

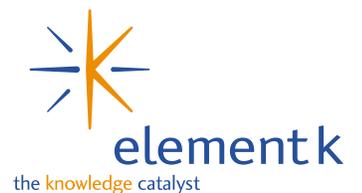
Firewall and Proxy Servers

*Connecting to Element K through Corporate
Firewall and Proxy Servers.*

This document outlines the basic information that IT personnel will need to know in order to use the www.elementk.com product. It also identifies common problems that users may experience as a result of a particular firewall/proxy configuration.

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BASIC REQUIREMENTS

- It is required that the Standard HTTP port 80 is opened on the Firewall/Proxy Server for inbound and outbound traffic.
- It is required that port 1709 be opened for outbound traffic only. (This applies to the users who plan to use Centra Synchronous Training).
- ActiveX should not be blocked when Macromedia Player is downloading. (Once the Shockwave Player is downloaded, the firewall could then be setup to block the ActiveX if necessary) Another alternative is that the User can license the Shockwave player for distribution within the organization. This would avoid having to pass the player through the firewall/proxy.

COMMON INDICATORS OF A FIREWALL/PROXY ISSUE

- Message: “The web server specified in your URL could not be contacted. Please Check the URL or try your request again.” Note: A similar message may appear if the URL has been entered incorrectly.
- Message: “The Page could not be displayed”, when pointing the browser to www.elementk.com Note: A similar message may appear if the URL has been entered incorrectly.
- Authentication is not going through, entering username and password over and over without any success. Note: This is also indicative of cookies not being enabled in the browser.
- Connection to web site is extremely slow comparing to other web sites.
- Being able to get to the www.elementk.com and not, for instance, to the Macromedia/Adobe/Beta sites.
- Being able to reach the web site by its IP address but not by its URL.

COMMON PROBLEMS

- Very slow connection to www.elementk.com
- Unreliable login process.
- Malfunction of the Shockwave player, after it has been downloaded and installed.
- Very slow or no tutorial audio and visual response.
- Being rerouted to an undesired link.

RARE PROBLEMS

- Internal DNS, not being updated
- Caching pages on the proxy/firewall. Firewalls and proxies can cache content. This can lead to users from the same organizations viewing each other's information from this cache. This can be prevented on most implementations by

disabling the caching feature for the elementk.com web site, which contains dynamic content.

- Running out of space on Firewall Temp. Internet folder, or physical drive.

RESOLUTION OF FIREWALL/PROXY ISSUES

The resolution of Firewall/Proxy issues will be handled on a case, by case basis. Issues related to firewall/proxies, typically identified by Element K Level 1, or 2 Technical Support staff during end-user support, are reported to the user's Training Administrator (TA). Element K will then, through the TA, contact a technical resource at the customer site. Element K will provide assistance, via our Technical Analyst, to organization's IT staff until resolution is achieved.

ELEMENT K'S STATELESS ENVIRONMENT:

Element K, like many other .com companies, has taken advantage of changes in Internet technology to improve connectivity between the end user and our web servers. Specifically, this new technology allows users to maintain a connection to our web servers without the use of session information. This is accomplished through the introduction of the Stateless environment.

WHAT DOES THAT MEAN?

Prior to implementing the stateless environment, users were locked to one server using a concept called “Sticky IP” for the duration of their visit to the elementk.com web site. The “Sticky” process was controlled by the Local Director, a device that sends incoming traffic to Element K's web servers based on server load. Using this process a users subsequent requests are always directed to the same server. This was required because Element K used a technology called sessions, which stored information regarding the user in the memory of the web server. If the user gets directed to a different server on subsequent requests due to the user having picked up a different IP through their organization's firewall/proxy server, the new elementk.com server would not have access to the session information stored in the previous servers memory. The user therefore, not being recognized as valid on the new server, would have to log in again.

With the stateless implementation this is no longer a problem. In the stateless environment the user's information is stored in a common, centralized database rather than the web server's memory as in the “Sticky IP” environment. The web servers can now retrieve the necessary information from a combination of the unique ID stored in the database, and information stored in a cookie on the user's machine, rather than the users IP Address.