Getting Started with IxLoad

Real World Traffic™ SOFTWARE

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aptixia™

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Technical Support

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Ixia sales office contact information (http://www.ixiacom.com/contact_us/map/) is available on the Ixia website.

USA, Canada, and Latin America	**Ixia Worldwide Headquarters** 26601 W. Agoura Rd. Calabasas, CA 91302 USA	877 367 4942 (toll-free inside USA) +1 818 871 1800 Option 1 (outside USA) support@ixiacom.com Hours: 0600 to 1800 PST
Europe, Middle East, and Africa (EMEA)	**Ixia Technologies Europe Limited** Part 2nd floor, Clarion House, Norreys Drive Maidenhead, SL6 4YB United Kingdom	+40 21 3015699 eurosupport@ixiacom.com online support form (http://www.ixiacom.com/support/inquiry/?location=emea): Hours: 0700 to 1730 GMT
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For viewing the FAQs related to the product, go to Ixia Technical Support Online:

https://ebsoprod.ixiacom.com/OA_HTML/jtflogin.jsp https://ebsoprod.ixiacom.com/OA_HTML/jtflogin.jsp

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**.

Icons are used throughout the documentation to draw attention to caution, warning, and danger statements. Icons also identify notes, important information, and the start of a procedure.

	CAUTION: Provides information that is needed to avoid potential harm to equipment or the environment.
	WARNING: Provides information needed to prevent certain harm to a person, piece of equipment, or the environment.
	DANGER: Provides information to prevent certain severe bodily harm to a person.

Note: Provides information that needs special attention within text.

IMPORTANT: Provides information that is especially important for correct product operation.

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.

Ixia user documentation is also available in the Support>User Guides area of ixiacom.com (http://www.ixiacom.com). User registration is required to view this online documentation.

- *IxLoad User Guide*
- *IxLoad Tcl API Programming Guide*

Chapter 1: Getting Started with IxLoad

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*.

The steps described in this guide are:

- *Step 1: Install IxLoad* (see "Step 1: Install IxLoad" on page 2)
- *Step 2: Connect the Ixia ports* (see "Step 2: Connect the Ixia ports" on page 4)
- *Step 3: Start IxLoad and Open the Sample Repository* (see "Step 3: Start IxLoad and Open the Sample Repository" on page 5)
- *Step 4: View the Client and Server Networks* (see "Step 4: View the Client and Server Networks" on page 7)
- *Step 5: Display the Server and Client Traffic* (see "Step 5: Display the Server and Client Traffic" on page 11)
- *Step 6: View the Timeline and Objectives* (see "Step 6: View the Timeline and Objectives" on page 11)
- *Step 7: Select Ports for the Test* (see "Step 7: Select Ports for the Test" on page 13)
- *Step 8: Start the Test* (see "Step 8: Start the Test" on page 14)
- *Step 9: View the Test Results* (see "Step 9: View the Test Results" on page 15)
- *Step 10: Save the Test Configuration* (see "Step 10: Save the Test Configuration" on page 19)

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Requirements

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

- An Ixia 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 one of the following versions of Windows installed:
  - Windows XP
  - Windows Vista
  - Windows 7
  - Windows 2008 Server

Step 1: Install IxLoad

IxLoad is available for download on Ixia's website.

The following installers are available:

- `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.

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 http://www.ixiacom.com/support/downloads_and_updates/prerequisites page on the Ixia 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 following versions of Windows installed:

- Windows XP Professional SP2 (32- or 64-bit)
- Windows Vista SP2 (32- or 64-bit)
- Windows Server 2003 SP2 (32- or 64-bit)
- Windows Server 2008 (32- or 64-bit)
- Windows 7

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 Ixia's product licensing process, see IxLoad Licenses (see "IxLoad Licenses" on page 27).

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 (see "Installing IxLoad" on page 3).

Installing IxLoad

Follow the procedure below to install IxLoad.

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 do not have Administrator privileges, the installer displays the following error message:

   ```
   Error installing ikernel.exe (0xa00)
   ```

2. Double-click on the installation file to start the installation.

   Apart from this, the installation is a typical InstallShield installation; respond to the prompts as the installer displays them on the windows.

3. Click Finish to complete the IxLoad installation.

   Remember to install IxLoad on the remaining system (chassis or PC) before you start to use it.

Note: The IxLoad reporting module requires a default printer to be selected so that it can format reports to meet the printer's capabilities. During installation, if you do not have a default printer selected, the reporting module will create a default printer. This will enable you to view reports on-screen, but you will not be able to print them until you install a default printer.

Step 2: Connect the Ixia ports

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

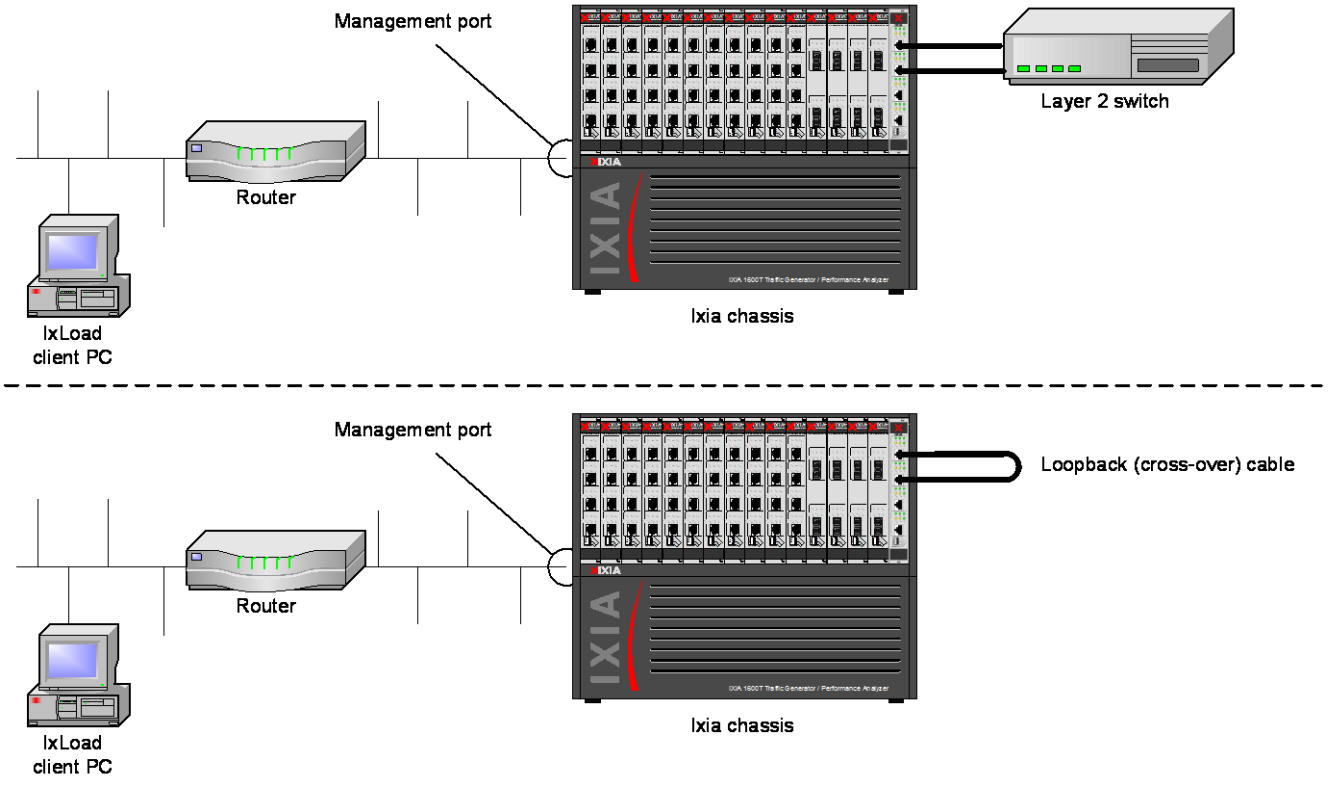
- Ixia ports connected to a Layer 2 switch.
- Ixia ports connected directly to each other (back-to-back).

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

To connect the Ixia ports:

1. Choose the scenario you want to use, and then connect the Ixia ports.
2. At 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: 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 Ixia 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).

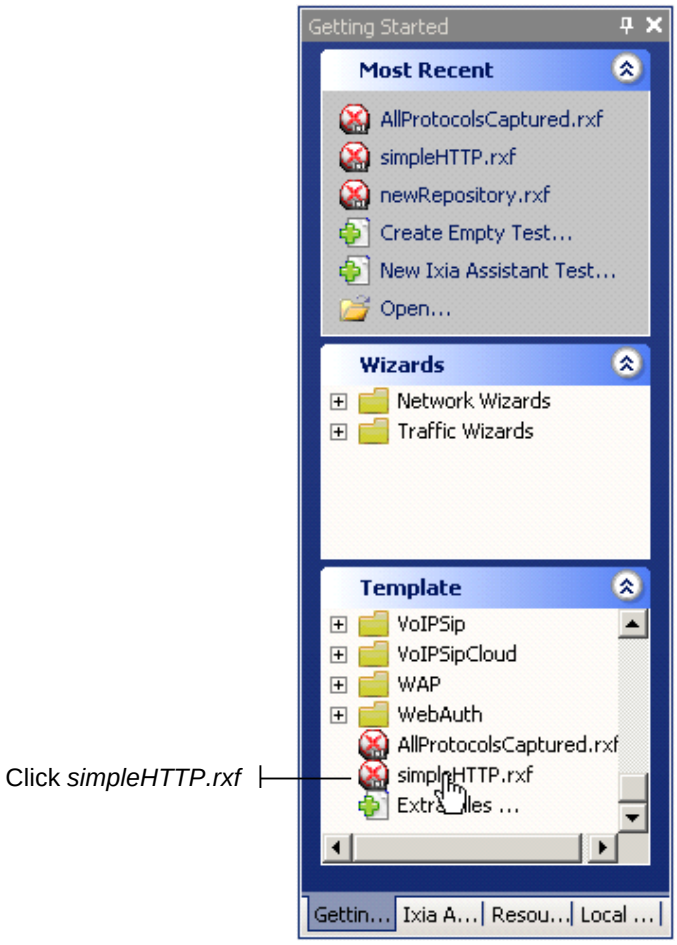
IxLoad's main window displays. IxLoad automatically logs you in using the local network name configured on your PC. When you select Ixia ports for your test, IxLoad will use this name to identify those ports as being reserved for your exclusive use.

2. If you want to change your login name:
   a. select OPTIONS | CHANGE LOGIN NAME from the menubar.
   b. In the Change Login Name window (below), enter a new login name, then click Accept.

When you start IxLoad for the first time, it opens a new *repository.* A repository is the file in which IxLoad stores test configurations.

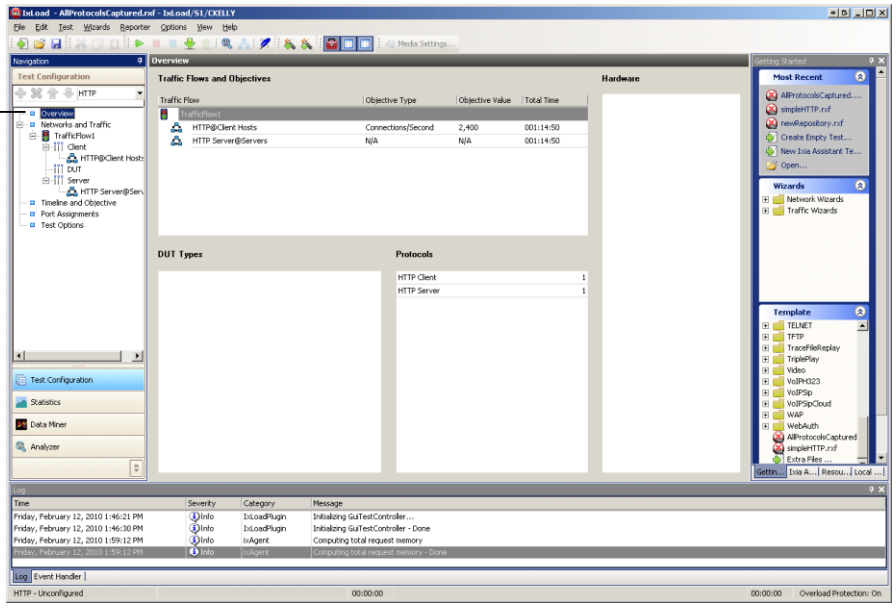
To perform the test described in this guide, you can use a pre-configured repository included with IxLoad named *simpleHTTP.rxf* . *simpleHTTP.rxf* contains most of the elements required to run a basic HTTP test.

3. On the Template tab in the Getting Started pane (shown below), double-click *simpleHTTP.rxf*.



IxLoad opens *simpleHTTP.rxf* (below). Initially, IxLoad selects the Overview branch of the Test Configuration tree, which displays an overview of the test.

IxLoad initially selects the Overview branch of the Test Configuration tree.



Step 4: View the Client and Server Networks

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

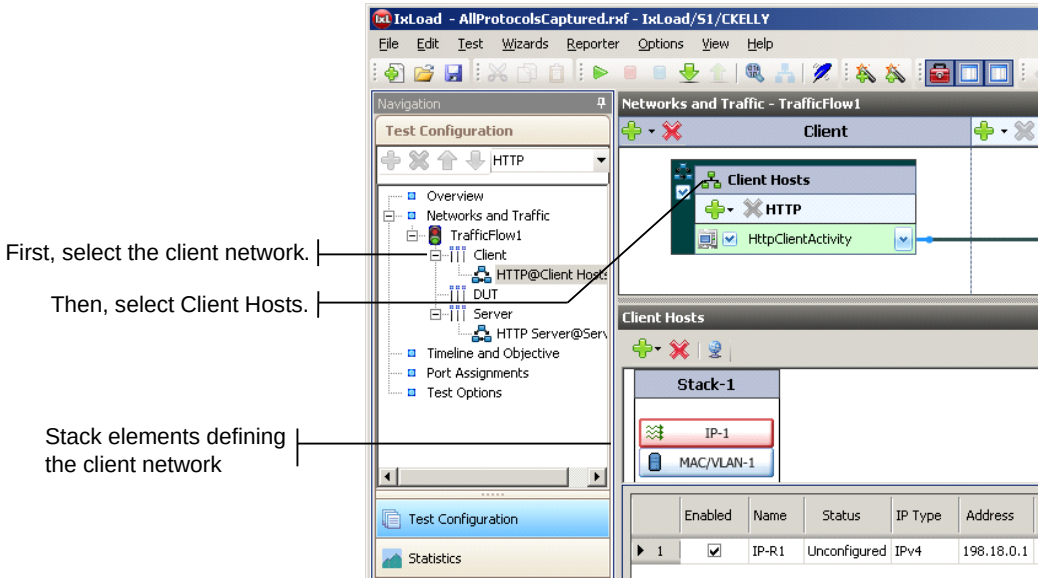
The *simpleHTTP.rxf* repository includes client and server networks you can use for your testing. You can accept the default entries for these networks or change them if necessary.

To view the default client and server networks:

1. In the Test Configuration tree, select the client network (as shown below).
2. In the client nettraffic, select CLIENT HOSTS.

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

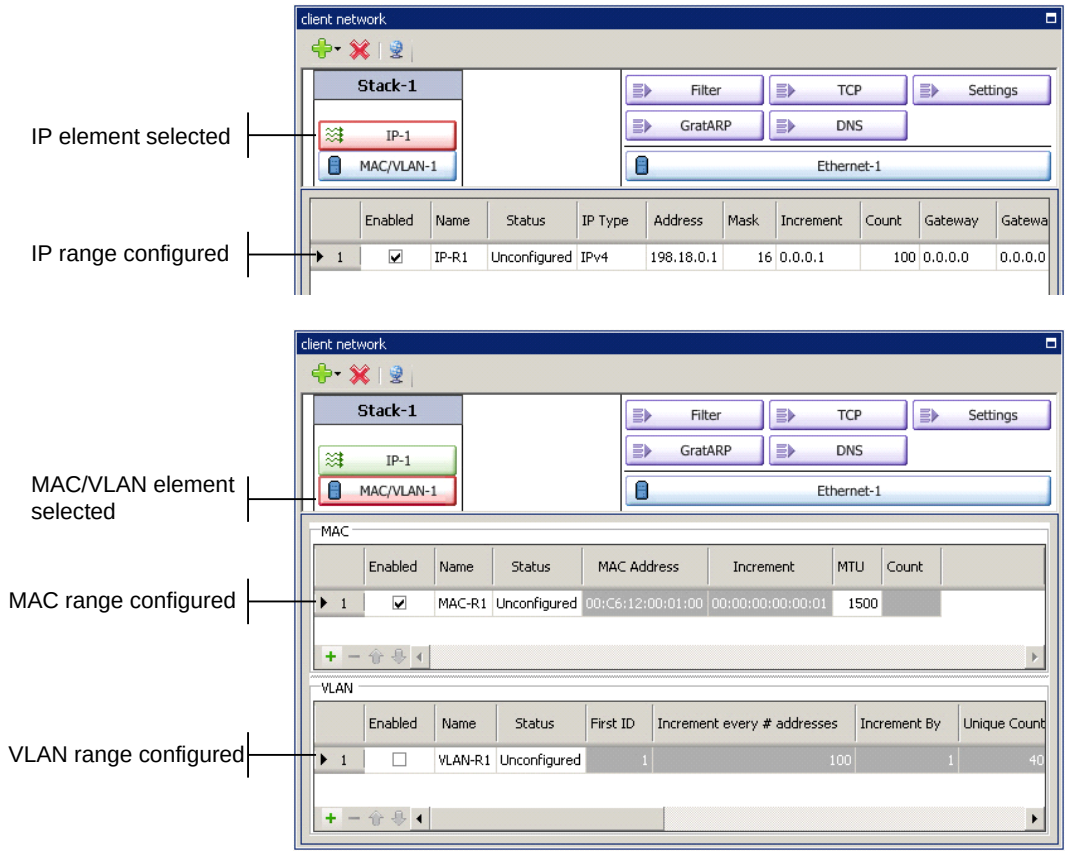
For example, the IP element defines the IP address ranges that will be used on the network. The MAC/VLAN element defines the MAC addresses and VLAN tags that will be used.



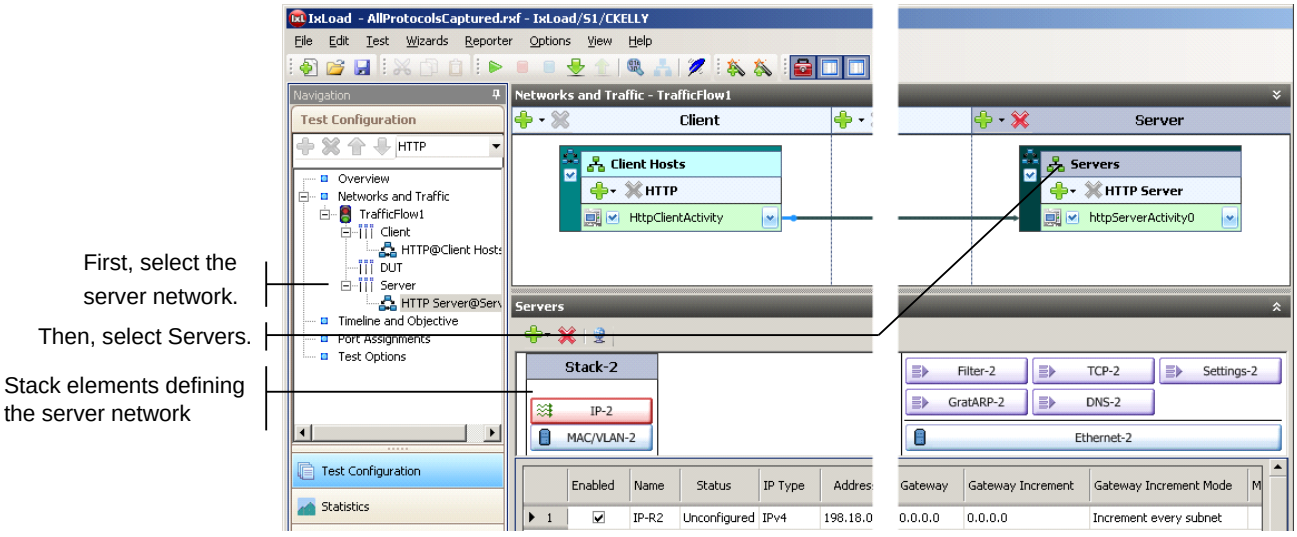
3. Click on each element to see the ranges that are configured.

   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 .

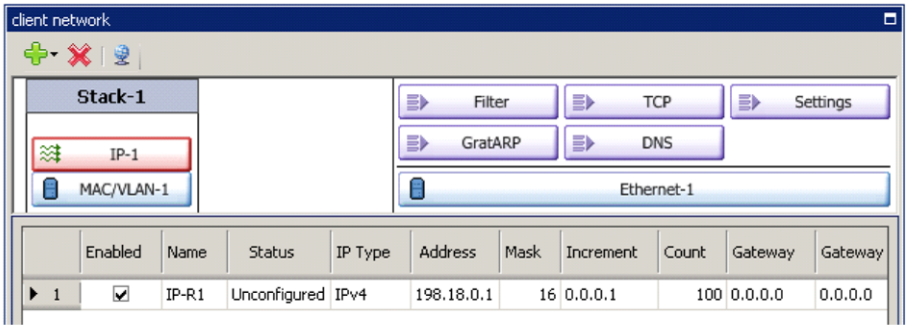
Click each of the tabs if you want to view the parameters configured for them.



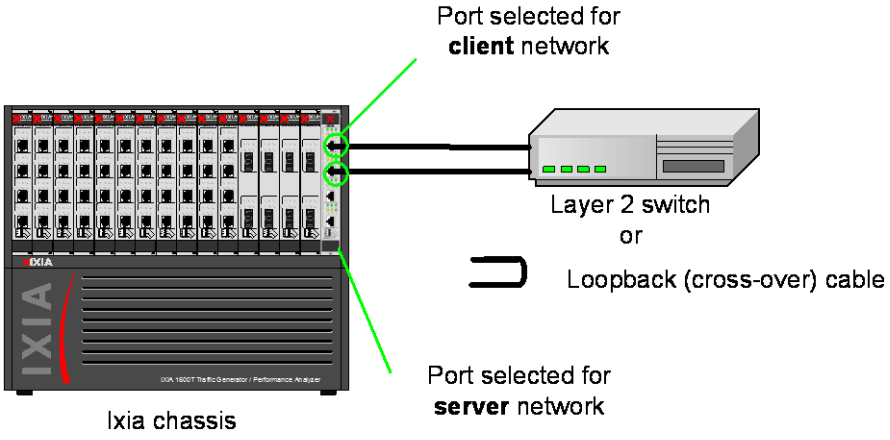
4. To view the server network, select the server network in the repository tree (see figure below).
5. Select SERVERS.



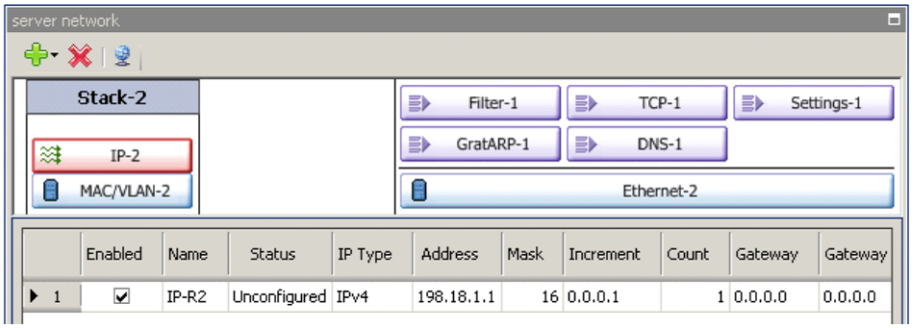
As with the client network, the tabs to the right display the network parameters that define the server network. The figure below shows how the network controls correspond to the test topology.



- 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



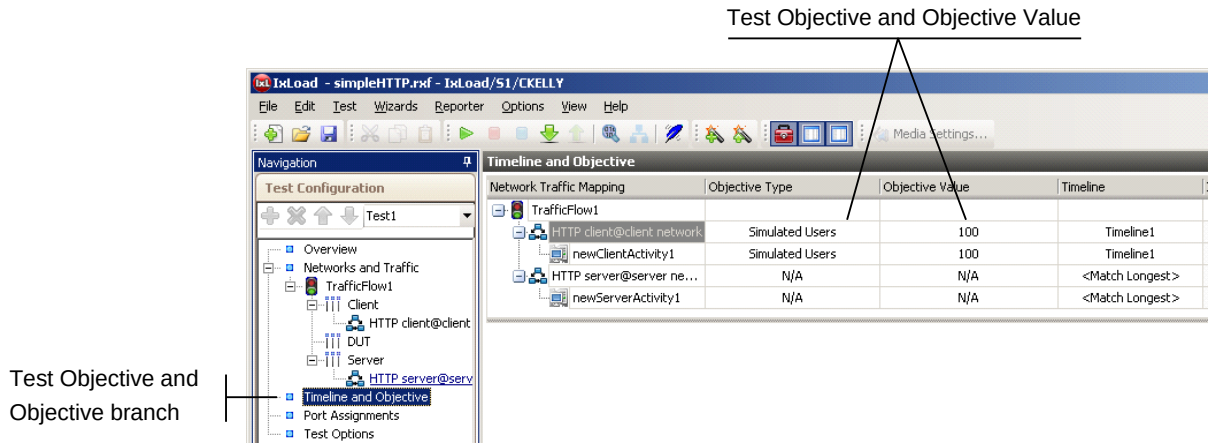
Step 5: Display the Server and Client Traffic

Step 6: 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.

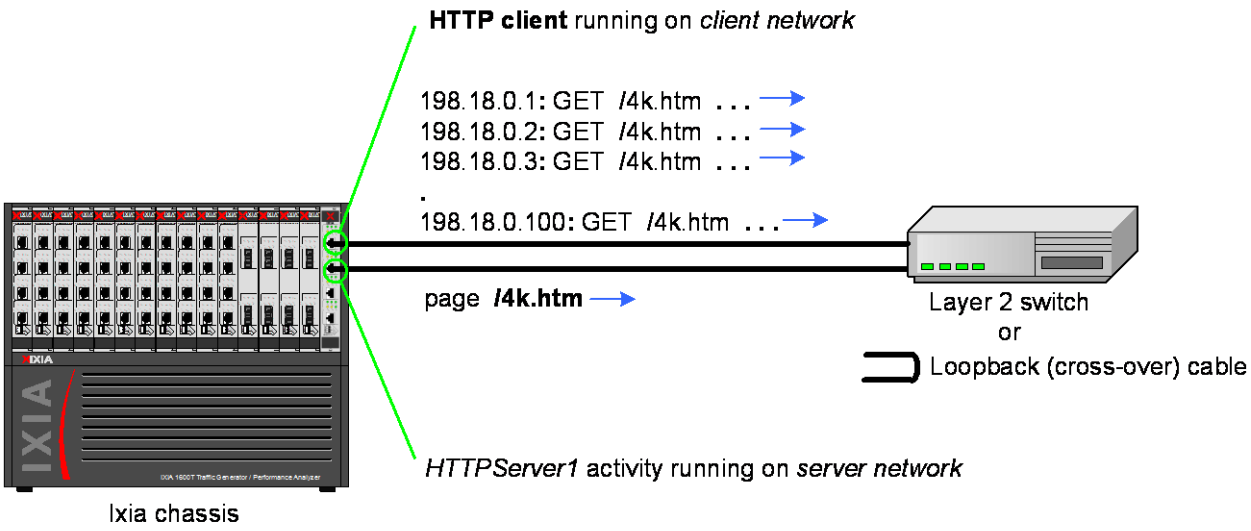
The *Test Objective* is the type of goal that the test attempts to reach. For *simpleHTTP.rxf*, the default Test Objective is *Simulated Users*, meaning that the test will attempt to simulate some number of HTTP users using web browsers.

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.*

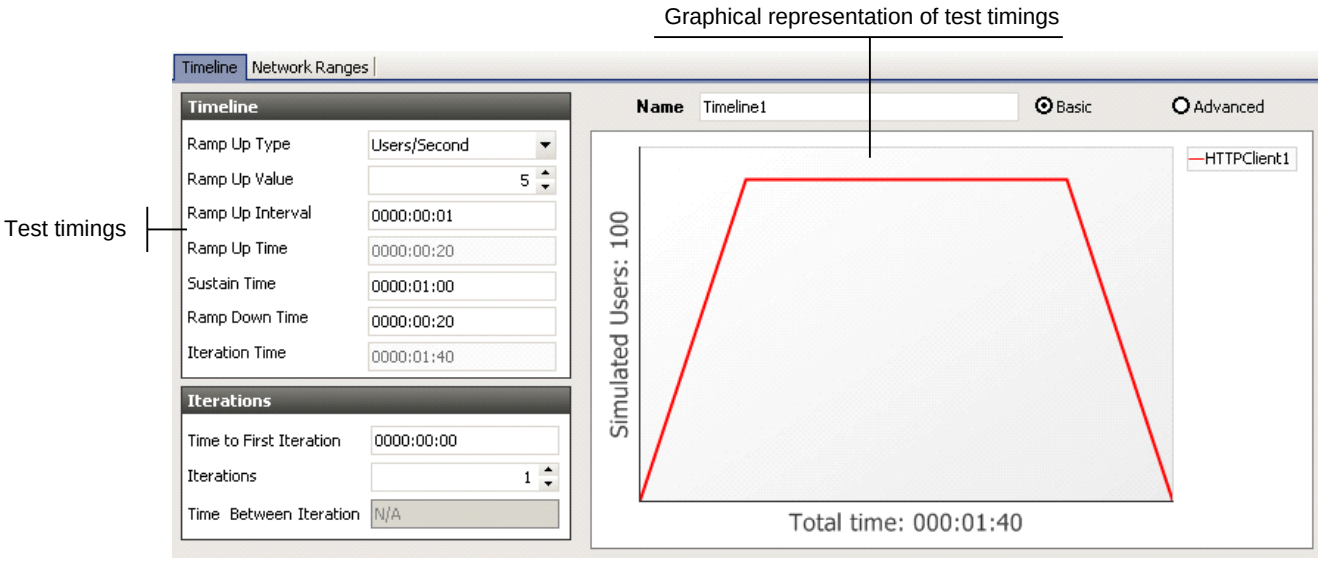
Network Traffic Mapping	Objective Type	Objective Value	Timeline
TrafficFlow1			
HTTP client@client n...	Simulated Users	100	Timeline1
HTTPClient1	Simulated Users	100	Timeline1
HTTP server@serve...	N/A	N/A	<Match Longest>
HTTPServer1	N/A	N/A	<Match Longest>

- 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*



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 for (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*.

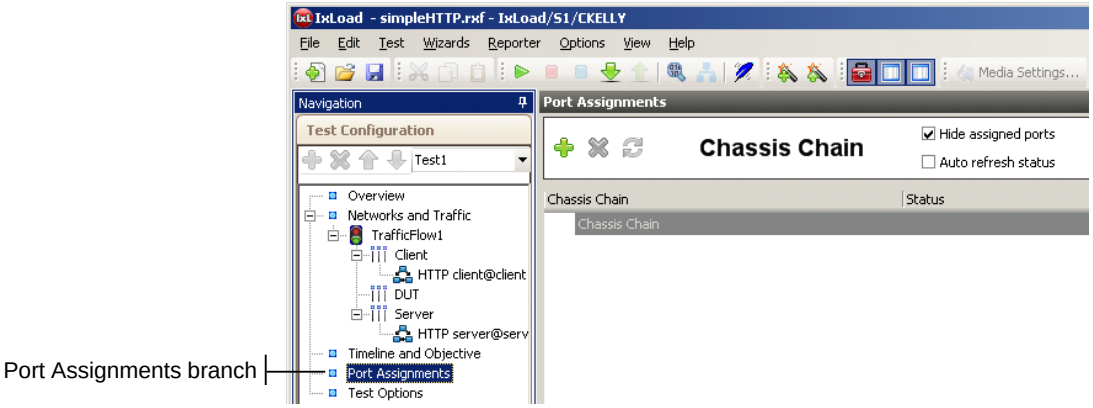


Step 7: Select Ports for the Test

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

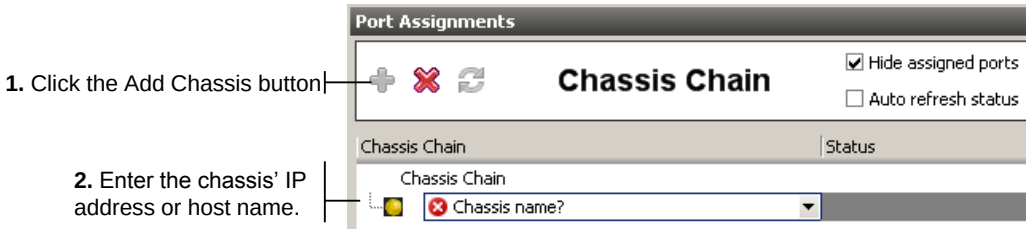
To select ports for the test:

1. In the Navigation pane, select the PORT ASSIGNMENTS branch.



2. Click the ADD CHASSIS button.

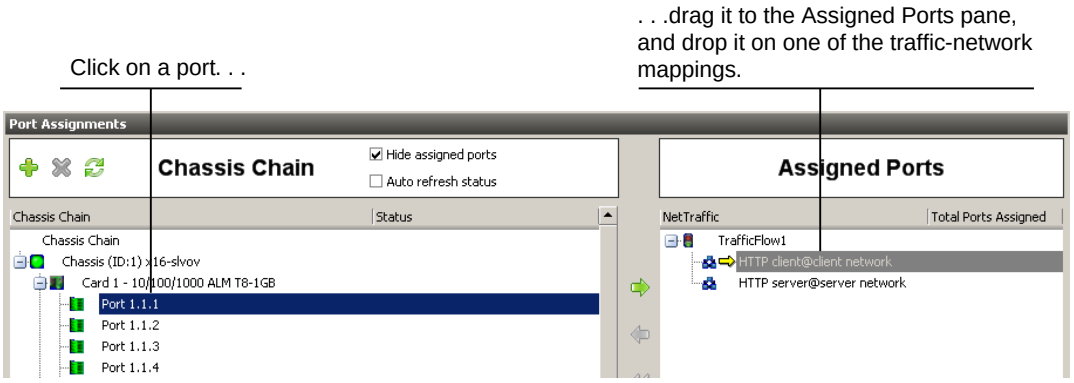
IxLoad adds a new entry to the Chassis Chain (see below).



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 (see below). The Chassis Chain list only displays the cards that support IxLoad.

4. In the Chassis Chain pane, click on one of the ports, drag it into the Assigned Ports pane, and drop it on one of the traffic-network mappings (see below). Repeat for the remaining traffic-network mapping.



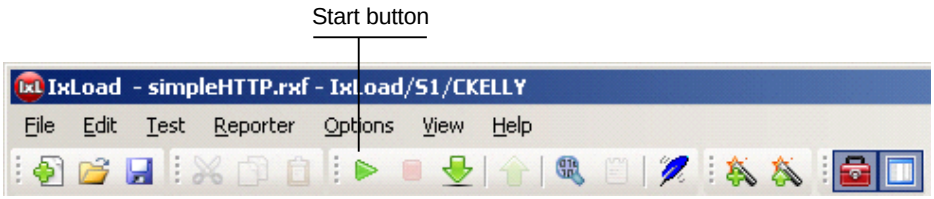
Step 8: Start the Test

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

- If the chassis you are using also holds the license for IxLoad, you are ready to run the test. Skip to *To start the test:* below.
- If the license for IxLoad is stored elsewhere, use the following procedure to set its location:
  a. Select TEST | VERIFY LICENSE AVAILABILITY from the menubar.
  b. Check the *License Server* box, and then enter the IP address or hostname of the host where the IxLoad license is installed.
  c. Click ACCEPT to set the license server name and close the window.

To start the test:

In the toolbar, click the Start button (see below).



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

Step 9: View the Test Results

IxLoad displays the test results in three ways:

- In real time during the test, using StatViewer (see "StatViewer" on page 16).
- After the test completes, in a PDF-format report (see "PDF Report" on page 17).
- After the test completes, in a CSV file (see "CSV Files" on page 18).

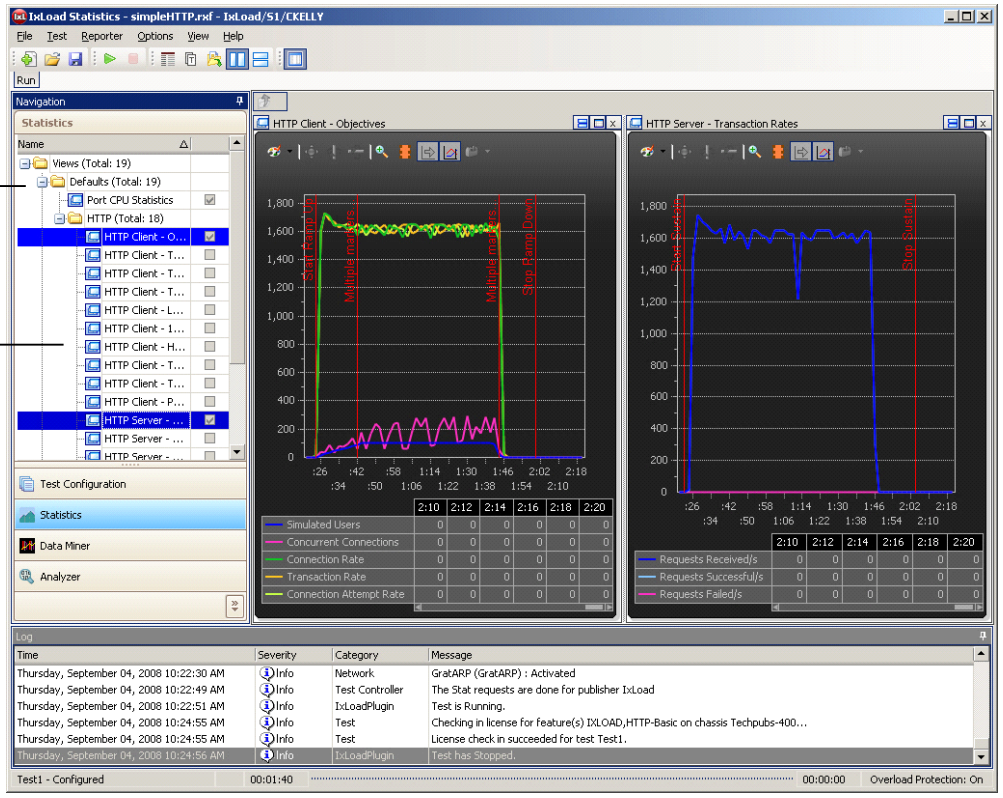
StatViewer

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*.

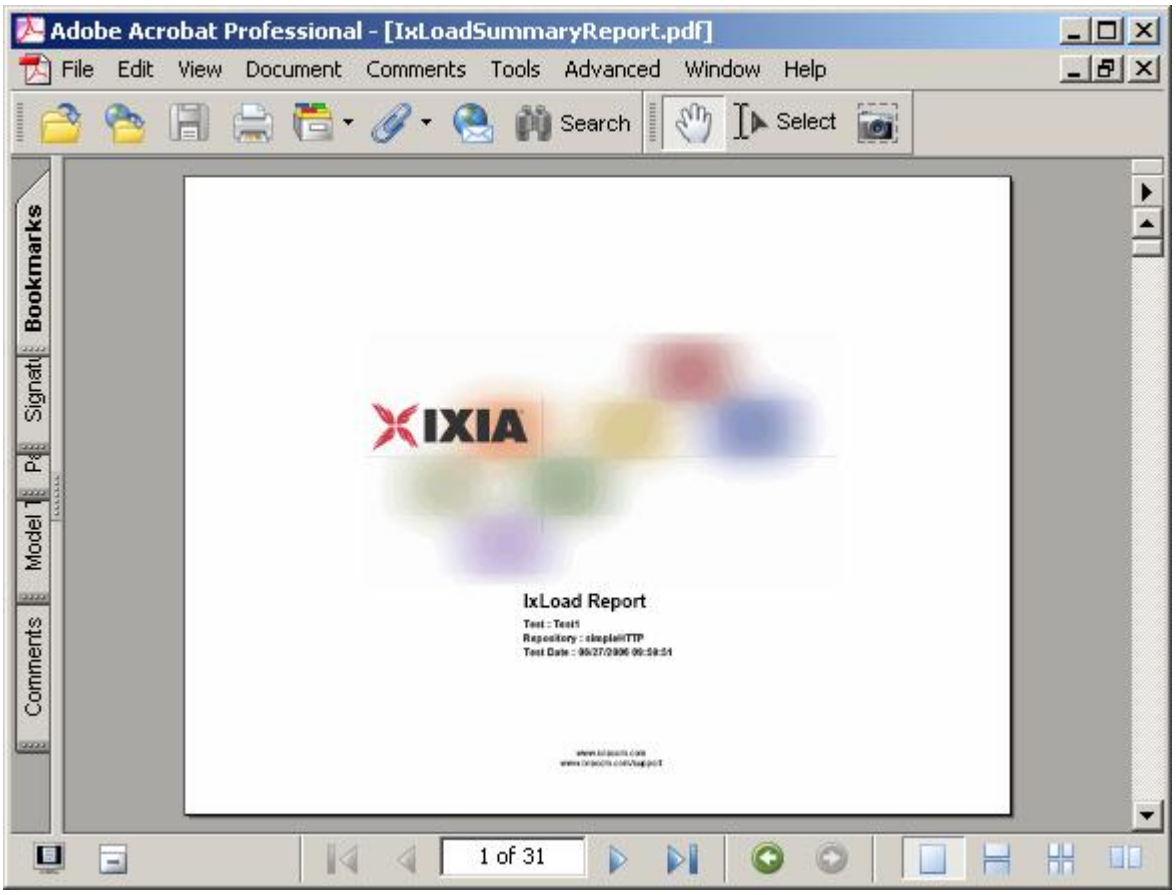
Each protocol agent includes a predefined list of statistics

The statistics available are grouped here. Click on a statistic to display it.



PDF Report

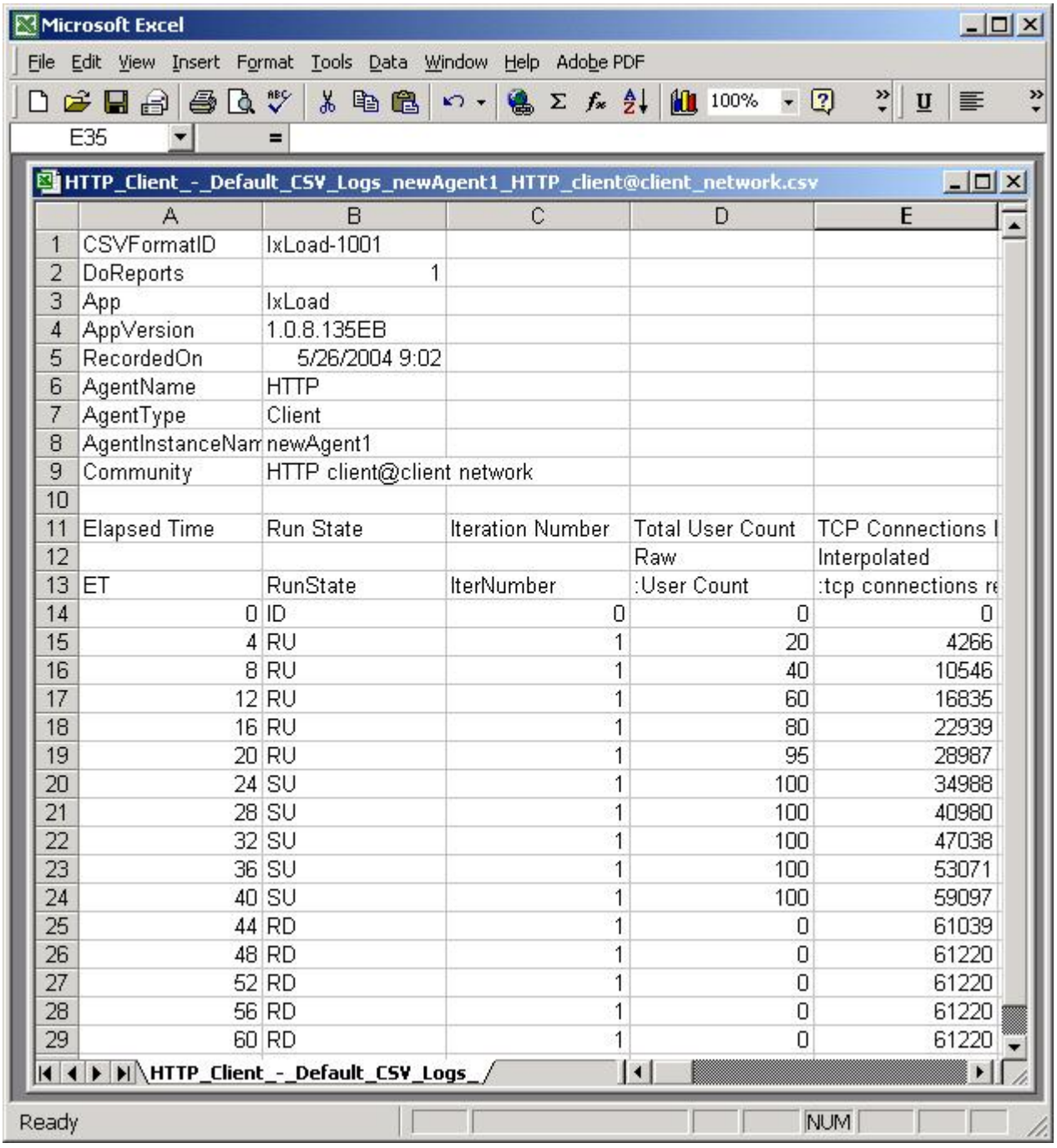
After the test ends, IxLoad generates a PDF-format report that contains a summary of the test results (see below).



CSV Files

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

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 re
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_Cl
ient_-_Default_CSV_Logs_http10_HTTP_client@client_network.csv
```

Step 10: 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. From the menu bar, select FILE | SAVE AS.

   IxLoad prompts you to enter a name for the test configuration.

2. Enter a name for the repository, then click SAVE.

2

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.

In this chapter:

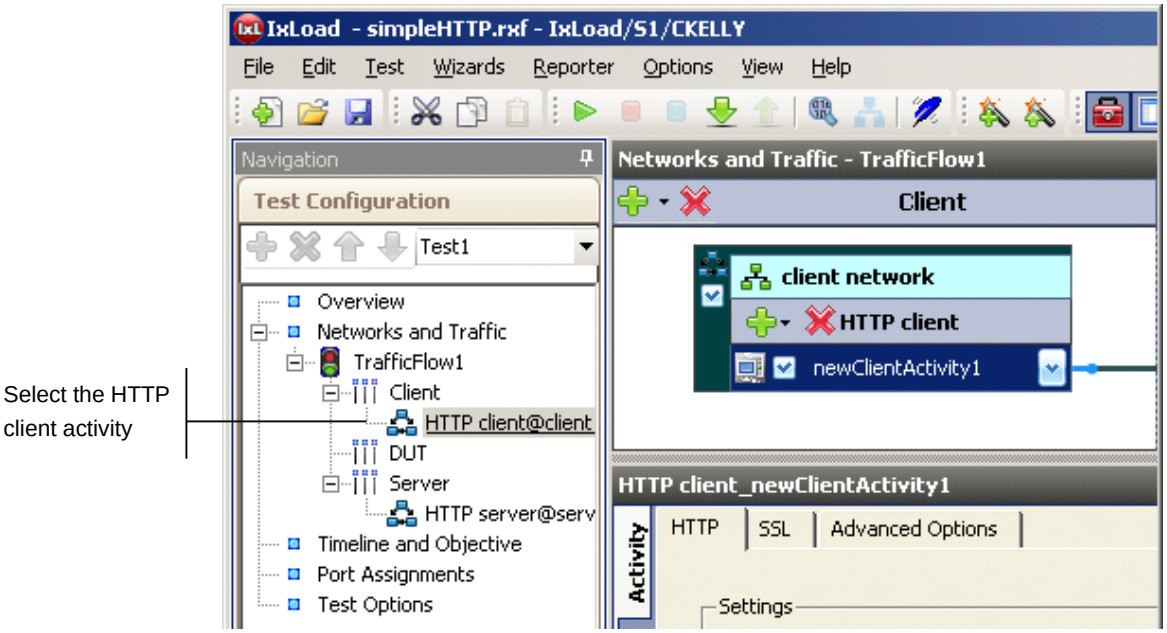
Adding Page Requests to the HTTP Client 21
Adding FTP Traffic 23

Adding Page Requests to the HTTP Client

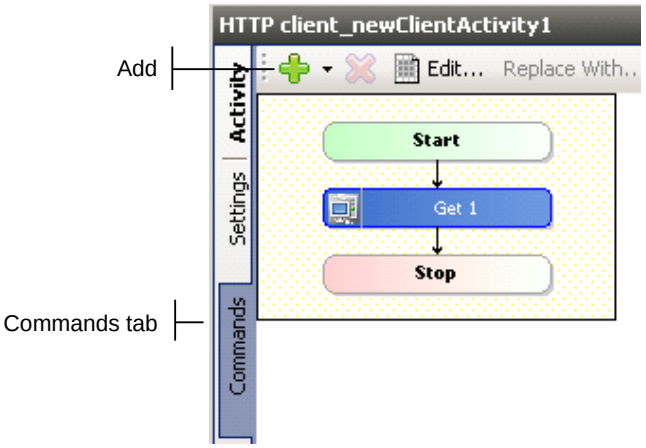
In this section, you add more page requests to the existing HTTP client.

To add page requests to the HTTP client:

1. In the Test Configuration tree, select the HTTP client activity (see below).



2. Click the COMMANDS tab.
3. Click the ADD button (see below).



4. In the list of Available Commands, select GET, then click ADD.

   IxLoad adds the GET to the command list.
5. Select the command, an it 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 the Add button again and configure additional GET commands.
7. Run the test as described in *Step 8: Start the Test* (see "Step 8: Start the Test" on page 14).

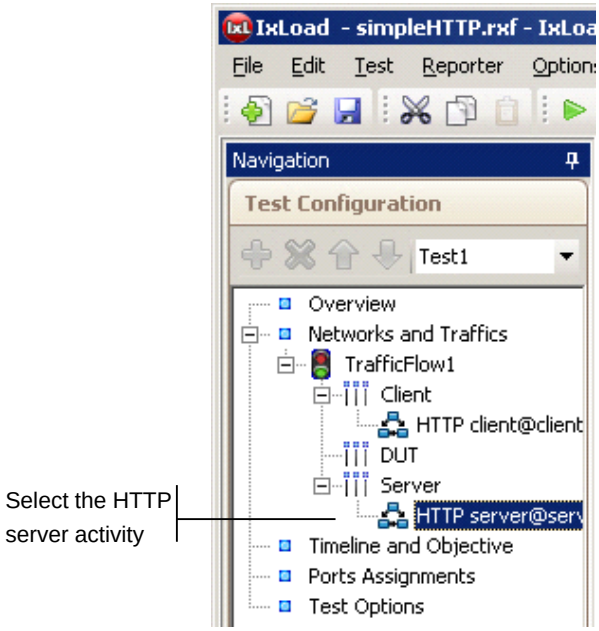
8. Follow the steps in *Step 9: View the Test Results* (see "Step 9: View the Test Results" on page 15) and compare the results with those from the original test using the one-page GET.

Adding FTP Traffic

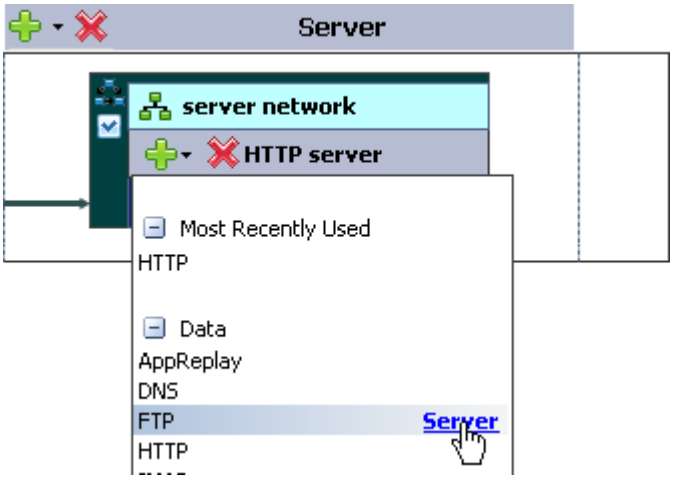
This section describes how to add FTP traffic to the existing HTTP traffic.

To add FTP traffic to the test:

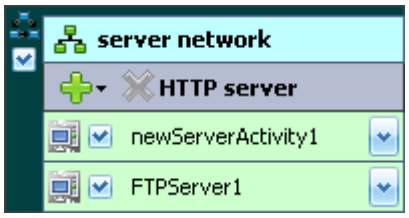
1. In the Test Configuration tree, select the HTTP server activity (see below).



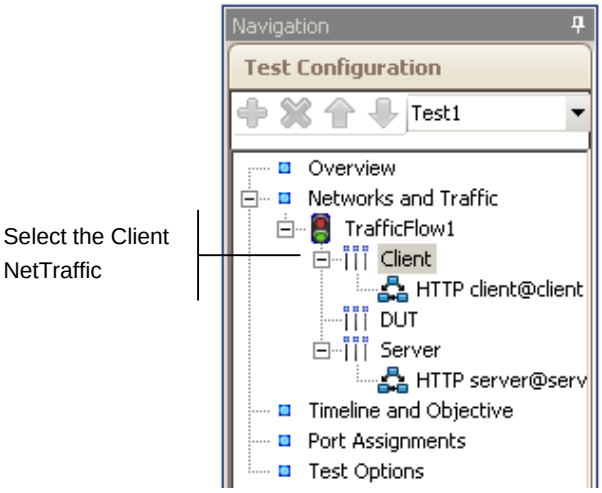
2. In the Activity list of the HTTP server NetTraffic, click the ADD button to add a new activity.
3. Select FTP SERVER from the list of activities.



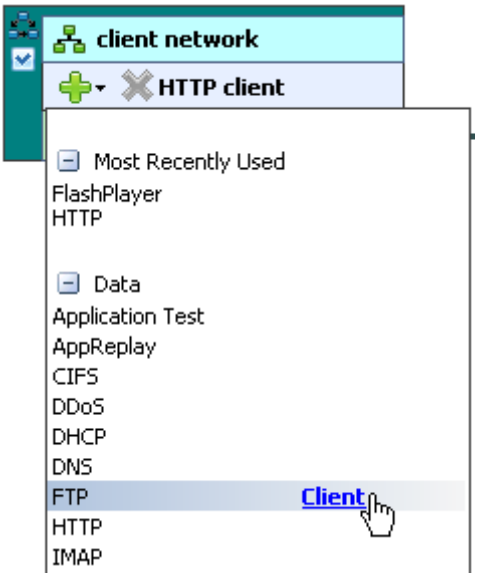
IxLoad adds a new FTP Server Activity to the HTTP server.



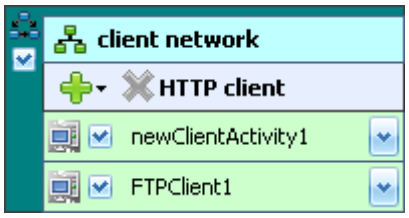
4. In the Test Configuration tree, select the CLIENT activity (see below).



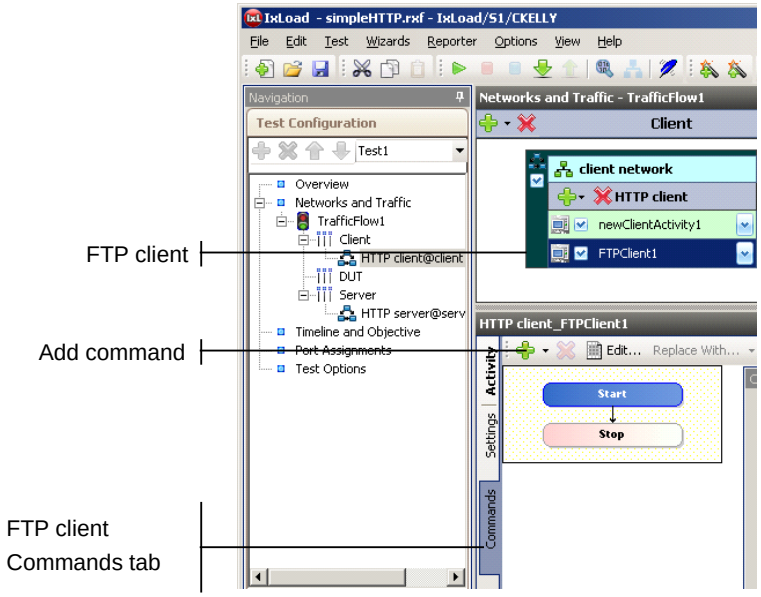
5. In the Activity list of the client NetTraffic, click the ADD button to add a new activity.
6. Select FTP CLIENT from the list of Activities (see below).



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.

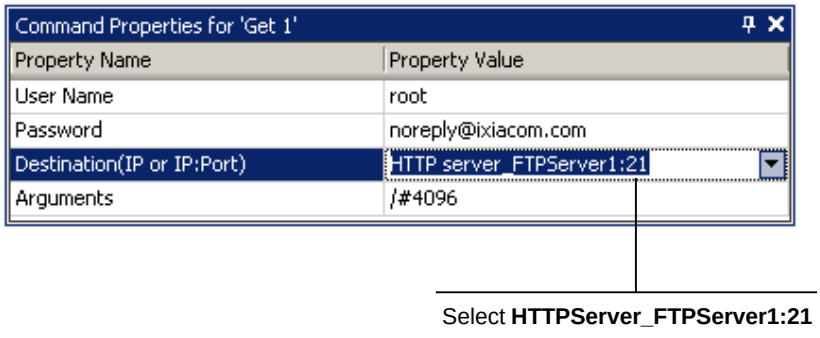
10. Configure the command parameters as follows:

    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_FTPSERVER1:21, the activity that contains the FTP server agent you added in the previous steps (see below).

    Arguments: Leave this field set to its default.



11. Click the START button 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.

A

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. By default, it checks 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.

If you do not have a license for IxLoad, contact Ixia Sales (see page ii) or your Ixia sales representative.

If you have received a license for IxLoad, use the procedures described in this section to install it.

In this appendix:

About Licensing 28
Evaluation Licenses 28
Temporary Licenses 28
Prerequisites 28
Installation Scenarios 30
General Licensing Steps 34
License Installation Example 35

About Licensing

To install and manage Ixia licenses, you use the Ixia Registration Utility (IRU). The IRU is automatically installed and run when you install licensed Ixia prod

Ixia's licensing serves two functions:

- It ensures that Ixia's software is used appropriately.
- It enables Ixia customers to centralize and monitor their software usage.

Licenses are purchased from Ixia and issued by email. These licenses must be installed onsite in order for the licensed software to operate correctly. License installation for an Ixia software product can occur either:

- At the time of the software installation.
- Sometime after the software installation, but before software usage.

Licenses are installed using a simple wizard process that you can run from either:

- The same computer on which the software was installed, or
- Some other Windows-based PC.

The computer used to perform the licensing process must be connected to the Ixia chassis and workstations in the lab environment. If at all possible, it should also be connected to the Internet. If simultaneous connections to the lab network and Internet are not feasible, it is still possible to complete all licensing operathe process for off-line installation is covered in the *License Management User Guide*.

IxLoad supports only one type of license: a node-locked license. This type of license is locked to a particular chassis or workstation, and allows only certain software functions to run on that chassis or workstation.

Evaluation Licenses

Evaluation licenses are used to evaluate Ixia software products. They can be used for a limited number of days. They are usually issued after a temporary license expires. They act in all respects as a regular license (they must be installed using the IRU), save for the fact that they have a time limit.

Temporary Licenses

Temporary licenses are granted in the event that a purchased license is not yet available. This allows you to use IxLoad even if there is a delay in obtaining a valid license.

Temporary license have a time limit (measured in days) and become invalid after the time limit expires. They can be automatically issued when a valid license file is not found.

Prerequisites

Before installing a license, obtain the following:

- The Ixia generated registration email for the licenses being installed. The key contents of this email are:
  - A Registration Number (RN) — a unique number for the license.
  - A Password — required to install the license.
- An understanding of which Ixia software products and chassis the license applies to.

- An understanding of whether a License Server is used in the Test Lab.

An example of this email is shown below in below, with the Regnumber and Password underlined:

```
Dear IXVPN Customer,

License Key Information

When you first start IXVPN, you will need to register your
IXVPN license. When connected to the Internet, you can
directly register your copy of IXVPN by simply running the
IRU utility provided by Ixia. For offline registration,the
IRU will guide you through the registration process.  You
will need to use a web browser on a machine connected to the
internet.

Please record the registration number and password shown
below.

    Product: IXVPN

    Features:

        * Application for testing IPSec devices

    Version: 2.0

    Registration Number: 400000286NC

    Password: sLOauU

    Maintenance End Date: 12/12/04

Technical Support from Ixia is available to organizations
that are evaluating IXVPN and to licensed customers who have
a valid maintenance agreement with Ixia for IXVPN.  To obtain
technical support, go to the IXVPN support section of Ixia
web site: http:// www.ixiacom.com/support

Alternatively, please contact Ixia at:

support@ixiacom.com

Domestic: (877) FOR-IXIA

International: +1-818-871-1800 (press 1)

The Ixia support department is available Monday - Friday from
6:00AM - 6:00PM PST, excluding US holidays

Before you start

Please be sure to have access to the IXVPN documentation set,
especially the User Guide. All documentation is available on
the CD ROM enclosed in the media kit (if ordered) or from the
Ixia web site at http:// www.ixiacom.com.

Sincerely,

Your Ixia Product Management Team
```

Installation Scenarios

There are four possible installation scenarios, described in the following sections:

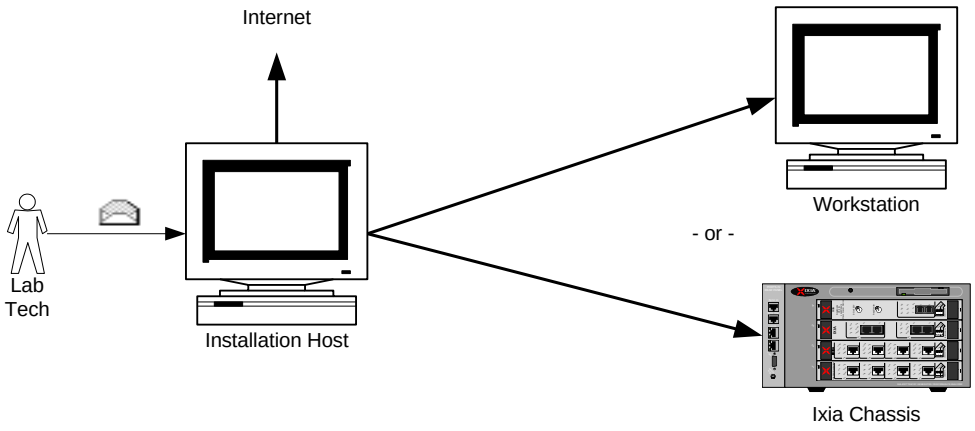
- *Licensing to a Chassis or Workstation via the Internet* (see "Licensing to a Chassis or Workstation via the Internet" on page 30)
- *Licensing to a License Server via the Internet* (see "Licensing to a License Server via the Internet" on page 31)
- *Licensing to a Chassis or Workstation without the Internet* (see "Licensing to a Chassis or Workstation without the Internet" on page 32)
- *Licensing to a License Server without the Internet* (see "Licensing to a License Server without the Internet" on page 33)

The *Installation Host* is the computer that is used to perform the licensing instalThis can be the same computer on which the Ixia software was installed, an Ixia chassis, a License Server, or a separate workstation.

Licensing to a Chassis or Workstation via the Internet

In this case, the Installation Host is connected to the Internet and licenses are installed to the workstation or Ixia chassis to which the license pertains (the workstation and the Installation Host can be the same machine). The Installation Host must also be connected to the workstation/chassis (if they are not the same machine).

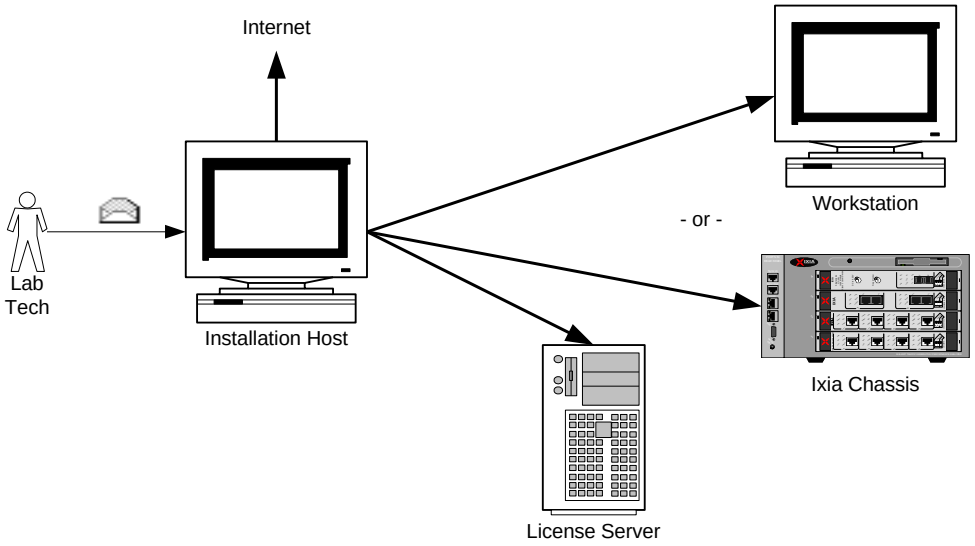
The figure below shows licensing to a Chassis or Workstation via the Internet.



Licensing to a License Server via the Internet

In this case, the Installation Host is connected to the Internet and the licenses are installed to a central License Server (the License Server and the Installation Host can be the same machine). The Installation Host must also be connected to the License Server **and** the workstation/chassis (if the License Server and InstallaHost are not the same machine).

The figure below shows licensing to a License Server via the Internet

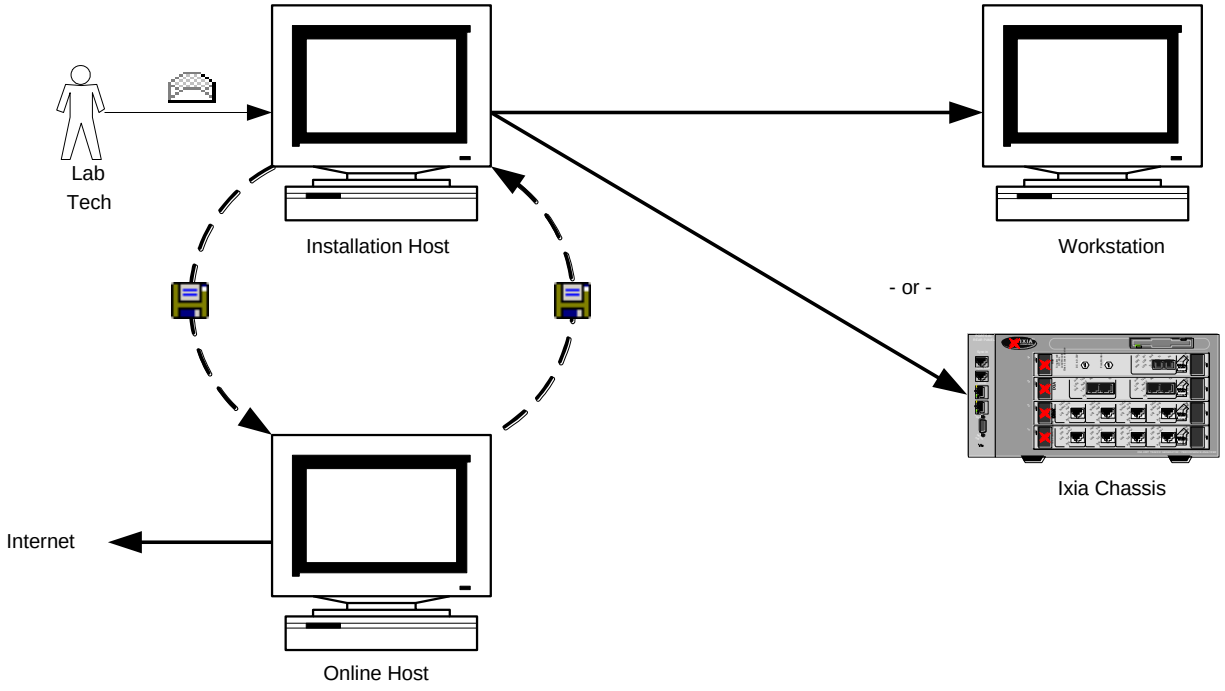


Licensing to a Chassis or Workstation without the Internet

In this case, the Installation Host is **not** connected to the Internet and the licenses are installed to the workstation or Ixia chassis to which the license pertains (the workstation and the Installation Host can be the same machine). The Installation Host must also be connected to the workstation/chassis (if they are not the same machine).

In order to complete the installation process, an additional computer is necessary – an *Online Host*, as shown in the figure below. This machine must be connected to the Internet. It is necessary to transfer small amounts of information from the Online Host to the Installation Host to complete the process. E-mail or a portable USB drive may be appropriate.

The figure below shows licensing to a Chassis or Workstation disconnected from the Internet

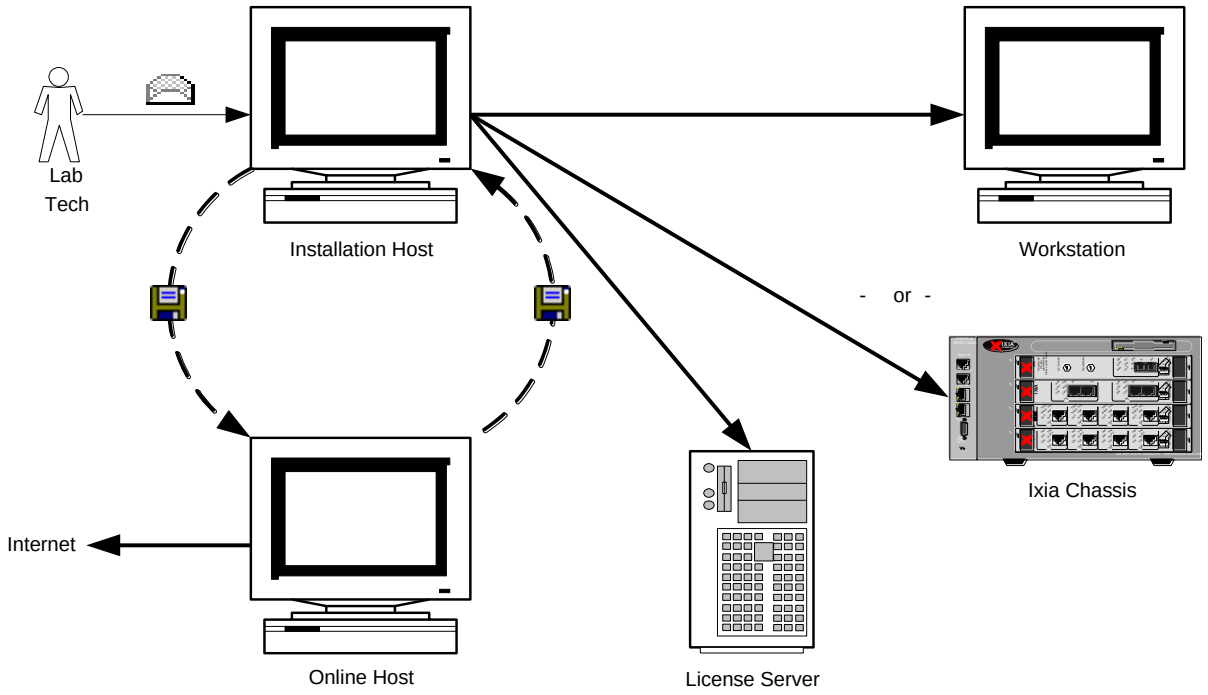


Licensing to a License Server without the Internet

In this case, the Installation Host is **not** connected to the Internet and the licenses are installed to a License Server (the License Server and the Installation Host can be the same machine). The Installation Host must also be connected to the License Server **and** the workstation/chassis (if the License Server and Installation Host are not the same machine).

In order to complete the installation process, an additional computer is necessary – an *Online Host* – shown in the figure below. This machine must be connected to the Internet. It is necessary to transfer small amounts of information between the Online Host and the Installation Host to complete the process. E-mail or a portable USB drive may be appropriate.

The figure below shows licensing to a License Server disconnected from the Internet.



General Licensing Steps

The following steps indicate the general sequence to use when installing and licensing IxLoad. These steps assume that you will be installing the license server on your Ixia chassis. If you will be using a dedicated/standalone PC as a licensing server, please see the *Ixia License Management User Guide* for detailed instructions. The Ixia license installation utility is included in the IxLoad CD build or download file.

CAUTION: To avoid licensing problems, be careful as you proceed through the licensing utility program. Do not just automatically click **Next** to proceed through the program, or licensing will not be successful and you will not be able to use IxLoad. You must read each installer screen and provide the requested information. Although the installer steps you through the license installation process, the overview information here is provided to ensure that you do not overlook important installation details. For more detailed informaon each step, refer to the *License Management User Guide.*

IMPORTANT: The IxLoad installer must be run on both the Ixia chassis and the client PC. When the installer is run on the chassis, it installs the license server component and the Aptixia statistics engine. However, it does not install the client GUI software. When the installer is run on the client PC, the client software is installed.

Chassis Installation

To install an IxLoad license onto an Ixia chassis:

1. Download IxLoad to your Ixia chassis from the Ixia website or the IxLoad CD.
2. Launch the installer and answer the questions as required.
3. Once IxLoad is installed on the chassis, licensing will have been installed as well.

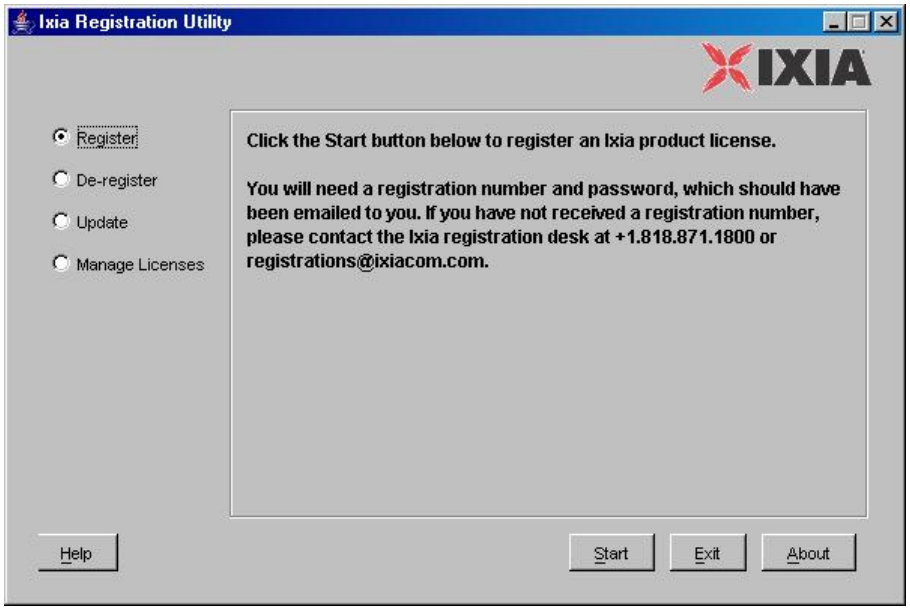
   If you already have a registration number and password, then launch the Ixia Registration Utility (IRU) and register the software on the chassis. Make sure that your chassis is connected to the Internet. If it is not, follow the offline registration steps in the *License Management User Guide*.

   If you do not have a registration number and password, you do not need to launch the IRU at this time. A temporary license will be issued to you when you first attempt to run a test from your client PC. At run time, a mesappears, asking if you would like a temporary license. Make sure that your client PC in connected to the Internet. If it is not, follow the offline temlicense steps on the *License Management User Guide*.
4. Select **register** and then follow the prompts that appear.
5. Accept the default **localhost** as the location for the features to be used.
6. When prompted with "Do you want the Ixia application to automatically find your license on the chassis?", select **Yes**. If using a license server, follow the steps in the *License Management User Guide* for registering on a license server.
7. Complete the license installation procedure by clicking **Finish**.

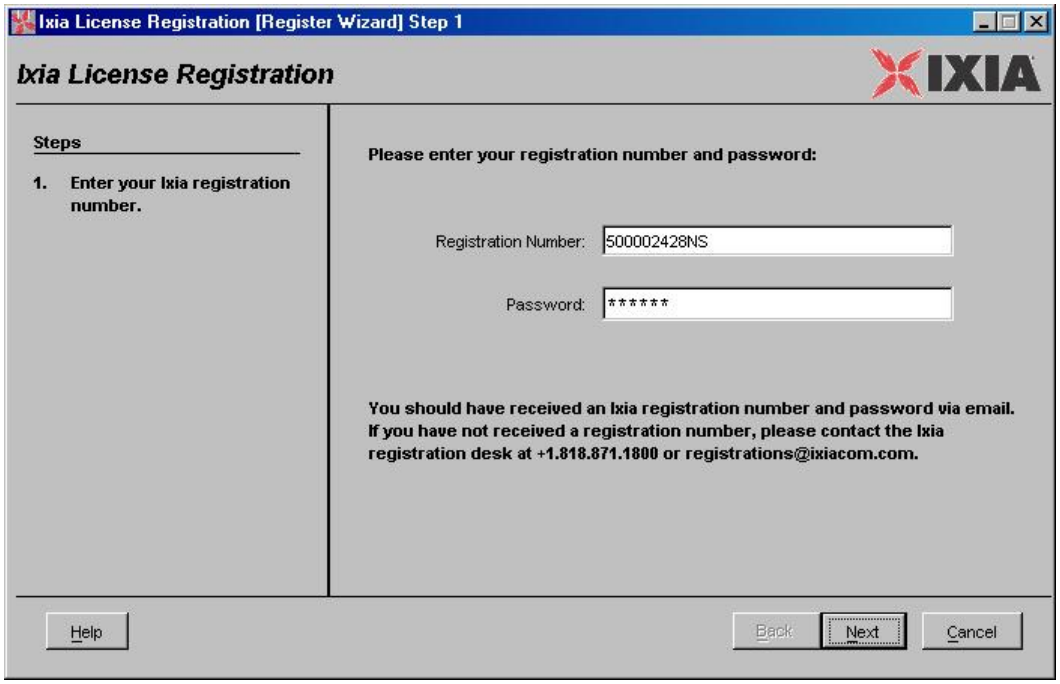
License Installation Example

The following example shows an online installation of a node-locked license to a local machine, with no license server. Depending on the testing environment, other installations may have more steps.

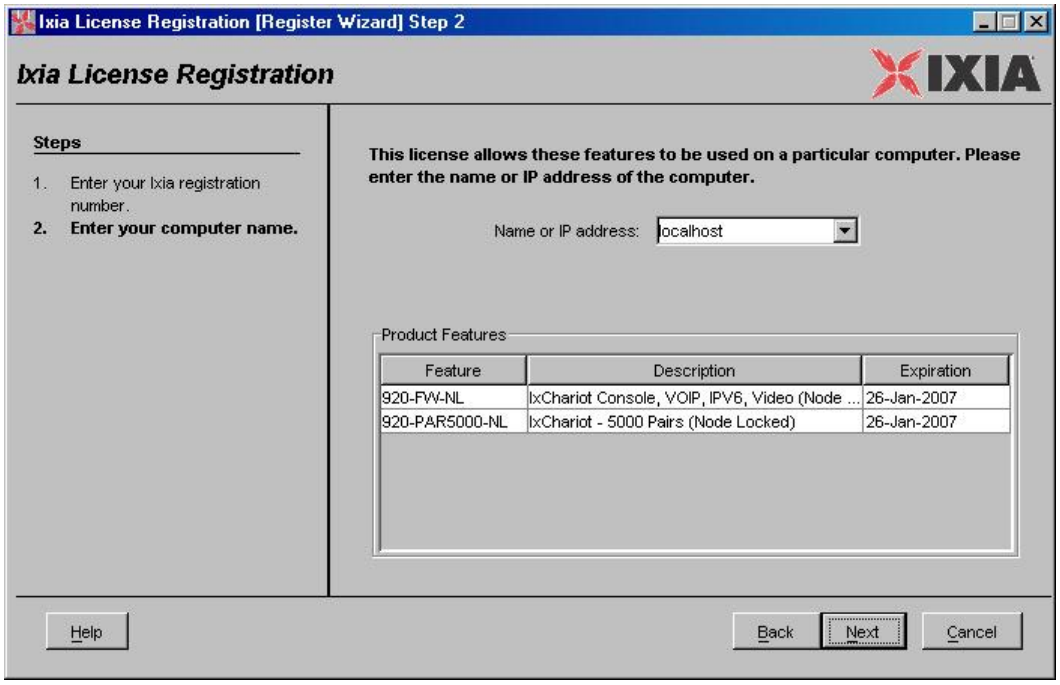
1. If the IRU is not running, start it by selecting **Start>Programs>Ixia>Licens**.
2. Click **Register** in the IRU, as shown in the figure below.



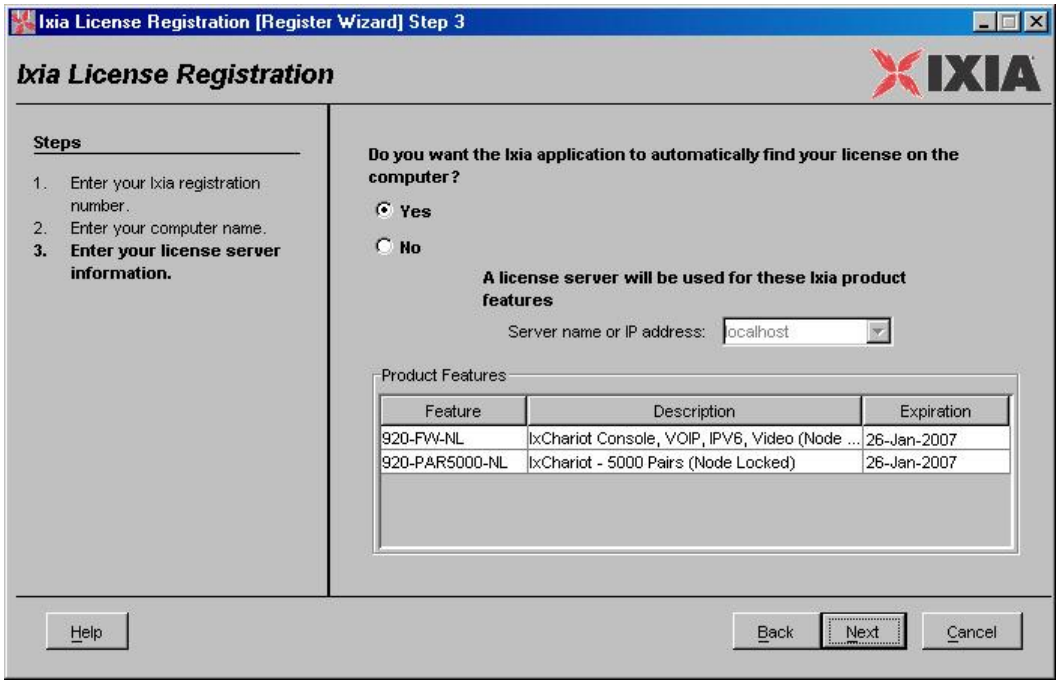
3. Click **Start**. Enter the *Registration Number* and *Password* exactly as speciin the Ixia generated email, as shown in the figure below.



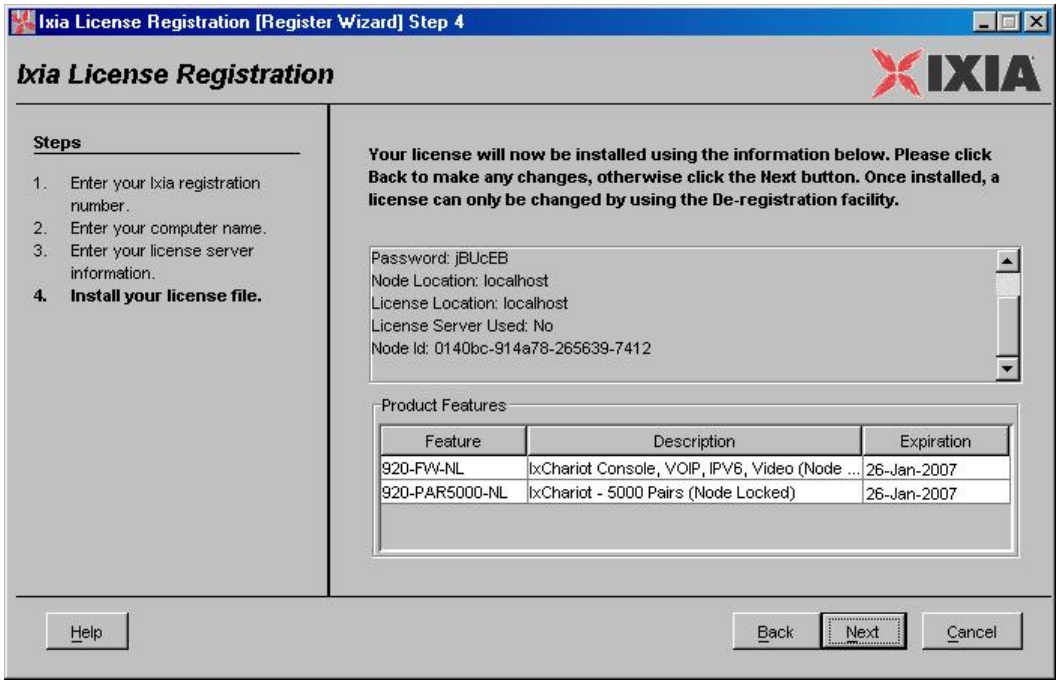
4. Click **Next**. Enter the host name or IP address of the Ixia chassis or workstathat will use the licensed software, shown in the figure below. **Localhost** is the default and refers to the Installation Host.



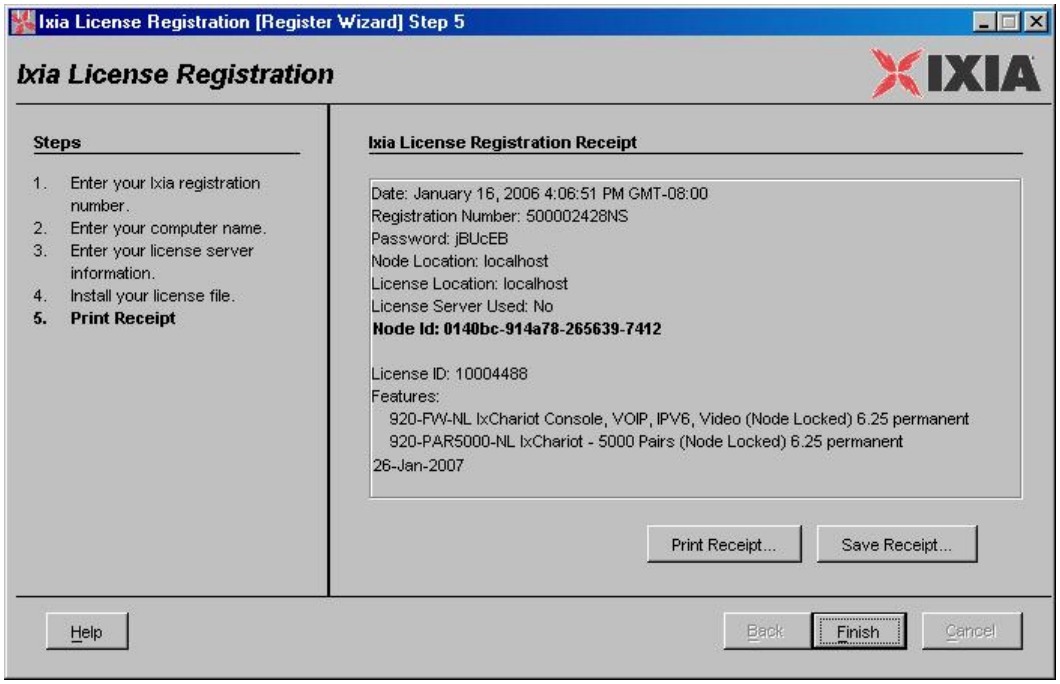
5. Click **Next**. If a license server is used, click **No** and enter the name or IP address of the license server. Otherwise, click **Yes** as shown in the figure below.



6. Click **Next**. Review the information for the license to make sure it is accurate, as shown in the figure below.



7. Click **Next**. The license is installed to the workstation or chassis specified (or to the license server if one was specified). Once the license is installed, a confirmation screen displays, as shown in the figure below. This screen can be printed or saved as a record.



8. Click **Finish**.

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