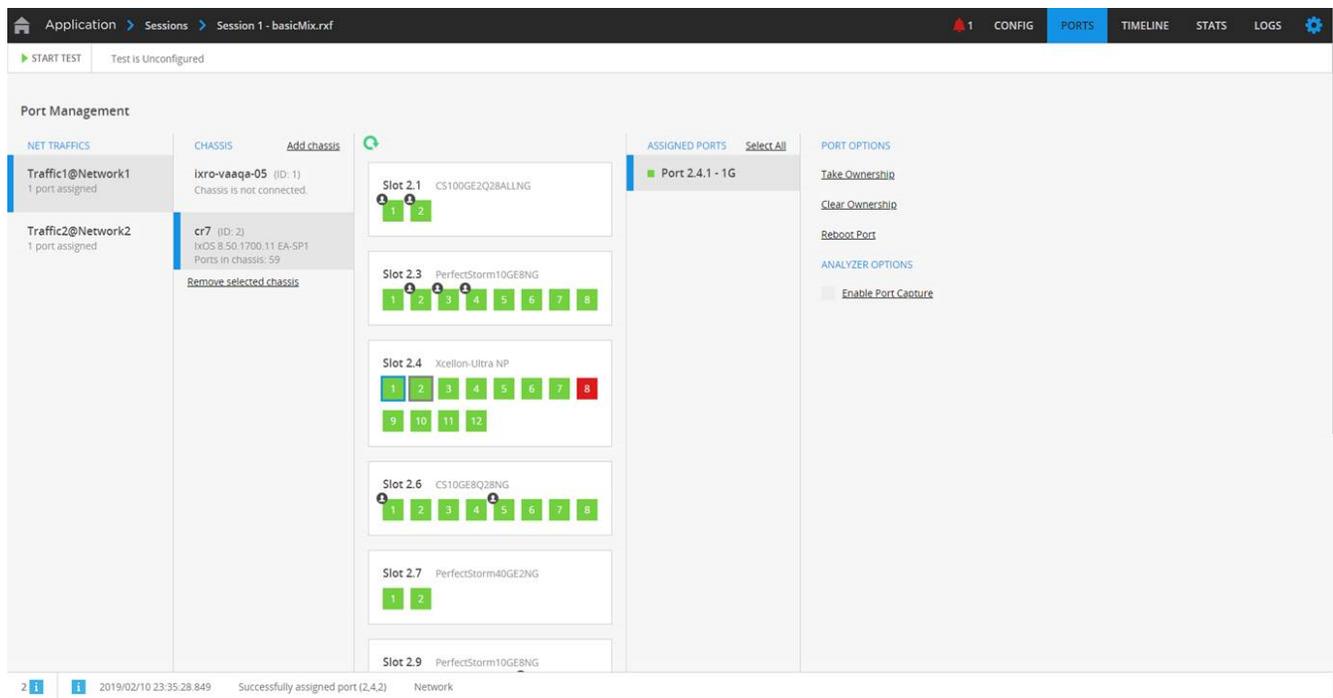
Choose one:

To...	Do this:
Load a recently used file (a file that is already on the Linux VM).	Choose a file from the list, then select OK.
Upload an .rxf or .crf file from the local machine to the Linux VM.	<ol style="list-style-type: none"> <li>Select Browse.</li> <li>Choose an .rxf or .crf file, then select OK. IxLoad uploads the file from the local machine to the Linux VM. If you selected a .crf file, IxLoad uploads it to the VM, and then extracts it in .rxf format.</li> </ol>

To...	Do this:
Manually enter the path to a file on the VM.	<ol style="list-style-type: none"> <li>Select Server path.</li> <li>In the field, enter the absolute path of a configuration file (.rxf or .crf) that already exists on the Linux VM.</li> <li>Select OK.</li> </ol>

## Ports

The Ports option in the navigation bar displays the Port Management page, which allows you to view and manage the test ports.



## NetTraffics

The NetTraffics column lists the NetTraffics currently being used in the test, and the number of ports assigned to each NetTraffic.

## Chassis

The Chassis column contains a list of chassis, along with their name, ID, number of ports, and the IxOS version.

Adding a Chassis:	To add a chassis, click Add Chassis.
Removing a Chassis:	To remove a chassis, select the chassis, then lick Remove Selected Chassis.

## Cards and Ports

The Cards and Ports column displays all the cards contained in the selected chassis. For each card, Web UI displays its card ID, the card type and all the ports.

Ports display as either green or red:

Green	Port is link up
Red	Port is link down

If a port is owned by a user, an icon displays in the upper left corner. To view the owner's name, hover over the port:



To refresh the chassis display, click the Refresh icon at the top-left of the column.

## Assigned Ports

The Assigned Ports column displays the ports assigned to the selected NetTraffic.

The Port Options column contains the commands you use to manage the ports on the chassis:

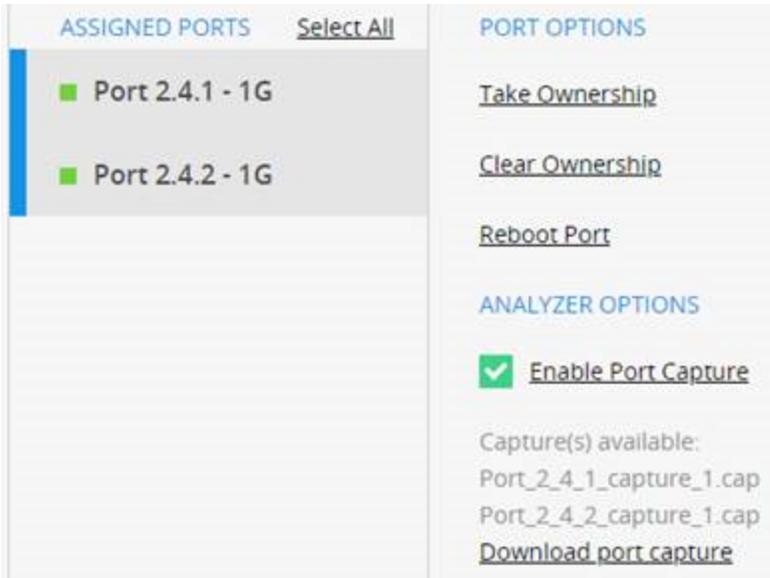
Take Ownership	Select the ports you want to take ownership of, then click Take Ownership.
Clear Ownership	Select the ports you want to release ownership of, then click Clear Ownership.
Reboot Port	Select the ports you want to reboot, then click Reboot Ports.

## Analyzer Options

The Analyzer Options control the capture of traffic on the ports.

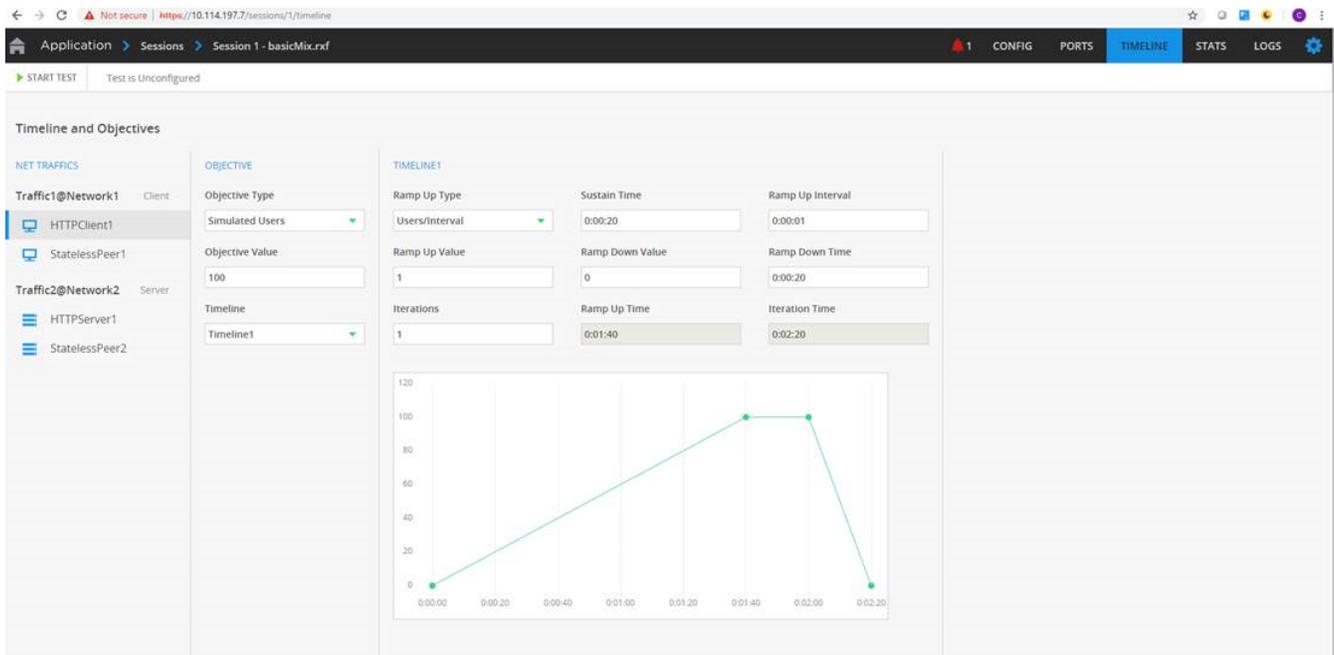
If you select Enable Port Capture, traffic to and from all the selected the ports is captured during the test and saved on the VM.

After the test has been run and the captures have been saved, a button displays below the Enable Port Capture checkbox that enables you to download the port capture files from the VM.



## Timeline and Objectives

The Timeline and Objectives option in the navigation bar enables you to set the test objective and configure the test timing.



## NetTraffics

The NetTraffics column displays the NetTraffics currently being used in the test and the L4-7 activities in each NetTraffic.

## Objective

The Objective column contains the Objective Type, Objective Value and Timeline associated with the activity selected in the NetTraffics column. To change objective type, select a new objective from the list.

## Timeline

The Timeline column displays the parameters that define the timeline of the selected activity. The chart displays how the objective value will be applied based on the timeline options.

To change the timeline, select a new timeline from the list, or select New Timeline to create a new timeline.

---

**Note:** In the WebUI, you can only select or edit basic timelines. If you need to select or edit an advanced timeline, you can use the REST API.

---

## Running a test

You use the Start and Stop buttons at the top of the page to control a test:

To run a test, click Start Test.

To stop a test, click Stop Test.

The status bar next to the Start/Stop buttons display the test's current status, and when the test starts, its progress. Test status can be :

Unconfigured	Test is not running.
Configuring	Test configuration is being loaded onto ports.
Starting Run	Test starting to send traffic.
Cleaning	Test is removing configuration from the ports.

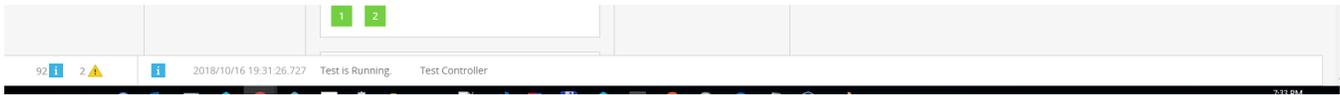


When the test enters the Running stage, a progress bar and the elapsed time displays.



## Logs

The log area at the bottom of the Web UI pages displays a running count of the number of Info/Warning/Error messages, and the text of the most recent message.



If you click on the log area, the Logs page displays.

The Logs page contains a table that contains all of the logged event messages.

Application > Sessions > Session 1 Logs

STOP TEST Test is Stopping Run

ALL NOTIFICATIONS ERROR WARNING INFO DOWNLOAD LOGS

Timestamp	Severity	Category	Message
2018/10/16 19:34:48.596	Info	Licensing	License check in succeeded for test Test1.
2018/10/16 19:34:48.530	Info	Licensing	Checking in license for feature(s) [XLOAD,HTTP-BASIC for chassis ixro-vaqa-05 on license server [:@ixro-vaqa-05]...
2018/10/16 19:34:48.506	Info	Licensing	Checking in license for test Test1...
2018/10/16 19:31:26.727	Info	Test Controller	Test is Running.
2018/10/16 19:31:25.229	Info	Test Controller	The Stat requests are done for publisher ixLoad
2018/10/16 19:31:22.799	Info	Test Controller	Starting the STAT Requests...
2018/10/16 19:31:22.678	Info	Test Controller	Port Group Activated
2018/10/16 19:31:22.635	Info	Test Controller	Port Group Activated
2018/10/16 19:31:22.634	Info	Network	GratARP (GratARP-1) : Activated
2018/10/16 19:31:22.601	Info	Network	GratARP (GratARP-2) : Activated
2018/10/16 19:31:19.414	Info	ixChassisChain	Clearing stats on ports [(1,3,1), (1,3,2)]
2018/10/16 19:31:16.775	Info	RestStatController	start Internal Collector

CLEAR LOGS

95 1 2 2018/10/16 19:34:48.596 License check in succeeded for test Test1. Licensing

You can sort the messages by column, and filter them by message type:

## Sorting log messages

To sort the messages, click on the column headings.

Timestamp	Date and time event occurred
Severity	Seriousness of event: (Info/Warning/Error)
Category	Component that message applies to
Message	Text of message

## Filtering log messages

To filter the messages, click the Severity of the messages that you want to filter for.

## Downloading log files

To download the log to the local system, click Download Logs. Log files are in .csv format.

## Clearing the log

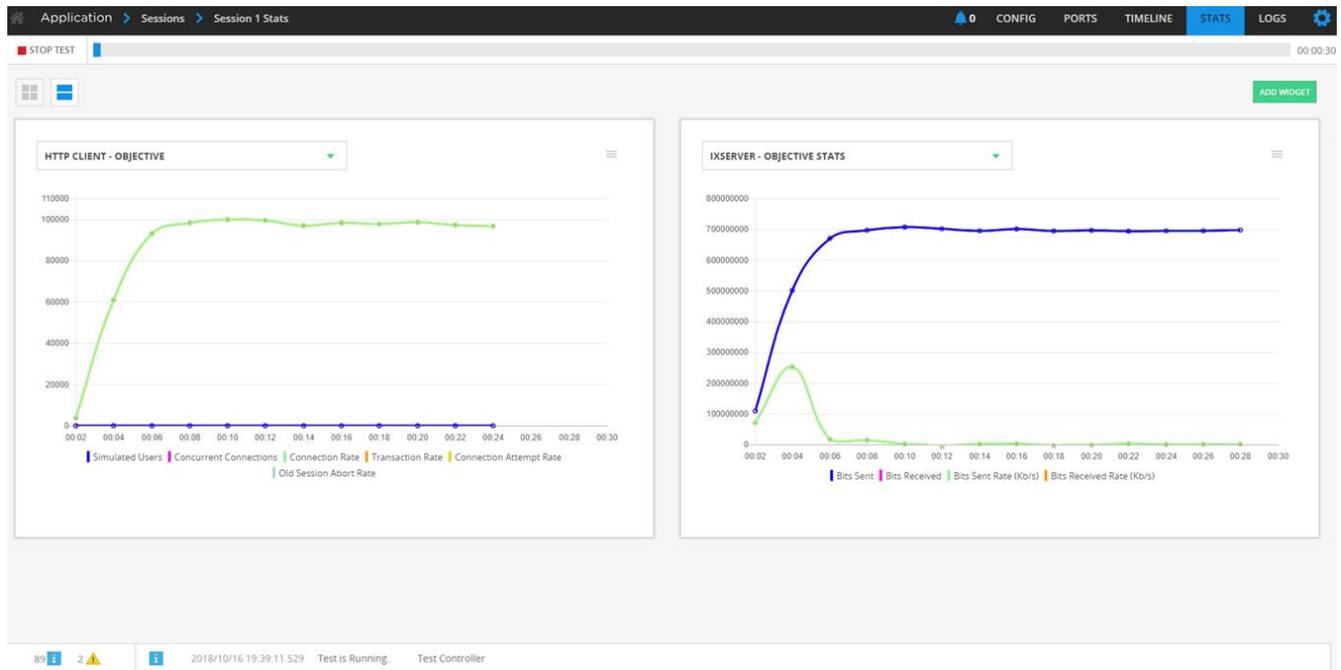
To remove all the entries from the log, click Clear Logs.

## Statistics

The Statistics page contains two charts that are populated with statistics in real time as a test runs.

The chart on the left displays per-protocol statistics.

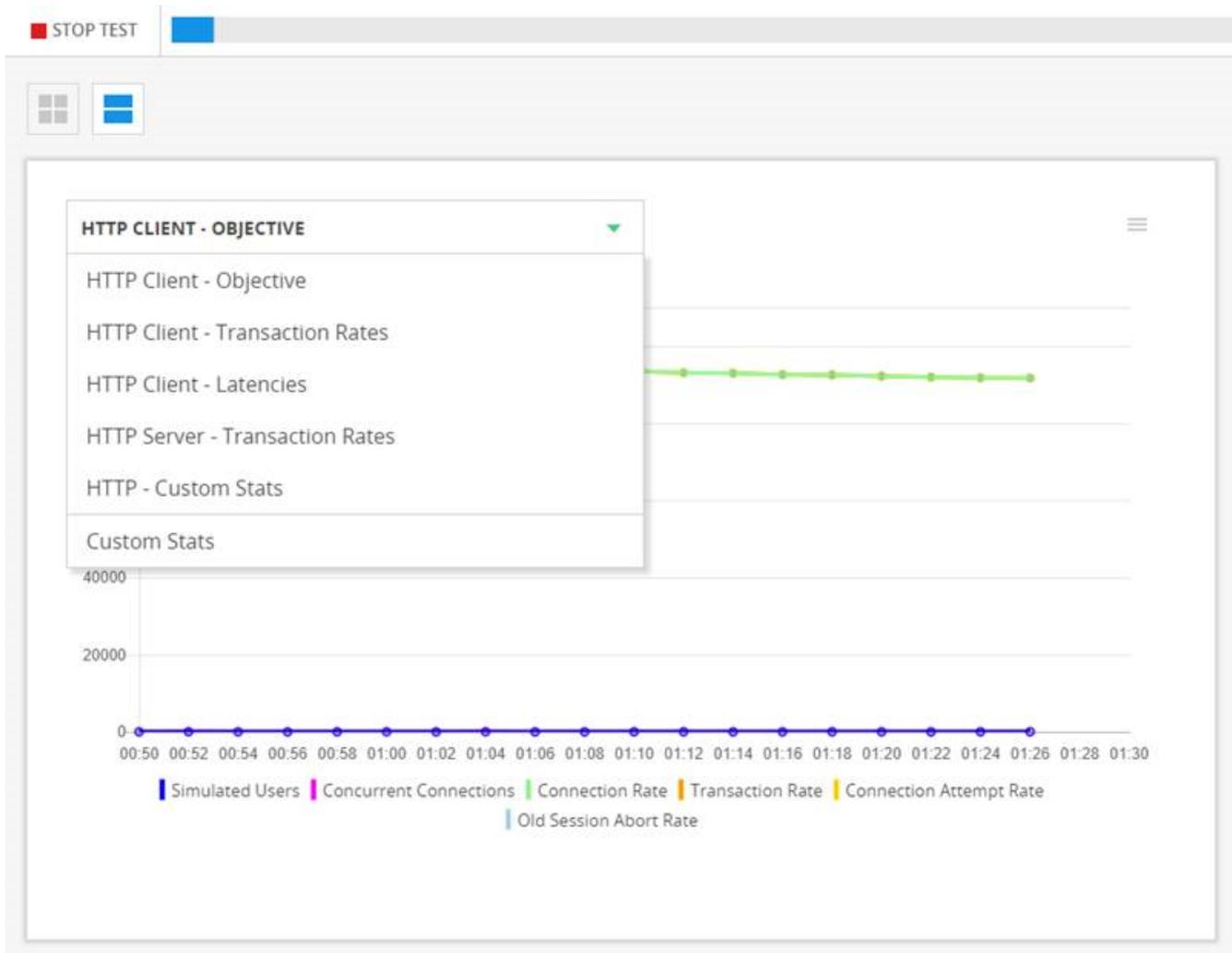
The chart on the right displays IxServer statistics.



To display a different view of statistics:

1. Click the drop-down button.
2. Select a new view from the list.

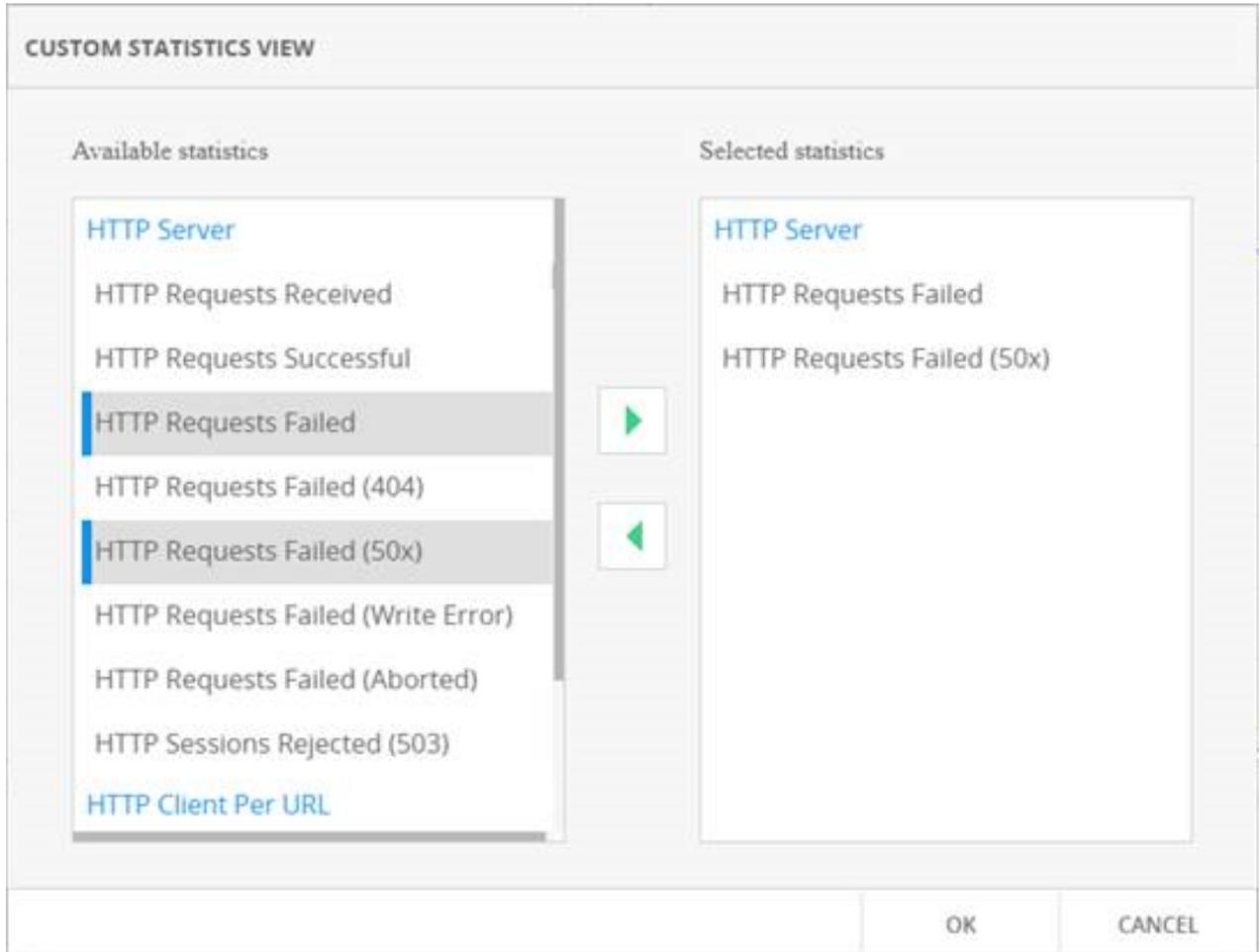
You can select from a set of predefined views, or you can select a custom view.



## Custom views

To display a custom view:

1. Select Custom Stats from the drop down.



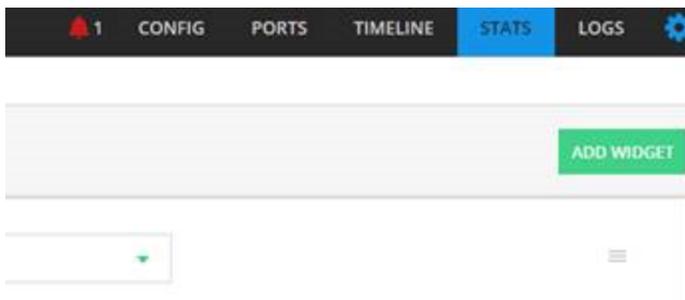
The Custom Statistics View window displays.

2. Select a statistic in the Available Statistics list, then click the > button to move it into the Selected Statistics list.

To remove a statistic from a custom view, select it in the Selected Statistics list, then click the < button to move it back to the Available Statistics list.

### Adding Widgets

You can add widgets to the Statistics view that enable you to analyze the statistics from a test.



To add a widget:

1. On the Statistics view, select Add Widget.
2. Choose the widget you want to add, then click OK.

## Managing the Test Configuration and Files

This section describes how to:

- Save the the test configuration, or load a different test configuration
- Upload and download the test configuration and test files

## Saving the test configuration

You can save the current test configuration (in .rxfl format) either with the same name or with a different name.

### Saving the test

To save the test configuration, choose one:

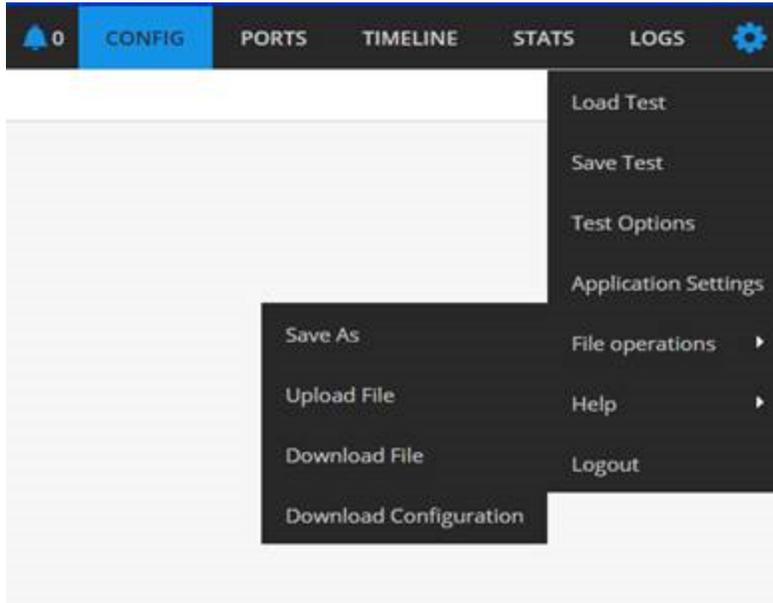
Same name	Different name
<p>To save the test with the same name, select Config   File operations   Save Test.</p>	<p>To save the test with a different name:</p> <ol style="list-style-type: none"> <li>1. Select Config   File operations   Save As. The Save As window displays.           <div> </div> </li> <li>2. Specify a name and path for the file. If you do not specify a path, the file is saved to the default upload path: <code>/mnt/ixload-share/</code> To specify a different path, specify the path relative to <code>/mnt/ixload-share/</code>. For example, if you specify: <code>config/test/sp_2activities.rxf</code> the file is saved to: <code>/mnt/ixload-share/config/test/sp_2activities.rxf</code></li> </ol> <hr/> <p> <b>Note:</b> To retrieve the upload path, you can use the REST API to perform a GET request on <a href="http://localhost:8080/api/v1/resources">http://localhost:8080/api/v1/resources</a>.</p>

## Loading a different test configuration

If you have an existing test session, you can change the test configuration loaded in it. .

To load a different configuration:

1. Display the session's configuration page.
2. Click Load Test.



The Load Config window displays.



## 3. Specify the .test configuration file to use.

Choose one:

To...	Do this:
Load a recently used file (a file that is already on the Linux VM).	Choose a file from the list, then select OK.
Upload an .rxf or .crf file from the local machine to the Linux VM.	<ol style="list-style-type: none"><li>Select Browse.</li><li>Choose an .rxf or .crf file, then select OK. IxLoad uploads the file from the local machine to the Linux VM. If you selected a .crf file, IxLoad uploads it to the VM, and then extracts it in .rxf format.</li></ol>
Manually enter the path to a file on the VM.	<ol style="list-style-type: none"><li>Select Server path.</li><li>In the field, enter the absolute path of a configuration file (.rxf or .crf) that already exists on the Linux VM.</li><li>Select OK.</li></ol>



**Note:** You can also load a configuration from the Settings menu.

## Downloading the test configuration

You can download the current test configuration from the Linux VM to the host where you are using the WebUI.

To download the test configuration:

1. Select Config | File operations | Download Configuration.
2. If you have changed the configuration after it was loaded, IxLoad prompts you to save the file.

Choose one:

- If you want to save the current configuration before downloading it, select Yes.
- If you want to download the original configuration, select No.

IxLoad downloads the file.

## Uploading and downloading files

You can upload files from the host where you are using the WebUI to the Linux VM, or download files from the VM to the host.

### Uploading files

To upload a file:

1. Select Config | File operations | Upload File.  
The Upload File window displays.
2. Select Browse, then select the file to upload.
3. In the Server path for the file field, you can specify a path for the file.  
If you do not specify a path, the file is saved to the default upload path: `/mnt/ixload-share/`  
To specify a different path, specify the path relative to `/mnt/ixload-share/`.  
For example, if you specify:  
`config/test/`  
the file is saved to:  
`/mnt/ixload-share/config/test/`

### Downloading files

To download a file:

1. Select Config | File operations | Download File.  
The Download File window displays.
2. In the Server path for the file field, specify the file and optionally, the path for the file (you can use the REST API to find the path and filename if you do not know them).  
If you do not specify a path, IxLoad expects the file to be on the default upload path:  
`/mnt/ixload-share/`  
If the file is on a different path, specify the path relative to `/mnt/ixload-share/`.  
For example, if the file and path is:  
`/mnt/ixload-share/config/test/sp_2activities.rxf`  
specify the file and path as:  
`config/test/sp_2activities.rxf`

