SchoolWeb PC Client Administration/Operator's Guide

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1 Introduction

SchoolWeb is a server with Linux operating system that has the ability to act as a Windows NT server equivalent. **SchoolWeb** provides services for local network and quick access to Internet.

SchoolWeb caches previously visited Internet sites and demanded sites transferred by cable network. Both 'Policy-based' (scheduled) and 'Dynamic' (demand-based) caching is used to provide a large cache of educational material at the school location for immediate access by students and teachers, at LAN speed without external connection limitations. **SchoolWeb** connects to local machines at 100 Mbps, so acceleration of web pages transfer is remarkable.

This is the **SchoolWeb** PC Client Administration/Operator's Guide. The guide documents:

- procedures needed to connect a PC machine to the Windows NT domain operated by **SchoolWeb** server
- procedures needed to create user accounts
- utilization of the **SchoolWeb** services

SchoolWeb server is a solution of Advanced Interactive Canada Inc. (http://www.advancedinteractive.com). Questions and comments, as well as suggestions concerning additions or corrections to this manual, should be sent to schoolweb@advancedinteractive.com.

1.1 SchoolWeb server features

The **SchoolWeb** server provides the following features:

- **Linux Operating System –** Highest reliability.
- **Virtual Private Network and Firewall –** the server acts as a firewall, preventing external access to PC users connected to the internal network, but allowing access by company staff. A single Internet address allows 250 local PC's in the VPN to connect to the Internet
- **High-speed local Area Network –** the server connects to internal PC's at 100Mbps
- **Roaming E-mail server -** the server provides for a unique email address for each student, which securely follows the student wherever he/she logs on, whether externally or internally
- **Unlimited user License to Windows NT fileserver equivalent at no extra cost -** each student can use any computer on the LAN to access his/her private and public folders on the server (H – private, I – public, J – backup drives, K – Share1, L – Share1 backup, etc.)
- **High-speed local HTTP (Web) server** – the server supports both private internal web sites and public external web sites. The teacher may host and maintain their own web sites and exchange information with other teachers and students via the Internet
- **Proxy/cache server for high-speed Internet access -** Teachers can access information via a single Internet account. The first request of an Internet site, caches the file for immediate access by other. **A DNS server** for caching domain names is provided to increase Internet access speeds.
- **Automatic on-line backup –** a complete backup of all files is automatically performed each night on the Server. The backup is read-only, and is **available on-line at all times**. If a file is destroyed it can be restored from the night before. Since it is read-only, it can not be changed by the teachers and students
- **Redundant on-line system –** two high-speed hard drives are provided. If the primary disk is lost, operations can immediately resume on the back-up system without loss of time and work
- **Automatic power-down and power-up on power failure –** an uninterrupted Power Supply (UPS) is provided which provides continuous power for the server to shut down properly on power failure. When power is restored, the server automatically fires up again to resume normal operations
- **FTP server –** File Transfer Protocol is provided for downloading of files
- **NFS server –** Network file server is provided to permit file sharing between clients and servers on the Internet
- **Print Server –** a network printer can be attached to the server to be shared by all teachers and students.
- **Installation, set-up, training and optimization** of the Server are **included**.

1.2 Pre-installation Information

This chapter contains the table with user accounts and user groups, which are pre-configured, i.e. already defined on the **SchoolWeb** machine when it is delivered to you. The **SchoolWeb** administrator will need to know the passwords for these accounts.

UID	Uid#	Desc	Group	Group#
admin	500	Used for administering the system.	admin	500
httpd	506	Used for maintaining the external Web server	httpd	507
httpdi	507	Used for maintaining the internal Web server.	httpdi	506
guest	501	Used by Advanced Interactive Canada Inc.	guest	501
public	505	Used to maintain the public drive (i.e. I)	public	505
		This group has rwxr-xr-x* access. Files and subdirectories in home directory of users in this group are readable by the other users. All users in this group have a public web page that is accessible from the internal network (it may be accessible from the Internet if not restricted.)	students	509
		This group has rwxr-x--- access. Files and subdirectories in home directory of users in this group are readable by the other users from the group. Users from other groups can't read these files. Public web pages for users in this group cannot be accessed from the internal network or Internet.	teachers	508
		This group has rwx------ access. The files and subdirectories in the home directory of a user can only be accessed by the user himself/herself. Users in this group should be school administrators. They also don't have a public web page.	principals	510
share1	803	Users who are members of this group have drives **K** and **L** mounted on the local client. They have full read/write access to the **K** drive. The **L** drive is an on-line backup of the **K** drive. Users only have read access to the **L** drive.	share1	512
share2	804	Users who are members of this group have drives **M** and **N** mounted on the local client. They have full read/write access to the **M** drive. The **N** drive is an on-line backup of **M** drive. Users only have read access to the **N** drive.	share2	513
share3	805	Users who are members of this group have drives **O** and **P** mounted on the local client. They have full read/write access to the **O** drive. The **P** drive is an on-line backup of the **O** drive. Users only have read access to the **P** drive.	share3	514

* The letters in the string mean: r – read, w – write, x – executable access to a file or a directory. Dash means no access. Every file or directory has an user owner and a group owner. There are three triplets of letters combinations in the sequence describing the access. The first triplet denotes the user owner access, the second one denotes access of the users from the group owner and the third one denotes other users access.

2 TCP-IP Setup on PC Client

Before the first user can use a PC to access the advantages of the **SchoolWeb** server, a system administrator needs to make changes in the PC configuration to point it to the **SchoolWeb** server.

It would be useful to know this data before starting to set up the PC:

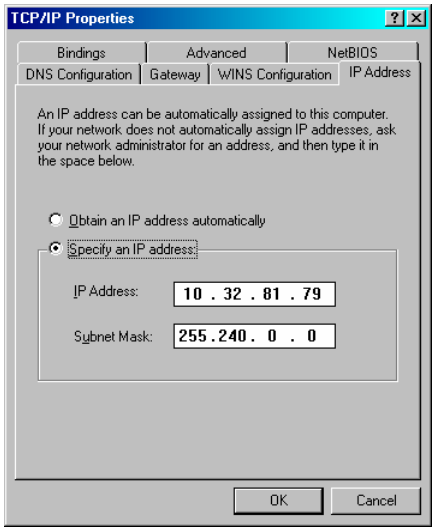
- The PC IP address (if DHCP is not used)
- Local network mask (if DHCP is not used)
- The **SchoolWeb** server internal IP address
- The **SchoolWeb** server external IP address
- Hostname of the PC
- Your school's DNS domain name
- Domain name servers used by your school

2.1 PC with static TCP-IP setup

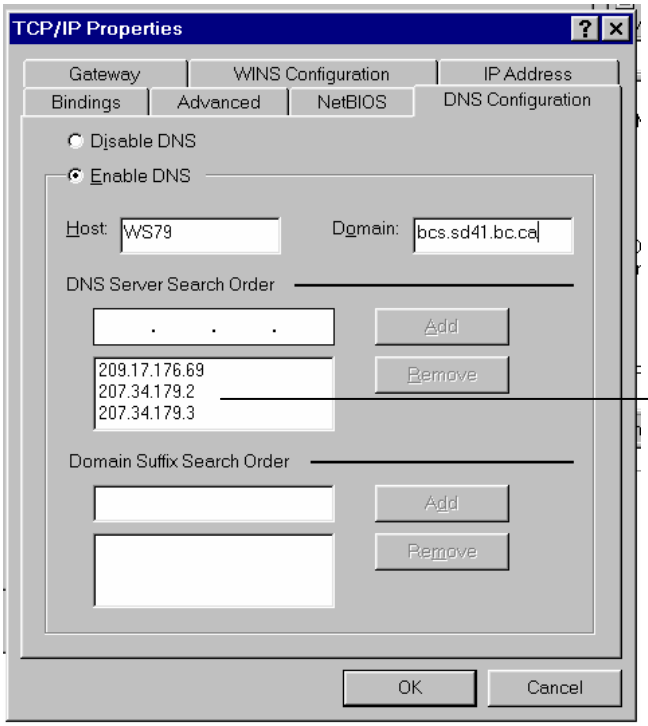
2.1.1 Set TCP-IP properties

The PC will be recognized in the TCP/IP network if its valid IP address and subnet mask is set up correctly. Verify it in Control Panel/Network/TCP-IP/Properties/IP address.

Note: If the DHCP server is running within your local network, the option "Obtain an IP address automatically" will be checked.



The PC won't suffer and will work quickly and properly if DNS server is enabled and the list of DNS servers is defined. Choose the DNS Configuration tag in Control Panel/Network/TCP-IP/Properties dialog window and add the list of DNS servers. The list could be provided by your district administrator. The hostname for the local PC is placed in the box Host, and the name for your Internet domain in the box Domain.



Use the IP's supplied by your district administrator.

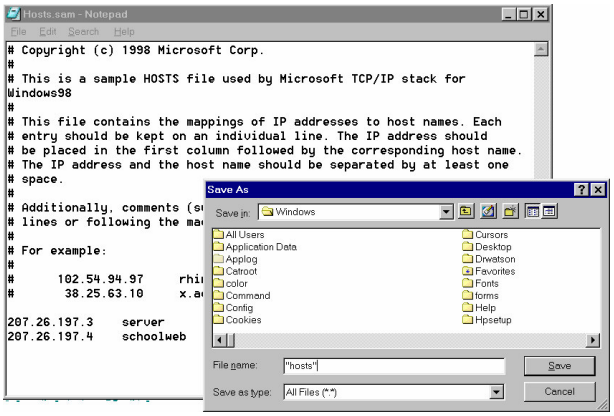
2.1.2 Add domain names to list of hosts

People tend to remember names better than numbers, but numbers are smaller to store in computer memory. The PC should be familiar with the list of names that match to the IP numbers. The list is kept in the C:\Windows directory in the files:

- *hosts* (used by TCP-IP protocol),
- *lmhosts* (for local Microsoft Windows Network).

If these files have not been created yet, the most common way is to modify the *hosts.sam* and *lmhosts.sam* files and save them as *hosts* or *lmhosts* respectively.

The **SchoolWeb** server has two IP addresses. This solution was taken to simplify access to two web servers (internal and external) that are running on **SchoolWeb**. The client will approach the internal web server through the **SchoolWeb** server internal IP address or the name "schoolweb". The external web server and the other **SchoolWeb** network services (e.g. file, print, cache or mail servers) will be approached using the **SchoolWeb** server external IP address or the name "server".

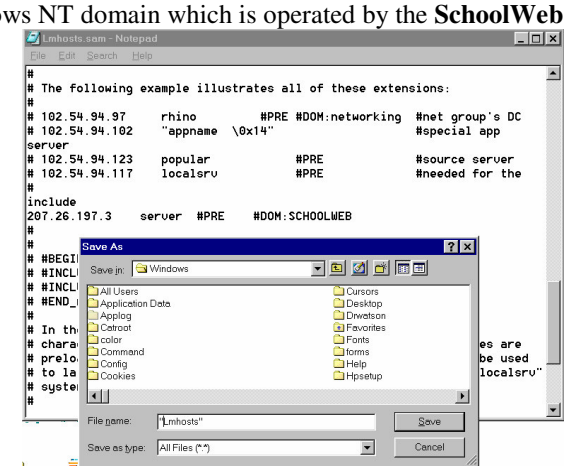


Note: When you save the file hosts, the filename must be enclosed in quotes to save it without a file type suffix (the same for the lmhosts file).

Because the TCP-IP protocol uses a different format in the file of hostnames than Microsoft Networking, another file, lmhosts, has to be created. Only the IP number and the name of the external TCP-IP domain ("server") have to be added. On the same line it must be specified that the computer works for the Windows NT domain "*schoolweb*".

Note: Don't be confused, because we use the identical name "schoolweb" for two different things:

- It is the name that matches to the external TCP-IP address of the **SchoolWeb** server
- It is the name of Windows NT domain which is operated by the **SchoolWeb** server



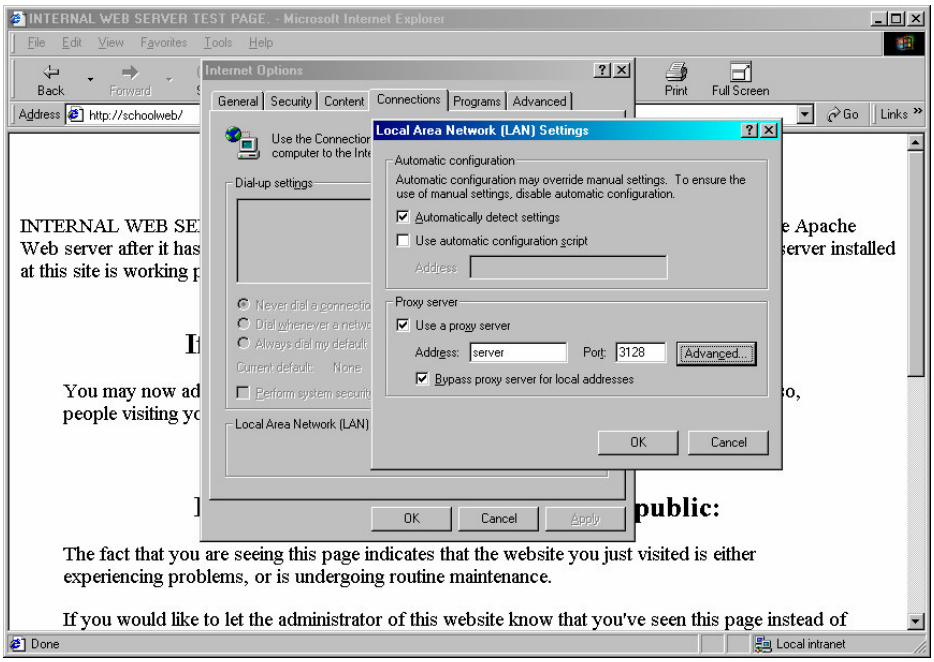
Changes do not take effect until the machine is rebooted.

2.1.3 Setup the Internet Explorer browser

When browsing the Web, many users access the same sites. However, inside one local network it is not necessary to lose time transferring it from the remote computer all the time. A user's request can query the cache server first. The cache server has the previous requested files in its memory for a period of time. The cache server installed on the **SchoolWeb** server has in its memory also the sites that are stored there deliberately. To use the advantage of the cache server, Internet access configuration needs to be modified.

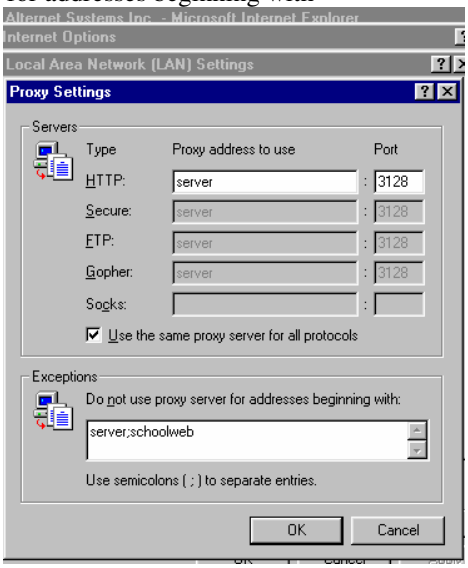
Here are the steps that need to be done to allow cache and proxy server within Internet Explorer:

- click Tools/Internet Options/Connections/LAN Settings
- check: Use a proxy server
- Address: server
- Port: 3128
- Check: Bypass proxy server for local addresses



Do an Advanced proxy setting on a machine used for an administration access:

- Add the list
  server; schoolweb
  to the box “Do not use proxy for addresses beginning with”



The system administrator could consider decreasing of the size of the cache folder at the local PC. Setting is made from the window:

- Tools/Internet Options/General
- Temporary Internet files – Settings
  Dependent on the total and used size of the disk at the PC, define:
  - Amount of disk space to use

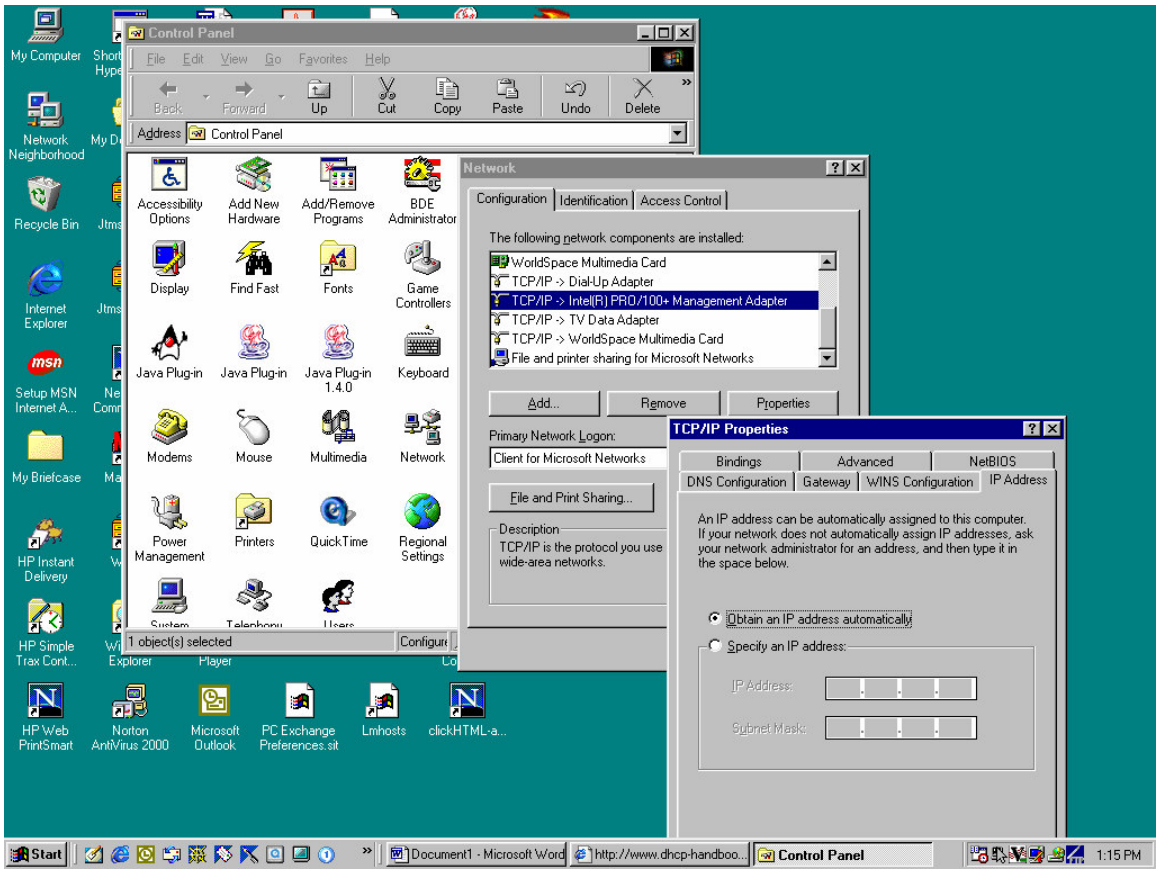
2.2 PC with DHCP setup

The *Dynamic Host Configuration Protocol* (DHCP) is an Internet protocol for automating the configuration of computers that use TCP/IP. The **SchoolWeb** server provides services of DHCP protocol.

The **SchoolWeb's** DHCP server can be used to automatically assign IP addresses, to deliver TCP/IP stack configuration parameters such as the subnet mask and default gateway, and to provide other configuration information such as DNS and Proxy servers.

2.2.1 Set TCP-IP properties

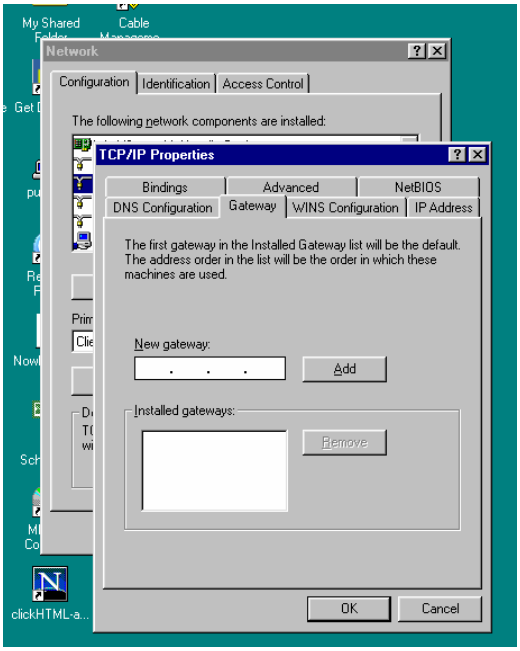
To enable PC with Windows95/98 operating system to receive its IP address from the DHCP server, the option 'Obtain an IP address automatically' must be checked in the 'Control Panel/Network/TCP-IP/Properties/IP address' dialog window.



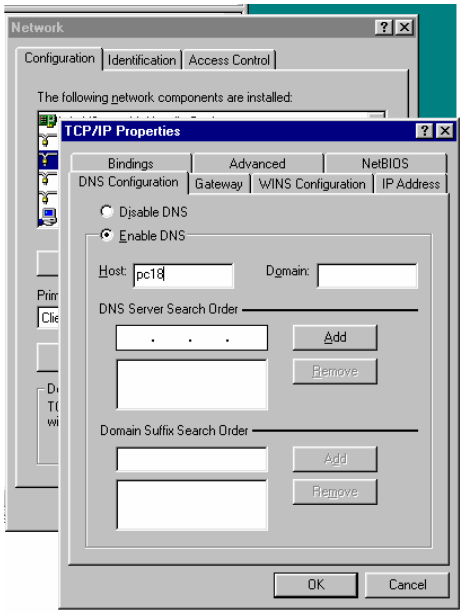
2.2.2 Gateway, DNS and Proxy setup

Another pieces of configuration can be extracted from DHCP server as well. The **SchoolWeb** server provides Gateway, DNS and Proxy setup.

To assign Gateway IP from DHCP server, boxes in 'Control Panel/Network/TCP-IP/Properties/Gateway' must be blank.

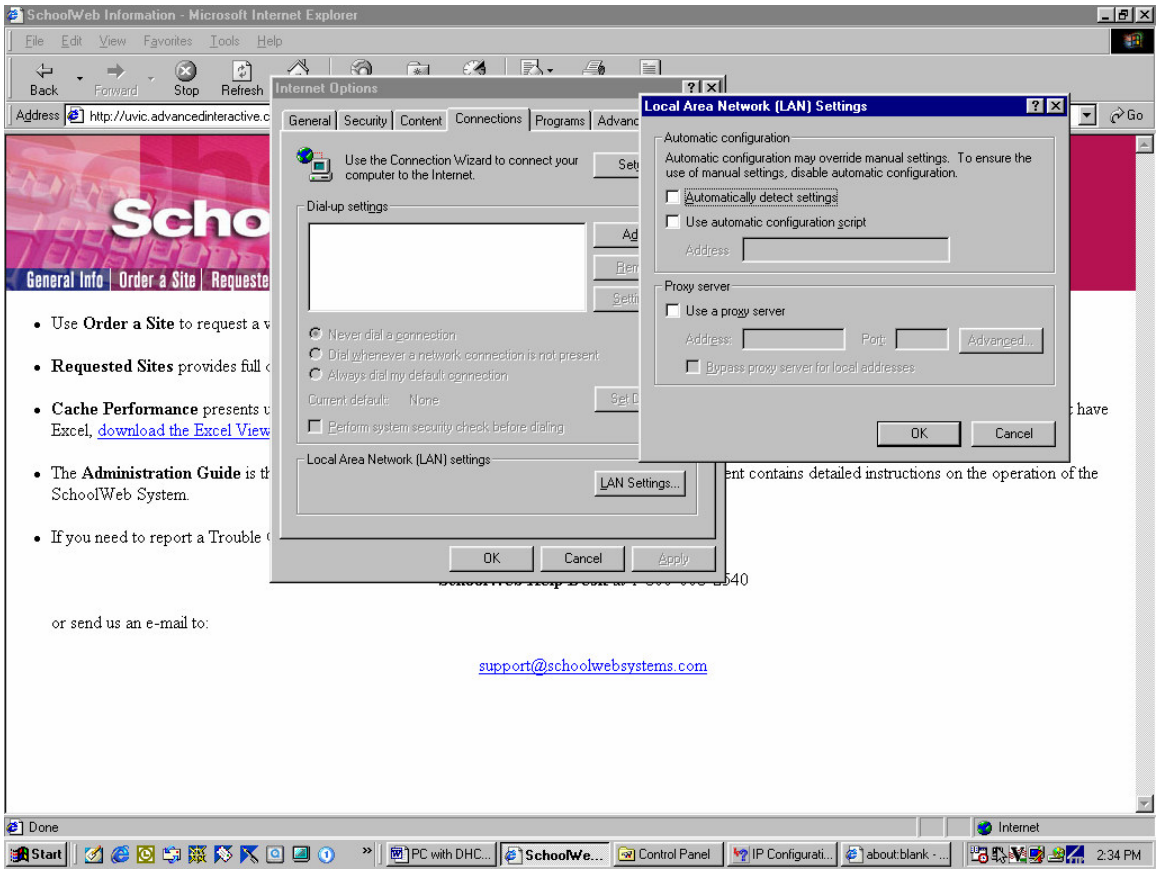


To enable automatic DNS setup, verify settings in window 'Control Panel/Network/TCP-IP/Properties/DNS Configuration'. Only 'Host:' box can be filled in. It contains the name of the PC. All other text boxes should be empty. Domain name and DNS server will be setup automatically from DHCP server.



A feature of **SchoolWeb's** DHCP is a method by which a DHCP server can supply proxy settings to Internet browsers on a PC client. To get the proxy parameters using this feature of DHCP, manual proxy settings in browsers must be disabled.

The following picture shows proxy settings within Internet Explorer (Tools/Internet Options/Connections/LAN Settings).



2.3 Check PC settings

After you have completed network settings changes from the previous chapters, you need to reboot the PC to enable them.

The simplest thing to do for testing is to use Winipcfg.exe to display network settings information. To view your current TCP/IP settings using Winipcfg, follow these steps:

- Click the Start button, and then click Run.
- Type the following line in the Open box, and then click OK:

  winipcfg

Your current TCP/IP settings are displayed. Make sure you are viewing the IP configuration for a proper Ethernet Adapter (see selection at the top).

To view additional information, click 'More Info'.

If your IP address was dynamically allocated by a (DHCP) server, you can use the Release and Renew buttons to release and renew the IP address.

The following sections describe the settings displayed by the Winipcfg tool.

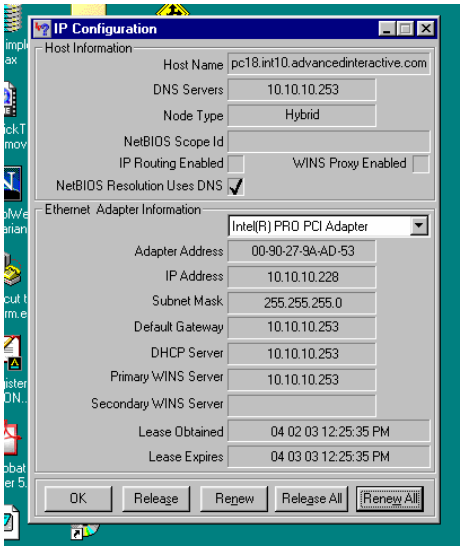
- Adapter Address: This string of hexadecimal numbers represents the hard-coded identification number assigned to the network adapter when it was manufactured. IP Address:
- IP Address: This is the actual IP networking address that the computer is set to. It is either dynamically assigned to the computer upon connection to the network, or a static value that is manually entered in TCP/IP properties.
- Subnet Mask: The subnet mask is used to "mask" a portion of an IP address so that TCP/IP can determine whether any given IP address is on a local or remote network. Each computer configured with TCP/IP must have a subnet mask defined.

- Default Gateway: This specifies the IP address of the host on the local subnet that provides the physical connection to remote networks, and is used by default when TCP/IP needs to communicate with computers on other subnets.

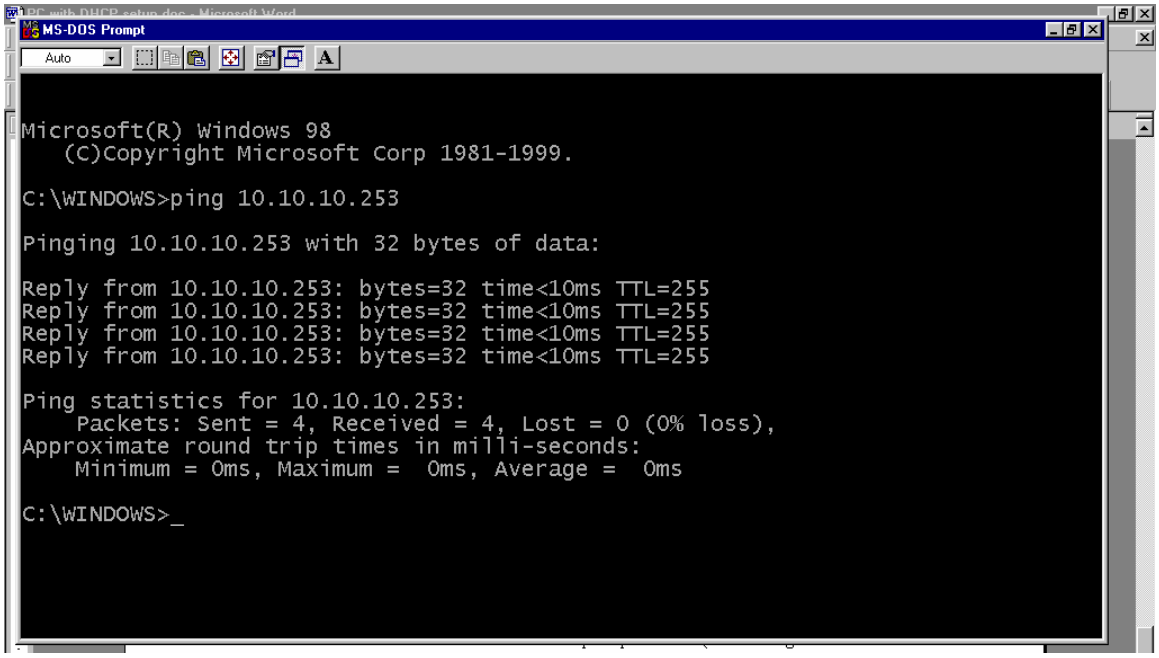
The following settings are displayed if you click More Info:

- DHCP Server: This specifies the IP address of the DHCP server. The DHCP server provides the computer with a dynamically assigned IP address upon connection to the network. Clicking the Release and Renew buttons releases the IP address to the DHCP server and requests a new IP address from the DHCP server.
- Primary and Secondary WINS Server: These settings specify the IP address of the Primary and Secondary WINS servers (if available on the network). The WINS servers provide a service translating NetBIOS names (the alphanumeric computer names seen in the user interface) to their corresponding IP address.
- Lease Obtained and Lease Expires: These values show when the current IP address was obtained, and when the current IP address is due to expire. You can use the Release and Renew buttons to release and renew the current IP address, but this is not necessary because the DHCP client automatically attempts to renew the lease when 50 percent of the lease time has expired.

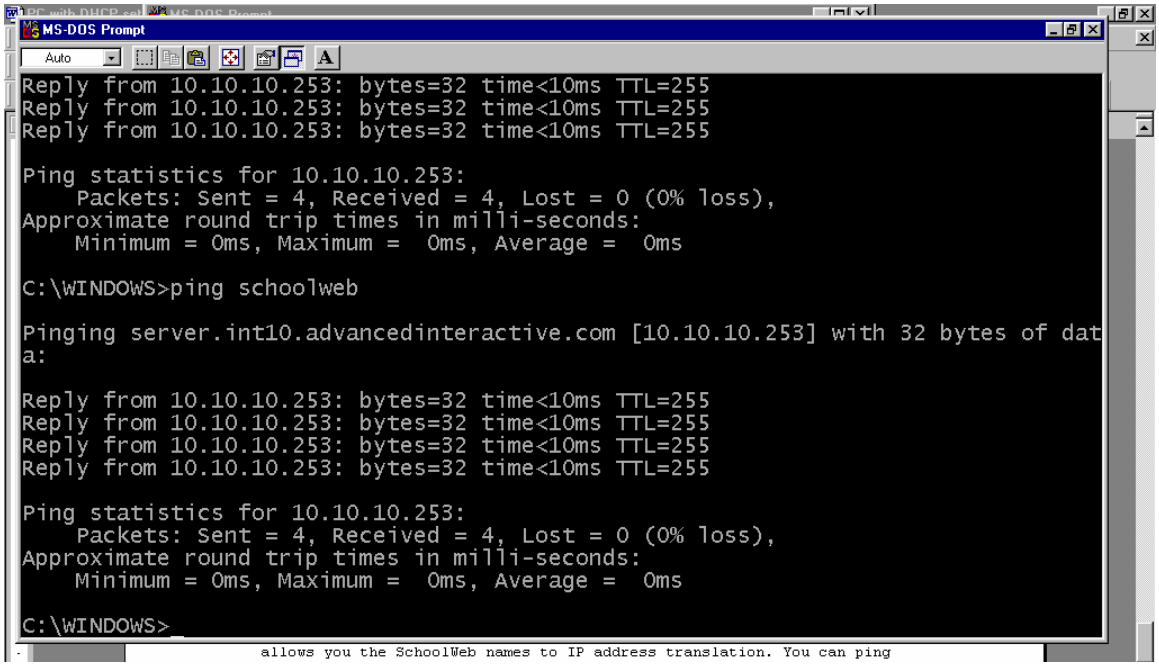
The correct information when using SchoolWeb's DHCP server, is displayed in the next picture.



Another thing you should do for testing, is to check access to the SchoolWeb server. If different setup was not required, the internal IP of the SchoolWeb server is 10.10.10.253. Ping the SchoolWeb server from MS DOS command prompt window (Start – Programs – MS-DOS Prompt). You should get the following results, if your LAN connection is working:

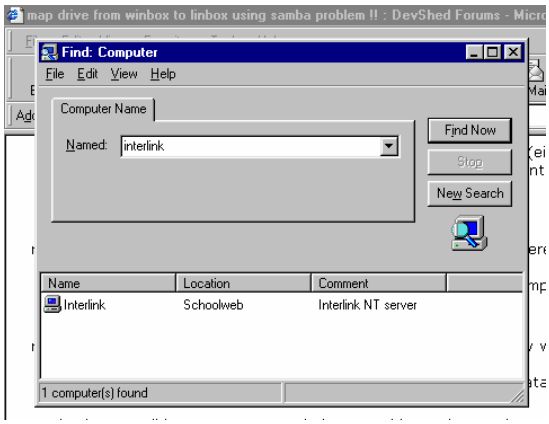


There are three names assigned to the IP of SchoolWeb server: schoolweb, server, interlink. With automatic DNS setup from DHCP server, all of the names are propagated. On PC with static IP setup, the file 'hosts' contains the SchoolWeb names to IP address translation. You can ping schoolweb, interlink, or server with responses as bellow:



If you cannot ping SchoolWeb server name, but the SchoolWeb server is found when pinging it through its IP, check 'hosts' file for PC with static IP or correctness of DHCP and DNS setup for PC using DHCP.

If your SchoolWeb server is acting as Windows NT domain, try doing a find computer on the name 'interlink' (Start/Find/Computer/Named: interlink).



If search gives you a "machine not found" error, but you got correct response for ‘ping interlink’, contact support@advancedinteractive.com.

3 Joining SCHOOLWEB domain

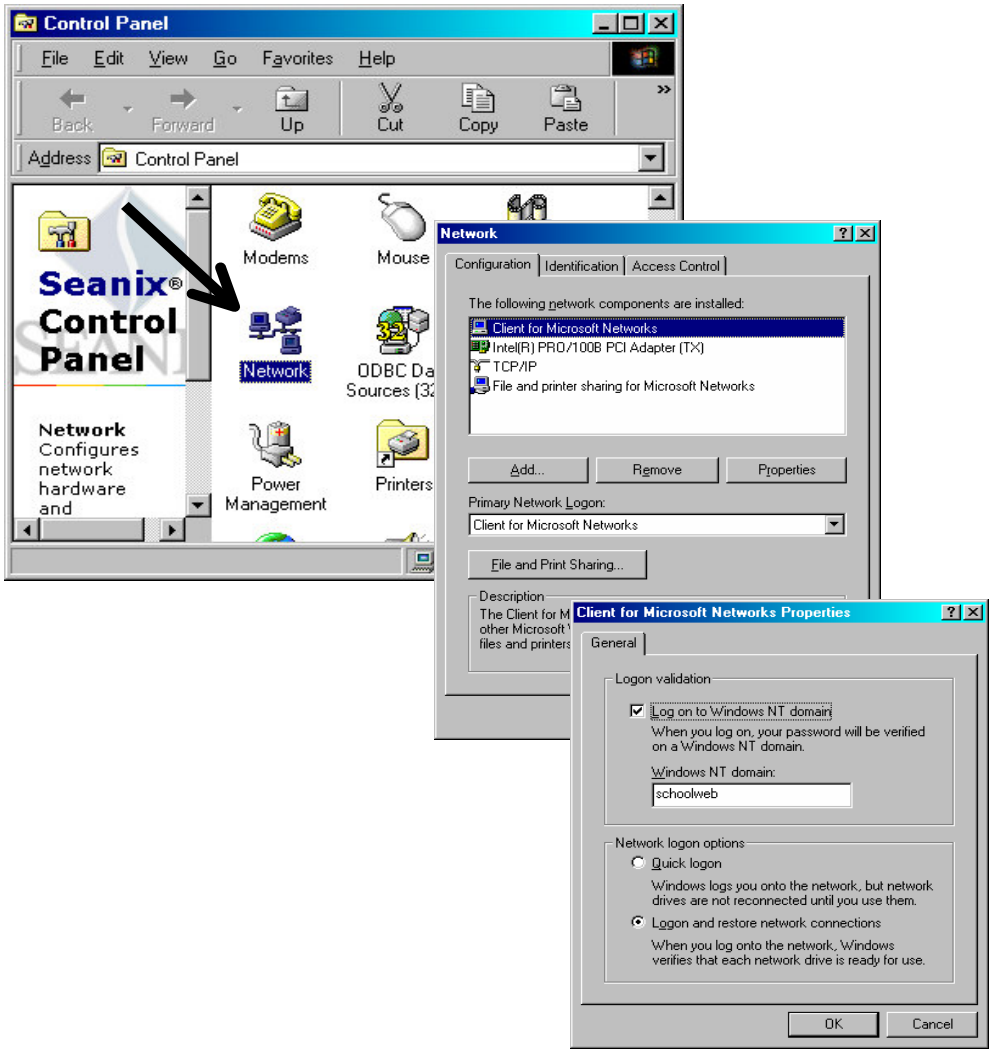
The **SchoolWeb** server acts as a Windows NT server and provides network services to a client. To allow a user to use the services, the user has to login to the Windows NT domain with the name "schoolweb".

3.1 Windows 95/98/ME PC Clients

3.1.1 Set Windows NT domain to schoolweb

To set the Windows NT domain information for a Windows 95/98 client follow these steps:

- click on Control Panel/Network/Client For Microsoft Networks/Properties
- check Log on to Windows NT domain
- define the Windows NT domain as "*schoolweb*"



From now, every time the client PC is re-booted, the user will be prompted to login to the Windows NT domain to access network services. The user has to submit:

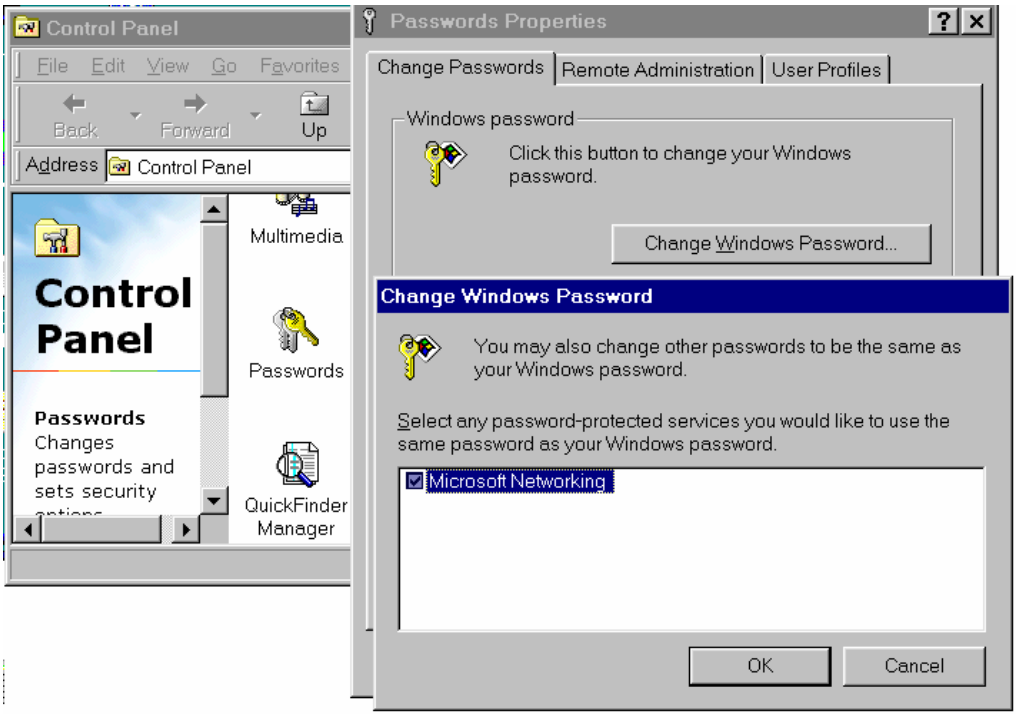
Login name
Password
Windows NT domain name

The Windows NT domain name is always "*schoolweb*". The system administrator who creates user accounts on the SchoolWeb server provides login names and passwords to users.

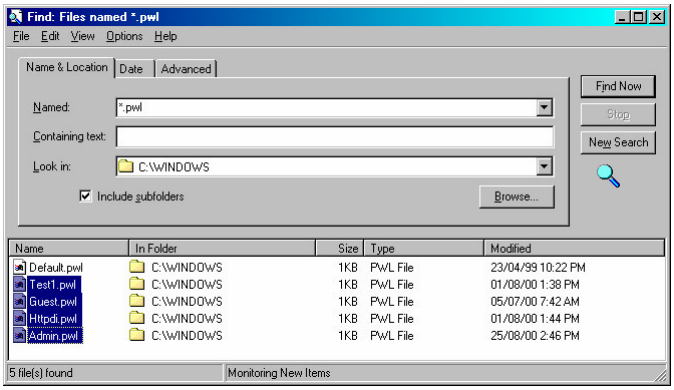
Note: In case **SchoolWeb** is down from any reason, the user will just cancel the login window.

3.1.2 Synchronize Network and Local Passwords

To avoid inconveniences during login to the *schoolweb* domain, the **SchoolWeb** server and local Windows 95/98 passwords need to be synchronized. In Control Panel/Passwords/Change Passwords/Change Windows Password check Microsoft Networking.



Local passwords are stored in files with the standard .pwl suffix in the C:\Windows directory. Delete all these files referring to old local passwords, except the file Default.pwl.



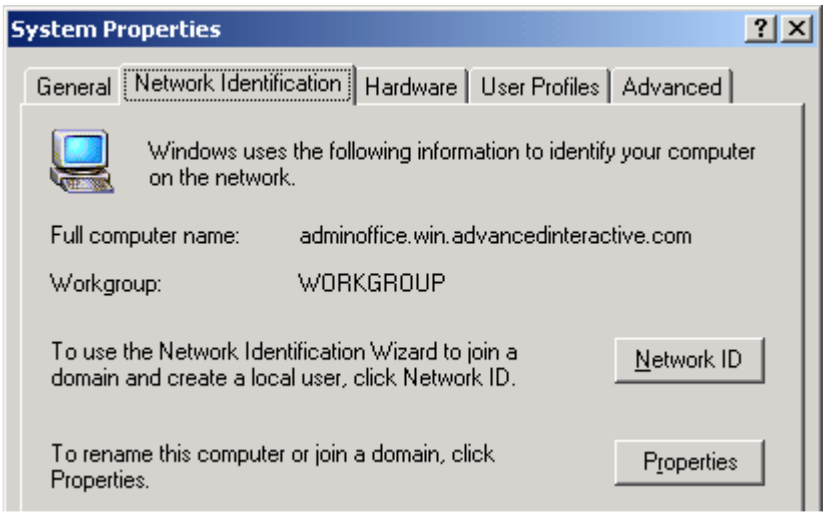
3.2 Windows 2000 Professional

3.2.1 Register PC on SchoolWeb Server

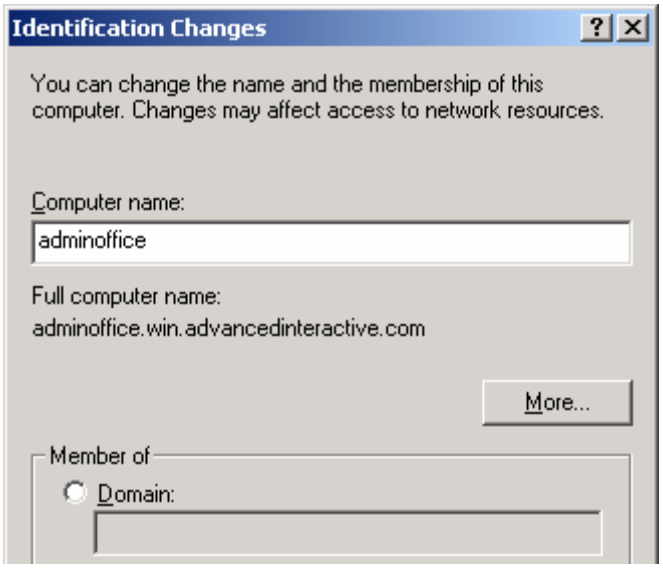
If the operating system on a PC client is Windows 2000, it is required that the PC is authenticated with the server in order to be recognized. To do this, you will need to follow instructions in the 1, 2, 3, and 4 points:

1. Find the name of the Windows 2000 client (or indeed, to give the computer a name if it doesn't already have one)

- Log into the client PC as Administrator, or as a user with Administrator rights
- Right click on *My Computer* and go to *Properties/Network Identification - Properties*



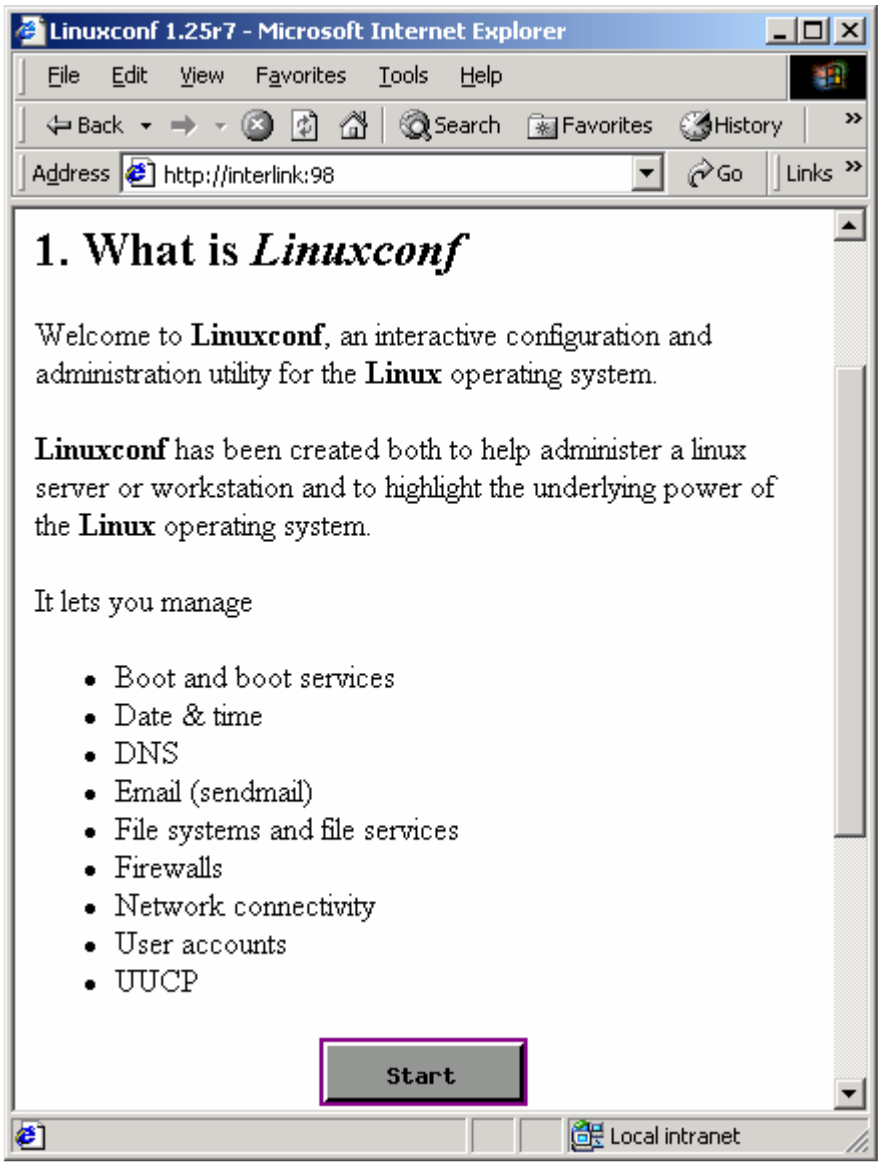
- The name of the PC client is in the *Computer name* box
  Note: Ensure that the computer name is in lower case, and contains no special characters e.g. adminoffice not Admin_Office



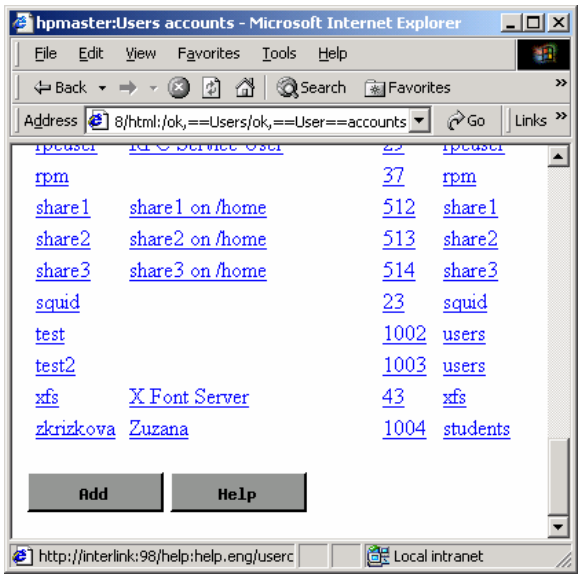
2. Register the Windows 2000 PC with the **SchoolWeb** server

The procedure is exactly the same as in 'Adding a Single User Account in Linuxconf ' (chapter 4.1.1).

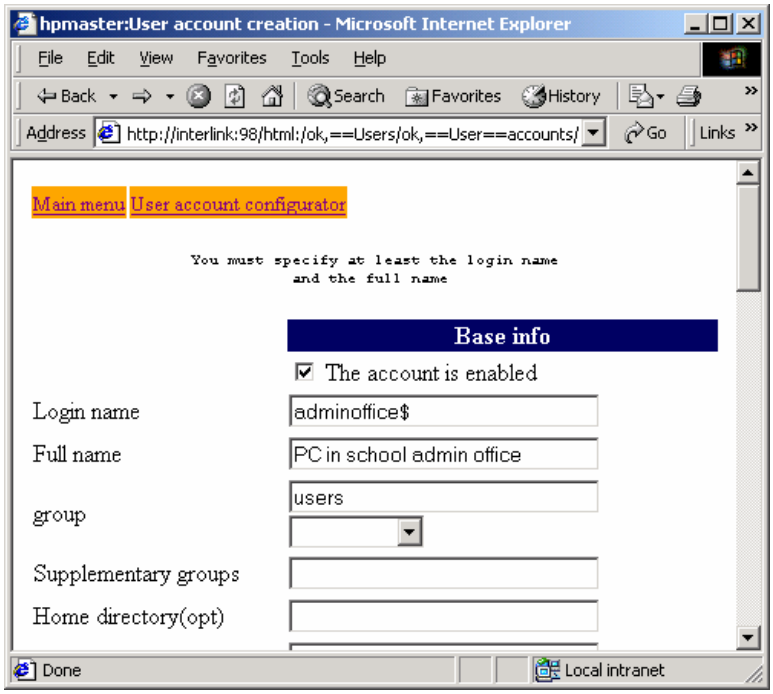
- Open up a web browser and go to http://interlink:98. This will launch the Linuxconf utility to allow you to easily configure the server. At the top of the screen you will see the name of your server. Towards the bottom, you will see a *Start* button. Click on it.



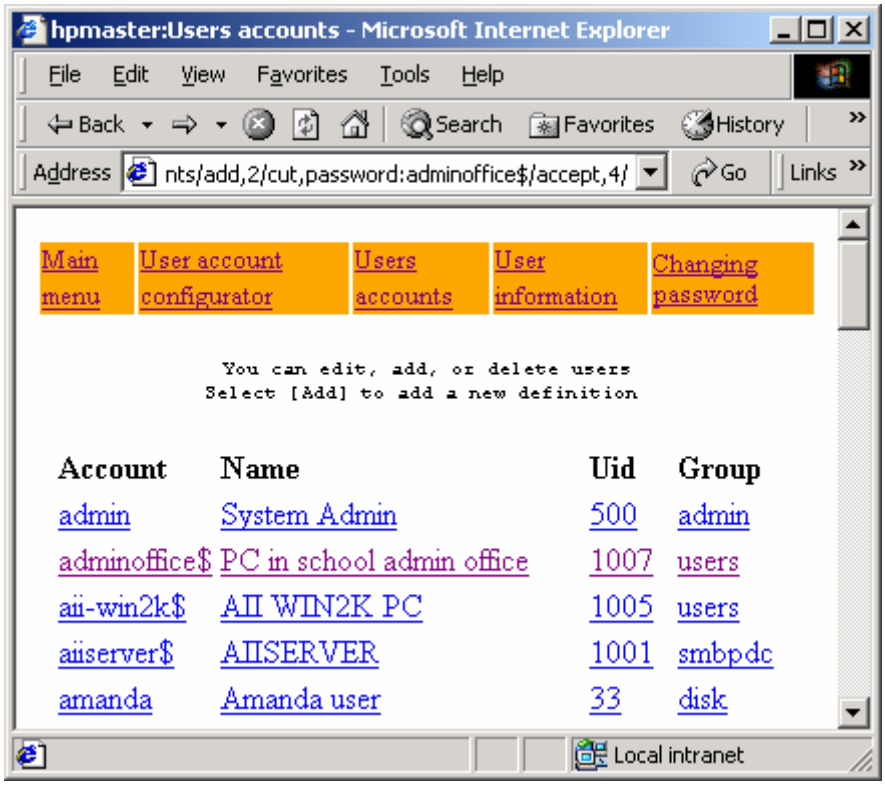
- Login as *User Name* “admin”. (You will have been provided with your default password for the admin user name when your server was installed).
- Click on *Users*, then *User Accounts*
- You will get the screen with the list of registered users. Scroll down and click on the Add button at the bottom of the screen



- Add a new user for your Windows 2000 PC. The *Login name* is the name of the PC, followed by a $ sign. The “$” sign enables the server to distinguish between a machine and a user. In the *Full name* field, enter a description of the PC that you have added, this will help to identify the PC client more easily in the future.



- Leave all the other fields at default settings, scroll down to the bottom of the screen and click *Accept*
- You will be prompted for a new password, and then for the new password's confirmation. Although you are required to enter a password for the machine at this stage, you will not use it in the future.
- You will then see your new PC added to the list of machines and users on your network



3. Register the Windows 2000 PC with Samba

- Open a telnet session with the **SchoolWeb** server through *Start - Run* – telnet schoolweb. Login as the admin user. You can as well use a different telnet or ssh client to connect the **SchoolWeb** server command line prompts (for instance: Download putty.exe client from Internet)
- Invoke root privileges. You will need the root user password.

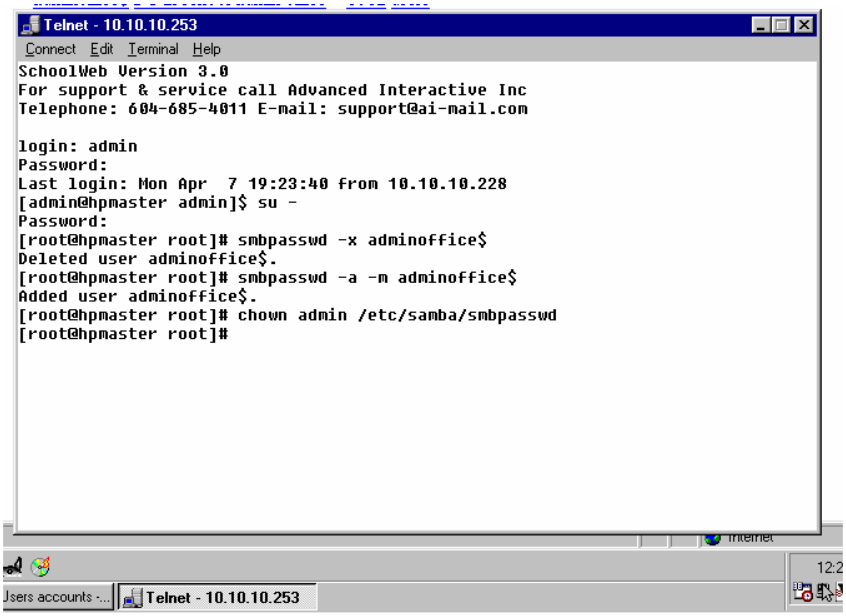
```
[admin@hpmaster admin]$ su -
Password:
```

- Let Samba know, the new user you have created is not an ordinary user, but a computer.

```
[root@hpmaster root]# smbpasswd -x adminoffice$
[root@hpmaster root]# smbpasswd -a -m adminoffice$
```

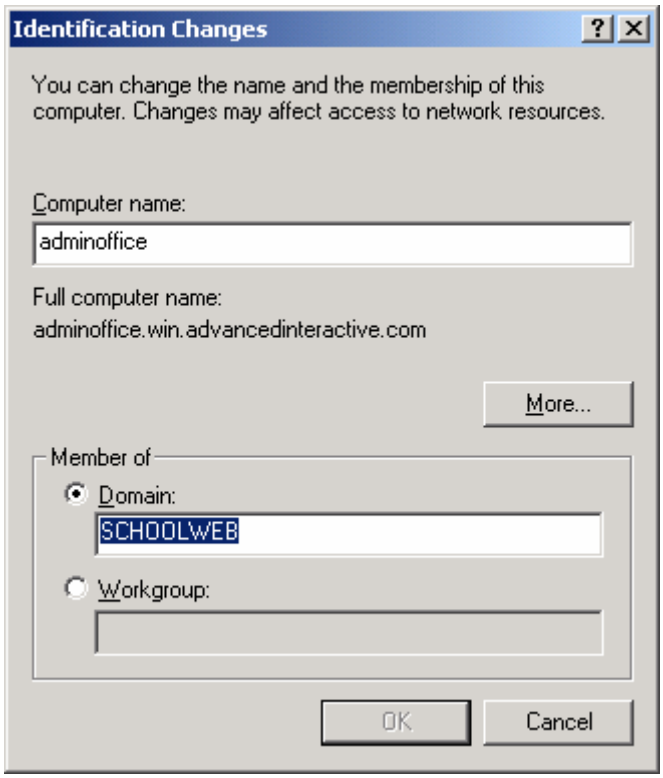
- Change the owner of the /etc/samba/smbpasswd file to admin.

```
[root@hpmaster root]# chown admin /etc/samba/smbpasswd
```

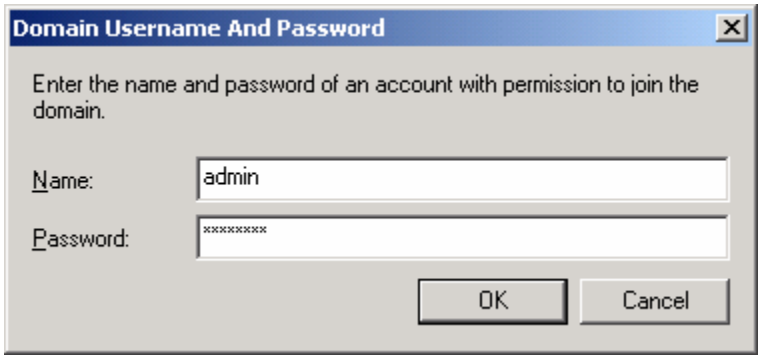


3.2.2 Add the PC to the *schoolweb* domain

- Right click on *My Computer* and go to *Properties/Network Identification/Properties*.
- In the *Domain* field type ***schoolweb***.



- A login screen will appear for the domain. Login as admin (this is your admin login to the **SchoolWeb** server). Click OK.



- You should see a pop-up welcoming you to the ***schoolweb*** domain now

The PC must be rebooted for the changes to take effect. On reboot any registered user can login to the *schoolweb* domain. It might take few minutes until the *schoolweb* domain is recognized when the first users logon after reboot.

All of the user's *schoolweb* domain drives will be automatically mapped. The user's home drive is automatically mapped to the H: drive for all Windows environments. Windows 2000 clients will automatically also map the same home drive to Z:

3.3 Windows XP

Due to limitations built into Windows XP Home Edition, any PC with this operating system cannot be added to any domain.

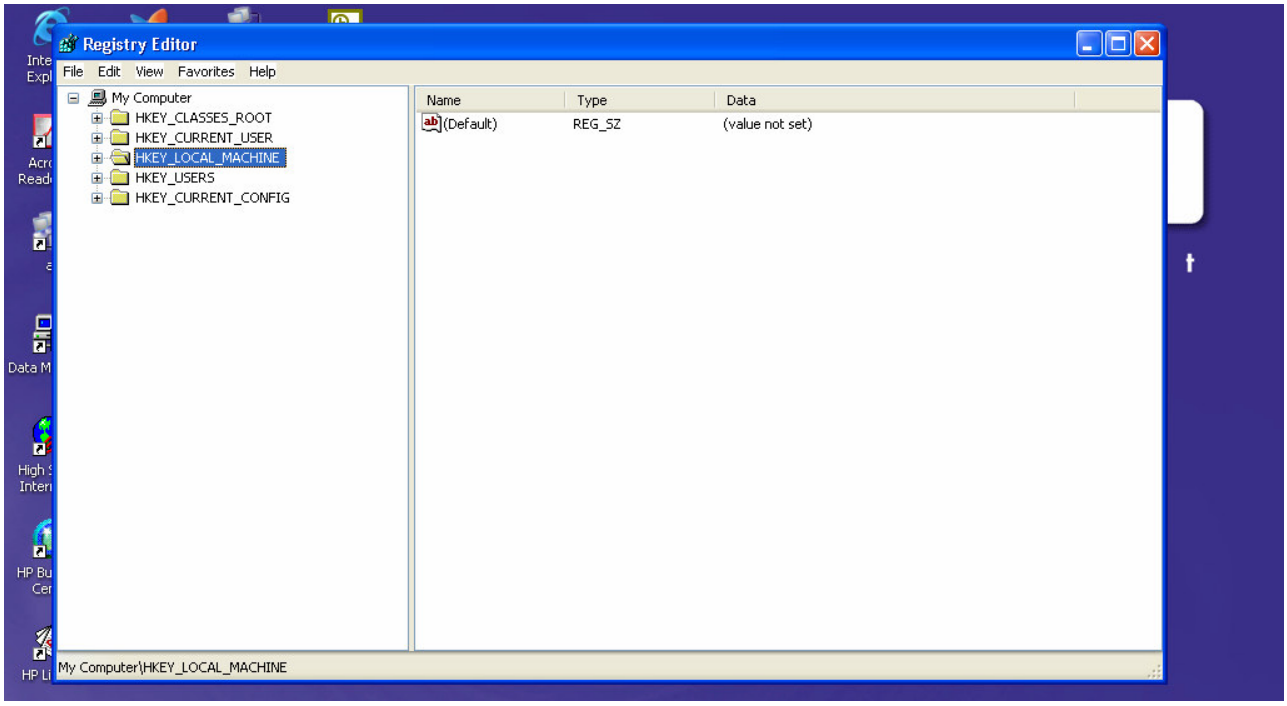
To add a PC with Windows XP Professional operating system to the *schoolweb* domain, you will need

- To change registry settings on the PC
- To register your PC on the **SchoolWeb** server
- To register your PC with the *schoolweb* domain

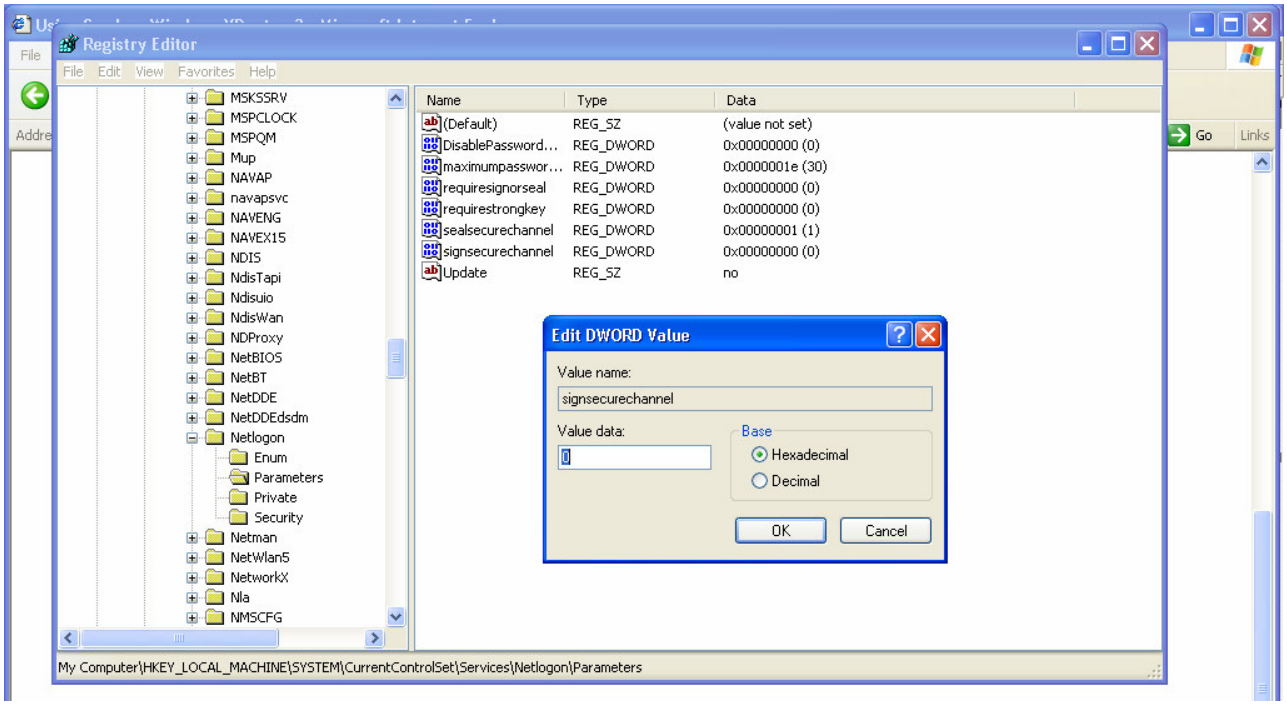
3.3.1 Registry settings

To change the registry settings, use registry editor regedt32. Go to Start/Run, input *regedt32* command and click the *OK* button.

Match your screen with the picture below:



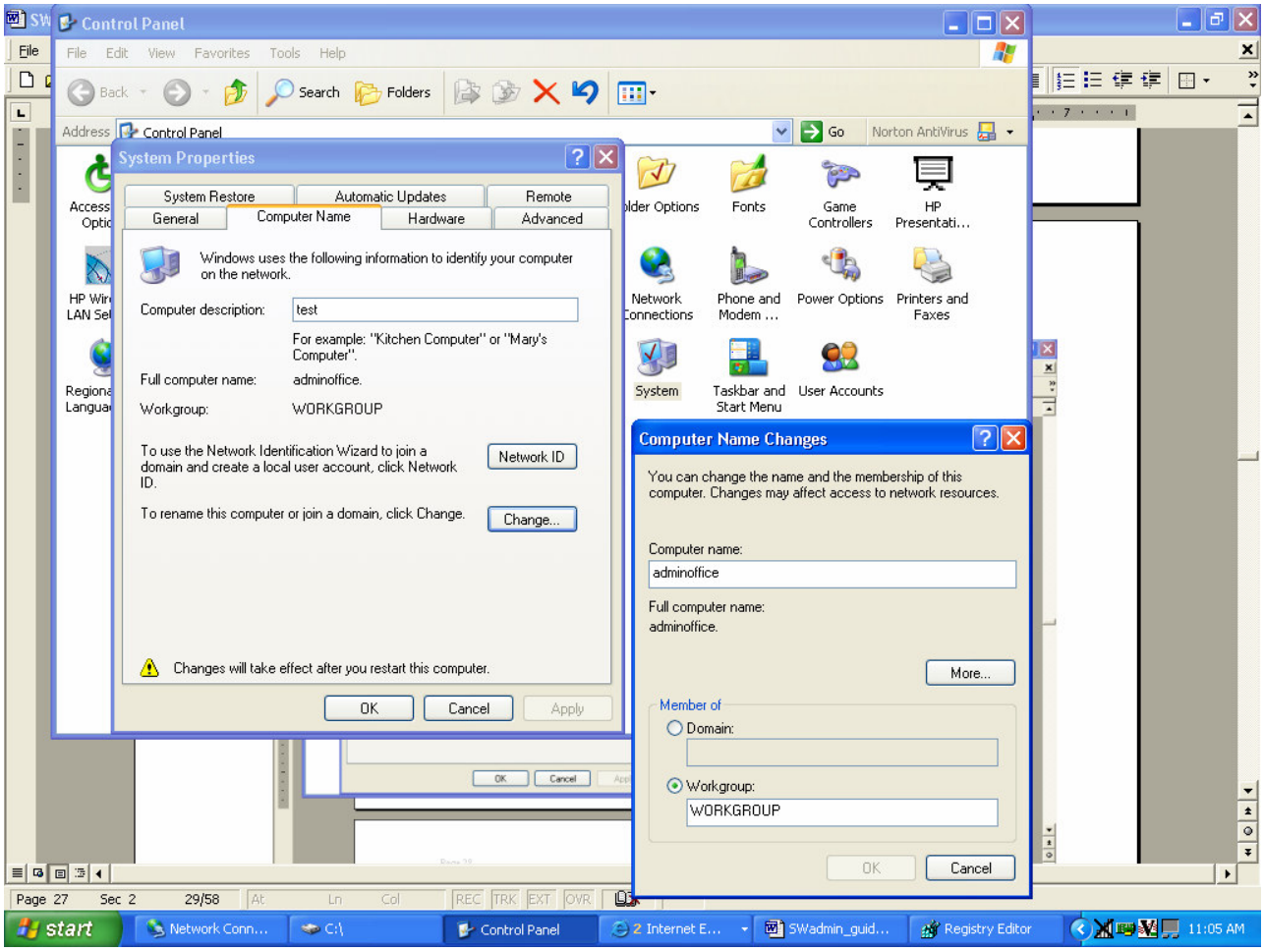
Select HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Netlogon\Parameters. Change settings to 0 for 'requresignorseal' and 'signsecurechannel' options. After double-click on the option, you will get the dialog box as shown bellow.



3.3.2 Register PC on SchoolWeb server

The steps to register Windows XP Professional PC on the SchoolWeb server, are the same as when registering Windows 2000 PC (see chapter 3.2.1).

1. Find the name of the Windows XP Professional client. You will find in Control Panel/System/Computer Name how your client running Windows XP Professional is named. If you want to create a new name for your PC, click on the *Change* button.



2. Create user *computername$* (e.g. adminoffice$) on the **SchoolWeb** server. Follow instructions in chapter 3.2.1 on how to use Linuxconf to create the user.

3. Add your workstation name to the *schoolweb* domain password file

- Use a telnet or ssh client to connect the **SchoolWeb** server command line prompts. You can download putty.exe client from Internet, or use Microsoft telnet application – Start/Run: telnet schoolweb
- Invoke root privileges. You will need the root user password.

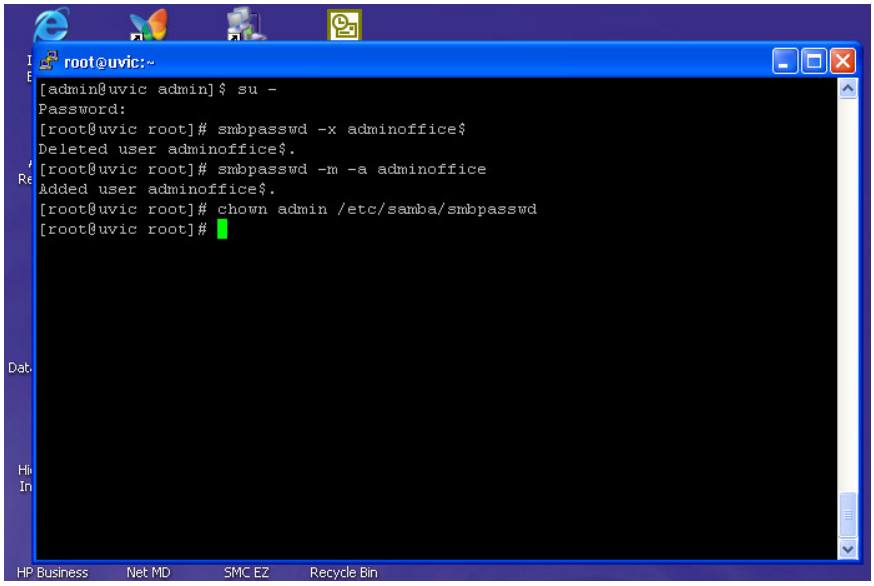
```
[admin@hpmaster admin]$ su -
Password:
```

- Let *schoolweb* domain know, the new user you have created is not an ordinary user, but a computer.

```
[root@hpmaster root]# smbpasswd -x adminoffice$
[root@hpmaster root]# smbpasswd -a -m adminoffice$
```

- Change the owner of the /etc/samba/smbpasswd file to admin.

```
[root@hpmaster root]# chown admin /etc/samba/smbpasswd
```



3.3.3 Add PC to the *schoolweb* domain

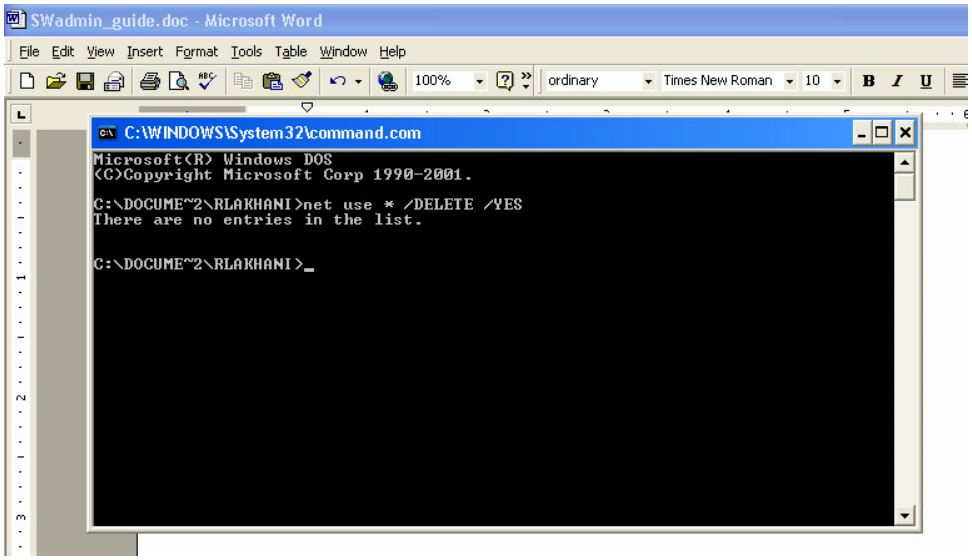
The next steps must follow immediately after you change ownership of the /etc/samba/smbpasswd file. You have to change the ownership with each new PC registered with the **SchoolWeb** server.

Delete any existing NetBIOS connections. Click the Start Menu and select Run... Enter the following characters to 'Open' box:

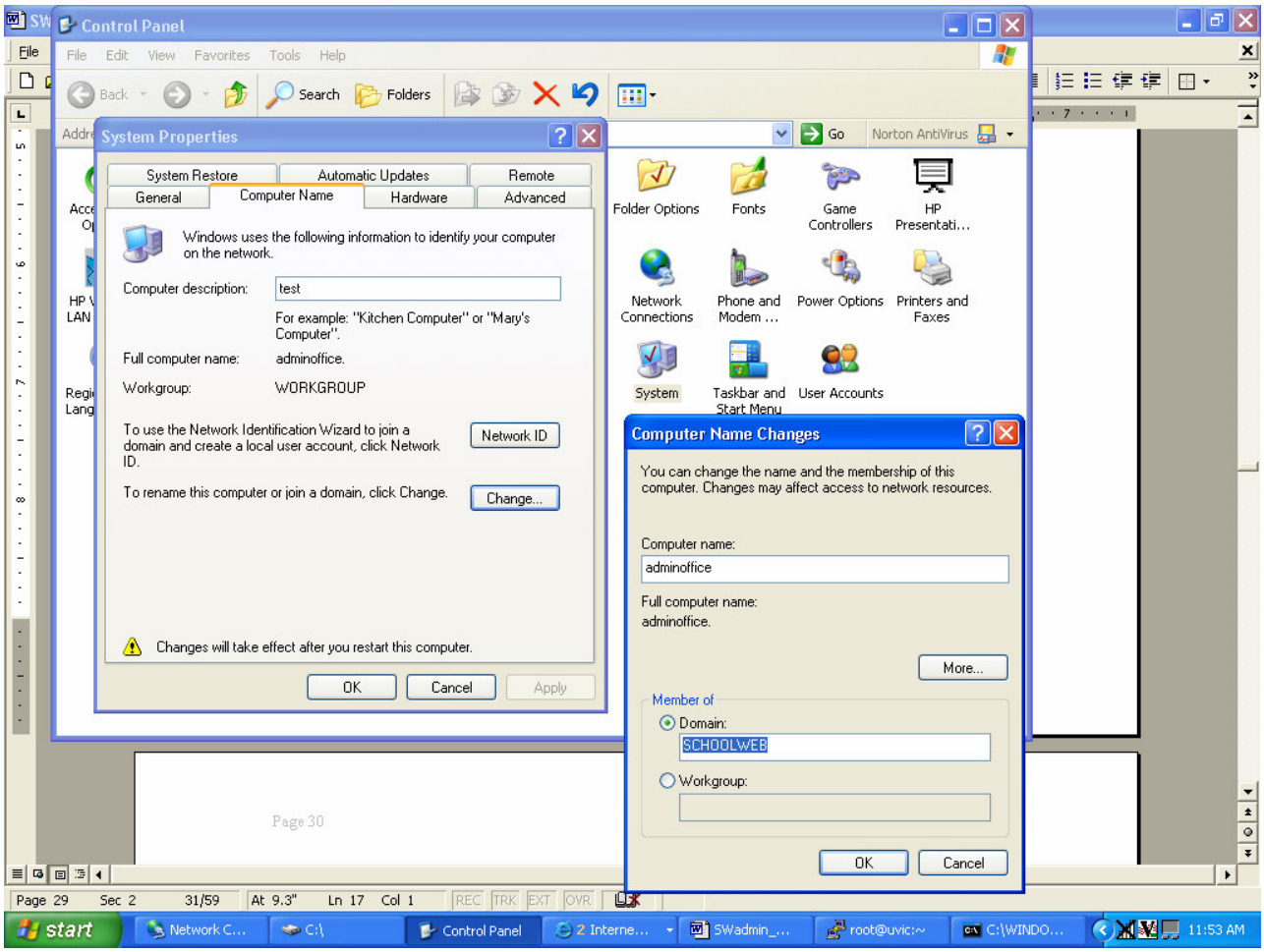
command

Click *OK*. Enter the following command at the prompt:

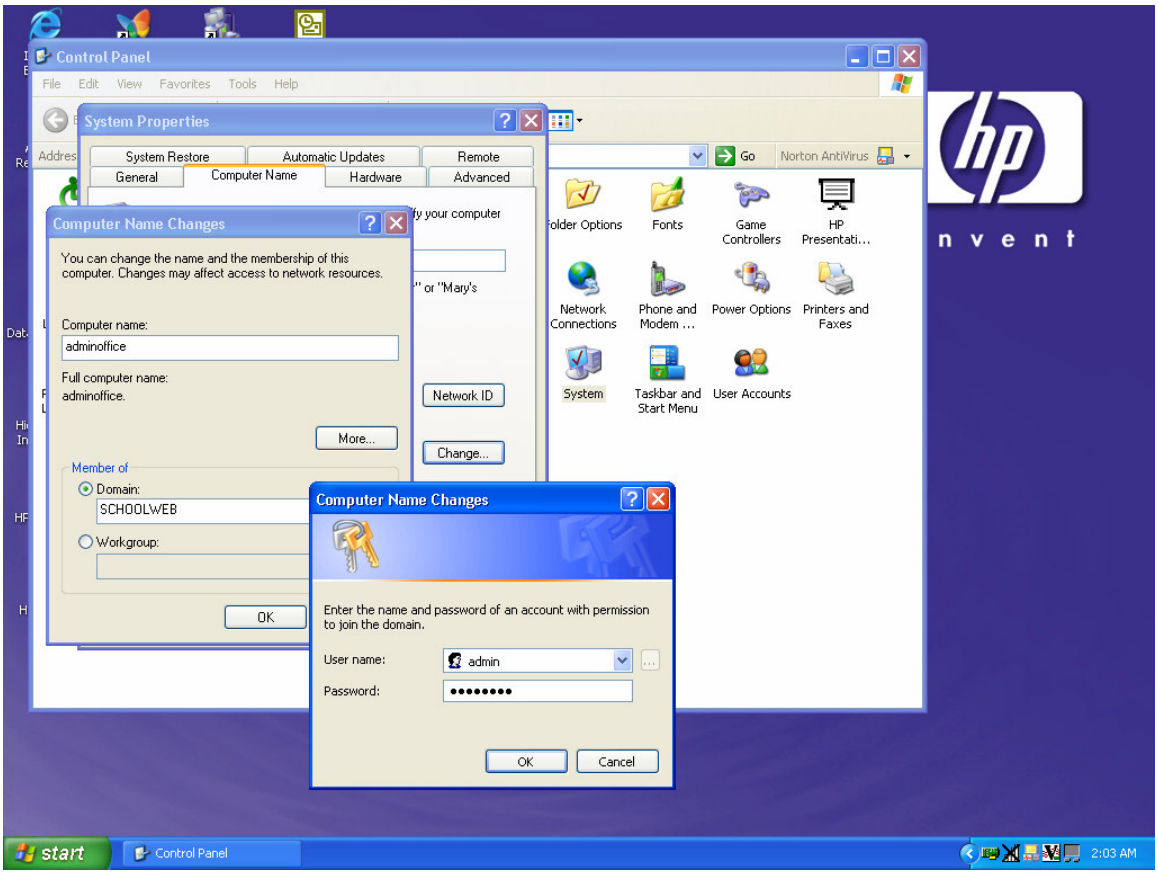
```
net use * /DELETE /YES
```



Visit the Control Panel/System/Computer Name/Change dialog window again and point your domain to *schoolweb*:



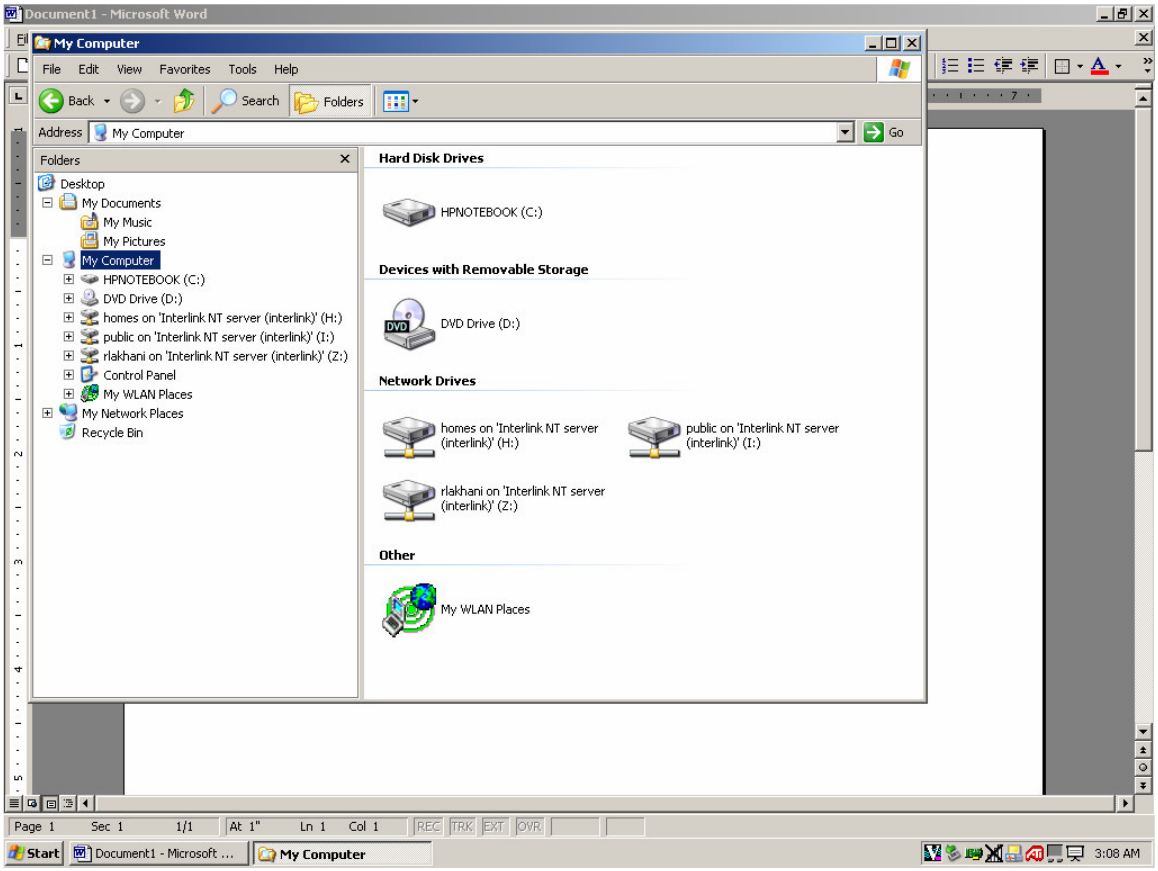
After you click on the *OK* button, you will be asked to logon to the *schoolweb* domain for the first time. Logon with the **SchoolWeb** server *admin* account. The *admin* account does not need to be created on the PC.



If there is a correct password in your input, you will get *schoolweb* domain welcome window.

When you reboot the Windows XP client, the login window will contain *Domain* box. Choose *schoolweb* domain and logon with any **SchoolWeb** server account. The account does not need to be created on the PC. It might take few seconds until the *schoolweb* domain is recognized when the first user is logging in.

If the user's home directory from the **SchoolWeb** server is mapped as H:\ drive, then your PC joined the *schoolweb* domain correctly. Public directory from **SchoolWeb** server is mapped as I:\. Backup of the user's home drive is mapped as Z:\.



4 SchoolWeb Server Users

The users of the *schoolweb* domain have their accounts at the **SchoolWeb** server. **SchoolWeb** allocates a storage space of almost 8 Gigabytes assigned for home directories of students, teachers and school staff, and a space of the same size for backup of the home directories. Users may use this space for their own files, E-mails, and personal web pages. To allow users to access this large space, the **SchoolWeb** administrator must make up user accounts.

4.1 User Accounts

There is more than one way to create user accounts. To create a single account, we suggest you use the Linuxconf tool. If creating a set of many accounts, the program addusers.bash is a much more efficient process.

4.1.1 Adding a Single User Account in Linuxconf

The system administrator runs the Linuxconf application from

- Internet browser.

After inserting

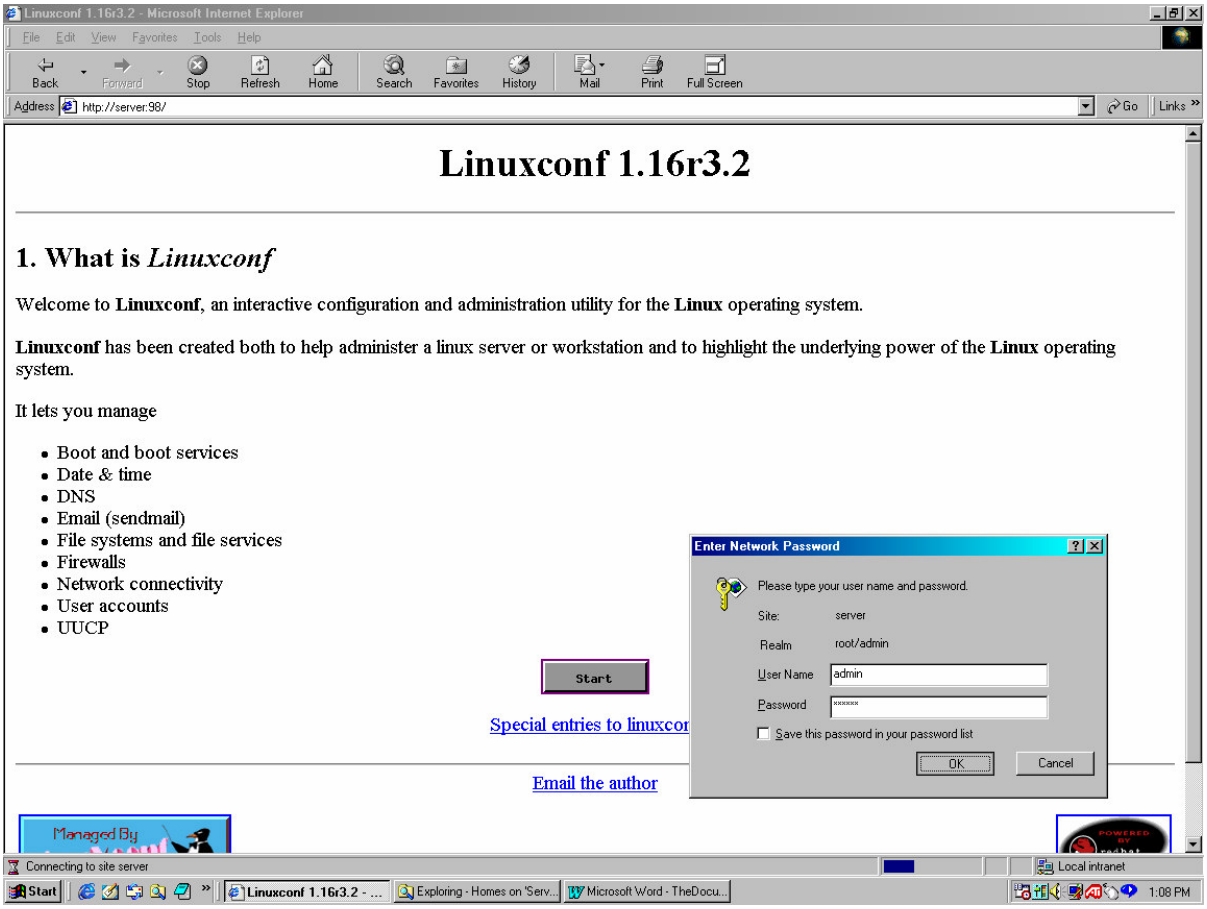
- http://server:98/ to the Address box,

the introductory window of the application appears.

- Click Start button

to start the application and then

- login as admin user.



Choose these options from menus:

- Config/Users accounts
- Normal/User account

to see the existing accounts.

The button

- Add

is used to create a new account.

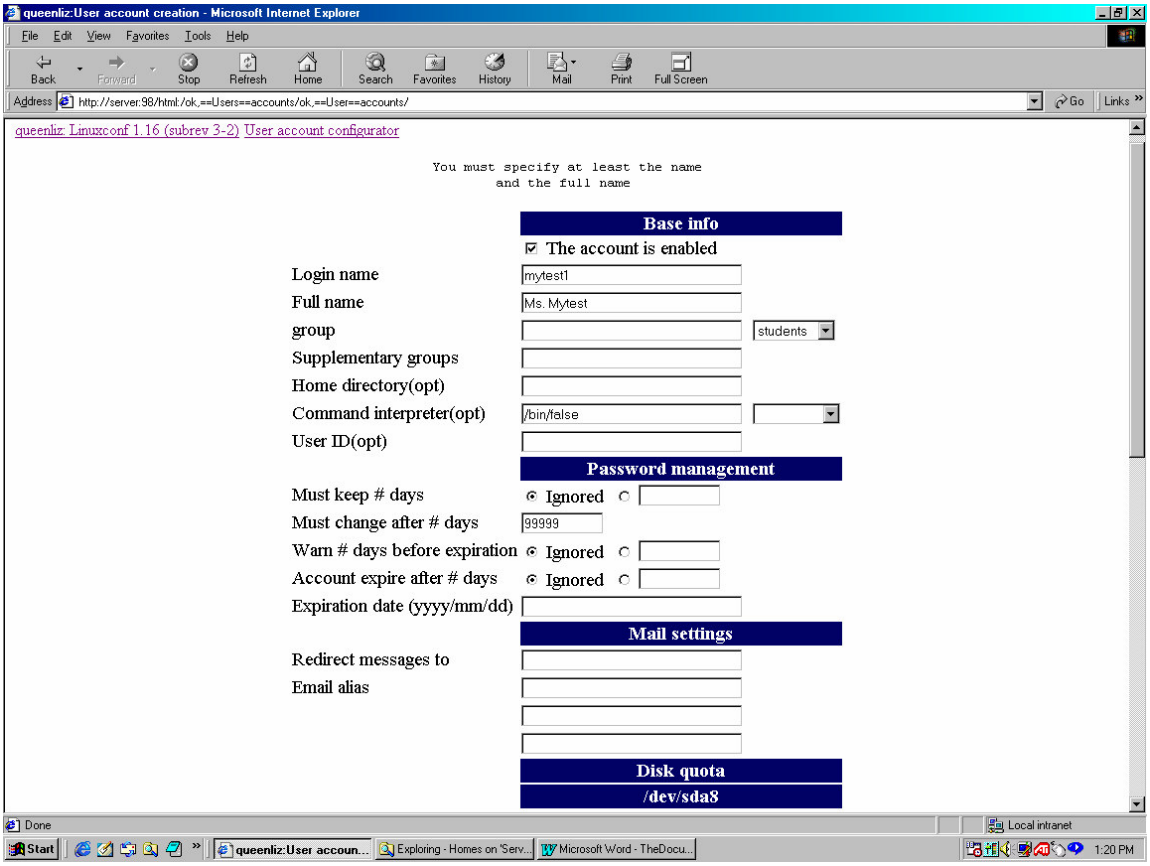
For the new user account specify

- Login name
- Full name
- Group (students, teachers, principals)

Beside his/her home directory, the user has a read access to the public directory at **SchoolWeb**. Some users could share the other directories if they are members of the same supplementary group. Three groups of this kind are prepared at **SchoolWeb** - share1, share2, and share3. For instance, if you add

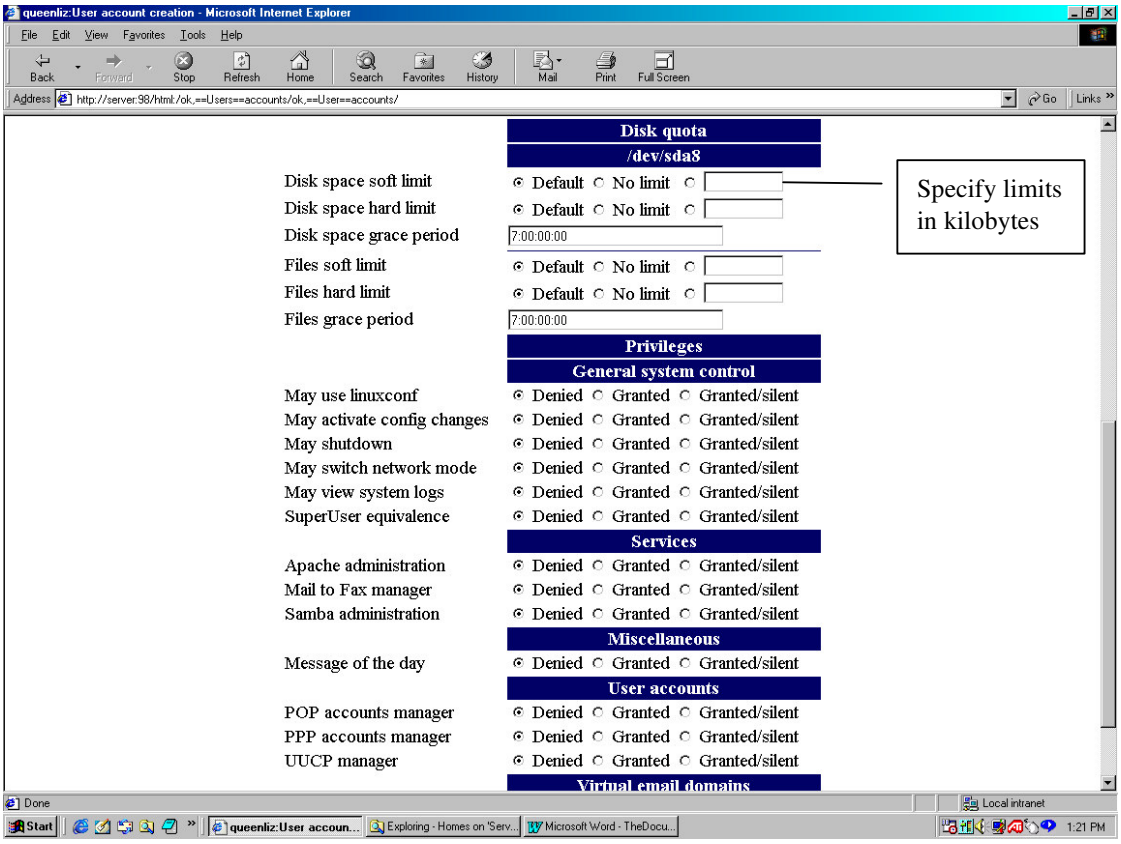
share1 to the Supplementary groups box,

the user could use the directory (shared with all members of share1) that is mapped as K: drive.



If necessary, the **SchoolWeb** administrator can restrict the space at the home directory of the user

- in the Disk quota options (specify quota in kilobytes)
- Default quota is 50 000 Kbytes.

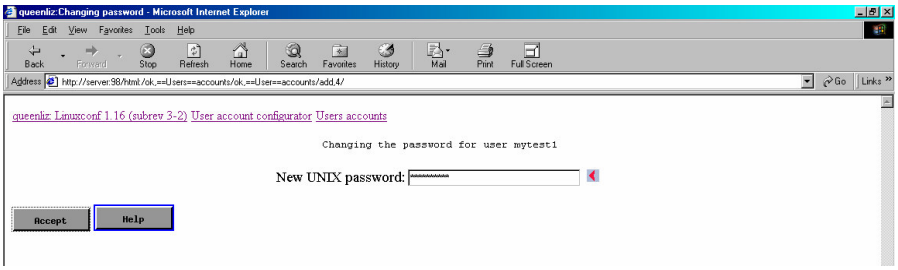


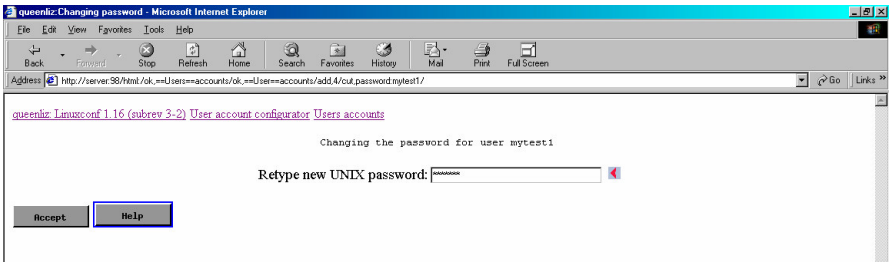
Keep the default setups for the other options.

After clicking

- The Accept button

at the bottom, Linuxconf asks to add and confirm the password for the new user.





The user uses this password to access the *schoolweb* domain and to open his/her E-mail folders. It is not possible to login to **SchoolWeb** server directly using this account (in Telnet application).

The Schoolweb administrator can also modify or delete users accounts within Linuxconf tool.

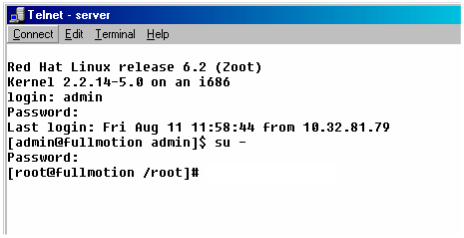
4.1.2 Adding a Set of User Accounts Using addusers.bash

The addusers.bash is a shell script that can create a large number of user accounts in a short time. It is evoked from Linux environment at **SchoolWeb** server. The script is stored in /root directory and can be run only with root privileges.

The system administrator logs into **SchoolWeb** using Telnet application or directly from the console as an ordinary user, but then runs the root shell with command

- su –

Then the root password needs to be inserted.



The input for addusers.bash is the file *newusers* that contains the list of names of new users. Each line contains the full name of a new user and a group (students, teachers, principals). The full name could contain spaces and is separated from the group with a colon. Here is a sample of a *newusers* file:

```
Rosanna Blanks:teachers
Sandra L Johnson:students
Sandra Sybley:students
Susan Jane Audubon:students
```

The *newusers* file can be created using vi or pico editor in Linux, or Notepad in Windows environment (and then transferred to **SchoolWeb** using ftp). The location of the newusers file should be /root directory at **SchoolWeb**.

Note: The addusers.bash script has not been made with a user-friendly interface, so if there are any problems with it, just send the list of new users by E-mail to Advanced Interactive Canada Inc., and we will create new users for you.

The output of addusers.bash is the list of the newusers accounts. Its format is:

userID:group:full name:password assigned by computer

The userID is first initial, lastname. If there are duplicates, the system automatically adds different numeral to each identical userID.

Keep the output in a file with a proper name. The file will be useful when you have to delete any accounts. For instance, choose the name users_01 for all the students that enter the school in September 2001. In the year they all finish the school, it will be easy to delete their accounts using one command.

Here is the sample of output (users_01 file):

```
rblanks:teachers:Rosanna Blanks:jgud18
sljohnso:students:Sandra L Johnson:bgfe55
ssybley:students:Sandra Sybley:rgat65
sjaudubo:students:Susan Jane Audubon:yerl35
```

After the file newusers has been prepared, the addusers.bash is evoked with a command:

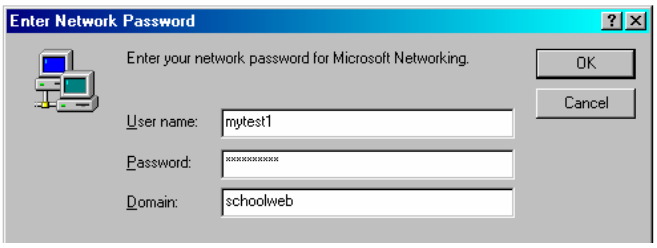
- ./addusers.bash newusers > users_01

For deleting user accounts, use the delusers.bash script. The input is the file that has the same format as the output file from addusers.bash. To delete the user accounts from the list in users_01, use the command

./delusers.bash users_01

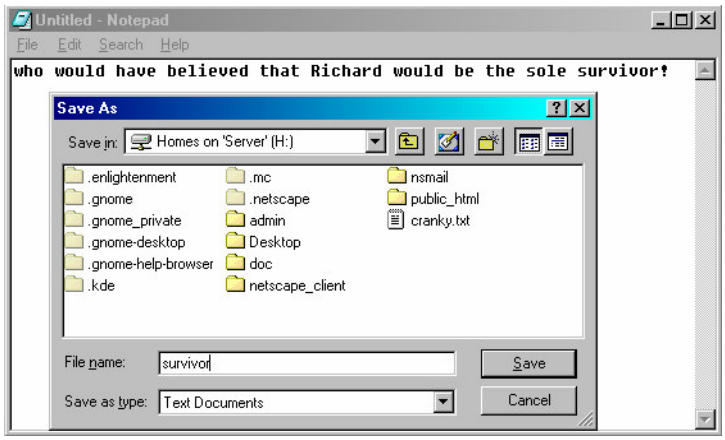
4.2 User Environment

If the PC was setup properly, every time it is rebooted, the prompt to login to the domain will appear. To login, the user adds the account name and password that match to his/her user account at **SchoolWeb** server.



4.2.1 Home directory

The user's files may be stored at his/her home directory at **SchoolWeb**. The home directory is mapped as the H: drive. Only the user has write access to this directory.

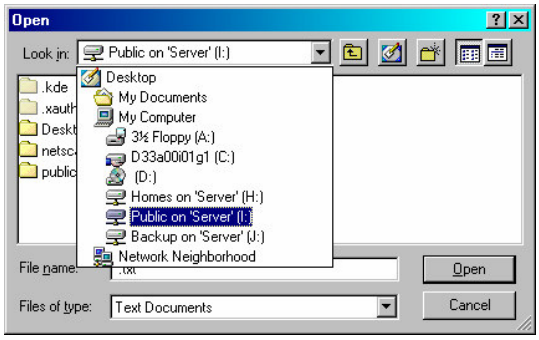


The backup of the files from the drive H: is normally made daily at 2:00 AM local time. The backup files are written to J: drive. The user has only reading access to J: drive.

4.2.2 Shared directories

There are some directories on **SchoolWeb** that the user shares with other users.

The public directory mapped as drive I: contains files that are available for an ordinary user; with reading access only. The system administrator (after login to *schoolweb* domain as the user "public") can place there for instance software installation files, drivers, data files with information for users. To make changes at public directory, login as the user "public". Public directory is home directory for the user "public".



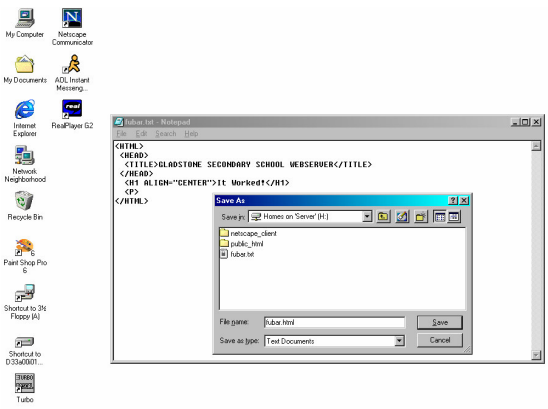
Members of groups:

- share1, share2, and share3

have at their disposal drives K: and L:, M: and N:, or O: and P:, respectively. The first one is for write and read access for a whole group, the second one is the read-only backup of the first one.

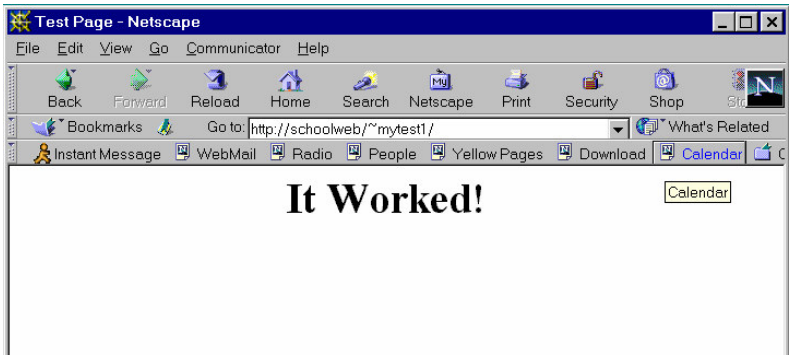
4.2.3 Web pages

The user has also the opportunity to create his/her own web page and publish it for access on the Intranet. The created page must be stored in H:/public_html directory.



The personal web page is visible only inside the school local network through the address:

- http://schoolweb/~user_name/



Note: To protect teachers and school administration staff data, there is a restriction that students can not access teachers and administration home directories. If a teacher would like to publish his/her own web page, we recommend, that the **SchoolWeb** administrator creates an other account for him/her, that belong to the students group.

4.2.4 E-mail

The user has his/her own E-mail folder at **SchoolWeb**. His/her E-mail address is

- user_name@**SchoolWeb**_domain_name (for instance rblanks@bss.sd41.bc.ca)

If the Netscape profile file location was setup to the H:\netscape_client directory, the user can exchange E-mails using Netscape Messenger.

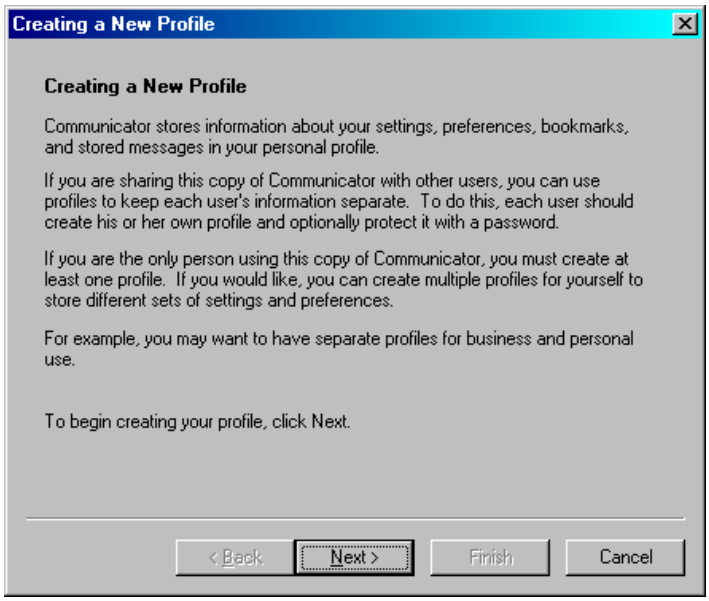
Shared directories, web pages and E-mail are further discussed in the following sections.

4.3 Setup the Netscape browser and mailer

We recommend the use of the Netscape application for browsing and E-mail exchange. If the Netscape browser has not been installed yet, the system administrator can use the installation file cc32d473.exe. After login to the *schoolweb* domain, the file will be found on the drive I:.

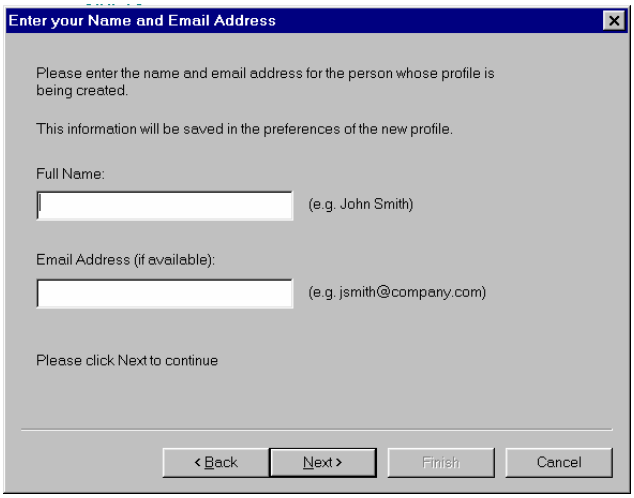
The **SchoolWeb** provides e-mail folders and his/her home directory for each user, which will be accessed after login through the H: drive. Each user will have its own Netscape configuration although he/she shares the computer and the same Netscape installation with many other users. The profile location will be in the H:\netscape_client directory. The e-mail configuration is already prepared for the user in this directory.

The system administrator needs to define the location of the Netscape profile file for each PC only once (after the first user runs Netscape for the first time). If a new version of Netscape has been installed, the dialog window "Creating a New Profile" runs automatically while Netscape is being evoked for the first time. If Netscape was installed previously and profile has been created already, to change it just remove the file C:\Windows\nsreg.dat (the file contains the information on profile location). The next evoking of Netscape will ask to create a new profile in the dialog window "Creating a New Profile".

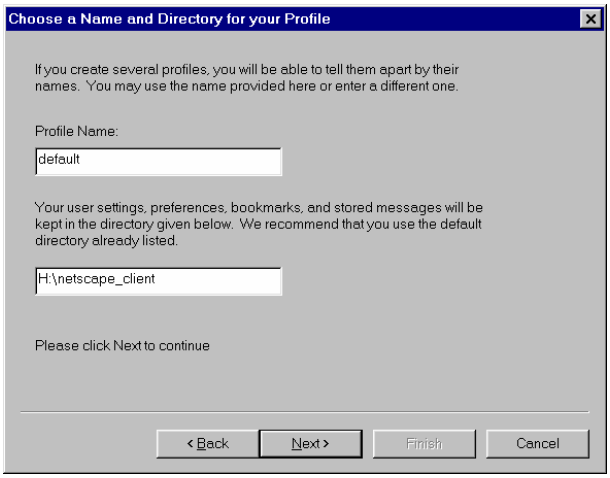


The following procedures should be followed to define the Netscape profile location:

- Enter your Name and E-mail address – leave empty boxes (if more then one user will use the same Netscape installation)

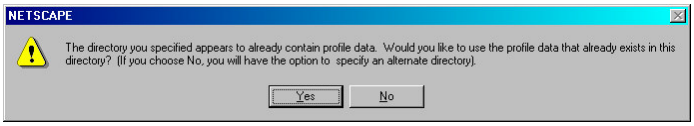


- Choose a Name and Directory for your Profile
  - leave Default at the "Profile Name" box
  - define H:\netscape_client in the box for profile location



The alert that the directory H:\netscape_client already contains profile data will appear. It is true, we prepared the E-mail configuration for each user in this directory.

- Choose Yes at the alert window



Now, the Netscape is prepared to intermediate Internet communication to the user. The user can send and receive E-mail using Netscape Messenger.

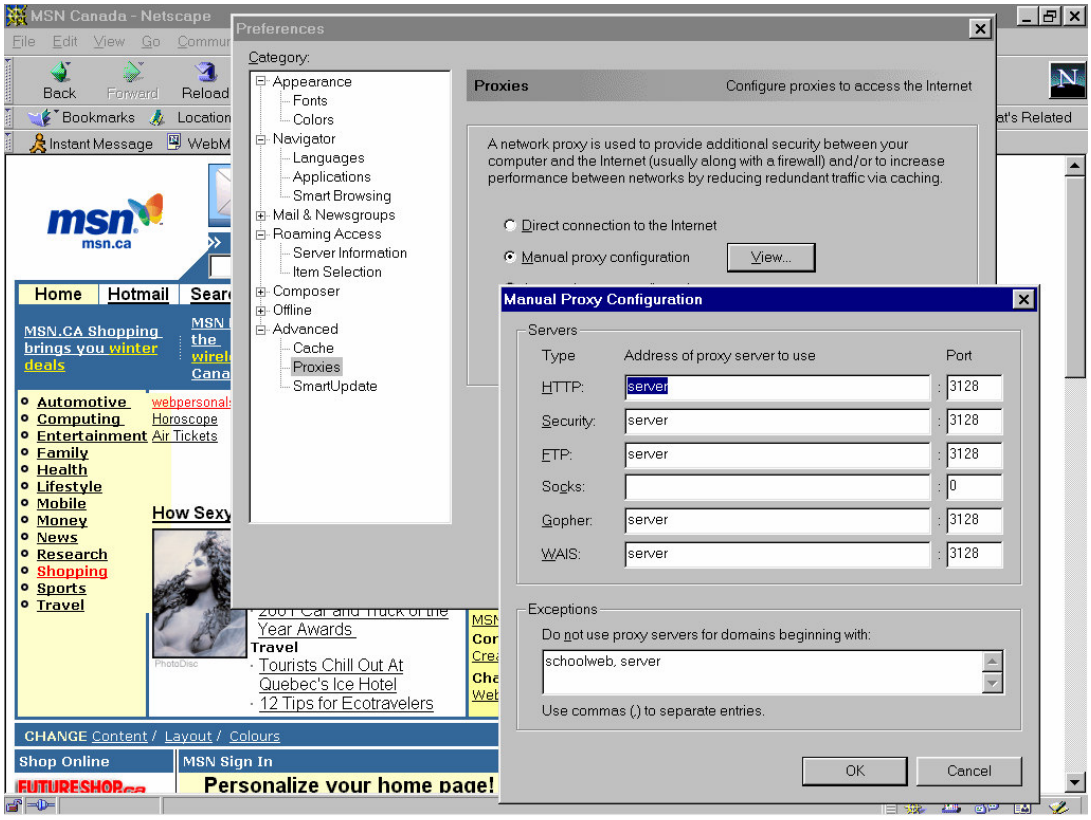
To browse the web, the proxy and profile configurations need to be changed. As mentioned before, the cache server enables quicker transfer of Internet sites caching them in its memory.

To allow the cache and proxy server while browsing Internet do this within Netscape:

- Choose Edit/Preferences/Advanced/Proxies
- Check "Manual proxy configuration"
- Choose View

- Define the address of proxy server
  server:3128
- Define exceptions for not using proxy server; add list
  schoolweb, server

to the box “Do not use proxy servers for domains beginning with”



To decrease the size of the local PC cache, see the Window:

- Edit/Preferences/Advanced/Cache.

5 Creating Shares

Shared resources, whether they are directories or devices such as printers, are referred to as “Shares”. In this section, you will learn how to set up directory shares by creating groups and assigning students to them.

You may also assign students to one or more of three pre-configured groups called “share1”, “share2”, and “share3”. When a student is added to the group “share1” then he will have drives K and L mounted on the client. The students who are members of group “share1” will have full read/write access to the K drive. They will only have read access to the L drive. The L drive is a backup of the K drive. Backup is normally done at 2:00 AM local time.

5.1 Create a User Group

The first step in creating shares is to make a new user group. Use the Linuxconf tool through the browser to add a user group with rwxrwx permissions (i.e. 770 – full access for members of group, no access for other users).

To access Linuxconf, put the address

- http://server:98

to a browser. Login as

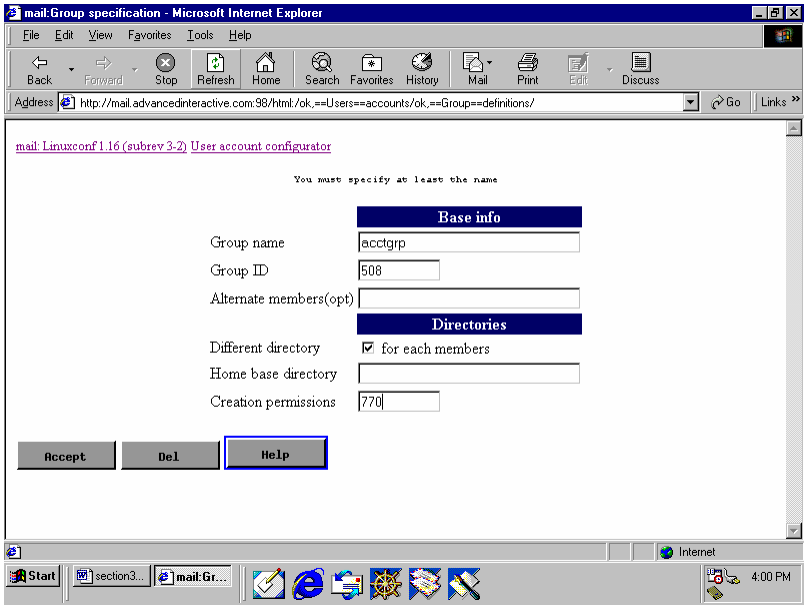
- the user “admin”.

Choose these options from Linuxconf menus:

- Config/Users accounts
- Normal/Group definitions

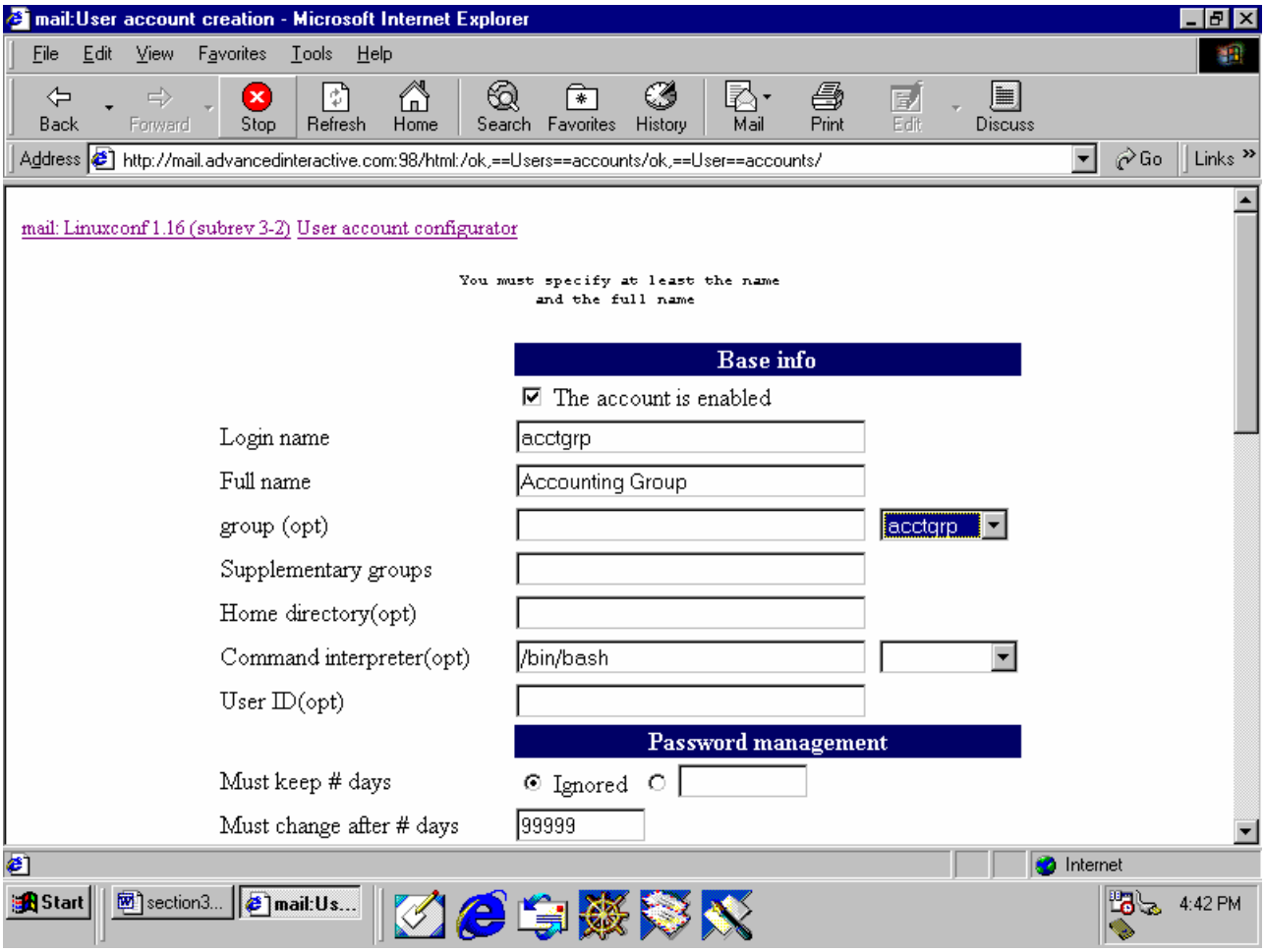
You receive the list of existing groups. Notice the group IDs and choose a new ID for the group you are going to create. Click on Add button and define this data for the new group:

- Group name
- Group ID
- Creation permission: 770



5.2 Create a Primary User for the Group

The new group must have one primary user. Its home directory will be shared within the group. Create the primary user using Linuxconf (see section 3.1 for details on creating a user account). Give the primary user the same name as for the group.



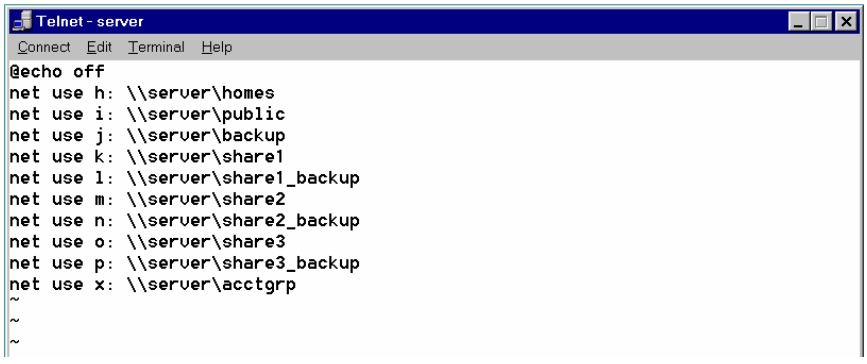
5.3 Change members accounts settings

Now the share group is ready to invite its members.

Define the share group as Supplementary group for chosen users (see chapter 3.1. for more details).

Change local network login script. Login as the user admin to the **SchoolWeb** (using Telnet or from the console) and then run su – command to get the root permissions. The network login script is placed in /home/netlogon/logon.bat file. It is a little bit tricky to change this file. You need to change it in the Linux environment, but it still must have MS DOS ASCII format. Don't forget to make a backup copy before you start to edit it. Use vi or pico editor. Add the line

- net use (letter): \\server\name_of_share_group



5.4 Change file server configuration

The share won't be active until you change the file server configuration at **SchoolWeb**. Use Linuxconf tool to do it. Choose these options from menus:

- Config/Networking
- Server Tasks/Samba file server.

You receive the list of existing shares. After clicking the Add button, the page for setting of a new share appears. Insert:

- Share name (full name)
- Comment
- Directory to export: /home/name_of_share_group

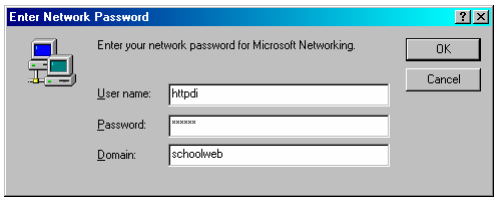
Leave the default setting for the other options or invoke Help for explanation of the other options.

6 Intranet Web Server

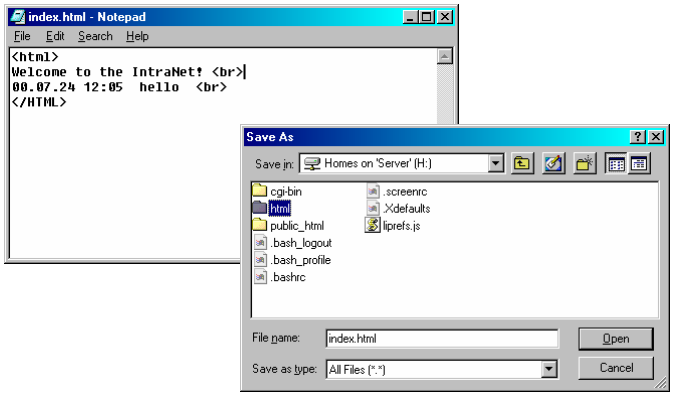
The Intranet web server makes possible to create a school web site and publish internal material that is visible only within the school's local network. It also enables students to practice their skills in web pages creation.

6.1 Publish an Internal School Web Site

The webmaster for the school Intranet web site is the user httpdi.



The index web page is stored at the home directory of the httpdi user in the html directory (H:\html\index.html).

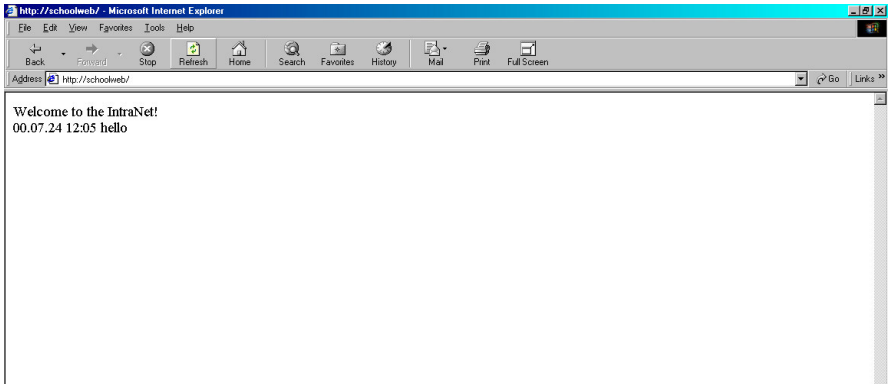


6.2 Access the internal school web site

The school Intranet web site is reachable only within the local network. The user puts the address

- http://schoolweb

to the address box within a web browser.

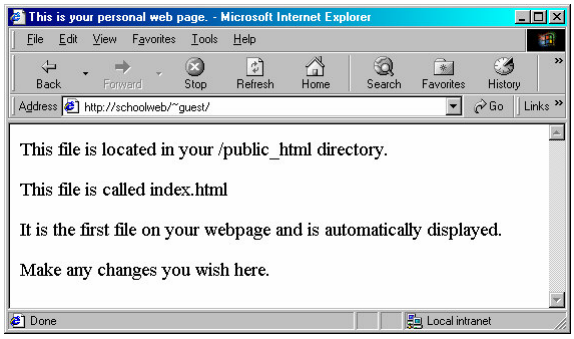


6.3 Internal Student Web Site

Each student has the opportunity to publish his/her own web site. As mentioned, it is visible only within local network. The student stores his/her index web page to the H:/public_html/index.html file.

The site is accessed through the address:

- http://schoolweb/~user_name

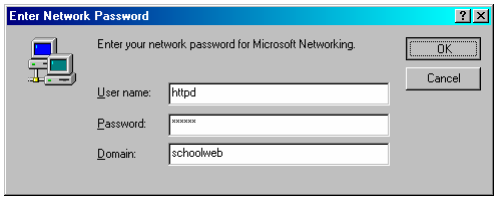


Directories public_html in the home directories of students accounts can be used to allow students to display their creativity.

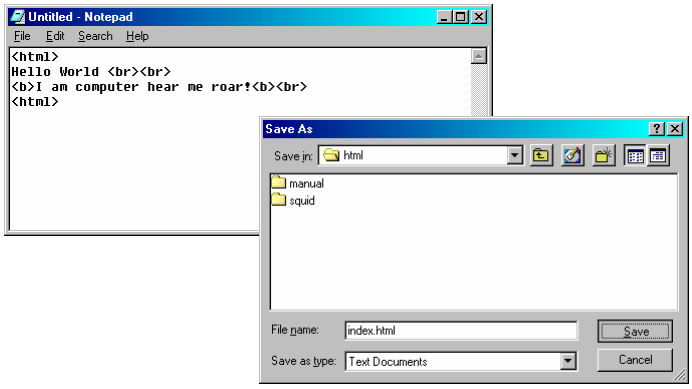
7 Internet Web Server

7.1 Publish External Web Site

To create or modify a school Internet web site, login as the user httpd.



The index web page is located in the H:\html\index.html file.



7.2 View External Web Site

Use any browser to access the school home page. It could be reached inside the local network using the address:

- http://server

or from Internet:

- http://**SchoolWeb**_domain_name (for instance http://bcs.sd41.bc.ca)

8 E-mail access

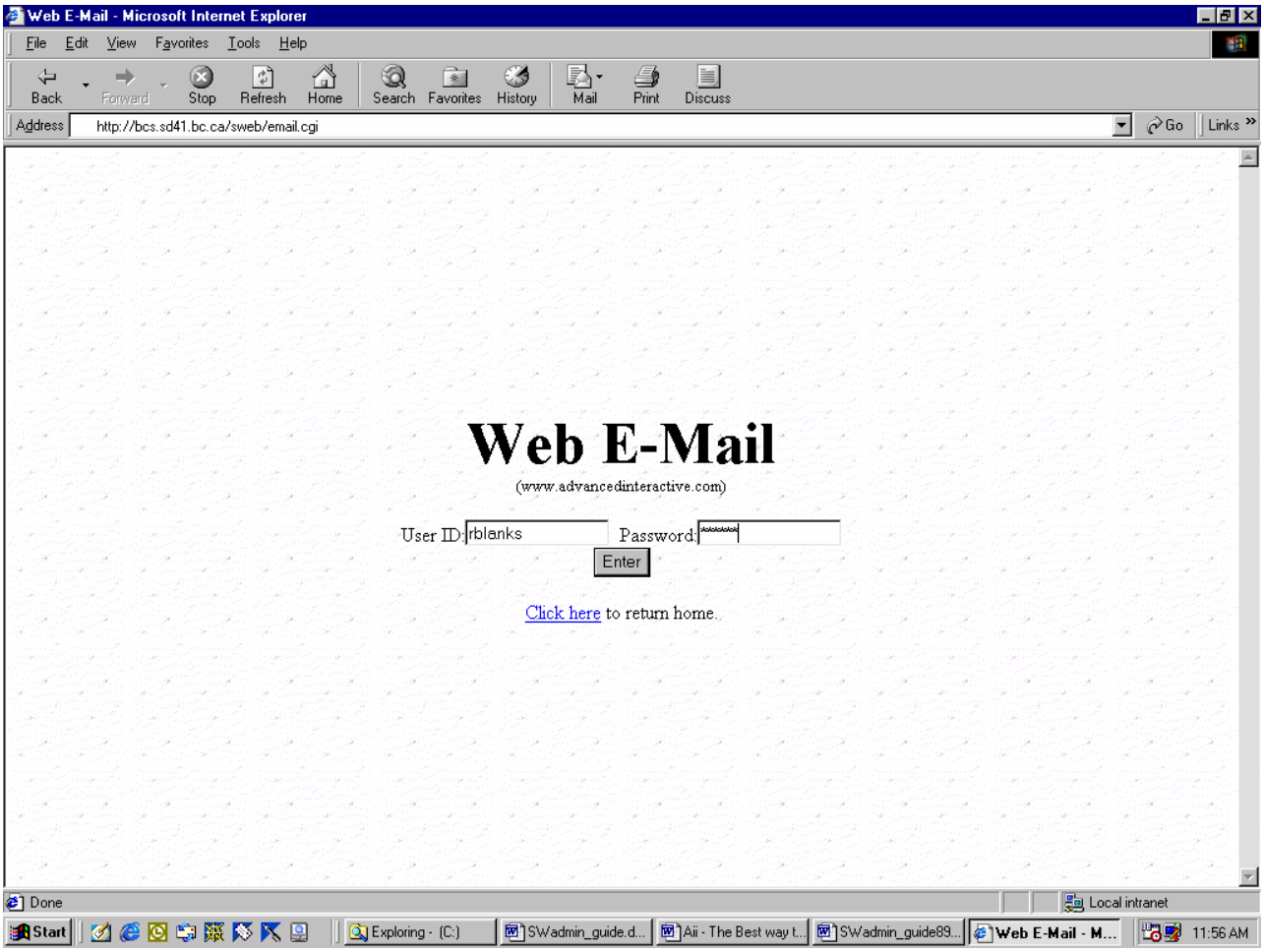
The user can access his/her E-mail folders both inside and outside of the local network (e.g. from home).

8.1 Web based e-mail access

Visit your local SchoolWeb web server and launched the file /sweb/email.cgi to retrieve the entrance to e-mail folders:

http://*server*/sweb/email.cgi

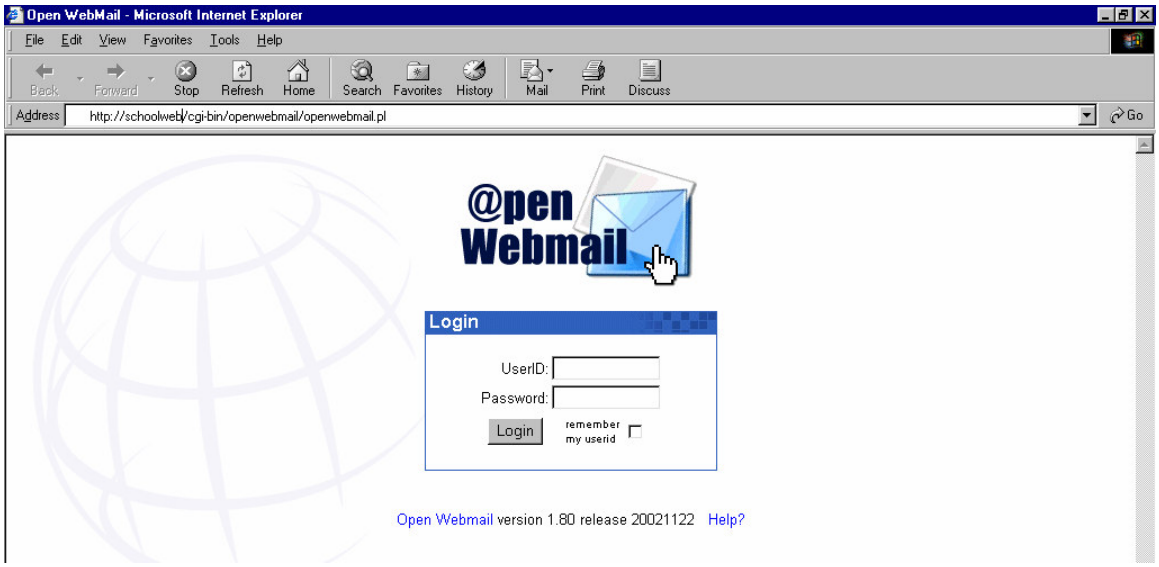
To use your e-mail account, insert your user login name and password (the same you use to login to schoolweb domain – chapter 3.2)



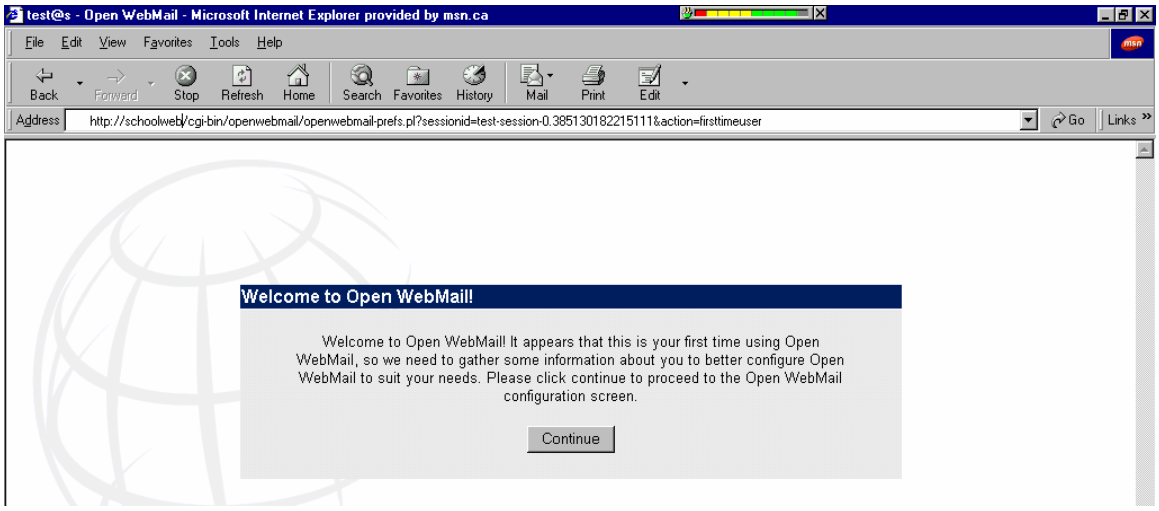
8.2 OpenWebMail

OpenWebMail provides access to your e-mail folders through a browser. To access its services on SchoolWeb server from your local network, type the following URL to the *Address* box.
http://schoolweb/cgi-bin/openwebmail/openwebmail.pl

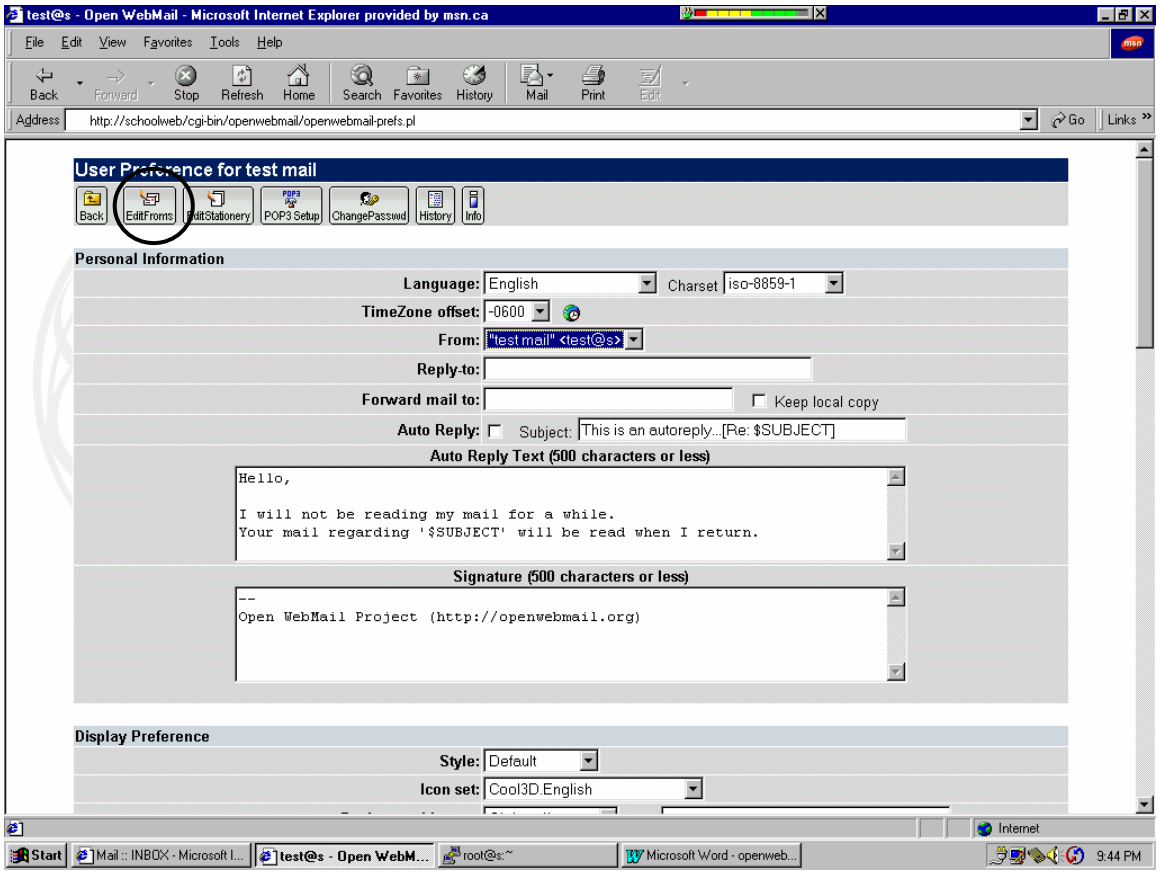
From the outside of your local network you will have to type the hostname or IP of the SchoolWeb server instead of the word 'schoolweb' in the URL.



Use your **SchoolWeb** server *UserID* and *Password* to login.
If you are using OpenWebMail for the first time, OpenWebMail will invite you with the following screen:

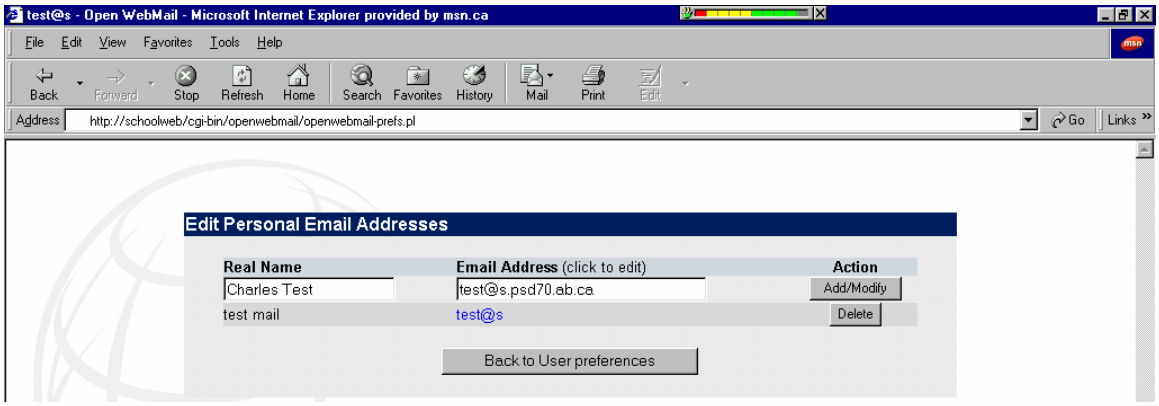


After clicking on the *Continue* button, your preferences screen will appear in the browser window.

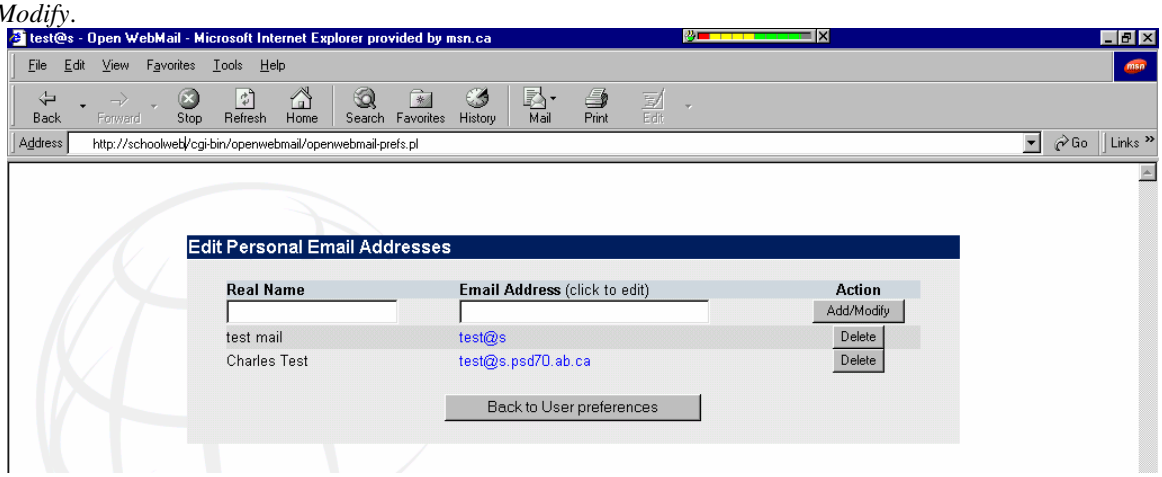


Change any options you wish to.

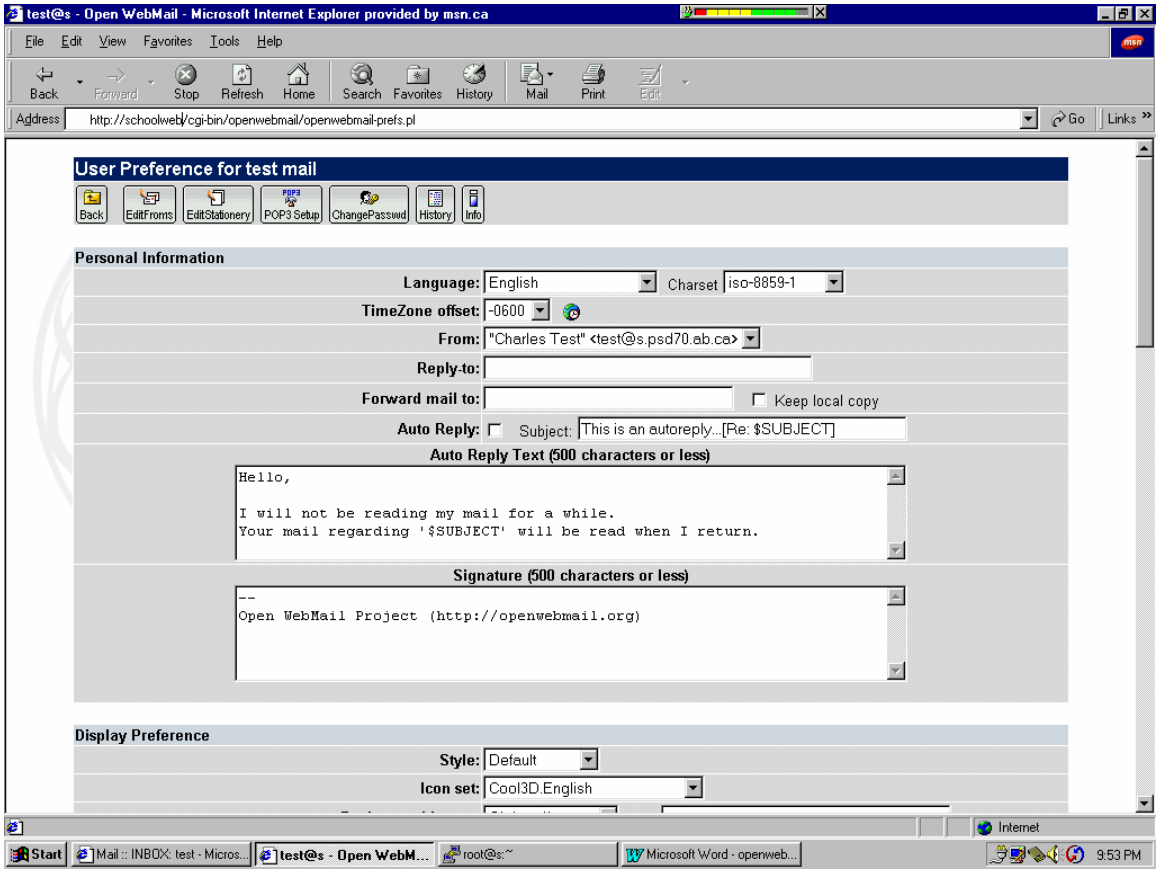
Notice the *From* option. The name and e-mail address from this box will appear in all your e-mails. It will recognize the sender (you). Recipients or your e-mail will reply to this e-mail address. To change the *From* option, click on the *EditFroms* button. Edit the *Real Name* and *Email Address* boxes. Then *Add* your new identity.



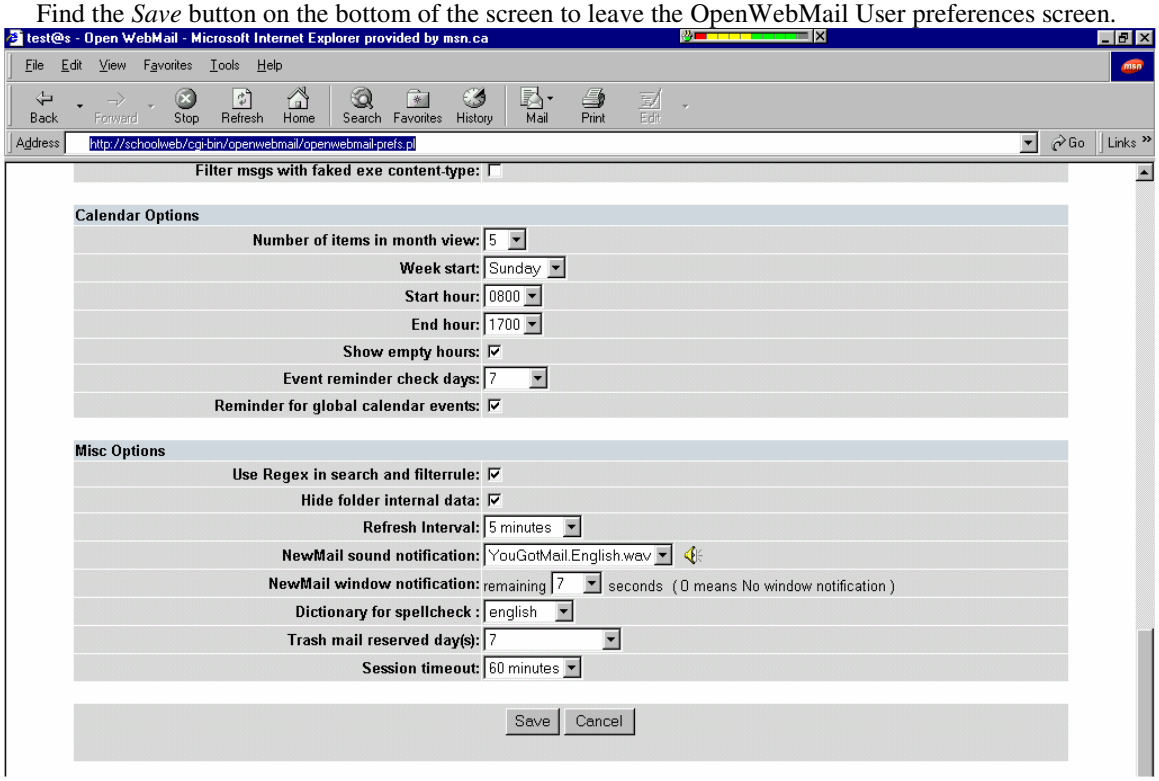
You can have only one name for one e-mail address, so the name of the button you have pressed is *Add/Modify*.



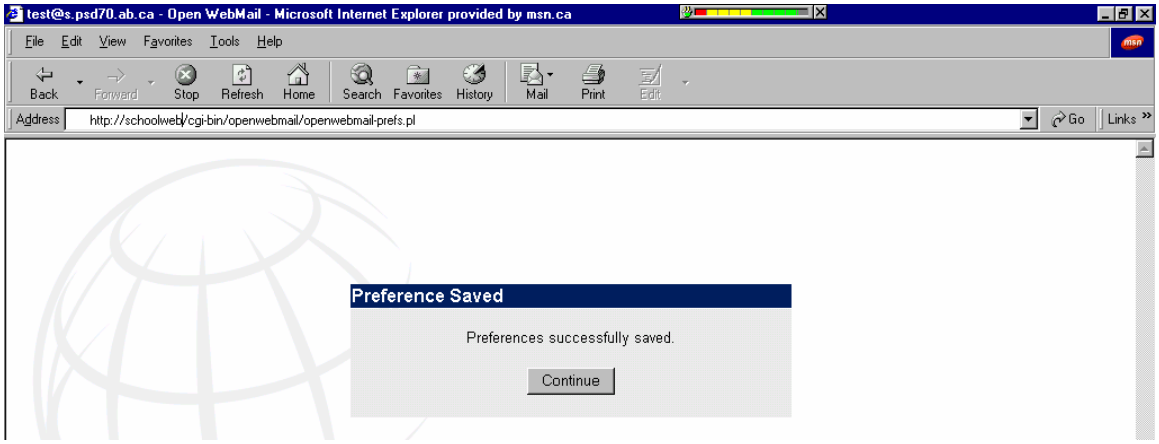
After returning *Back to User preferences*, choose the identity you are going to use with OpenWebMail from menu in the *From* option.



Find the *Save* button on the bottom of the screen to leave the OpenWebMail User preferences screen.

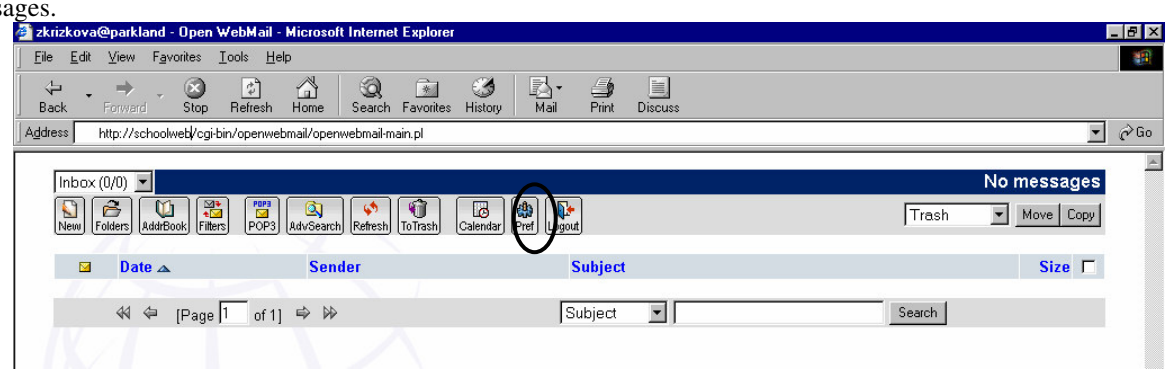


The next screen will confirm that your chosen options were accepted.



If the preferences screen does not appear while your first login to OpenWebMail, it does not necessarily mean that somebody else was already using your e-mail account through OpenWebMail. It might only mean that the system administrator who has created your account has created also your preferences file for you.

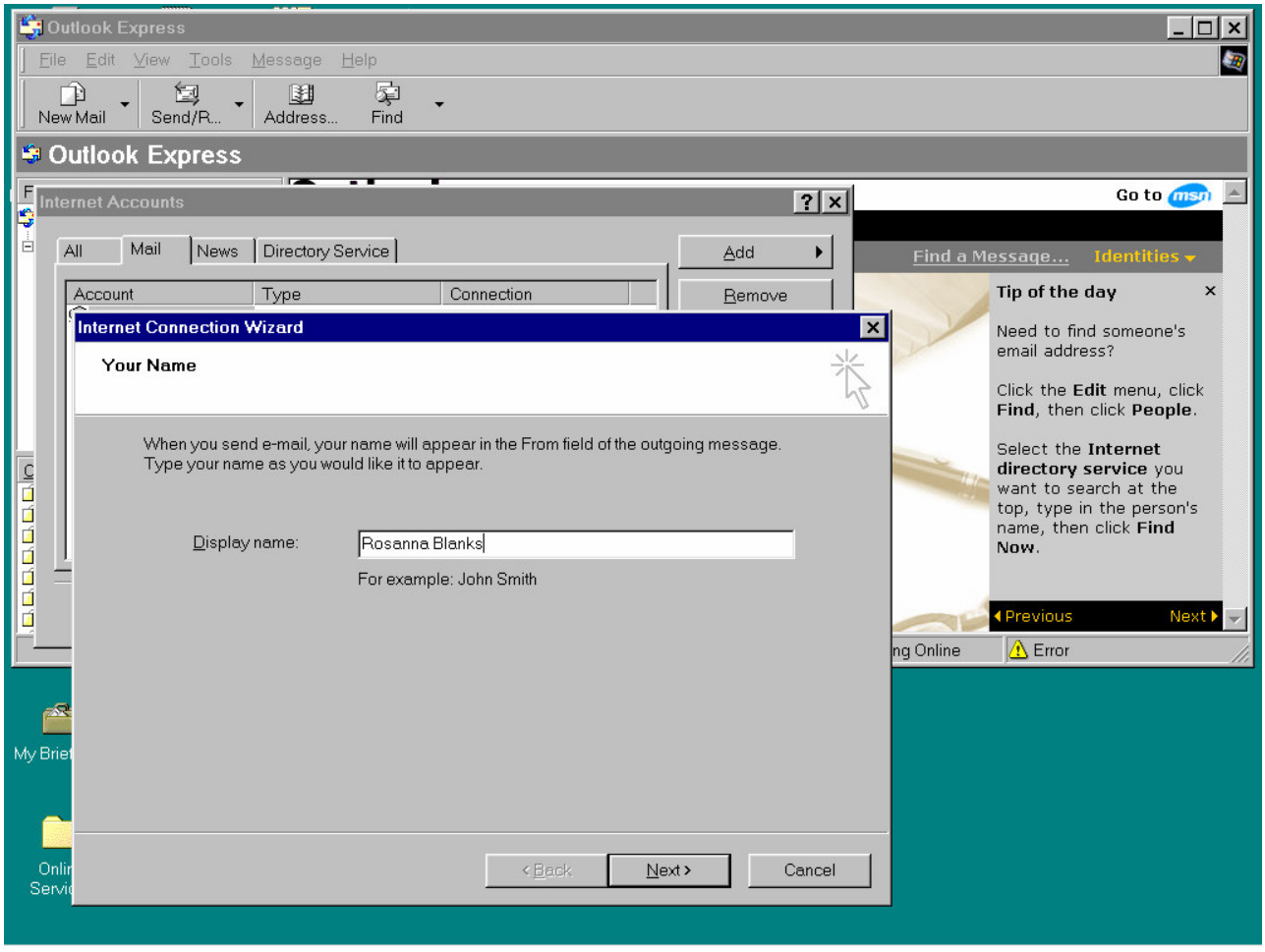
You can return to edit your preferences any time clicking on the *Prefs* button while browsing your e-mail messages.



8.3 Accessing e-mail using MS Outlook Express

One program tool for E-mail exchange is MS Outlook Express. Follow these steps to setup an E-mail configuration (at your home computer):

- From Outlook Express, click on Tools/Accounts/Mail/Add – Mail
- Define these options in dialog windows of Internet Connection Wizard
  - Display name: put your full name



- Check “I already have an e-mail address that I’d like to use” and write it into the box (for instance rblanks@bcs.sd41.bc.ca)
- Choose IMAP characterization for your mail server
- Put its name. The incoming and outcoming server is the same (for instance bcs.sd41.bc.ca)
- Write your account name at **SchoolWeb** server and its password

Your messages will be kept at the **SchoolWeb** server, only their copies will be downloaded to your home mail folder.

Note: Don't use Outlook Express tool in your school local network if you share computer with other users.

9 Shutdowning and Rebooting the SchoolWeb Server

This chapter contains directions on how to prepare the **SchoolWeb** server for powering down properly (**shutdown**), what to do after the server configuration has been changed (**reboot**) and how the system is brought up after the power switch is turned on (**boot**).

When shutting down or rebooting, one of the following options can be chosen:

1. Ctrl+Alt+Del keys
2. Linuxconf
3. Linux command: *shutdown*

The first choice is the easiest one, although the **SchoolWeb** server console must be used. For the proper operation of Linux operating system on the **SchoolWeb** server, the keyboard and mouse must always be connected to the **SchoolWeb** server.

In the second case, you can access the **SchoolWeb** server remotely from a browser on your machine in local area network (see chapter 3.1.1 how to launch Linuxconf).

The third method is recommended only for those administrators who have some experiences with Unix kind of operating systems. The monitor could be plugged in directly to the **SchoolWeb** server or the server can be contacted remotely through telnet session.

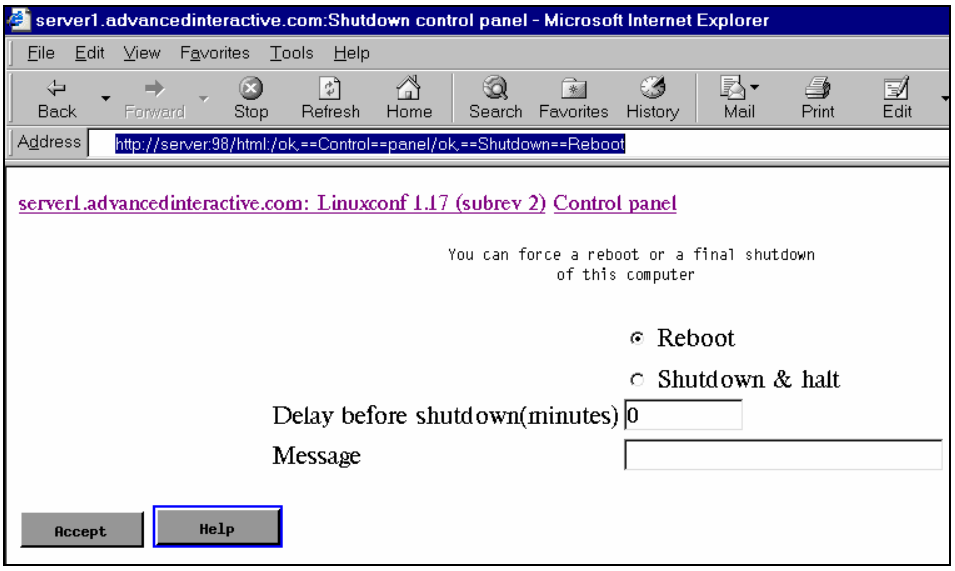
9.1 Shutdown

If the **SchoolWeb** server loses power without being shut down properly, some information might be lost and the next boot might not start the system properly. Shutdown involves saving the data from the temporary cache to disks, and terminating all processes running in background.

So, before you head your fingers toward the power switch, press the Ctrl+Alt+Del keys on the keyboard connected to **SchoolWeb** server. After the CDROM disk drive access light goes on or if the monitor is plugged in, after messages are displayed that everything is settled down, you can switch the server off.

To shutdown the **SchoolWeb** server from Linuxconf, start it as shown in chapter 3.1.1, login as the admin user and follow the links:

- Control: Control Panel – Shutdown/Reboot

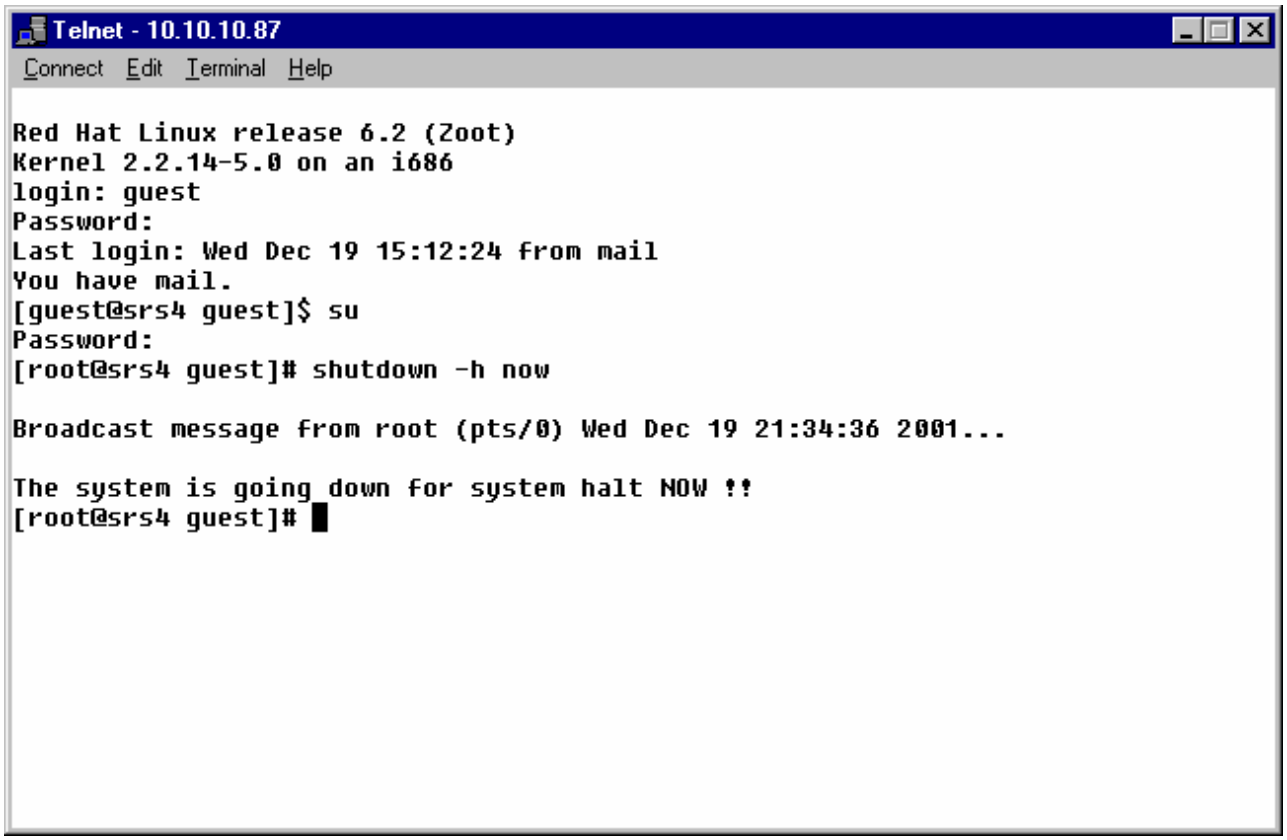


To shutdown the **SchoolWeb** server from the linux session, login as the admin user. Invoke the supervisor privilege with the ***su*** – command:

```
[admin@bcs admin]$ su -
Password:
```

and run ***shutdown –h now*** command:

```
[root@bcs /root]$ shutdown -h now
```



You can also specify the delay in minutes and warning message in the command line to alert users who may be logged on the system.

```
[root@bcs /root]$ shutdown -h +time message
```

Teachers, school staff and student accounts are not given direct access to the **SchoolWeb** server, so these users cannot login to the system. When these users are using the **SchoolWeb** server through the "schoolweb" domain (chapter 2.1), they will not be notified. Make sure that the browsers on the client machines are not pointing to **SchoolWeb** proxy (chapters 2.5, 2.6), if the users want to access the Internet during the time the server is down.

9.2 Reboot

To reboot, press the Ctrl+Alt+Del keys on the **SchoolWeb** server keyboard, or launched the Linuxconf site and follow the same links as for shutdown.

The experienced system administrators can login to the server and run one of the commands (as a root user)

```
[root@bcs /root]$ shutdown -r now
```

```
[root@bcs /root]$ shutdown -r +time message
```

If a monitor is connected to the **SchoolWeb** server, the messages that processes are terminated properly and the filesystems are unmounted are displayed. Then when the boot process starts, and the hardware, filesystem and the initial processes are checked, the system outputs messages on the system console to indicate that all system processes are revived and running again.

9.3 Boot

When the system was turned off and you want to get it up and running again, just turn the power switch on and the system will come up. The system checks hardware while booting, so a keyboard and a mouse must be connected.

Ensure, that your client machines point to "schoolweb" domain and their browsers point to **SchoolWeb** proxy again (chapter 2), if they were changed while the **SchoolWeb** server was down.

The boot is normally done from the SCSI ID:0 drive. For the situations, that the system is unbootable from the SCSI ID:0 drive, the emergency boot floppy is attached. To boot from the floppy, invoke setup with the F2 key when you are prompted to do so in the beginning of the booting process. Choose

Boot – 1st Boot Device – Floppy

from the menu and exit saving changes.

The **SchoolWeb** server is provided with two SCSI drives to boot from. To boot from SCSI ID:1 drive, wait for the

LILO boot:

prompt and press the Tab key when it appears. The list of choices is displayed.

linux_scsi0 linux_scsi1 Linux_Redhat

Choose *linux_scsi1*

boot: linux_scsi1

and press the Enter key.

Please, call for technical assistance from Advanced Interactive Inc., if problems are encountered.

10 Ordering a site for SchoolWeb cache

There is a new and better way to cache Internet sites using the **SchoolWeb** System. The advantages are that the Teacher/Librarian/Administrator can be sure that:

1. the requested site will be in the cache, for the period of time specified
2. the requested site will always be fresh, and regularly updated
3. the site will be automatically indexed, so that the contents can be found by searching the local SchoolWeb Server first, using the **SchoolWeb Librarian**.
4. If nothing is found in the search, the student is directed to try other search engines

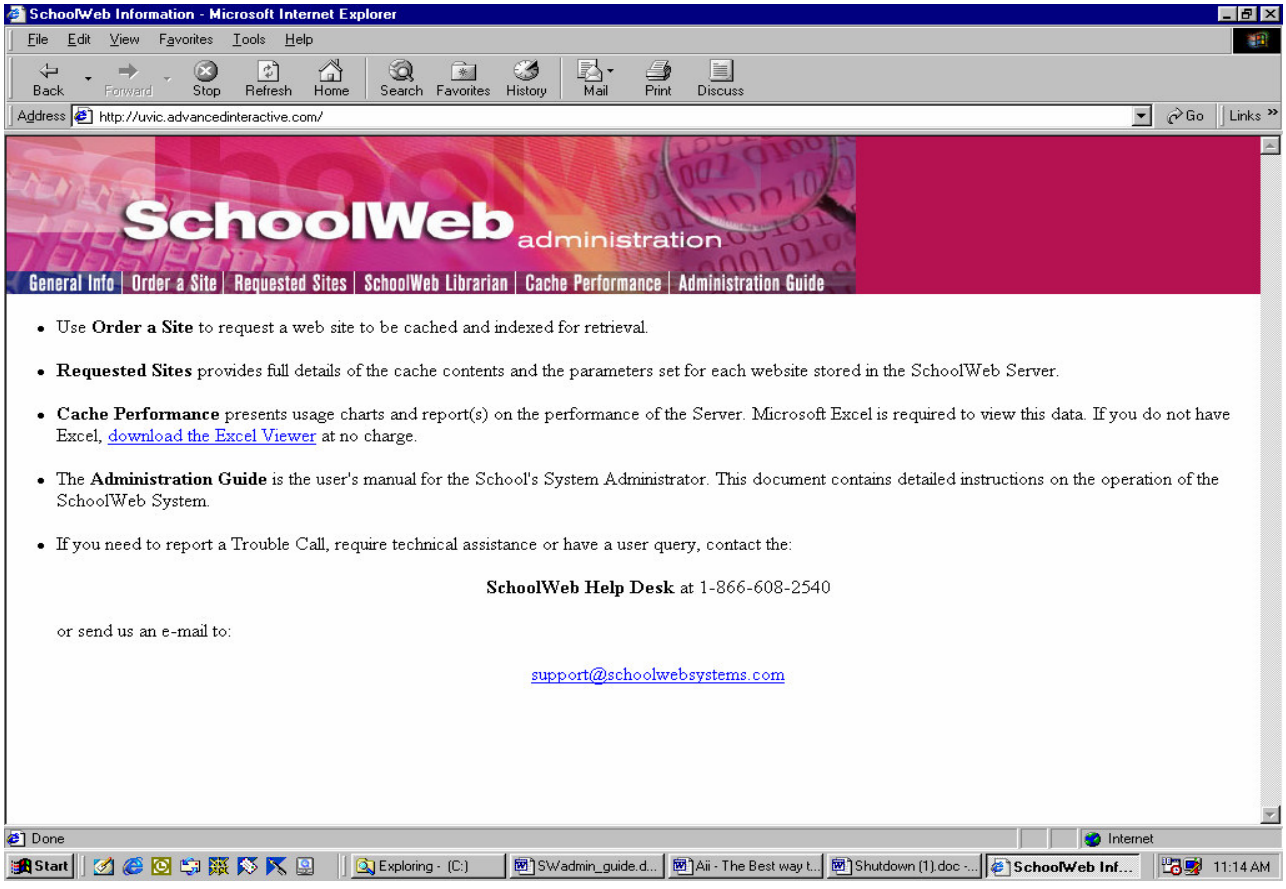
This is how it works:

10.1 To Order a Site

1.1 Using your computer browser, scour the Internet for sites you wish to have on your local **SchoolWeb** Server. When you find a good site, make a note of the URL of the main (Home) page, the number of levels deep (Recursion) that you wish to cache, the grade level(s) appropriate to the information, subject(s) the information would apply to, and additional keywords that would help students to find the site.

1.2 Again using your browser, logon to the Advanced Interactive Canada Inc Server at **http://uvic.advancedinteractive.com**
Bookmark this page for further reference.

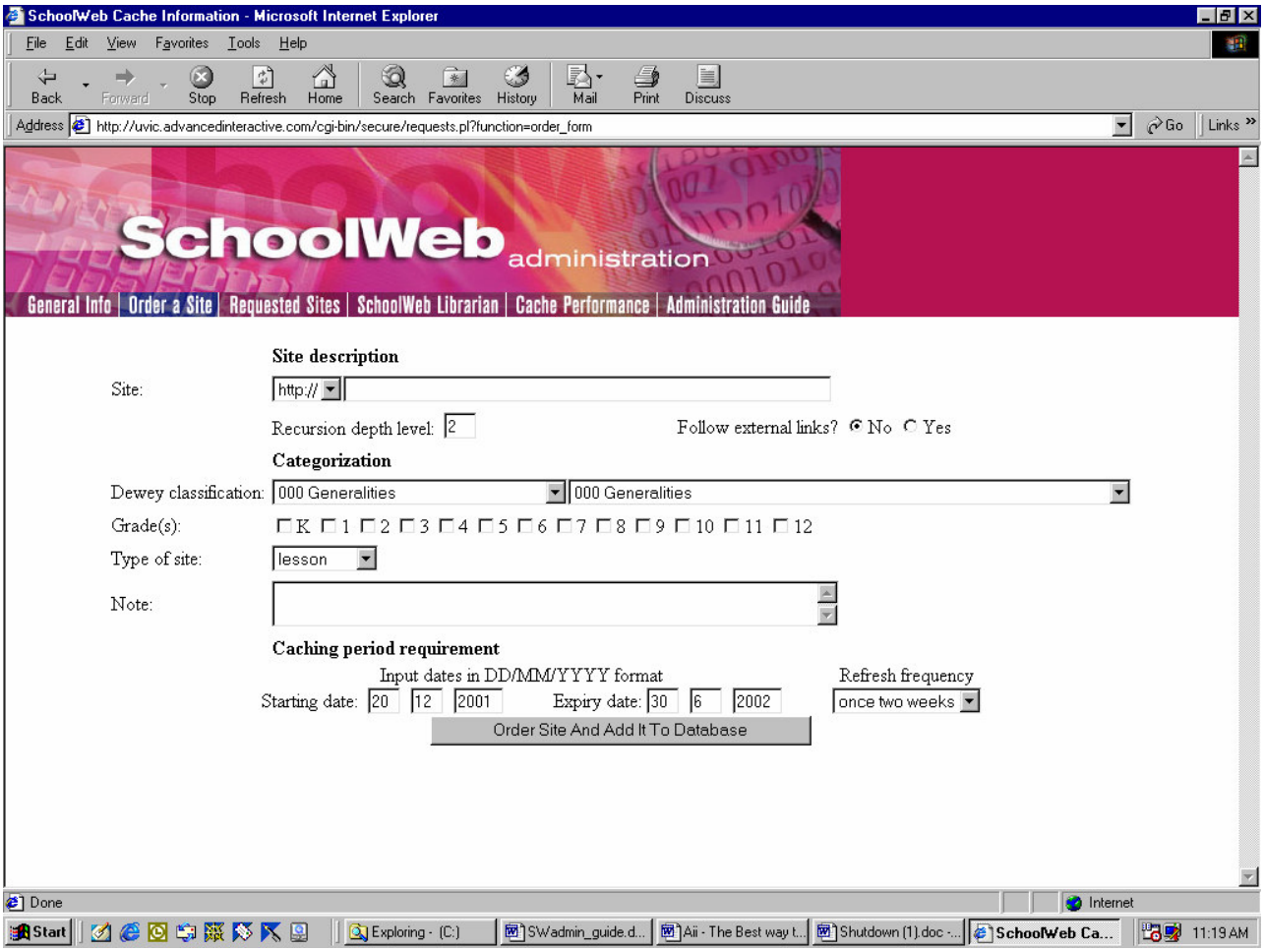
You should now see this frame.



This is the General Information page, which gives a short description of each of the other five tabs.

You will be asked for a user name and password to access the links from this page**. Use the Username and password assigned to your school** to reach the "SchoolWeb Administration" page.

1.3 **Click on "Order a site"**. This will bring up a page requiring input of information in the following 3 parts:



Site Description

(a) **Site** – This is the URL of the desired site you wish to cache.
(b) **Recursion depth level** – This requests the number of levels deep you wish to cache. If you don't know, I suggest you use 5 or more. The default level is 2
(c) **Follow external links?** – This information tells us if you wish to cache links to other sites. The default is No.

Categorization

(d) **Dewey Classification** – Sites may be classified according to the Dewey Classification System which will help to standardize the search and retrieval methods. There are 10 main classifications to choose from and hundreds of subclasses in pull down boxes.

(e) **Grades** - Tick off the grade level that is appropriate for your use of the site. If you are aware of the possibility that the material can be used for more than one grade level, you can check several grade levels.

(f) **Subjects** - Specify the academic subject to be supported. In the near future, we will integrate this list with the major subjects listed in the Dewey Decimal Classification System.

(g) **Type of site** – This information will suggest the best use of the information. The options are **lessons, interactive or factual**

(h) **Notes** or Extra Keywords - Specify any keywords that you think are appropriate. This could be helpful in making the database more efficient for searching.

Caching period requirements

(i) **Input dates in DD/MM/YYYY format** - Specify the **Starting date** and **Expiry date** for the files to be in the cache. This information will be used to make sure that the files are in the cache on and between the dates specified. If the SchoolWeb Server cache becomes full, the files may be overwritten when the expiry date is passed. Also, the files will not be updated after the expiry date is passed.

(j) **Refresh frequency** - Specify the frequency of updates required. The options are: Never, every day, every other day, once three days, once a week, and once every two weeks [default], Judicious planning will ease the load on the outside line or broadcast connection. For example, if the site is an encyclopedia, which is unlikely to change, an update of 'once two weeks' would be quite adequate. However, if it is a news site, it likely should be checked daily.
(k) Finally, click on **'Order Site and Add it to Database'**

That's it!!

The Advanced Interactive Server, takes the request, fetches the site, adds Metadata tags for searchable indexing according to the teacher's information and to the Dublin Core Protocol, and sends all of this information, during off hours (overnight) to the appropriate SchoolWeb servers in BC to be cached. Then, using the SchoolWeb Librarian search engine on the SchoolWeb Server, teachers and students can search their local cache (by subject, author, grade level, etc....) to find information that is relevant to the curriculum.

10.2 To View Requested Sites or a List of Sites

A day after you have ordered a site, as outline above, you may go to the '**Requested Sites**' tab on the AIC Server, and see the details of the site that you and others have cached. When you click on this tab, files are listed for **all subjects and all grades.** By selecting the subject(s) of interest and the grades of interest, the 'Requested Sites' list will be altered accordingly. For example, the following is the list of sites that apply when Grade 10, Biology is selected.

For each Requested Site there are three (3) additional tabs: **Details, Modify and Delete**.

Details – provides information on the site, when last updated, next update, expiry, etc.

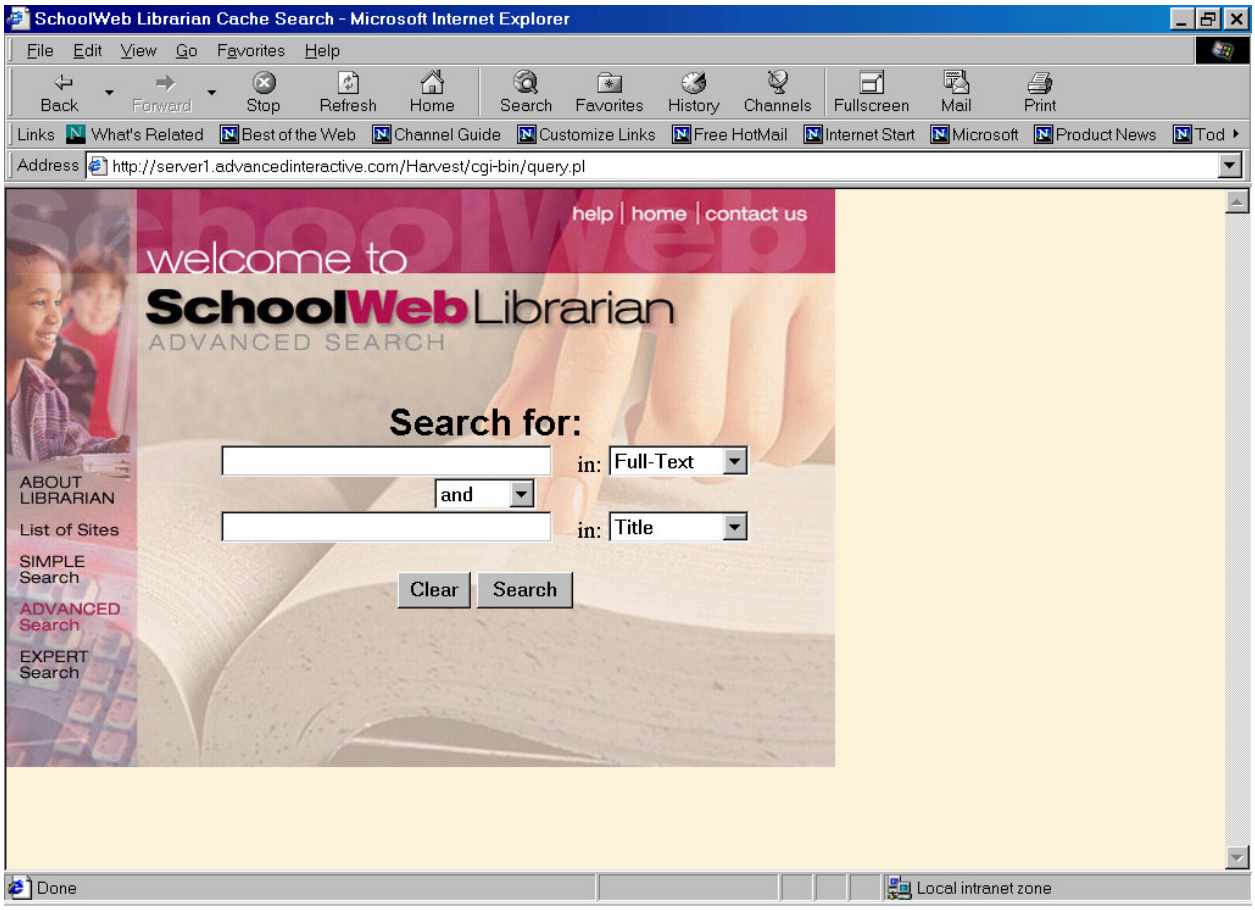
Modify – takes you back to the 'Order a Site' page to allow you to modify any of the parameters, and re-request the Site to be added to the database.

Delete – allows the file to be deleted by the SchoolWeb Server Administrator using a special Admin password.

Note: You can also logon to your local SchoolWeb Server to see a List of Sites in the local cache. **(http://schoolweb)** The requested sites and List of Sites should be roughly the same. However, if you wish to discover details of, or modify those files in the cache, you must logon to the AIC Server to make the required changes.

10.3 SchoolWeb Librarian

When you click on this tab, you see the following page showing 6 tabs: About Librarian, Browse Keywords, List of Sites, Simple Search, Advanced Search and Expert Search. The opening page for **Elementary Schools is the Simple Search**, and for **Secondary Schools, the Advanced Search.**



About Librarian – provides an overview of the SchoolWeb Librarian concepts

List of Sites – provides a total list of the sites in the cache and the number of objects that are cached for each site. This will provide viewers an idea of the weighting that each site might have in the overall database.

Simple Search – this search page was simplified for elementary students, to search only on All categories, or by Title or Subject.

Advanced Search – this search page allowed a more extensive search that might be generally used by Secondary School students.

Expert Search – this search page allows full Boolean searches, along with other modifiers

Of course, all search pages are available for all teachers or students if they wish to use them.

Note: The **SchoolWeb Librarian** pages shown above are the same as the pages displayed when you logon to your local SchoolWeb Server. To reach your local **SchoolWeb Librarian** site, write:

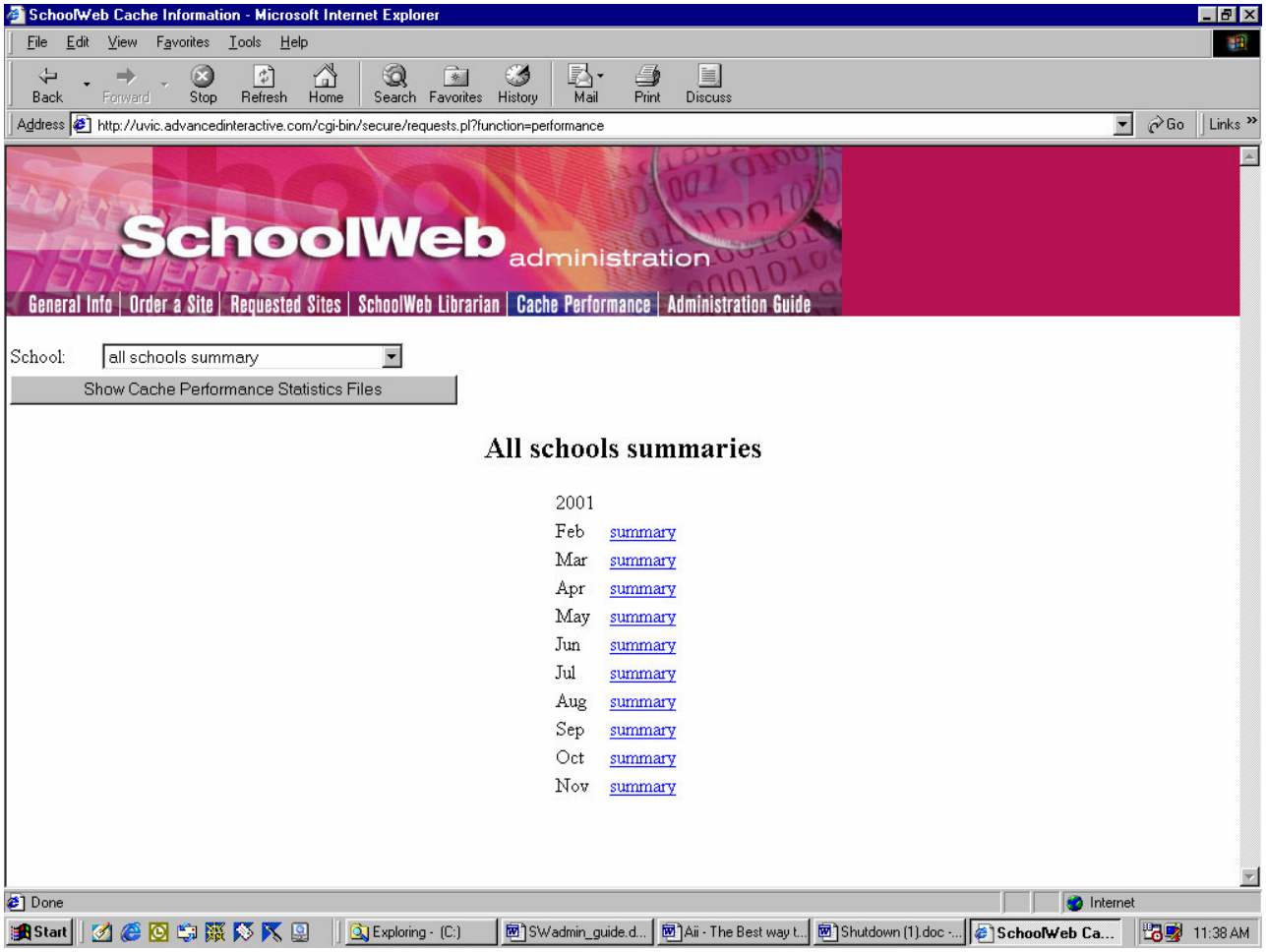
http://schoolweb

as URL address.

10.4 Cache Performance

Cache Performance statistics are provided on an aggregated monthly basis (see All school Summaries) or by individual schools.

The opening page is for All schools summaries.



To look at the Cache performance for your school, click the down arrow and select your school; then hit the button “Show Cache Performance Statistics Files”. Statistics can be viewed by day, month summary, or in some cases, by graphic chart.

10.5 Administration Guide

The Administration Guide is an Operators Handbook (User’s Manual) on the operation of the Linux **SchoolWeb** Server. The local **SchoolWeb** Server Administrator should consult the guide when making any changes or modifications to the Server settings.