IxLoad

Release 9.45

Getting Started Guide

KEYSIGHT

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Notices

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Contacting Us

Keysight headquarters

1400 Fountaingrove Parkway
Santa Rosa, CA 95403-1738
www.ixiacom.com/contact/info

Support

Global Support	+1 818 595 2599	support@ixiacom.com
Regional and local support contacts:		
APAC Support	+91 80 4939 6410	support@ixiacom.com
Australia	+61-742434942	support@ixiacom.com
EMEA Support	+40 21 301 5699	support-emea@ixiacom.com
Greater China Region	+400 898 0598	support-china@ixiacom.com
Hong Kong	+852-30084465	support@ixiacom.com
India Office	+91 80 4939 6410	support-india@ixiacom.com
Japan Head Office	+81 3 5326 1980	support-japan@ixiacom.com
Korea Office	+82 2 3461 0095	support-korea@ixiacom.com
Singapore Office	+65-6215-7700	support@ixiacom.com
Taiwan (local toll-free number)	00801856991	support@ixiacom.com

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About this Guide

This section contains information that explains the typographical conventions used in this documentation. This information will aid you in using the documentation most effectively. Also provided is a list of related documentation that you may find useful.

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Conventions

The following typographical conventions are used in this documentation:

- Italics are used to indicate the names of software fields and parameters, titles of books or documents, and first references to words, terms, phrases, or concepts that have a special meaning or require special identification or emphasis. For example:
  - In the *userid* field, enter your assigned user identification number.
  - *Norton's Telecom Dictionary* is a helpful reference tool.
  - The term *tolerance level* refers to the standard deviation setting.
  - The variable *n* represents any numerical value.
- Menu names and options appear as bold blue text in online Help, and appear in small capital letters in documents. For example:
  - To save your input, choose the **File>Save** menu option.
- Bold black type is used to indicate the names of buttons, commands, and files that are part of procedures, as well as to identify field and parameter options. In addition, bold text emphasizes important information in text or in caution, warning, or danger statements. For example:
  - To proceed to the next step, click **OK**.
  - Use the **copy** command to duplicate the field entry.
  - Save and close the **books.xml** file.
  - **Always** save your test configuration.
- **Courier** text is used to indicate typed text input. For example:
  - Access the new file name at the command line: `c = newbook.gif`.
  - Enter the setup.ini location: `setupini = Ixia\Code\New`.
- PC keys are indicated in all caps, using the following conventions:
  - Simultaneous keystrokes are shown by joining the key names with a plus sign (+), For example, **CTRL+Q**.
  - Sequential keystrokes are shown by joining the key names with a comma (,). For example, **SHIFT, F7**.

The following table describes the note icons and messages used in this document.

Name	Icon	Description
Note	NOTE	Indicates information that emphasizes or supplements important points in the main text.
Important	IMPORTANT	Indicates information that is essential to the completion of a task.
Tip	TIP	Provides supplemental suggestions for applying techniques and procedures to accomplish a task.

Related Documentation

The following documentation may be helpful in gaining more understanding of IxLoad. The documentation is available from the **Help** pull-down menu in IxLoad or from the IxLoad CD.

IxLoad user documentation is also available from https://support.ixiacom.com. User registration is required to view this online documentation.

- *IxLoad User Guide* (online help)
- *IxLoad on Linux User Guide*
- *IxLoad Voice Test Library Reference Guide*
- *IxLoad REST API Programming Guide*
- *IxLoad for AWS Getting Started Guide*
- *IxLoad Tcl API Programming Guide*

Getting Started with IxLoad on legacy platforms

If you are new to IxLoad, you can follow the procedures in this Getting Started guide to run a simple test and quickly gain experience with IxLoad. If you need to do more advanced testing, you should refer to the *IxLoad User Guide*.

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Requirements

To run the IxLoad tests in this guide, you need the following:

- A chassis with a load module that supports IxLoad (see the release notes for the current list)
- Two ports available on the load module
- A loopback (cross-over) cable or layer 2 switch
- A PC with a supported version of Windows installed. For the current list of supported Windows versions, see the release notes.

Step 1: Install IxLoad

IxLoad is available for download on Keysight's website (https://support.ixiacom.com/support-overview/product-support/downloads-updates).

There are several different installers for IxLoad:

- `IxLoad_<version>.exe:` Installs the IxLoad client.
- `IxLoadChassis_<version>.exe`: Installs the IxLoad components that must run on the Ixia chassis.
- `IxLoadMediaClips_<version>.exe`: Installs the sample video files to be used for testing video performance.
- Other installers that install components required by IxLoad that perform specific functions.

NOTE In the current release of the application, the IxLoad installer does not contain any software prerequisites, such as the .NET framework or SQL Server Express, that are required for the IxLoad application to run. If the PC you are installing IxLoad on does not have the prerequisite software already installed, during the installation process you will be prompted to provide a location for any of the missing prerequisites. You then have the option of specifying a path on the local host (if you have them available as a kit stored on your host), or you can choose to download them from the http://www.ixiacom.com/support/downloads_and_updates/prerequisites page on the Keysight website.

You must install IxLoad in two locations:

- on the PC where you will run IxLoad
- on the chassis that you will use to generate IxLoad traffic

On the chassis, you must install IxOS before you install IxLoad. The IxOS components that IxLoad requires are installed by default when you install IxOS; you do not have to select any optional components during the IxOS installation. Refer to the IxLoad release notes for the specific version of IxOS that this release of IxLoad requires.

The PC that you will use for the IxLoad client should have at least a 1.8GHz P4 CPU, 1GB of RAM, and a screen resolution of 1024x768. The PC must have one of the versions of Windows listed under Requirements.

As part of the installation procedure, you will be asked to register IxLoad. You should ensure that you have your IxLoad licenses ready before you begin installation. If you are unfamiliar with the product licensing process, see IxLoad Licenses.

NOTE You can install multiple versions of IxLoad on the client and on the chassis. For information on using multiple versions of IxLoad, see the *IxLoad User Guide*.

To install IxLoad, see Installing IxLoad.

Installing IxLoad

NOTE In addition to a conventional attended installation, IxLoad can be installed silently. See Silent Installation.

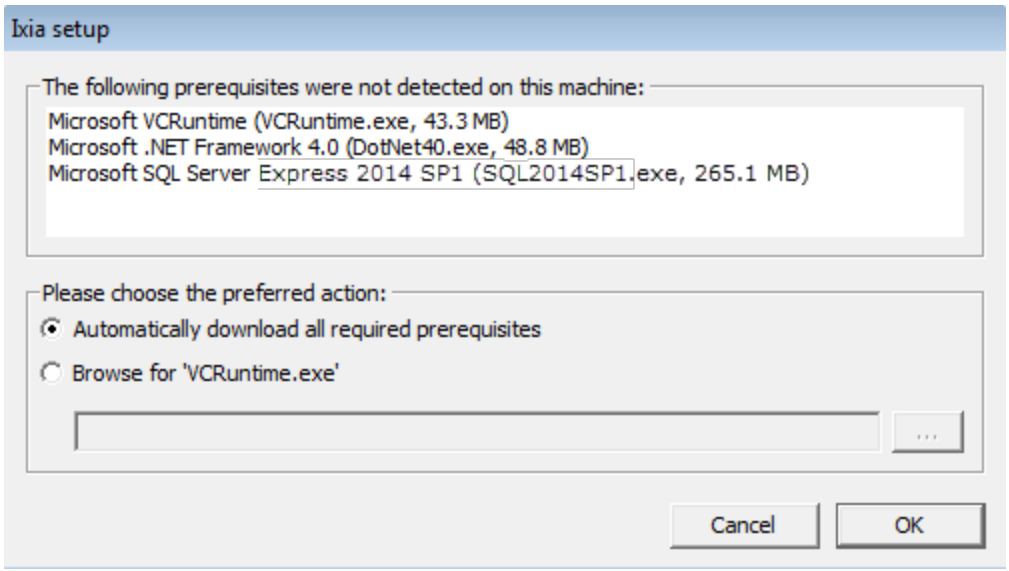
Prerequisites Required for Installation

IxLoad requires certain third-party components to be installed such as Microsoft DotNet 4 and Microsoft SQL Server 2014 SP1.

If you are installing from a DVD, these components are located under a folder named `prerequisites` in the root of the DVD. The installer will automatically locate and install the required components.

If the installer cannot automatically find the components under the `prerequisites` folder, it prompts you to choose how to find the components:

- **Automatically download...** allows the installation to download the required components from Keysight's website. This is the recommended option.
- **Browse** enables you to specify the directory where the components are located. If an Internet connection is not available on the PC on which you are installing IxLoad, you can download the components to another computer, share the location, and browse to that location.



To install IxLoad:

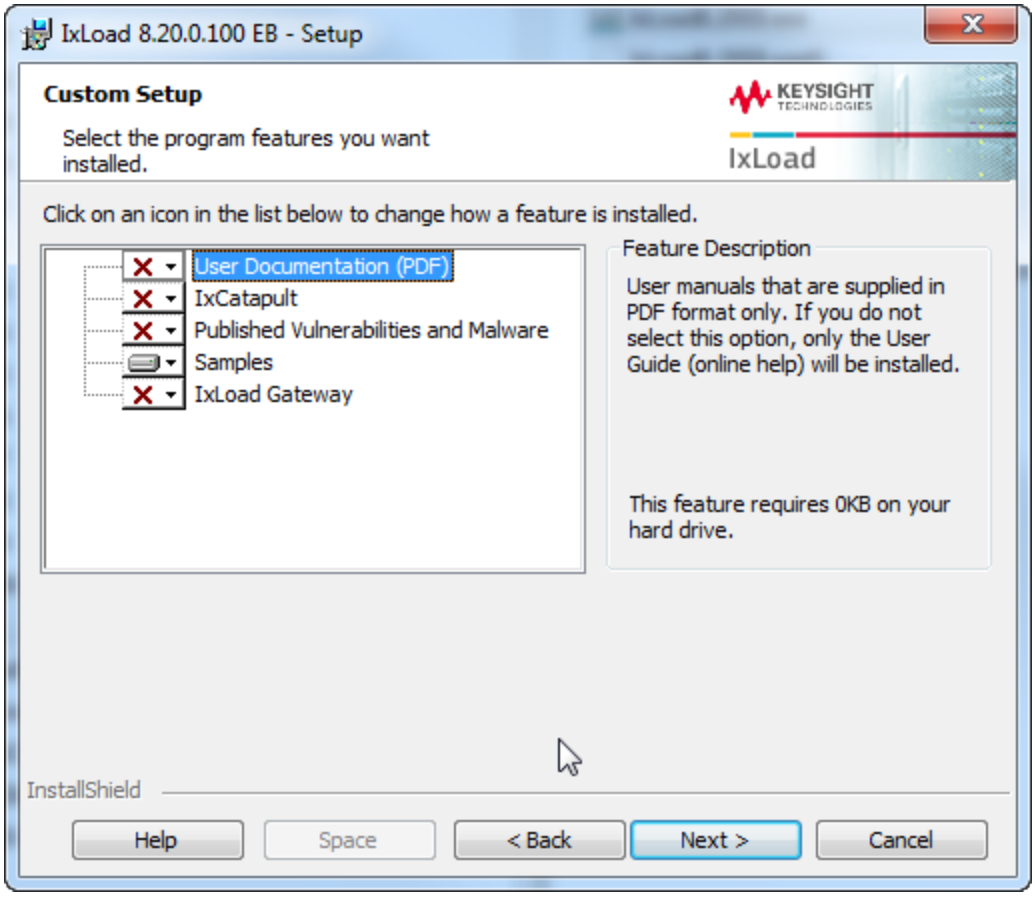
1. On a PC or Ixia chassis, login under an account that includes Administrator privileges. If you run the installation from an account that does not have Administrator privileges, the installer displays the following error message:
   ```
   Error installing ikernel.exe (0xa00)
   ```
2. The IxLoad installer consists of multiple files:
   - The installer and first part of the file repository: `IxLoad_<version>_EA.exe` (or `EB.exe`)
   - The remaining parts of the repository: `IxLoad_<version>_EA.partX` (or `EB.partX`)

   All these files must be in the same directory.
3. Double-click the installer `.exe` file to start the installation.

The installation is a typical InstallShield installation; respond to the prompts as the installer displays them in the windows.

4. The PC installer offers a choice of Typical Setup or Custom Setup. Custom Setup allows you to install several optional components:

User Documentation	Installs the user documents that are supplied as PDFs. If you do not select this option, only the User Guide (the online help) will be installed.
IxCatapult	Installs the IxCatapult LTE-UE plugin.
Published Vulnerabilities and Malware	Installs the PVM plugin.
Samples	Installs a zip archive containing sample repositories (.rxf files) and supporting files.
IxLoad Gateway	Installs the IxLoad Gateway, a component required for using the IxLoad REST API.



5. Click **Finish** to complete the IxLoad installation.
   Remember to install IxLoad on the remaining system (chassis or PC) before you start to use it.

Silent Installation

In addition to a conventional attended installation, IxLoad can be installed silently.

Client Installation

To install the IxLoad client components silently:

1. Open a console window and set the path to the directory containing the IxLoad client .exe file.
2. Extract the installer using the following command:
   `IxLoad<version>.exe /s /extract-only`
   Example: `IxLoad6.70EB.exe /s /extract-only`
   The installation files are extracted to the following location:
   `\Program Files\IxiaInstallerCache\IxLoad\x.x.x.x` where `x.x.x.x` is the build number.
3. Change the path to the directory where the installer files were extracted to.
4. Start the silent setup with the following command:
   `setup.exe -s CannedConfig=Full`

Chassis Installation

To install the IxLoad chassis components silently:

1. On the chassis, open a console window and set the path to the directory containing the IxLoad chassis .exe file.
2. Extract the installer using the following command:
   `IxLoadChassis<version>.exe /s /extract-only`
   Example: `IxLoadChassis6.70EB.exe /s /extract-only`
   The installation files are extracted to the following location:
   `\Program Files\IxiaInstallerCache\IxLoad\x.x.x.x` where `x.x.x.x` is the build number.
3. Change the path to the directory where the installer files were extracted to.
4. Start the silent setup with the following command:
   `setup.exe -s`

Step 2: Connect the test ports

To run the tests described in this guide, you can use either of two test topologies:

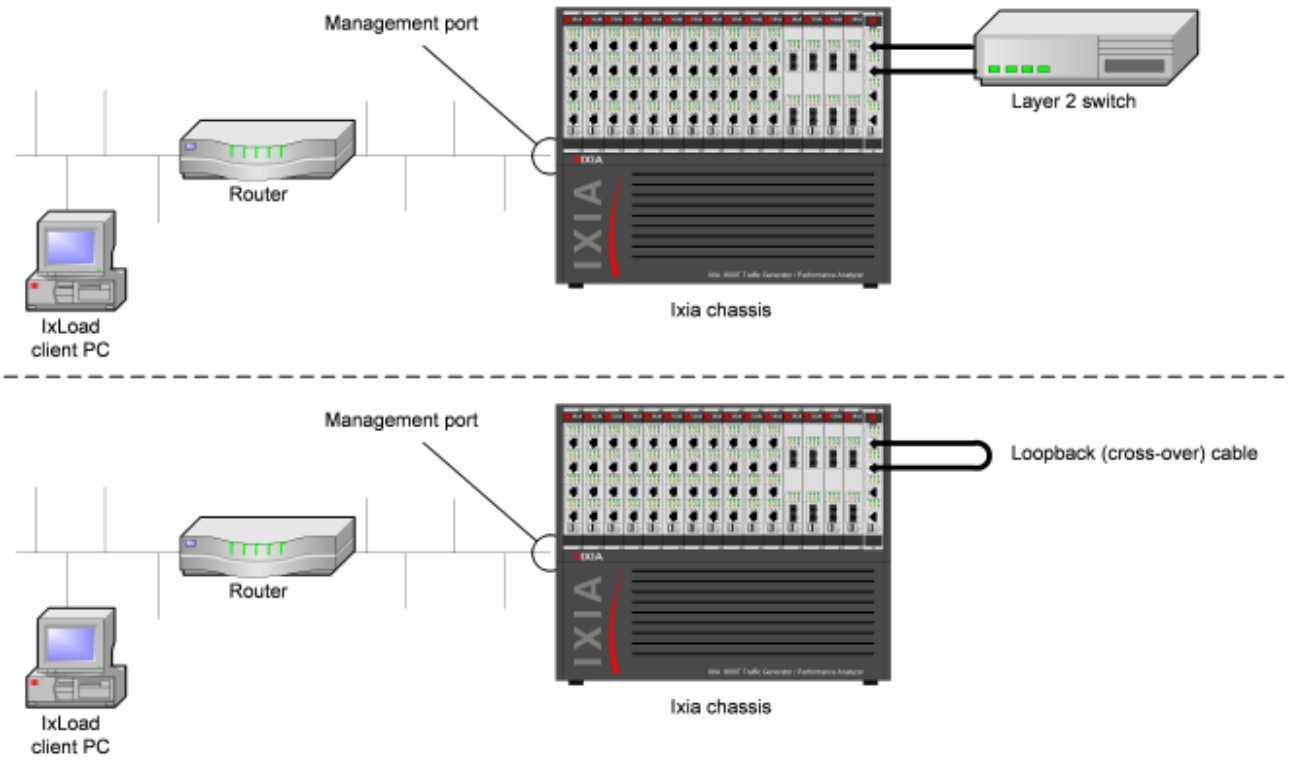
- Test ports connected to a Layer 2 switch.
- Test ports connected directly to each other (back-to-back).

The figure below shows both topologies. Connecting the test ports to a DUT would create a realistic test scenario and results; connecting the test ports directly to each other is simpler. Either one will work for the purpose of getting to know IxLoad.

To connect the test ports:

1. Choose the scenario you want to use, and then connect the test ports.
2. On the IxLoad client PC, test your connection to the chassis by using the Ping command to ping the management port on the chassis.

NOTE On an XM12 chassis, the management port is on the front of the chassis. On all other chassis, it is on the rear.



Step 3: Extract the Sample Repository

IxLoad includes a zip file named `samples.zip` that contains a large number of sample repositories. You can use the repositories in `samples.zip` to familiarize yourself with IxLoad, or you can use them as templates for creating your own repositories.

To perform the test described in this guide, you use a repository in `samples.zip` named `simpleHTTP.rxf. simpleHTTP.rxf` contains most of the elements required to run a basic HTTP test.

To extract `simpleHTTP.rxf`:

1. Start Windows Explorer, and browse to the following directory: `<installPath>\Ixia\IxLoad\<version>\`
2. Open the `samples.zip` file, and extract the `simpleHTTP.rxf` file.

Step 4: Start IxLoad and Open the Sample Repository

Before you start IxLoad:

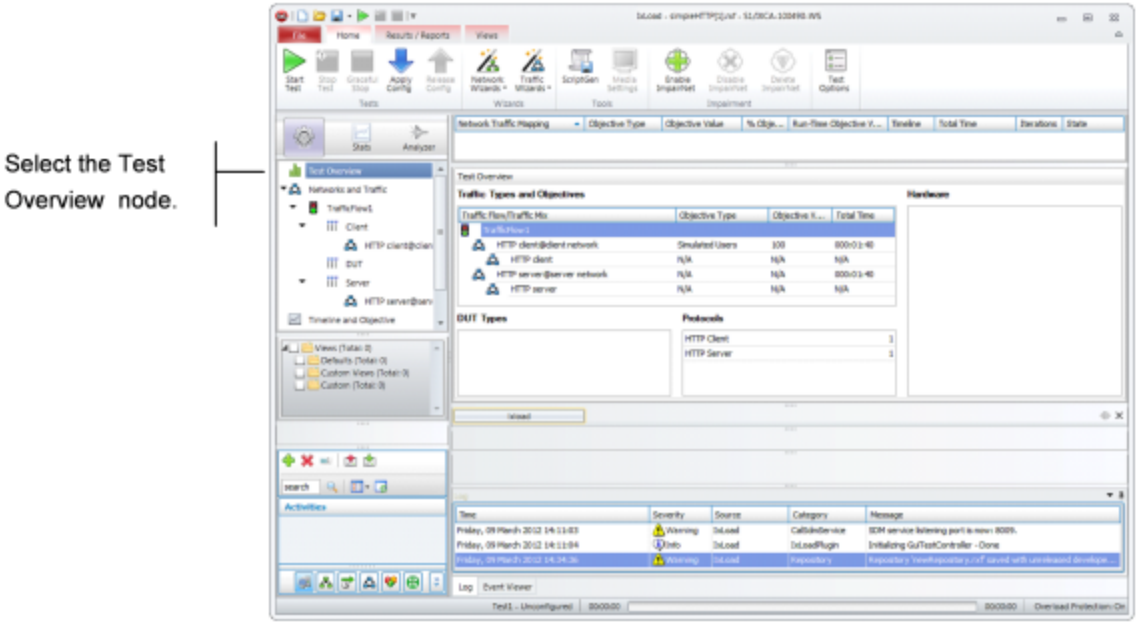
- Make sure IxServer is running on the chassis. IxServer normally starts automatically when Windows starts or when a user logs on.
- Make sure that you know which ports are available on the chassis. Other Keysight applications such as IxExplorer, IxAutomate, and Tcl scripts allow users to take ownership of ports on the Ixia chassis. If IxLoad tries to use a port owned by another user, it will not be able to run the test.

To start IxLoad and open the sample repository:

1. Double-click the IxLoad icon (shown below).

   IxLoad's main window displays. IxLoad automatically logs you on using the local network name configured on your PC. When you select test ports for your test, IxLoad will use this name to identify those ports as being reserved for your exclusive use.
2. On the File tab, click **Open Repository**.
3. Browse to the location where you extracted the **`simpleHTTP.rxf`** repository.

   IxLoad opens `simpleHTTP.rxf`.
4. Select the **Test Overview** node to display an overview of the test.



Step 5: View the Client and Server Networks

In IxLoad, a *network* determines the addresses of the hosts and their network configuration. An IxLoad network consists of simulated subnets residing on one or more test ports. For most applications that you plan to use IxLoad for, you can think of networks as simulating LANs containing either clients or servers.

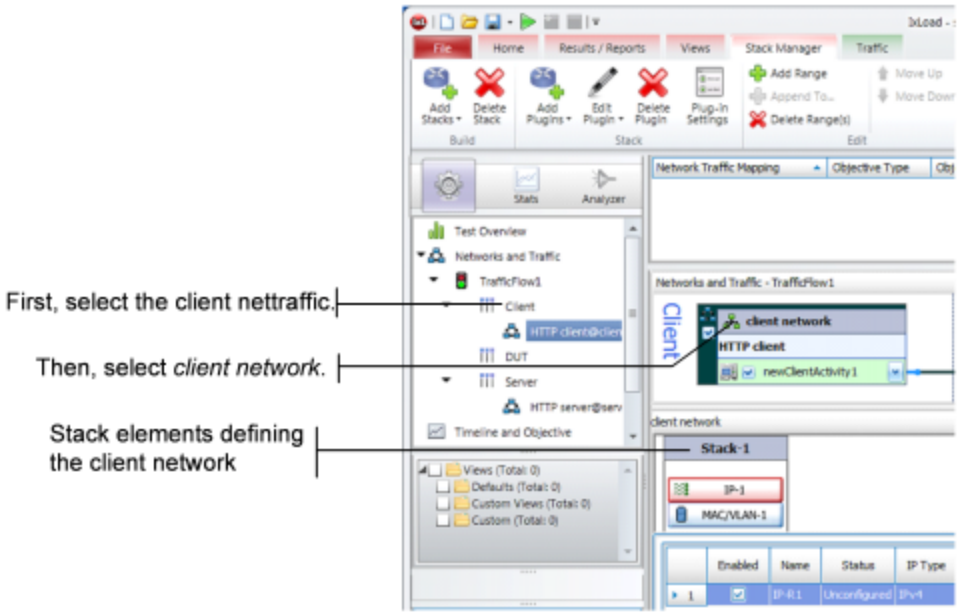
The `simpleHTTP.rxf` repository includes client and server networks you can use for your testing. You can accept the default entries for these networks or change them if necessary.

To view the default client and server networks:

1. In the Test Configuration node, select the client nettraffic (as shown below).
2. In the client nettraffic, select **Client Network**.

   When you select Client Network, the area to the right of the Test Configuration node contains the elements that define the properties of the network.

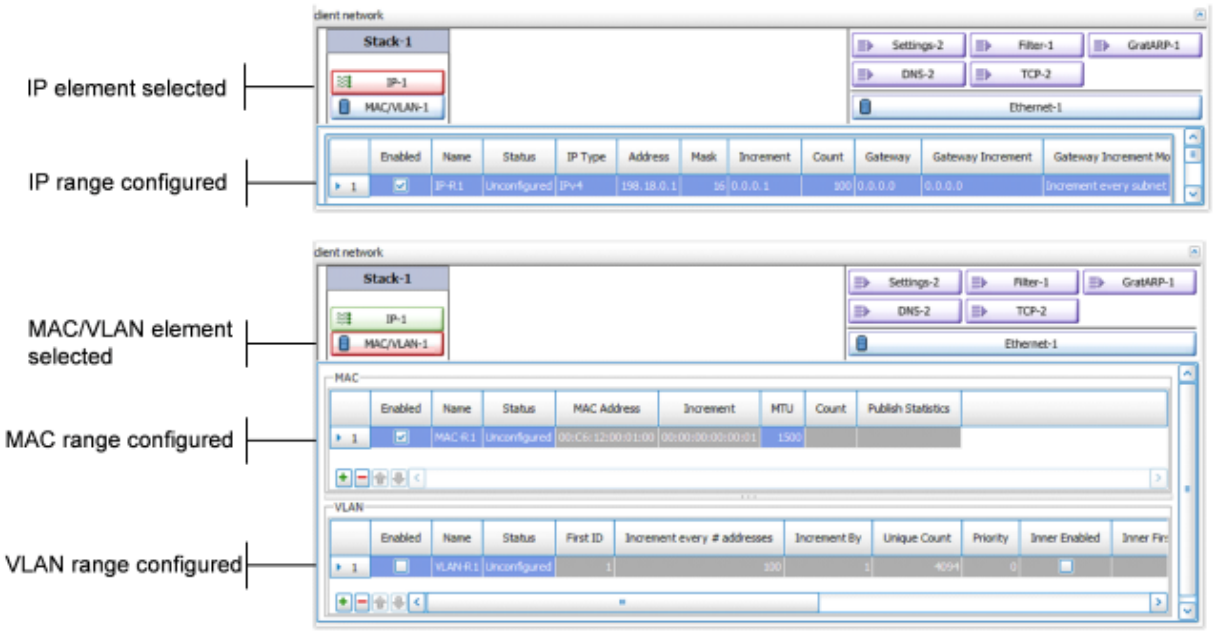
   For example, the IP element defines the IP address ranges that will be used on the network. The IP element defines the IP addresses to be used.



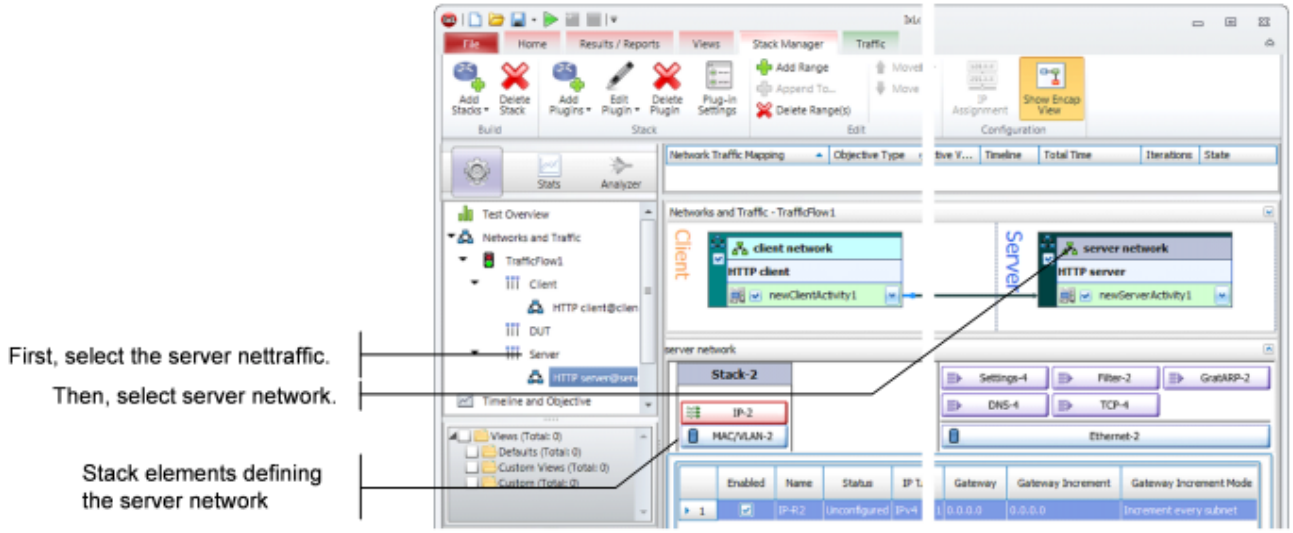
3. Click each element to see the ranges that are configured.

   For the network in *simpleHTTP.rxf*, there is one range of IP addresses and one range of MAC addresses (see figure below). There is a range of VLAN tags configured, but they are disabled and will not be used in this test .

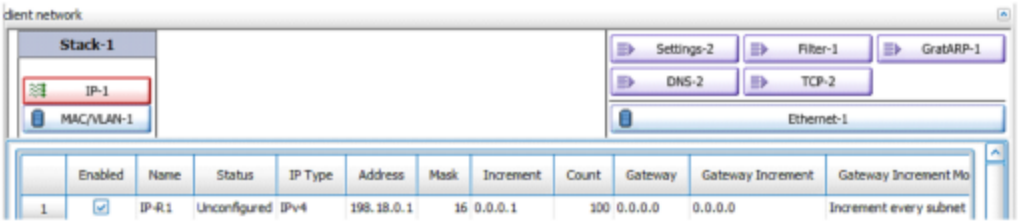
   Click each of the tabs if you want to view the parameters configured for them.



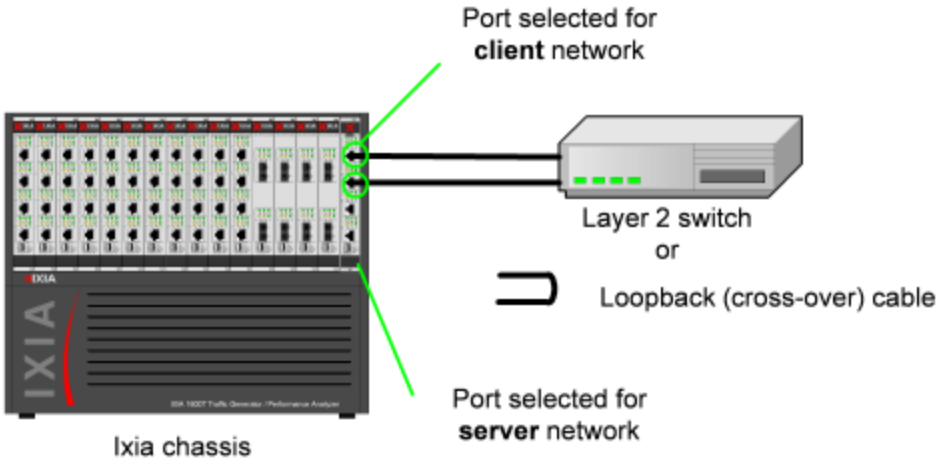
4. To view the server network, select the server network in the repository tree (see figure below).
5. Select **Servers**.



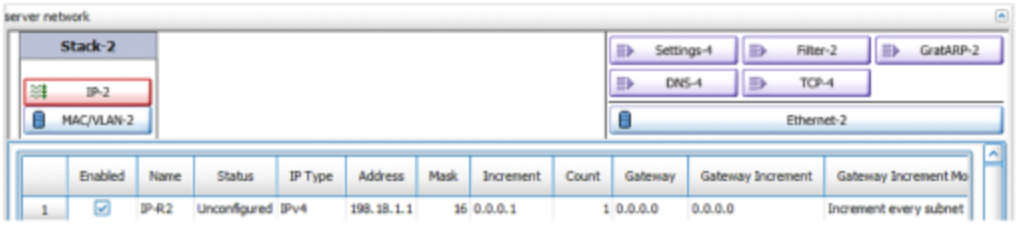
As with the client network, the tabs to the right display the network parameters that define the server network. The figure below shows how the network controls correspond to the test topology.



- One layer 2 switched subnet that creates 100 simulated hosts
- IP address of first host: 198.18.0.1
- IP address of subsequent hosts: 198.18.0.*n*



- One layer 2 switched subnet that creates 1 simulated host
- IP address of host: 198.18.1.1



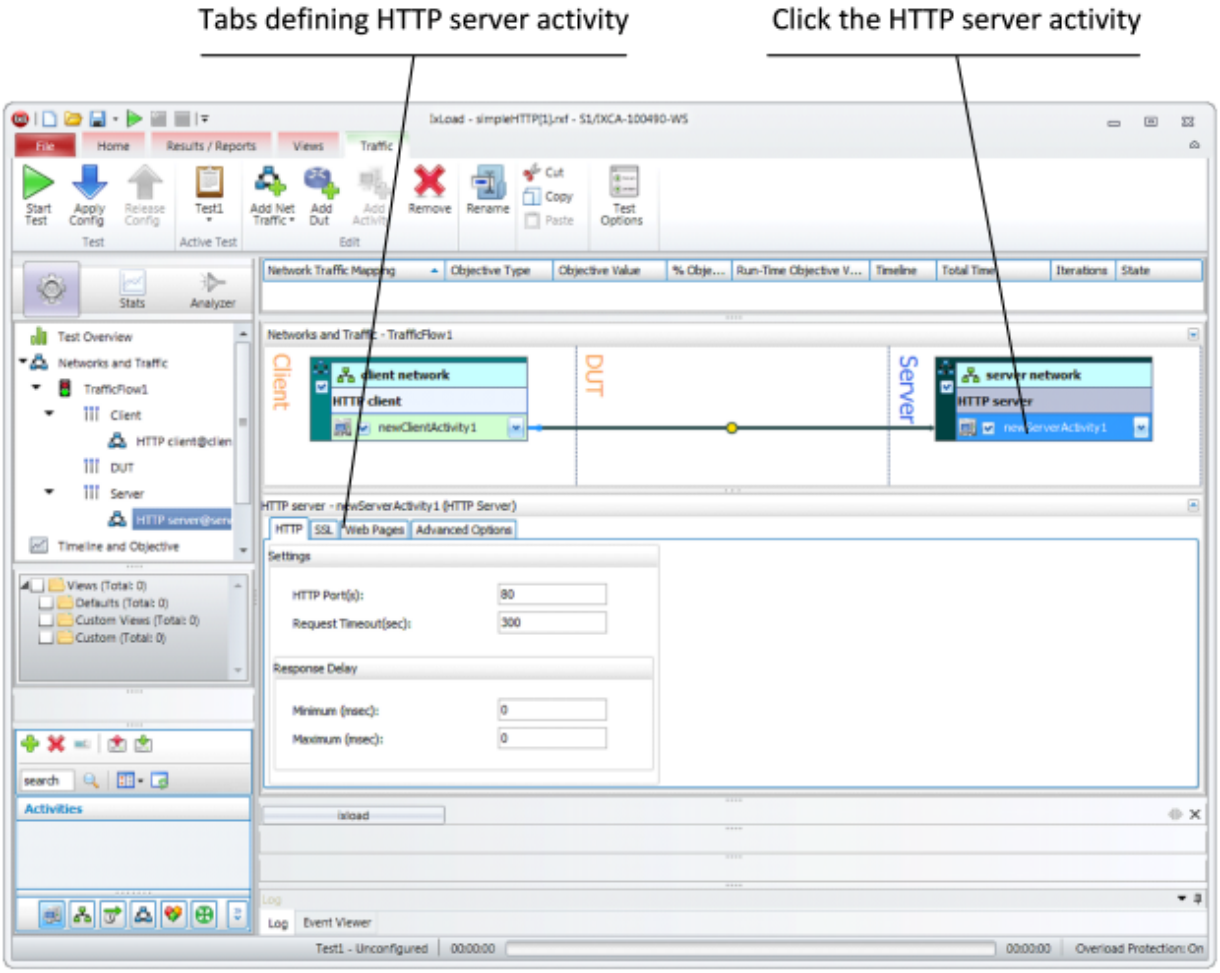
Step 6: Display the Server and Client Traffic

In IxLoad, traffic is generated by Activities. An Activity defines the non-network properties of a traffic stream, such as its protocol, its role in the connection (client or server), and the functions it performs, such as executing commands (for an HTTP client) or serving pages (for an HTTP server).

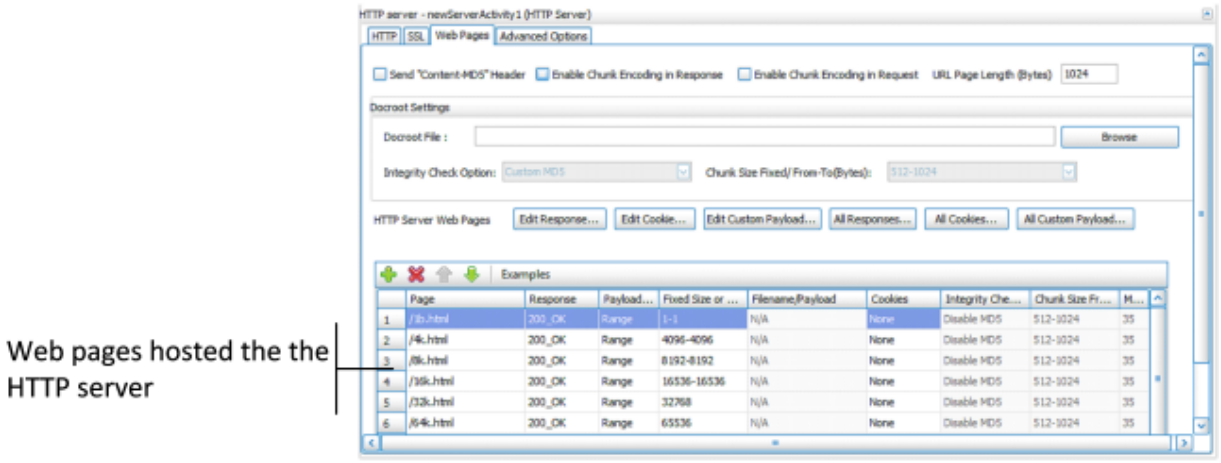
`SimpleHTTP.rxf` includes one client activity and one server activity. The client activity simulates a web browser and the server activity simulates a web server.

To display the server and client Activities:

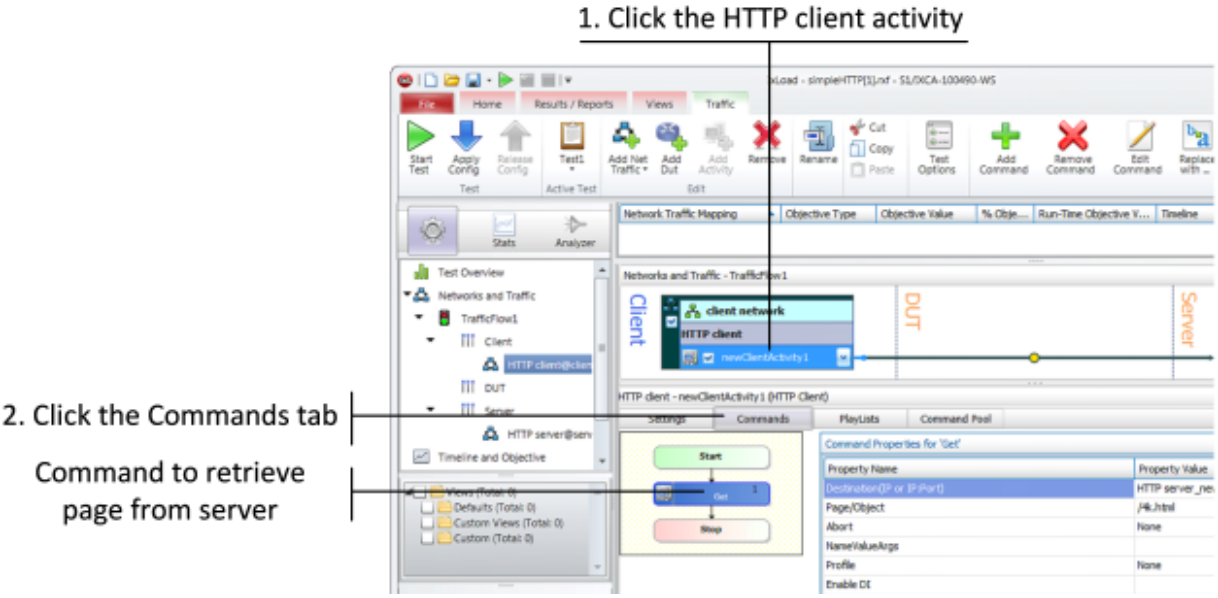
1. In the Server column of the Scenario Editor, click the HTTP server activity.
   The tabs on the bottom half of the window contain the controls used to configure the HTTP server activity.



2. Click the Web Pages tab.
   The Web Pages tab lists HTML pages that the IxLoad HTTP server will offer.



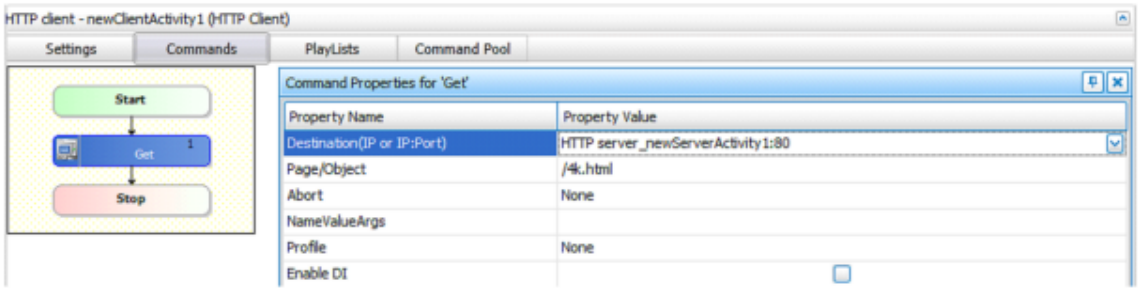
3. Select the HTTP client to display the HTTP client NetTraffic, then click the HTTP Client activity.



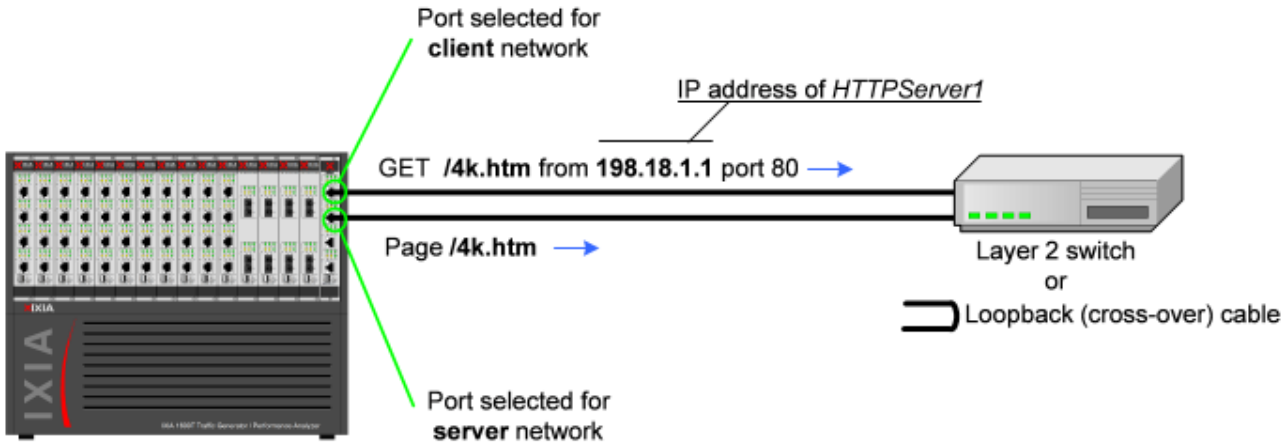
In the area to the right of the Navigation Tree, the tabs that define the client HTTP activity display. These tabs define the attributes and functionality of the client HTTP activity.

4. Click the Commands tab.

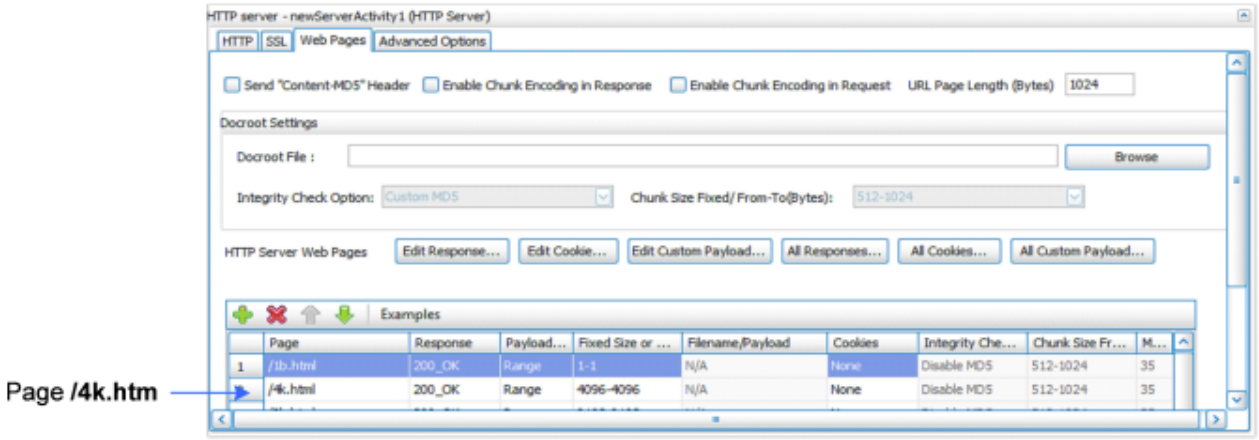
   The Command List is the list of commands that the client will execute. For the default client activity in `simpleHTTP.rxf`, the command list contains one command, a GET that retrieves a 4-kilobyte HTML page from the HTTP server activity.



HTTP client will request page named **/4k.htm** from the HTTP server activity named *HTTPServer1*



HTTP server activity named *HTTPServer1* contains page named **/4k.htm**

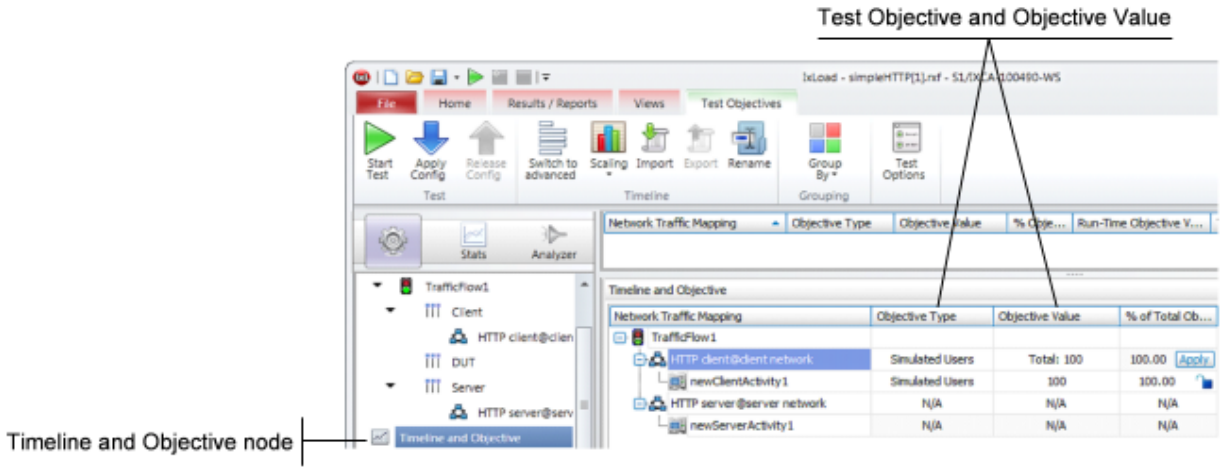


Step 7: View the Timeline and Objectives

In this step, you view the test timeline and objective.

To view the test setup:

1. In the Test Configuration tree, click the **Timelines and Objectives** branch (see figure below).

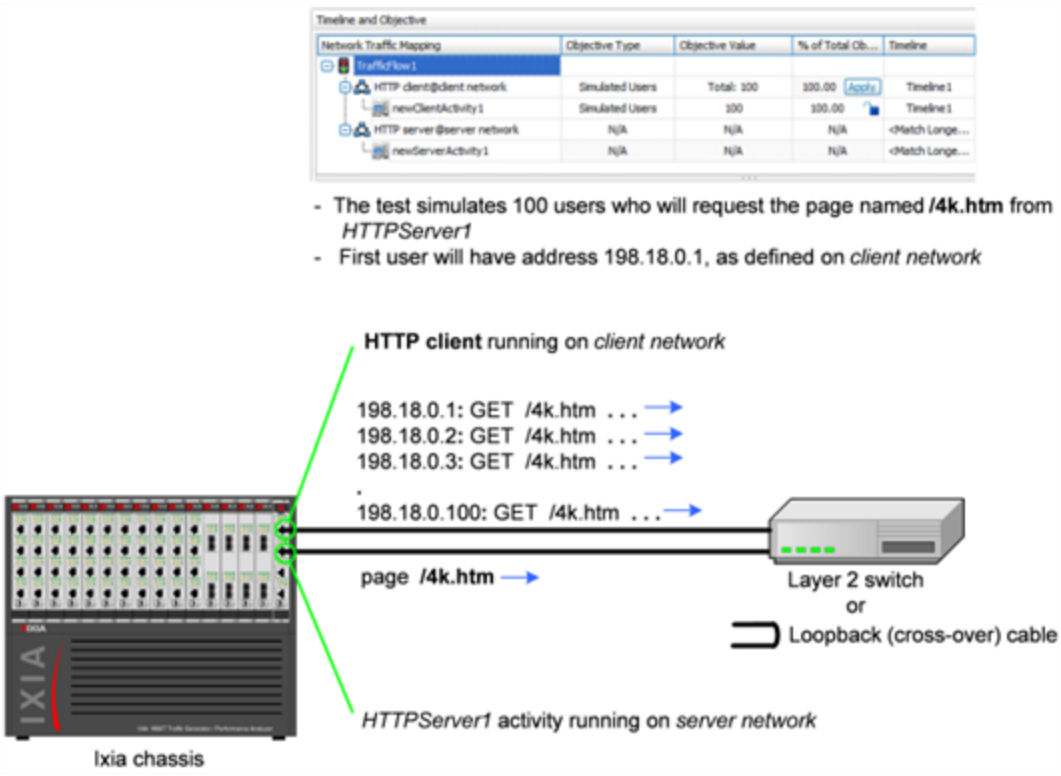


The windows on this branch display the timeline (the timing of events that occur during the test, such as when the simulated users and HTTP server are brought online) and the Test Objective.

The *Test Objective* is the type of goal that the test attempts to reach. For *simpleHTTP.rxf*, the default Test Objective is *Simulated Users*, meaning that the test will attempt to simulate some number of HTTP users using web browsers.

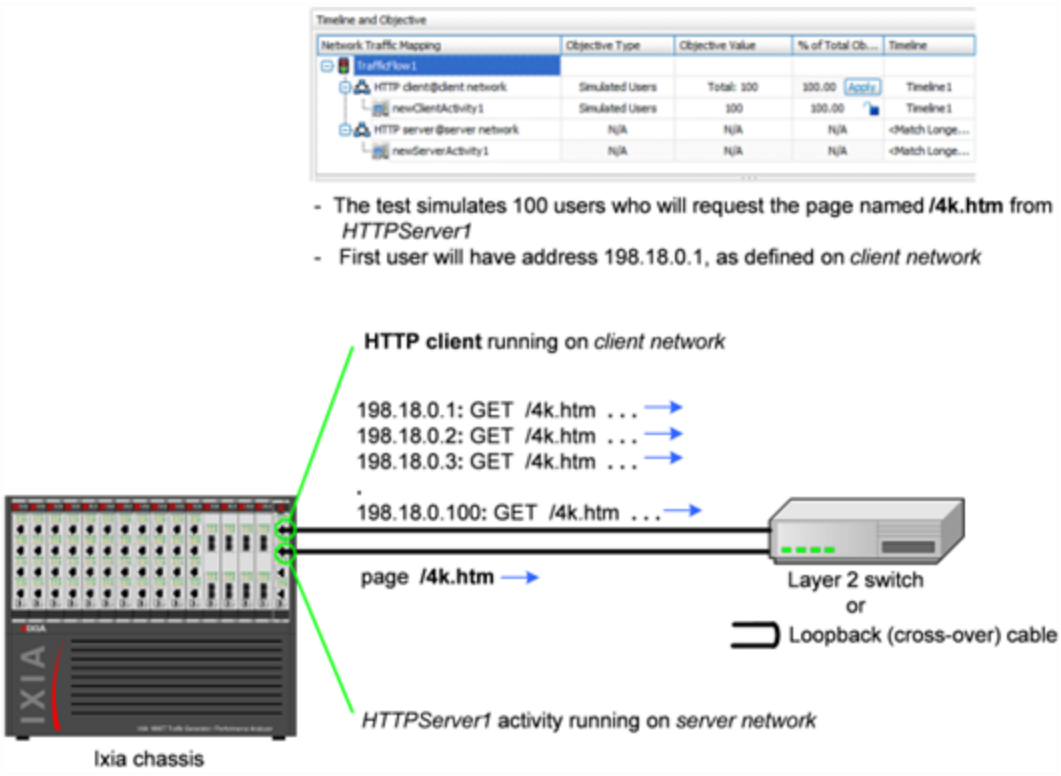
The *Objective Value* is the numerical goal for the Test Objective. For *simpleHTTP.rxf*, the Objective Value is 100. Combined with the *Simulated Users* test objective, this means that the test will attempt to simulate 100 web browsers active at one time.

The figure below shows how the test objective relates to the actions of the client and server in *simpleHTTP.rxf.*



The **Timelines** tab (shown below) in the lower portion of the window contains the controls that determine the point during the test when clients and servers begin to come online, the rate at which they come up (Ramp Up), the length of time they stay up (Sustain Time), and the rate at which clients go offline (Ramp Down).

2. For the Timelines tab, accept the default values configured in *simpleHTTP.rxf*.

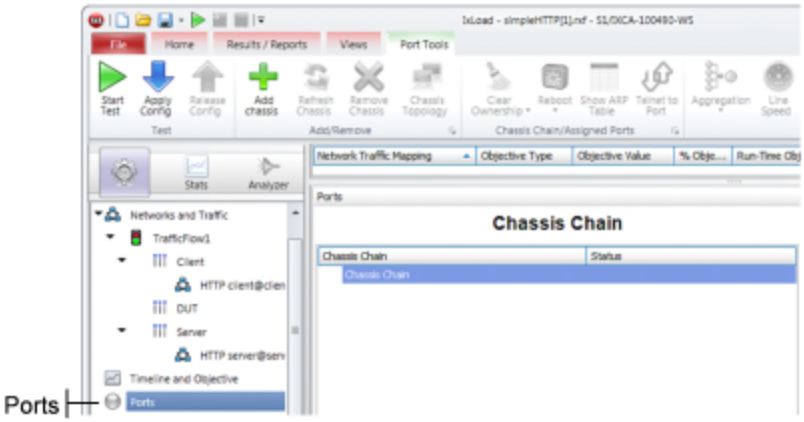

Timeline and Objective
Network Traffic Mapping
Objective Type
Objective Value
% of Total Ob...
Timeline
TrafficFlow1
HTTP client@client network
Simulated Users
Total: 100
100.00
Apply
Timeline 1
newClientActivity1
Simulated Users
100
100.00
Timeline 1
HTTP server@server network
N/A
N/A
N/A
<Match Longe...
newServerActivity1
N/A
N/A
N/A
<Match Longe...
- The test simulates 100 users who will request the page named /4k.htm from HTTPServer1
- First user will have address 198.18.0.1, as defined on client network
HTTP client running on client network
198.18.0.1: GET /4k.htm . . .
198.18.0.2: GET /4k.htm . . .
198.18.0.3: GET /4k.htm . . .
198.18.0.100: GET /4k.htm . . .
page /4k.htm
Layer 2 switch
or
Loopback (cross-over) cable
HTTPServer1 activity running on server network
Ixia chassis

Step 8: Select Ports for the Test

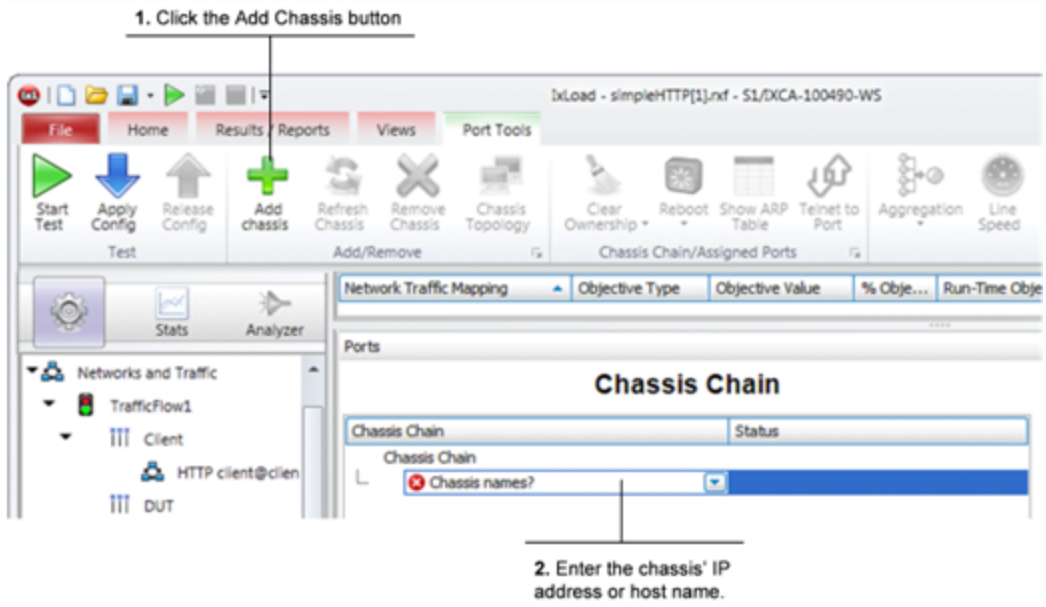
In this step, you select the ports that you will use for the test and assign them to the client and server networks.

To select ports for the test:

1. Select the **Ports** node.

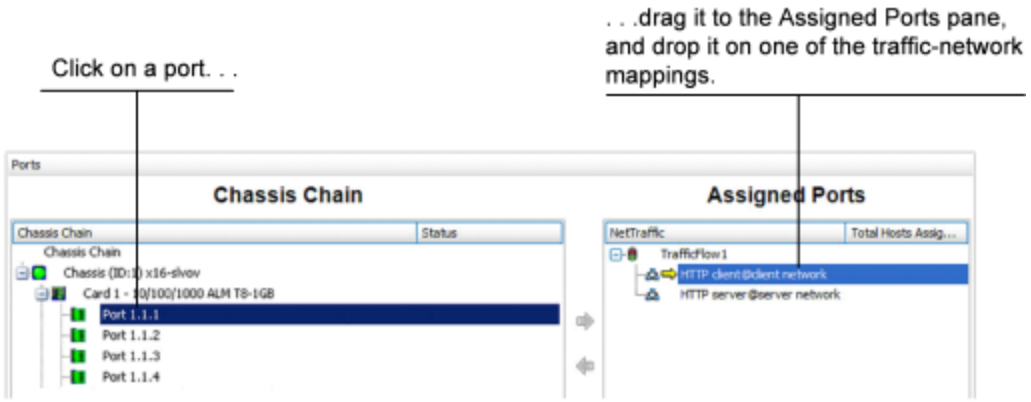


2. Click the **Add Chassis** button.
   IxLoad adds a new entry to the Chassis Chain.



3. In the new entry, type the IP address or host name of the chassis.
   IxLoad connects to the chassis and adds it and its ports to the Chassis Chain. The Chassis Chain list displays only the cards that support IxLoad.
4. In the Chassis Chain pane, click one of the ports, drag it into the Assigned Ports pane, and drop

it on one of the traffic-network mappings. Repeat for the remaining traffic-network mapping.

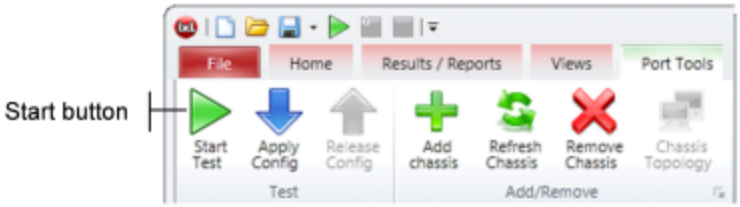


Step 9: Start the Test

At this point, the test is ready to run. The only remaining configuration task depends on your IxLoad license:

To start the test:

1. In the toolbar, click the **Home** tab.
2. Click **Start Test**.



IxLoad downloads the test configuration to the ports and then starts the test.

Step 10: View the Test Results

IxLoad displays the test results in three ways:

- In real time during the test, using StatViewer.
- After the test completes, in a PDF-format report.
- After the test completes, in a CSV file.

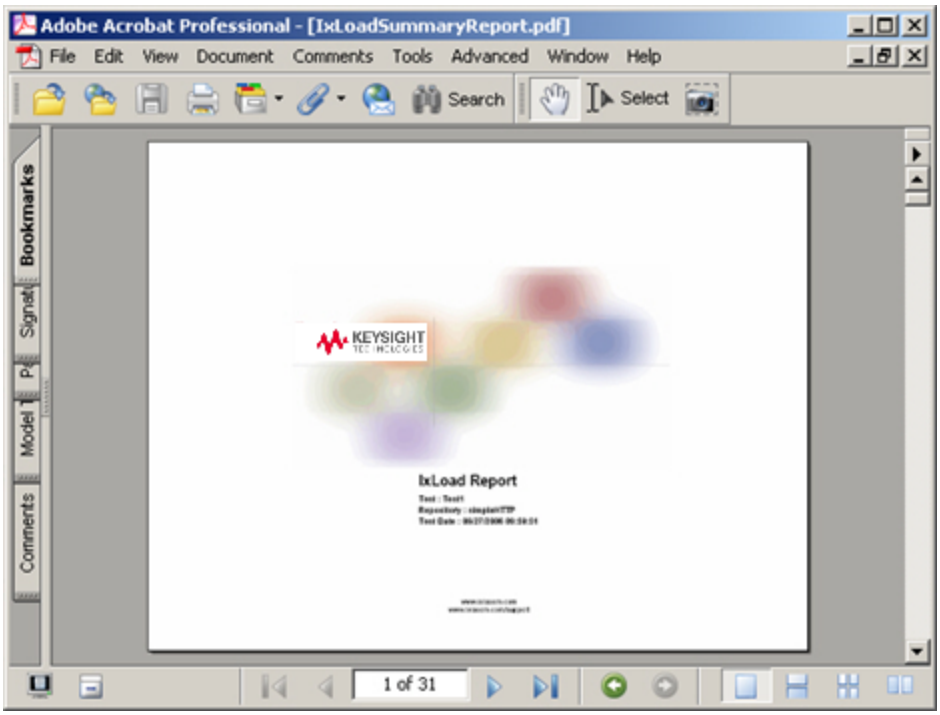
StatViewer

After the test starts, IxLoad automatically switches to the Statistics view, which displays the statistics from the test (*Figure 35*). IxLoad uses a separate application named StatViewer to display the real-time test statistics. When you start a test, IxLoad automatically starts StatViewer.

You can use StatViewer to select the statistics that display, to define the way that they display, to analyze and compare statistics, and many other functions. For information on using StatViewer, see the *StatViewer User Guide*.

PDF Report

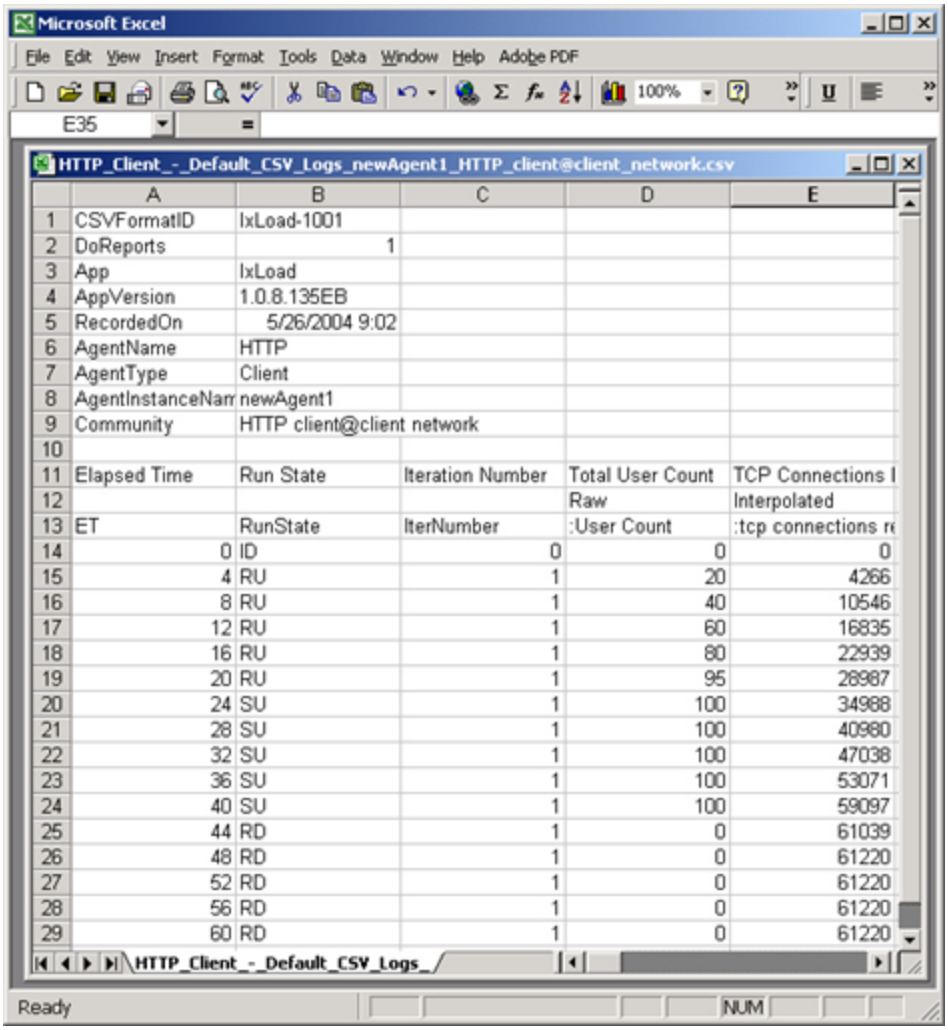
After the test ends, IxLoad generates a PDF-format report that contains a summary of the test results.


Adobe Acrobat Professional - [IxLoadSummaryReport.pdf]
File Edit View Document Comments Tools Advanced Window Help
Search
Select
Bookmarks
Signatures
Model Tree
Comments
KEYSIGHT
IxLoad Report
1 of 31

CSV Files

After a test ends, IxLoad also stores test statistics in comma-separated values (.csv) files.

The test results are available from the location defined on the User Directories window. See User Directories.



	A	B	C	D	E
1	CSVFormatID	IxLoad-1001			
2	DoReports	1			
3	App	IxLoad			
4	AppVersion	1.0.8.135EB			
5	RecordedOn	5/26/2004 9:02			
6	AgentName	HTTP			
7	AgentType	Client			
8	AgentInstanceNam	newAgent1			
9	Community	HTTP client@client network			
10					
11	Elapsed Time	Run State	Iteration Number	Total User Count	TCP Connections I
12				Raw	Interpolated
13	ET	RunState	IterNumber	:User Count	:tcp connections r
14	0	ID	0	0	0
15	4	RU	1	20	4266
16	8	RU	1	40	10546
17	12	RU	1	60	16835
18	16	RU	1	80	22939
19	20	RU	1	95	28987
20	24	SU	1	100	34988
21	28	SU	1	100	40980
22	32	SU	1	100	47038
23	36	SU	1	100	53071
24	40	SU	1	100	59097
25	44	RD	1	0	61039
26	48	RD	1	0	61220
27	52	RD	1	0	61220
28	56	RD	1	0	61220
29	60	RD	1	0	61220

Each time you run a test, IxLoad creates a new directory to store the CSV and log files in; it names the directory based on the repository name, test configuration, date and time of the test, and the activity model and network group used. For example, the format for the client-side file is:

```
C:\Program Files\Ixia\IxLoad\<version>\Results\<repository>_<test configuration>_
<yyyy><mm><dd>_<hh><mm><ss>
```

An example of an actual file is:

```
C:\Program Files\Ixia\IxLoad\<version>\Results\simple_HTTP_Test1_20050124_
101412\HTTP_Client_-_Default_CSV_Logs_http10_HTTP_client@client_network.csv
```

Step 11: Save the Test Configuration

If you want to save the test configuration and port assignments you used in the preceding steps, you should save the *simpleHTTP.rxf* repository with a new name.

To save the test configuration:

1. Click the File tab.
2. Select **File | Save As**.
   IxLoad prompts you to enter a name for the test configuration.
3. Enter a name for the repository, then click **Save**.

Further Testing with IxLoad

This section contains additional sample tests that will further familiarize you with IxLoad. These tests make use of the IxLoad test configuration (the ports you selected while using the `simpleHTTP.rxf` repository) created in the previous section. If you did not save that configuration, follow the steps in the previous section re-create it.

The first test described in this section adds more page requests to the existing HTTP client.

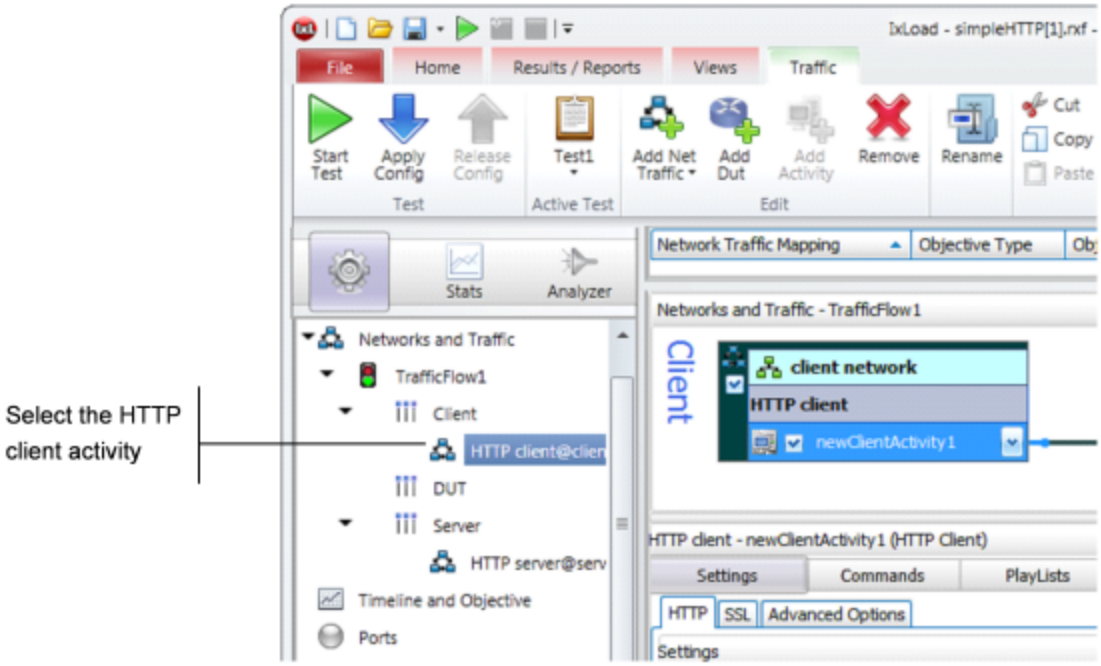
The second test adds FTP traffic to the HTTP traffic in the original test configuration.

Adding Page Requests to the HTTP Client

In this section, you add more page requests to the existing HTTP client.

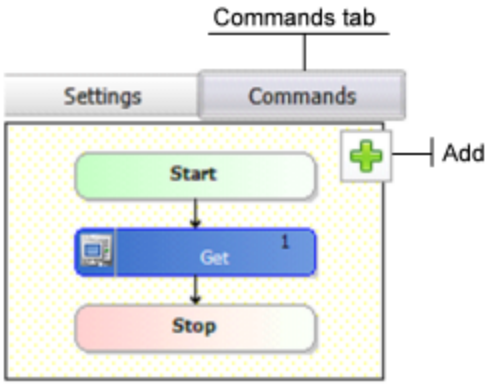
To add page requests to the HTTP client:

1. In the Test Configuration tree, select the HTTP client activity.



2. Click the **Commands** tab.

3. Hover the cursor over the Command list until the **Add** button displays.



4. In the list of Available Commands, select **GET**, then click **Add**.
   IxLoad adds the GET to the command list.
5. Select the command, as follows:

Destination:	Select **HTTP server_HTTPServer1:80**, the HTTP server activity.
Page/Object:	Select any of the pages listed.
Abort:	Leave this set to the default, **None**.
NameValue Args:	Leave this field blank.

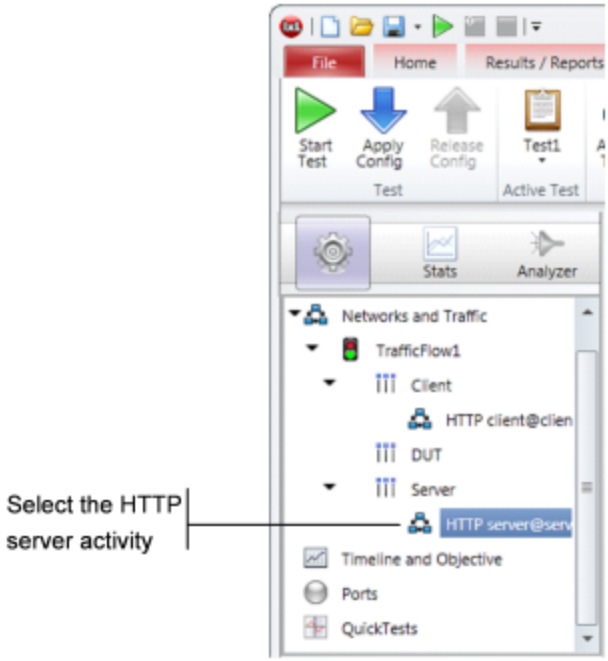
6. Optionally, you can click **Add** again and configure additional GET commands.
7. Run the test as described in *Step 8: Start the Test*.
8. Follow the steps in *Step 9: View the Test Results* and compare the results with those from the original test using the one-page GET.

Adding FTP Traffic

This section describes how to add FTP traffic to the existing HTTP traffic.

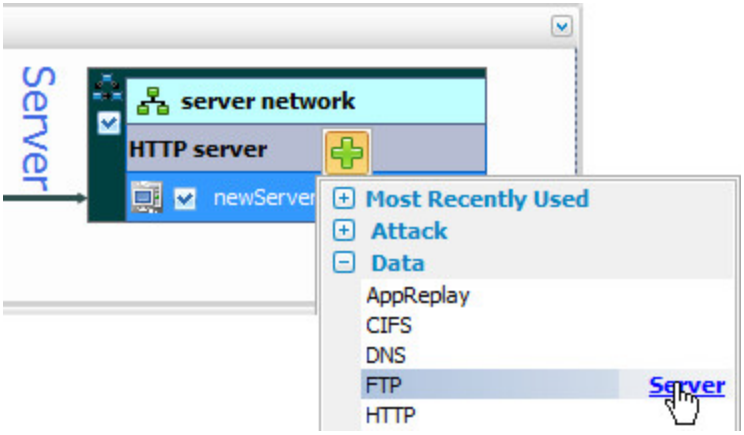
To add FTP traffic to the test:

1. In the Test Configuration tree, select the HTTP server activity.

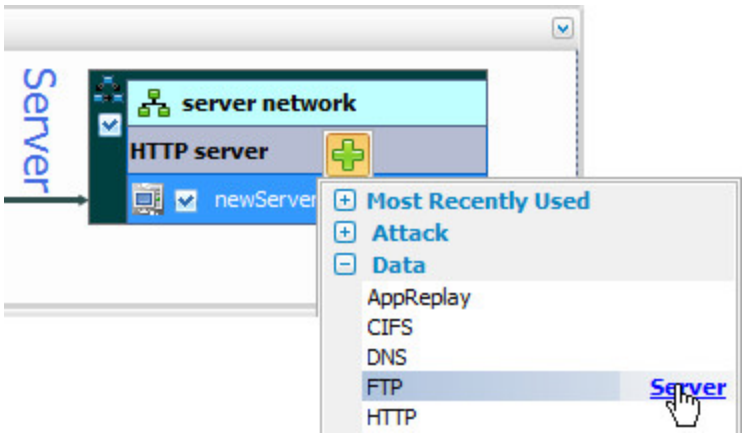


2. Hover the cursor over the Activity list of the HTTP server NetTraffic, then click **Add** to add a new activity.

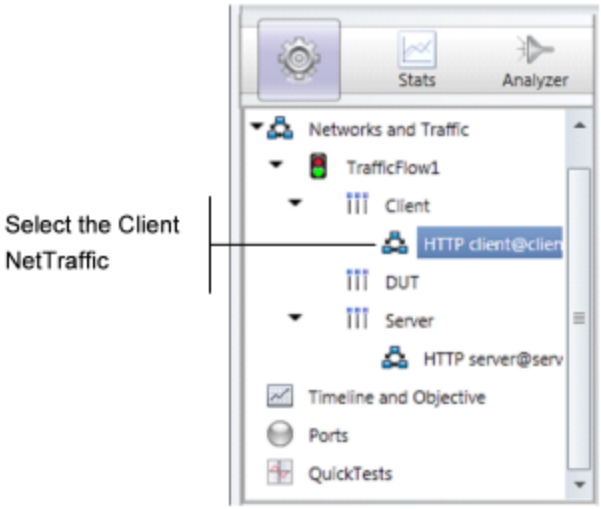
3. Select **FTP Server** from the list of activities.



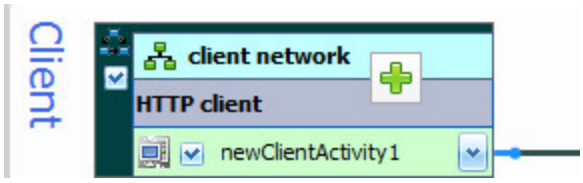
IxLoad adds a new FTP Server Activity to the HTTP server.



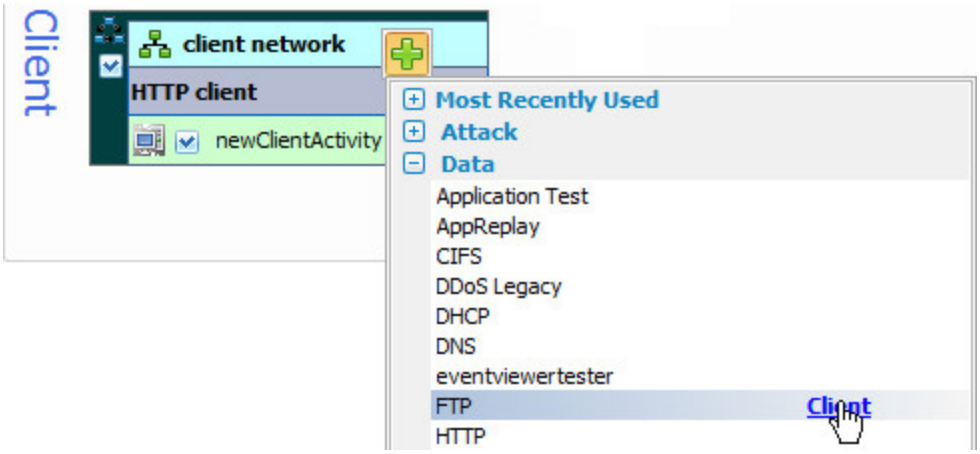
4. In the Test Configuration tree, select the **Client** activity.



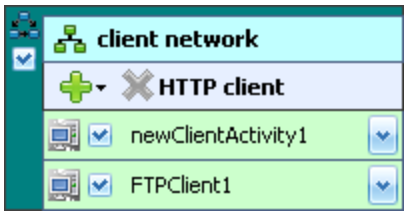
5. In the Activity list of the client NetTraffic, hover the cursor over the over the NetTRaffic until the **Add** button displays, then click **Add** to add a new activity.



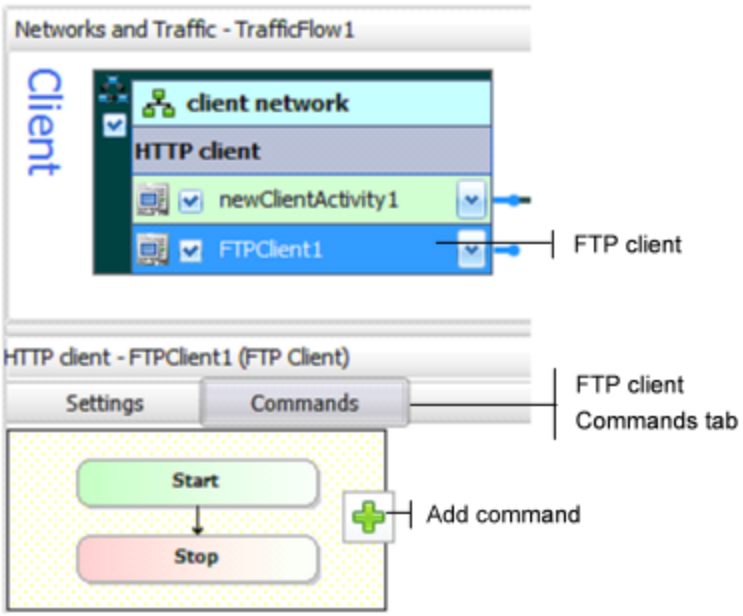
6. Select **FTP Client** from the list of Activities.



IxLoad adds a new FTP Client activity to the HTTP client (as shown below).



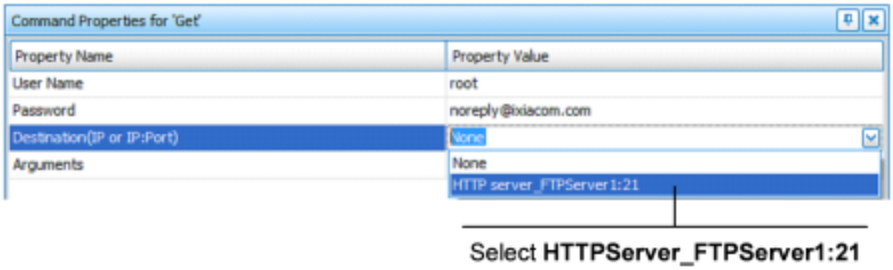
7. In the NetTraffic, select the FTP client, then click the **Command** tab.
8. In the Command list, click **Add** to add a new command.



9. In the list of Available Commands, select **{Get}**, then click **Add**.
IxLoad adds a new {Get} command to the FTP client's command list.

10. Configure the command parameters as follows:

User Name:	Enter a user name or leave this field set to its default.
Password:	Enter a password (an SMTP email address) or leave this field set to its default.
Destination:	Select **HTTP server_FTPServer:21**, the activity that contains the FTP server agent you added in the previous steps.
Arguments:	Leave this field set to its default.



11. Click **Start Test** to start the test.
12. Monitor the test progress and compare the results for the new test configuration that includes FTP traffic with those for the previous test that only included HTTP traffic.

Getting Started with IxLoad on the *APS-M1010/APS-ONE-100*

1. Follow the instructions on how to setup and configure the APS platform with IxLoad in the *APS-M1010/APS-ONE-100 Platform for IxLoad Installation Guide*.
2. Continue with Step 1: Install IxLoad on page 11in this guide.

IxLoad Licenses

IxLoad is a licensed product. You do not need a license to configure a test, but you do need one to run a test. The license must cover the protocols that you have configured for the test. Before IxLoad starts a test, it checks for the presence of a valid license. If you do not have a license for IxLoad, contact Keysight Sales (see page ii) or your Keysight sales representative.

The licenses for legacy chassis and the APS-M1010 chassis are different:

- Legacy chassis: Licenses are perpetual and node-locked to a specific chassis.
- APS-M1010: Licenses are floating perpetual per compute node, node-locked to a controller.

IxLoad licenses for APS-M1010 chassis

On the APS-M1010 chassis, you use the KCOS command line interface (CLI) to configure the license for IxLoad.

For information on using the KCOS CLI, see the *APS-100/400GE Series Platform KCOS Command Line Interface (CLI) Reference Guide*.

IxLoad licenses for legacy chassis

On a legacy chassis, IxLoad's default behavior is to check for a license on the chassis selected for the test. If your license for IxLoad is installed on a different host, use the procedure described in the *IxLoad User Guide* to define the license server.

This section describes the two most common scenario for installing (activating) a license on a legacy chassis: *online activation* and *offline activation*.

- Online activation means that the IxLoad PC that will use the license is connected to the Internet and can reach the activation server (the host that holds the license). If the PC can access the internet, it should be able to this method.
- Offline activation means that the IxLoad host that will use the license is not connected to the Internet or cannot reach the activation server. For example, a host in a secure lab that where Internet access is blocked will have to use offline activation.

If you need more information, the processes for installing and managing licenses are described in the *Licensing Management User Guide*.

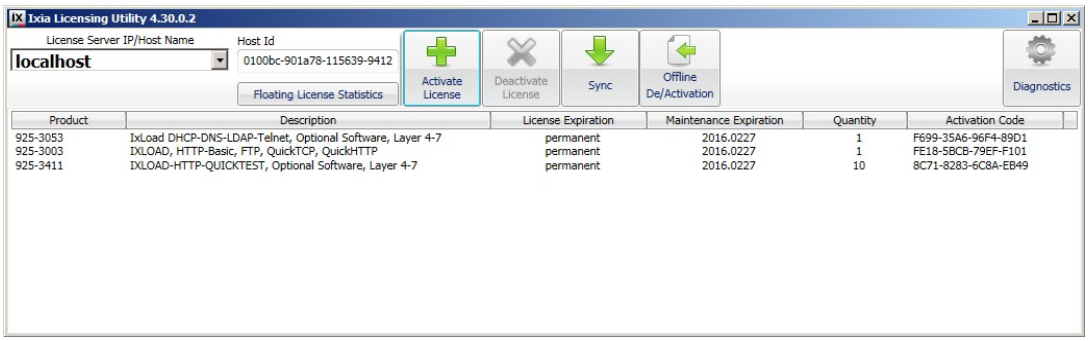
Online Activation

To install a license, you use the Ixia Licensing Utility (ILU), which is installed automatically when you install IxLoad.

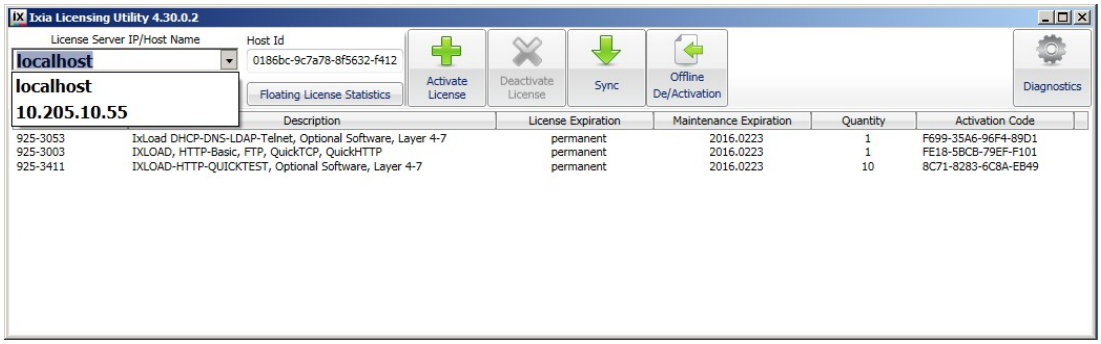
Before you begin:

- To install a license,you need an *activation code*, which is sent in an email when you purchase a license.
- Licenses are stored on license servers, which can be an Ixia chassis or another host on the network. You need to know the hostname or IP address of your license server to activate a license.

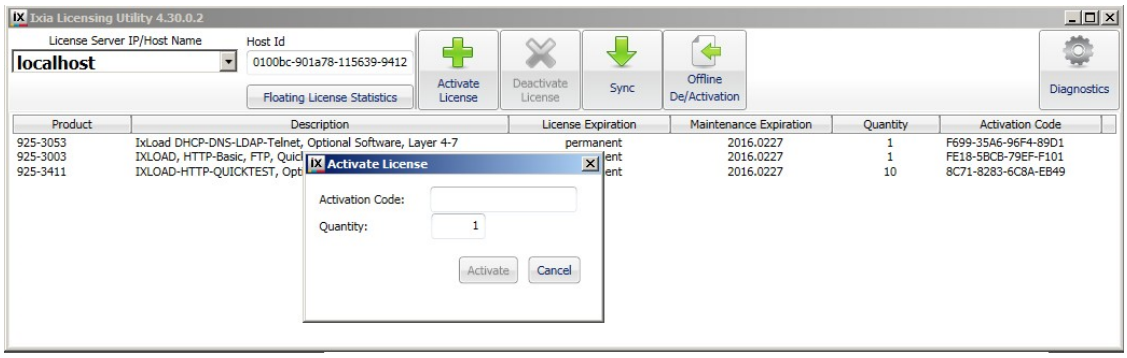
1. Start the Ixia Licensing Utility. To start the ILU, click:
   Start | All Programs | Ixia | LicenseServerPlus | Ixia Licensing Utility



2. In the **License Server IP/Host Name** field, select the host name or IP address of the license server that holds the license you want to activate. If it is not in the list, enter its IP address or host name.



3. Click **Activate License**.
   The Activate License window displays.



4. In the Activation Code field, enter the activation code from the email message.
5. In the Quantity field, the number of licenses you want to activate.

   The Quantity value you enter must be the new total number of licenses activated for the specified code, including those licenses that have already been activated previously.

   For example, if an activation code has 6 licenses already activated and you want to activate 3 more licenses, you would specify 9 for Quantity (6 previous + 3 new = 9 total licenses).
6. Click **Activate**.

   The license is now available for use on the chassis or workstation. If it is a single node-locked license, it can only be used on that particular chassis or workstation.

Offline Activation

Offline activation is required when the PC that will use the license does not have access to the Internet or to the Ixia chassis where the Ixia Licensing Utility (ILU) is installed. As a solution to this limitation, you can generate the license file from a computer with Internet connection and then transfer the file (using a USB stick, shared network location, or similar means) to the computer or Ixia chassis where the ILU is installed. When imported into the ILU, the license file activates the license.

Offline activation is a 2-stage process:

1. Generate the license file from a computer with Internet access.
2. Import the license file onto the PC that will use the license.

Ensure that you can complete both stages within 48 hours because the license file is only valid for 48 hours.

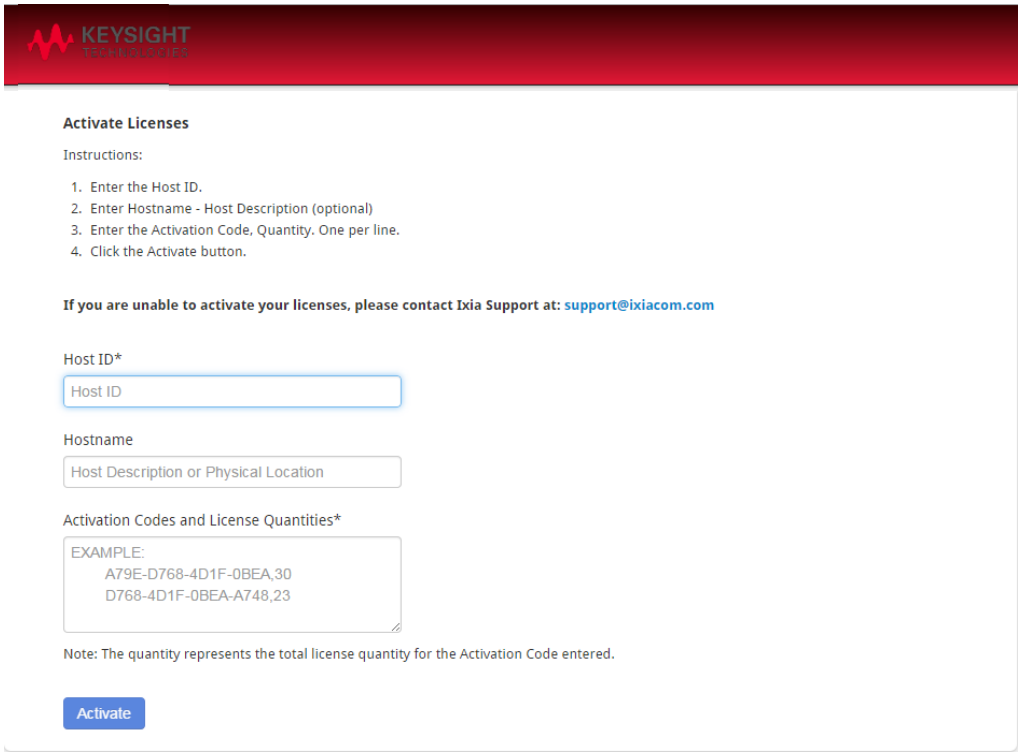
Before you begin:

- To install a license,you need an *activation code*, which is sent in an email when you purchase a license.
- You need to know the hostname or IP address of the Ixia chassis or other host where the ILU is installed.
- Ensure that you know how many licenses have already been activated for the activation code, and how many remain (you can use the ILU on the Ixia chassis to find out).

Stage 1: Generate the license file

To generate the license file:

1. On a PC that has Internet access, open the following page in a web browser:
   https://fulfillment-prod.ixiacom.com/activation



2. In the **Host ID** field, enter the Host ID of the computer or Ixia chassis where the ILU is installed.
3. In the **Activation Codes and License Quantities** field, enter the activation code from the email and the number of licenses you want to activate for that code. Use the following syntax:
   `<ActivationCode>, <LicenseQuantity>`
   You can perform offline activation for multiple codes at once by placing each code and quantity on a separate line:
   `<ActivationCode1>, <LicenseQuantity1>`
   `<ActivationCode2>, <LicenseQuantity2>`
   `...`
   For the License Quantity, the value you enter must be the new total number of licenses activated for the specified code, including those licenses that have already been activated previously.
   For example, if an activation code has 6 licenses already activated and you want to activate 3 more licenses, you would specify 9 for License Quantity (6 previous + 3 new = 9 total licenses).
4. Click **Activate**.
   The system generates the license file in .bin format, prompting you to open or save it.
5. Save the license file in the required location and then transfer it to the computer or Ixia chassis

where the ILU is installed.

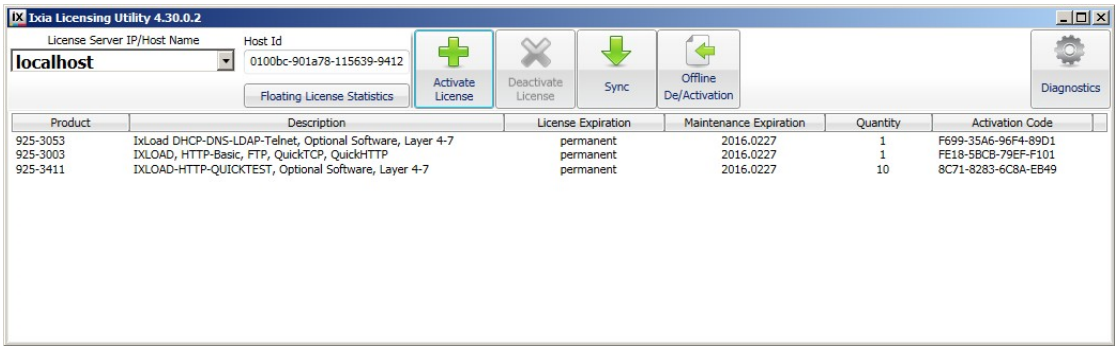
The license file is valid for 48 hours. After that, you cannot use it to activate licenses.

Stage 2: Import the license file

To import the license file:

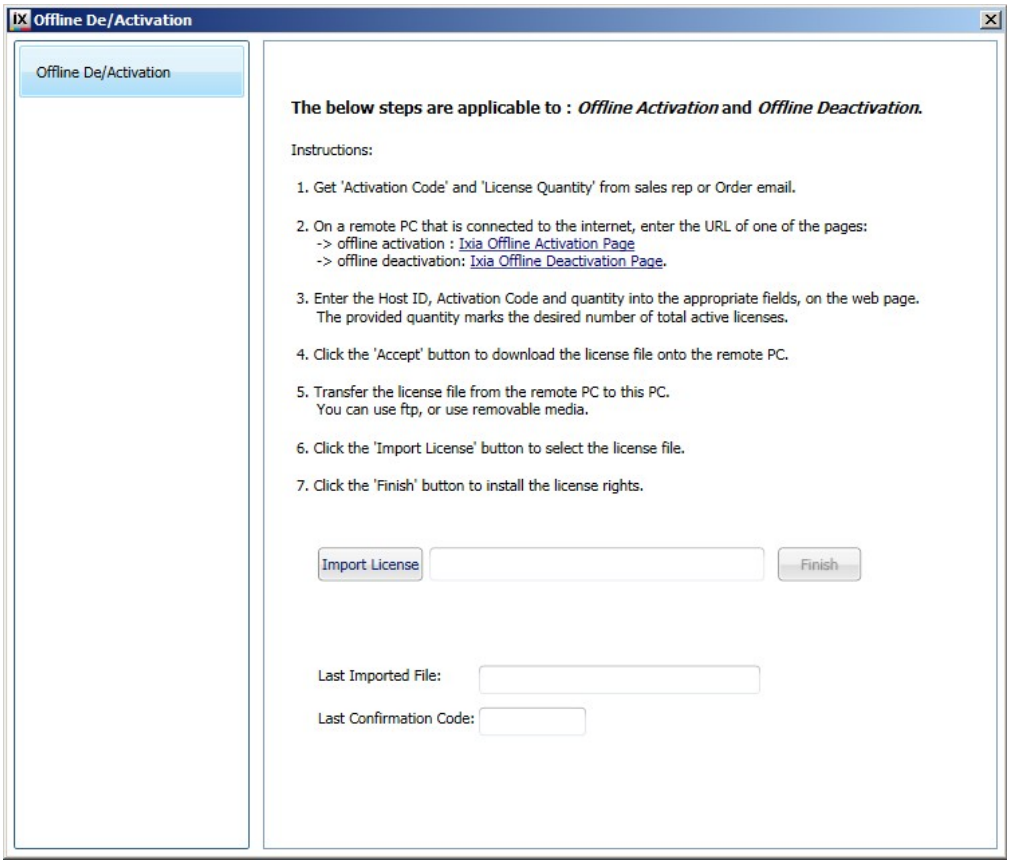
1. On the Ixia chassis or the computer where ILU is installed, click **Start** | **All Programs** | **Ixia** | **LicenseServerPlus** | **Ixia Licensing Utility**.

   The Ixia Licensing Utility application displays.



2. In the ribbon, click **Offline De/Activation**.

   The Offline De/Activation window opens.



3. Click **Import License**, then browse to the location where the license file is stored, and select it.
4. Click **Finish** to complete the import.

The license is now available for use on the chassis or your computer. If it is a single node-locked license, it can only be used on that particular chassis or computer.

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