LanSchool

Contents

Preface

Thank you for purchasing LanSchool v7.8.2 Classroom Management Software. LanSchool 7.8.2 is an award winning software program designed to help teachers, professors and trainers teach more effectively in a 21st century classroom.

This install guide explains how to install LanSchool v7.8.2 Classroom Management Software, as well as the Teacher's Assistant on the Apple iPad*, iPhone, and iPod and Student for iPad*, iPhone, iPod and Android. Manual was last updated on August 10th, 2016.

Topics

Important Information

This section contains important information about your LanSchool Product.

About LanSchool

Since 1986 LanSchool has delivered market-leading software that helps teachers, professors and trainers teach more effectively in a 21st century classroom.

Product Documentation

The following documents form the LanSchool v7.8.2 Classroom Management Software documentation set:

- *LanSchool 7.8.2 Install Guide* (install.pdf) — This document helps you to install the product.
- *LanSchool 7.8.2 User Guide* (users.pdf)— This document guides you how to use the product.

Supported Environments

LanSchool 7.8.2 supports any combination of computers running the following operating systems:

Windows XP-32, Windows Vista-32/64, Windows 7-32/64, Windows 8-32/64, Windows 10-32/64, Windows 2003, 2008 and 2012 Terminal Server, NComputing devices, Mac OS 10.7 or greater, and iPads, iPods and iPhones iOS7 or greater, Android 4.0 or greater, Chromebook (Chrome 33 and greater).

Support for NComputing devices is dependant on the device model and version of the vSpace software installed. Please see the FAQ at https://helpdesk.stone-ware.com/portal/helpcenter/stonewarehd/lanschool for specific information on the platforms and vSpace versions that will work with LanSchool software.

Listed below are the minimum requirements necessary to run LanSchool on both teacher and student computers.

Processor

PCs: 166 MHz Intel® Pentium® processor or faster

Macs: 64-bit Intel-based Mac's

RAM (minimum)

- 128 MB for Windows XP

- 256 MB for Windows Vista

- 256 MB for Windows 7

- 256 MB for Windows 8

- 512 MB for Mac OS X

- 512 MB for Chromebook

Protocol stack

All computers running LanSchool must be configured with TCP/IP running static or dynamic IP addresses. 802.11 wireless is supported, however enterprise class access points are recommended.

Please note the features not supported in a thin client environment:

- Mute sound
- USB limiting
- Print limiting
- Send "Ctrl-Alt-Del"
- View Key Stroke History
- Power on, Reboot, Shutdown, Logoff

Technical Support

Every effort has been made to design this software for ease of use and to be problem free. If problems are encountered, please contact Technical Support.

Email: support@lenovosoftware.com

Phone: 1-877-394-0443 (Toll Free USA), 1-260-492-2357 (International)

Hours: 8:00am to 6:30pm (Eastern Time)

Contact Information

- Web: www.lenovosoftware.com
- Email: sales@lenovosoftware.com
- Phone: 1-888-473-9485 (Toll Free USA), 1-860-819-3774 (International)
- Fax: 1-866-596-2088 (USA Fax), 1-317-229-6320 (International Fax)
- Hours: 8:00am to 5:00pm (Mountain Time)
- Address:

Stoneware Inc.
PO Box 3352
Carmel, IN 46082
USA

Installing LanSchool 7.8.2

This chapter describes how to install LanSchool v7.8.2 Classroom Management Software.

Topics

Planning the Installation

Before installing LanSchool 7.8.2, review the following requirements and ensure your network and computers are running smoothly. Doing so will prevent problems during installation.

By taking a few minutes to plan out your installation, you should be able to install LanSchool on each computer in two minutes or less. In most cases, the LanSchool software running on a computer is referred to as the Teacher or Student (uppercase), as opposed to the users-the actual teachers and students (lowercase) or their general devices.

Consider these issues before beginning installation:

Determine LanSchool architecture for your environment

In LanSchool, there is an optional method to install LanSchool called the LanSchool Connection Service. The LanSchool Connection Service is based on a client-server architecture, where the traditional LanSchool install is based on a peer-to-peer architecture. The LanSchool Connection Service will reduce the need for configuration changes to routers and wireless access points to support wired/wireless environments and VLANs.

The existing peer-to-peer architecture will still exist and in many instances may still be the preferred method to install LanSchool.

LanSchool will also support a hybrid environment of both peer-to-peer and client-server architectures.

Before installing, you will need to think about which architecture will be best for your organization. Here are some things to think about when making your decision.

Peer-to-Peer

Pros

- Simple, quick install to teachers and students, no server is required
- No configuration changes if your labs are all the same subnet
- Perfect for single classroom or small schools
- Scalable for large districts as long as you can make networking changes to allow Multicast or Directed Broadcast
- Redundancy is built into the architecture, there is no single point of failure (server)

Cons

- Traffic does not cross subnets without router, wireless access point modification
- If your wired and wireless networks are not connected, you must make configuration changes to allow broadcast/multicast packets to traverse both networks

Client-Server (LanSchool Connection Service)

Pros

- No configuration changes to routers or access points required because the classroom server communicates on TCP port 8080

- Can optionally be enabled to support Distance Teaching

- Best suited for large schools or districts with complicated networks

Cons

- A server is required for every 500 to 10,000 students

- The server is a single point of failure

- Not all features and operating systems are currently supported (see "Configuring LanSchool for use with the LanSchool Connection Service")

Choose between a normal classroom / laptop cart environment or the 1:1 environment

For a normal classroom / laptop cart environment, follow the normal installation instructions later in this manual.

If you are running LanSchool in a "1:1" environment, where each student has their own computing device, decide whether or not you want the students to have the ability to change their channel to the Teacher channel or if you want teachers to create a list and automatically bring the Students into class.

We recommend automatically bringing the students into class.

Here's how it works:

1. Setup all student computers with a default "home" channel which is not used by any teachers.

2. Setup each teacher on their own unique channel. Using their class room number works well.

3. Install the student computers with the default option not to change channels.

4. Create a Class List manually or dynamically. These lists can be created based on either their login id, active directory name or computer name. The methods to create these lists are described in *LanSchool 7.8.2 User Guide* (users.pdf).

5. In the Teacher console, select the students for the current class or load the appropriate Class List. This will 'pull' students from their home channel temporarily to the channel the teacher is on.

6. Dismiss the class. When the current class list is dismissed, all students in the current class will be assigned back to their home channel. Forgetting to actively dismiss the class is not a problem however, as another teacher will be able to pull students to their channel when loading their own class list.

Choose a unique teacher channel for each classroom (normal classroom setup)

LanSchool is designed to work with as many as 16,000 different classrooms on the same network. It uses Teacher channels to broadcast the contents of a teacher's computer to student computers on the same channel. To simplify installation, each classroom should have its own unique channel.

Think of a Teacher channel as a TV channel: All TVs tuned to a certain channel receive the same program. In the same way, all Students configured to a certain Teacher channel receive the screen broadcasts from the Teacher configured to that same channel. If only one LanSchool classroom is on your network, you can choose any number from 1 to 16,000. If you have multiple LanSchool classrooms, each requires its own unique Teacher channel number.

For each classroom, decide which computer will be the Teacher computer

> Generally, you want to set up one Teacher computer per classroom. The teacher will use this computer to control all student computers in the same classroom. During installation, you'll have to specify whether the computer is a "Teacher" or a "Student" computer, by selecting the appropriate .msi file.

> You may setup more than one teacher computer per classroom, but the first Teacher to perform any "limiting" actions takes preference over subsequent Teachers that try to perform the same "limiting" action in most cases. If the first Teacher goes offline for any reason, the subsequent Teacher's limiting actions take over, so it is a good idea to ensure the settings are the same. If no Teacher is present on the current channel the Students will revert to their home channel in about 20-30 seconds.

Configure a valid TCP/IP protocol stack for all student and teacher computers.

> If the computers are using DHCP, then DHCP must be working properly. It is best if the teacher and student computers are all on the same IP subnet. LanSchool 7.8.2 will work with static IP addresses, but they are not required.

> If teacher and student computers are not on the same IP subnet, use Multicast or an IP Directed Broadcast and verify that the switches support those features. More information on choosing the transport and discovery method is available in the "Installing LanSchool 7.8.2 in a VLAN" section.

Use good networking hardware and software

> If your classroom already experiences network errors, LanSchool 7.8.2 will not perform correctly. If you are experiencing problems logging onto computers or copying files over the network, resolve these issues before installing LanSchool.

Use an enterprise class access point

> If you plan on using LanSchool 7.8.2 over a wireless network, it is important to use an enterprise class access point. Generally, personal home network wireless access points that cost less than $100 are not robust enough to handle many connections. We recommend an access point in the $200-$300 range that will reliably handle Student connections.

Determine whether or not you want students to access the LanSchool 7.8.2 icon

> If you do not want students to access the LanSchool icon, run the Student installation, select *Advanced Options* and select *Stealth Mode*.

Determine whether you want to run LanSchool using one of the Security Modes

> LanSchool provides two security modes for installation. It can be installed with one or both security modes selected. Running LanSchool 7.8.2 in Password-Secure Mode requires a teacher to type in a password in order to see students on a particular channel. If this mode is selected for the Teacher install, the same mode must be selected for the Student installs. For installation instructions, refer to the section "Installing LanSchool 7.8.2 in Secure Mode" later in this manual.

> Running LanSchool 7.8.2 in Active Directory Secure Mode requires a teacher to be a member of the Domain User Group, *LanSchool Teachers* to see students on a particular channel. For installation instructions, refer to the section "Installing LanSchool 7.8.2 in Secure Mode" later in this manual.

Determine if it is necessary to install on Terminal Services or NComputing environments

LanSchool 7.8.2 will run in a thin client environment, fat client environment or a mixed environment. For instructions on how to install the thin client support, refer to the section, "Installing LanSchool 7.8.2 in a Thin Client Environment".

Determine if you will be installing the software on the Mac

The LanSchool Student and Teacher applications will run on the Mac. For instructions on how to install LanSchool 7.8.2 on a Mac, refer to the section, "Installing LanSchool 7.8.2 on a Mac" later in this manual.

Determine if you will be installing the software on Chromebook

The LanSchool Student will run on Chromebook with a robust feature set. For instructions on how to install LanSchool 7.8.2 students on Chromebook refer to the section, "Installing LanSchool 7.8.2 on Chromebook" later in this manual.

Determine if you will be including iOS devices in the classroom

LanSchool provides free software to include Apple devices such as the iPad, iPhone or iPod into the classroom. For instructions on how to include these devices, refer to the section, "Installing LanSchool 7.8.2 on the iPad, iPhone, or iPod" later in this manual.

Consider if you will be using SSID Network Tampering

Network Tampering control settings have been extended so that it can be configured to enable only specific, approved wireless networks to which a Student device may connect. This feature will help prevent a Student with a smartphone that has 3G/4G data connection from using a portable Wi-Fi hotspot. SSID Network Tampering will force the student machine to associate with the school's allowed wireless network when available. It is configurable at install time for Teacher and is a configuration option on Student. When configured, LanSchool will only allow students to associate with wireless networks with an SSID name from the Allowed List.

LanSchool 7.8.2 Network Configuration

By default, LanSchool assumes that all Students will be on the same IP-subnet as the Teacher. However, it is possible to configure LanSchool to function properly even when the Teacher resides on a different subnet (or even a separate segment) from the Student.

IP-Subnets and VLANs

If the Teacher is on a different IP-Subnet from the student computers, the default "IPBroadcast" UDP packets used by LanSchool will not be received by the Student, and that machine will not be displayed in the Student List. Instead, you must configure the Teacher software to use either IP-Multicast or IP-Directed Broadcast packets.

IP-Multicast supports the ability to have one device (a Teacher) send a message to a set of recipients (Students) with special multicast addresses rather than a single device. IP-Directed Broadcasts are special addresses which (when properly formed) will traverse your network as a single directed UDP packet until the destination subnet is reached. Upon reaching the destination subnet, the router will then convert the packet into a standard UDP-Broadcast packet.

For either transport method to work, it is important to first verify that your network routers have support for that feature enabled. For IP-Directed Broadcast to work, your routers must also be configured to forward IP-Directed Broadcast packets (sometimes routers refer to these as "UDP Directed Broadcasts) and the address of these packets must be properly formed. You should contact your network administrator or refer to your hardware manufacturer's documentation for further information on your network device features and configuration.

LanSchool Port Usage

LanSchool's original main port number was796 (or 0x31C hex). Starting with LanSchool 7.8, a high port is also leveraged, 11796 (or 0x2E14 hex) specifically for operating systems that require special privileges for communication with ports 1024 and lower (i.e. Android). LanSchool intentions are to eventually transition off of port 796 in favor of 11796, in 7.8 both ports are leveraged.

All non-status broadcast and multicast packets are sent to these ports (796, 11796). The source port for these packets is dynamic (sometimes referred to as ephemeral), meaning it is decided by TCP/IP at run time and cannot be specified. Generally it is in the range of 49152–65535. All LanSchool PC's must allow data traffic on port 796 and 11796 to be received and should not attempt to curtail the transmittal of data on ephemeral sockets.

When a LanSchool Teacher is performing an action on a specific Student (i.e. Remote Control, Thumbnail acquisition, Chat, etc.) the session oriented TCP packets are used. If the Student is a Fat Client machine, then the destination port will also be 796 or 11796. Again, the source port is dynamic.

Thin Clients are a special case. All UDP non-status broadcast and multicast packets are still sent to port 796 and 11796, but if the Student is a Thin Client Student, all TCP packets are sent to a dynamic port. The port for each Student is therefore unique. In this case, it is possible for a Teacher to send a TCP packet from a dynamic port to a dynamic port. However, in the Terminal Server environment, most TCP/IP traffic takes place within the same computer and is little more than inter-process communication.

There is one additional UDP Status packet which is used to monitor LanSchool activity on the network. This traffic originates on port 1053 and is always sent to port 1053. It is either a broadcast or a multicast packet. LanSchool will function without Status Packets, but functionality is reduced (especially for a 1:1 environment where the enrollment data packets are used to detect when a Student prematurely leaves a class.)

All Multicast packets are in the address range of 239.0.208.0 to 239.0.208.255. If IP-Multicast is the transport method chosen, then the router must be configured to forward data in this address range. If IP-Directed Broadcast is chosen, then it also must allow all traffic on port 796 (0x031C), 11796 (0x2E14), and port 1053 (0x41D) (either source or destination) to freely move between the subnets.

LanSchool provides a tool to assist you in determining the proper address to use in the IP Directed configuration. It is called DirBCastAddr.exe, and it's available in the install package. After unzipping the package, the tool can be found in the Utilities subfolder inside the Windows folder. Click on the file and then enter the IP address of any student machine on the target subnet, along with the subnet mask for that subnet. After both addresses have been entered, click on the "Calculate" button.

Configuring LanSchool for use with IP-Multicast or IP-Directed Broadcast

After configuring your network devices as described, configure the LanSchool software to use that transport method.

1. Select Administer | Preferences from the console menu on the Teacher computer.

2. On the Network tab, choose either IP-Multicast or IP-Directed Broadcast in the Data Transmission section.

3. If IP-Directed Broadcast is the preferred method, enter the IP address determined to be the correct one as shown by the DirBCastAddr.exe utility. If a specific Teacher machine must communicate with Student machines in more than one subnet, add the addresses for the subsequent subnets.

Each Teacher installation should be configured with only the subnets where Students with whom they interact with reside. So different Teacher machines can and will have different subnet addresses listed in the Network configuration dialog in those environments with more than three subnets. In the rare case that more than three subnets are needed for a specific Teacher installation, please contact Technical Support for further assistance.

You can validate your implementation by launching the Teacher console, which should now automatically discover the Student machines on the other subnets. If UDP data is traversing the network properly, the teacher will be able to broadcast his or her screen or blank student screens. If the teacher can also view thumbnails of the students in the Student List or remotely view student screens, then TCP data is also traversing the network properly. As LanSchool is a peer-to-peer application, both UDP and TCP traffic are required to be able to traverse the subnet for it to function fully.

Configuring LanSchool for use with the LanSchool Connection Service

In LanSchool there is a new, optional method to install LanSchool called the LanSchool Connection Service. The LanSchool Connection Service is based on a client-server architecture, where the traditional LanSchool install is based on a peer-to-peer architecture. The LanSchool Connection Service will reduce the need for configuration changes to routers and wireless access points to support wired/wireless environments and VLANs.

LanSchool will also support a hybrid environment of both peer-to-peer and client-server architectures.

LanSchool Connection Service System Requirements:

To support 500 connections

- Dedicated machine or virtual machine that is always up and running
- 64-bit Windows Server 2008 or newer
- Static IP Address
- 4GB RAM
- 100MB ethernet network adapter
- Requires port 8080 (communication) and 8085 (Status) to be open
- Optional: LanSchool AD Secure mode is supported

To support 10,000 connections

- Dedicated machine or virtual machine that is always up and running
- 64-bit Windows Server 2008 or newer
- Static IP Address
- 16GB RAM
- 1GB ethernet network adapter connected to a gigabit port on a switch
- Requires port 8080 (communication) and 8085 (Status) to be open
- Optional: LanSchool AD Secure mode is supported

LanSchool Connection Service Setup:

1. In My Computer, go to the LanSchool product download location and double-click *LCS.msi* in the Windows\ConnectionServer folder.

2. Click *Next*.

3. Read the license agreement that appears, then click *I Accept*, then *Next*.

4. Click *Install*.

5. Click *Finish* to complete the installation.

6. Once the installation finishes a new LanSchool Connection Service Status shortcut was added to the start menu. Run the LanSchool Connection Service Status shortcut to view the server state.

Connecting LanSchool Teacher Console to LanSchool Connection Service:

Same Subnet as LanSchool Connection Service

1. Follow "To install LanSchool 7.8 on a teacher computer" to complete the LanSchool Teacher Console installation.

2. If the LanSchool Teacher Console is on the same subnet as the LanSchool Connection Service no further configuration is required. The LanSchool Teacher will discover the LanSchool Connection Service.

Different Subnet from LanSchool Connection Service

If the LanSchool Teacher Console is on different subnet from the LanSchool Connection Service additional setup is required.

1. Once the installation is complete open the LanSchool Teacher Console and from the administer drop down menu to *select preferences.*

2. In the Preferences dialog *select Network tab.*

3. *Change* the Data Transmission to IP - Directed Broadcast.

4. *Insert* the IP address of the LanSchool Connection Service in Subnet 1.

5. The LanSchool Teacher Console is now configured to only communicate with the LanSchool Connection Service.

6. Communicating with LanSchool Connection Service and Broadcast on a different Subnet (Hybrid Model)

7. If the teacher needs to communicate with both broadcast LanSchool students and the LanSchool Connection Service one additional step is required.

8. In the Data Transmission tab under IP - Directed Broadcast, Insert the broadcast range of 255.255.255.255 to the Subnet 2

Configuring LanSchool Students for LanSchool Connection Service and Distance Teaching:

1. Follow "To install LanSchool 7.8 on a student computer" to complete the LanSchool student installation

2. A new dialog is available during the install if you select advanced settings: LanSchool Connection Service and Distance Teaching

3. Check the box "*Connect Student to LanSchool Connection Service".*

4. *Enter* the LanSchool Connection Service Address.

5. Optional: To setup Distance Teaching, Check the box "*Also use Stoneware webRelay for Distance Teaching Support".*

6. *Enter* the Stoneware webRelay Address.

7. Once the installation finishes the student will communicate using the LanSchool Connection Service and webRelay if configured for Distance Teaching.

Features not currently supported by LanSchool Connection Service:

• Video

Installing LanSchool 7.8.2 on Windows

LanSchool 7.8.2 has two installation programs for Windows.

- teacher.msi

- student.msi

To install LanSchool 7.8.2 you must run the appropriate.msi file on either the teacher or student computer. The install creates a C:\Program Files\LanSchool folder on each computer and stores all files locally.

Once the installation is complete, the Student or Teacher program will automatically start each time the computer is started. The teacher computer will display the LanSchool icon in the system tray at the bottom right corner of the computer screen. It is a small, green "circle of circles." To begin using LanSchool, right-click the icon to open the shortcut menu or left click to open the LanSchool console.

On student computers, a LanSchool Student icon will appear in the system tray at the bottom right corner of the computer screen. If you place your mouse cursor over the icon, it will tell you the Teacher channel and the IP address of the student computer.

To install LanSchool 7.8.2 on a teacher computer

1. In My Computer, go to the LanSchool product download location and double-click *teacher.msi* in the Windows folder.

2. Click *Next*.

3. Read the license agreement that appears, then click *I Accept*, then *Next*.

4. Type in a Teacher channel number (1 to 16,000). Remember to choose a unique number for each classroom.

5. If desired, set any Advanced Options by checking the box "*Check to configure advanced options*", then click *Next*. NOTE: The settings selected on this Teacher installation are also the settings that apply when remotely updating Student computers after the initial install from this Teacher. Advanced Settings include:

- Stealth Mode - The LanSchool icon will not be visible on the student computer.

- Student Can Change Channels - Allows students to change the channel they are subscribed to.

- No Keyboard monitoring - Turns off keyboard monitoring of students.

- Allow Task Manager / Activity Monitor Limiting - Allows task Manager / Activity Monitor to be limited on the student computers.

- No Internet History Logging - Turns off logging Internet history of students.

- Enable Network tampering Controls - Monitors wired and wereles network adapter disconnections (including setting SSID wireless allow list.)

6. Select a Security Mode option if desired. Selecting either mode is not required, and is not recommended unless you have read the section "Installing LanSchool 7.8.2 in Secure Mode" later in this guide. Checking the box to *Enable a security mode* allows you to then select one or both security modes. If *Password Secure Mode* is selected, then both Teacher and Student installs require that password to subscribe to a channel. If *Active Directory Secure Mode* is selected, then the teacher must belong to an Active Directory group called LanSchool Teachers that must be created by your IT staff.

7. Click *Install.*

8. Click *Finish* to complete the installation.

9. If a Teacher was previously installed on that device, then a reboot will be required in order to update the existing files.

By default, Teachers are installed without the ability to change their channel. If you wish to allow teachers to have the ability to change the channel, or to view multiple channels, you must copy and run the EnableChannelSelect.exe file located in the Utilities subfolder in the Windows folder from the product download location to the Teacher machine. This tool must be run with Administrative rights. On Vista or Windows 7, ensure that you launch the command prompt by right-clicking this item from the Start menu and choosing to "Run as administrator".

To install LanSchool 7.8.2 on a student computer

1. In My Computer, go to the LanSchool product download location and double-click *student.msi* in the Windows folder.

2. Click *Next.*

3. Read the license agreement that appears, then click *I Accept*, then *Next.*

4. Type in the Teacher channel number (1 to 16,000) that will manage that Student, or in 1:1 environments enter the Home Channel number determined for that student device. Remember to choose a unique number for each classroom. Click *Next.*

5. If you'd like to set any Advanced Options, Check the box "*Check to configure advanced options".*

6. Set any Advanced Options.

7. Click *Install.*

   Click *Finish* to complete the installation.

The Advanced Options for student include the following choices which are covered in more detail in the "Scripting and Mass Deploying LanSchool 7.8.2 via MSI" section below.

• Stealth mode-prevent the system tray icon from appearing on the student's machine

• Change channel-allow the student to change the channel on demand

• No keyboard monitoring-Turns off keyboard monitoring on the student's machine

• No Internet monitoring-Turns off Internet history monitoring on the student's machine

• Enable Network Tampering Controls-Monitors wired and wereles network adapter disconnections (including setting SSID wireless allow list.)

• Allow Task Manager/Activity monitoring-Restricts the use of Task Manager/Activity monitoring on the student's machine

• Follow RDP Desktop will allow the student to follow the desktop of the RDP session, not just the console

• Allow Modern Internet Explorer allows students to browse with Modern Internet Explorer

Scripting or Mass Deploying LanSchool 7.8.2 via MSI

If you want to run *teacher.msi* or *student.msi* from a script or desktop management tool, there are command-line options to install LanSchool. Run *msiexec.exe* and each value should be set to a non-null value such as 1 to enable that feature. *Msiexe.exe* command-line parameters are found by running *msiexec.exe*. *Msiexec.exe* is a Microsoft program.

- CHANNEL="X"
  Installs LanSchool with the Teacher Channel X. "X" must be an integer number from 1 to 16000.

- ADVANCED_OPTIONS
  Required to set any of the following advanced options.

- STEALTH_MODE
  An advanced option, that when set to a non-null value, prevents the LanSchool icon from being shown on the Student computer.

- STUDENT_CHANGE_CHANNEL_MODE
  An advanced option, that when set to a non-null value, allows the student to change Teacher channels.

- NO_KEYBOARD_MONITORING_MODE
  An advanced option, that when set to a non-null value, ensures that student keystrokes will not be captured on the Student computer.

- NO_INTERNET_MONITORING_MODE
  An advanced option, that when set to a non-null value, ensures that Internet history will not be captured on the Student computer.

- AD_SECURE_MODE
  When set to a non-null value, requires the Teacher or Student to enter Active Directory Security Mode. Only Teachers that are a member of the Domain User Group "LanSchool Teachers" will be able to manage those Students.

- SECURE_MODE
  When set to a non-null value, the Password Secure version of the product is installed that requires a password be entered on the teacher console to connect to Student computers, which must also be installed in this mode.

- PASSWORD
  A password is required when turning on Password Secure mode.

- PASSWORD_CONFIRM
  Confirmation of the password is required when turning on Password Secure mode.

- TASK_MANAGER_LIMIT
  An advanced option, that when set to a non-null value, allows the Teacher to decide to limit or not limit Task Manager and Activity Monitor.

- ENABLECHANNELSELECT
  When set to a non-null value, allows the Teacher to change channels to view one or more classrooms.

- ALLOW_DUMP_UPLOADS
  When set to 1 allows the problem reports to be uploaded to Stoneware.

- LCS=IP Address of LanSchool Connection Service
  Will setup the student to communicate with the LanSchool Connection Service

- RELAY=IP Address of webNetwork webRelay Server
  Will setup the student to communicate with the webNetwork webRelay so the student can participate over the Internet in LanSchool Distance Teaching.

- ONLY_INSTALL_UPGRADE (Student.msi only)
  When set to 1 deploying the student.msi to an existing student will upgrade, rather than uninstall.

- ENABLENETWORKTAMPERCONTROL=1
  Install option for Students to turn on the Network tampering Detection feature.

- SSID_WHITELIST_NETWORKS="net1;net2;net3;etc..."

- ENABLE_SSID_WHITELIST=0
  Will turn this feature off, to turn it on use it in conjunction with ENABLENETWORKTAMPERCONTROL.

- SCREEN_PRIVACY=1 will turn on screen privacy on student machines and prompt the user if they want to allow their screen to be viewed by LanSchool teachers.

- NO_CHROME_EXTENSION=0

  Install option for the Student.msi, which causes the Chrome Web Helper Extension to not be installed on the Student.

- For example:
```
ADVANCED_OPTIONS=1
ENABLENETWORKTAMPERCONTROL=1
ENABLE_SSID_WHITELIST=1
SSID_WHITELIST_NETWORKS="net1;net2;net 3;etc.."
```

- For example, if you want to silently install a Password Secure mode Teacher that can change channels but starts on channel 3, with a password of "test", your script should look like this:
```
Msiexec.exe /i "<path to teacher.msi>\teacher.msi" /qn ADVANCED_OPTIONS=1 SECURE_MODE=1 PASSWORD=test
PASSWORD_CONFIRM=test CHANNEL=3 ENABLECHANNELSELECT=1 LCS=192.168.2.3 RELAY=10.1.1.2
```

Installing LanSchool v7.8.2 in a Thin Client Environment

LanSchool 7.8.2 supports a Terminal Server or NComputing environment. LanSchool allows thin client computers to be used as student and/or teacher computers. You can mix-and-match thin and traditional client computers ("fat clients") in the classroom.

Terminal Server Installation

Terminal Server Installation is a two step process. Initially, the *TerminalServer.msi* installation program needs to be run on the Terminal Server. This will copy all needed files to the Terminal Server but will not configure any Terminal Server client computer as either a Teacher or Student.

If the Terminal Server is in "Execute" mode, the "After Installation" dialog will appear. Since LanSchool 7.8.2 has been designed to install onto a Terminal Server, it is not necessary to complete this dialog. You can press the "*Cancel*" button on this dialog at any time.

Once you have completed this first step and the LanSchool files have been copied to the Terminal Server, LanSchool must be properly configured to run on each desired thin client computer. You may do this in one of three ways:

1. Manual Student or Teacher Configuration
   Login to a thin client terminal with Administrator rights and run the *SetupTSClient.exe* configuration utility. Repeat this for each thin client device in the classroom.

2. Scripted Student or Teacher Configuration
   You can script the *SetupTSClient.exe* utility. The following command line options are recognized:

#X	Configures the Teacher channel, where "X" is the desired channel number
StUdEnT	Configures that thin client device to run the LanSchool Student software at login
TeAcHeR	Configures that thin client device to run the LanSchool Teacher software at login
PaSsWoRd	Allows a Security Password to be specified
UNINSTALL	Configures so that the thin client device will no longer load the LanSchool software
QUIET	Performs a silent configuration (this must be the last option specified)

3. LskTSDat.ini file

The previous "Manual Configuration" edits a LanSchool configuration file (C:\Program Files\LanSchool\LskTSDat.ini.) If you do not wish to run *SetupTSClient.exe* on each thin client, you can edit the *LskTSDat.ini* file directly with any text editor such as Notepad.

There is an entry in that file for each thin client which will be running either the LanSchool Student or Teacher software. The format of the .ini file is as follows:

[LanSchool TSClient List]

THINCLIENT001001=Teacher, Channel=1, Name=Teacher1

THINCLIENT 001002=Student, Channel=1, Name= THINCLIENT001002

THINCLIENT 001003=Student, Channel=1, Name= THINCLIENT 001003

THINCLIENT 001004=Student, Channel=1, Name= THINCLIENT 001004

DEFAULT=Student, Channel=1, Name=Default

The first part of each line (THINCLIENT001001 in this example) is the "Client Name" of that thin client. Each thin client device has a unique Client Name set by the manufacturer or during hardware configuration. You can find that name by logging into the device and entering the "SET" command from a command prompt. Many IT departments will have a list of Client Names for each thin client device.

The Client Name "DEFAULT" can be used as a default setting. If a Thin Client does not find itself in the *LskTSDat.ini* file, it will assume the configuration of the DEFAULT entry (if that entry exists.)

NOTE: Some Thin Client devices require configuration to set a unique Client Name for the device. LanSchool requires all Thin Client devices to have a unique Client Name. Please check your Thin Client device's documentation to make sure each device has a unique Client Name.

Following the Client Name is the type of LanSchool software to run on that thin client device (either Student or Teacher.) The next parameter defines which LanSchool Channel to use for that thin client. Generally, all thin client devices in the same classroom will have the same Channel number.

The last parameter defines the LanSchool Display Name. The Student will appear in the Teacher Console with both the login name and this name. By default, we use the Client Name, but that can be changed if a more meaningful name is desired.

If you are load balancing (i.e. multiple Terminal Servers serving the same classroom) you must install LanSchool software on all Terminal Servers and then replicate the completed *LskTSDat.ini* file to all Terminal Servers. If there are many Terminal Servers load balanced together, it is possible to configure LanSchool to share a common *LskTSDat.ini* file. Please contact LanSchool Support for instructions.

Upgrading LanSchool on Terminal Server

The TerminalServices.msi installs the updated files for both Teacher and Student, so once that install has completed, both Teacher and Student are updated.

If you have already successfully run the SetupTSClient.exe at some point in the past, you do not need to run it again. SetupTSClient.exe doesn't actually install any files, it only configures entries in the LskTSDat.ini file on the Terminal Server, so that when a remote session starts up, LanSchool will know whether to launch the Teacher or the Student and set it to the correct channel. If your Teachers and Students are already configured correctly in the LskTSDat.ini then you do not need to run SetupTSClient.exe again, just run TerminalServices.msi and both Teacher and Student will be updated.

Installing LanSchool 7.8.2 on NComputing Devices

NComputing provides a number of small access devices that connect, either directly or via Ethernet, to a centralized server that hosts each virtual desktop. These devices include the L, M, and X-series computers. Support for NComputing devices is very dependent on the generation of hardware and the version of vSpace software installed. As this support is somewhat dynamic, please check the NComputing matrix on the FAQ page at https://helpdesk.stone-ware.com/portal/helpcenter/stonewarehd/lanschool for the latest news on what combination of hardware model, operating system, and vSpace software is supported with this version of LanSchool.

L and M-Series

The L and M-Series platforms allow multiple users to share a single host computer. The client hardware is attached to the host via a standard Ethernet infrastructure. Because of the similarity of the L and M-Series architecture to a standard terminal server, you should first copy the LanSchool files to the L or M-Series host computer with the TerminalServer.msi package.

X-Series

The X-Series platform allows a single computer to be shared with up to eleven users. Up to 2 X-Series PCI cards are installed in the Host computer. After the software has been installed on all clients of the host, the host should be rebooted and all users should login again. Installation is similar to Terminal Server installation (detailed above.) You must first copy the LanSchool files to the Host computer with the *TerminalServer.msi* package and then configure the client computers with the *SetupTSClient.exe* utility.

Thin Client Limitations

While every effort has been made to implement all LanSchool functionality for thin client devices, there are some limitations. The following is a list features that do not work on thin clients.

- Sound Muting
- USB limiting
- Printer limiting
- Power on
- Shutdown or Reboot
- Change student channel (now done from .ini file)
- Change student display name (now done from .ini file)
- Extensive student hardening (it is assumed that a thin client device is locked-down from the Server)

Installing LanSchool 7.8.2 in Secure Mode

LanSchool 7.8.2 has the ability to install additional levels of security if desired. Two modes are available, Password Secure and Active Directory Secure, and one or both may be selected. If the option is not properly installed, however, a Teacher will not be able to communicate on the desired channel and Student access will be unavailable.

Password Secure Mode

This mode requires teachers to type in a password when the console is launched to see students on a particular channel. This feature adds an extra level of security to prevent unauthorized consoles from being used as teachers.

Installation Steps:

1. After double clicking on either the *teacher.msi* or *student.msi* file, continue through the install as previously described. To install the password protected version, check the box to *Enable a security mode*.

2. Select *Password Secure Mode*.

3. Type in a password and re-enter it to confirm.

4. Repeat these steps for both Teacher or Student installations.

*If LanSchool is installed using the LanSchool Connection Service (LCS) the same process of selecting *Password Secure Mode* must be leveraged during the installation of the LCS. The password that is configured for the LCS needs to match the password of the students, otherwise communication will not occur between the teacher and student systems.

The password is required on the Teacher install so that if a teacher computer uses the "Become a Student" feature, it can still be secure.

When a teacher launches the console or changes channels, they will be prompted for a password to view the students on that particular channel or group of channels.

To install the password protected version on the Teacher or Student using a script or Active Directory, refer to the section above, "Scripting or Mass Deploying LanSchool 7.8.2 via MSI".

In order to use .adm or .admx templates with the secure version of LanSchool, you **must login to the customer portal and generate a key that will go in the password section** of the .adm or .admx files.

In the event that only a Teacher or a Student, but not both, was installed with Password Secure mode, the Student will not be accessible by the Teacher. This will be indicated by a Security Locked Out icon on the Student thumbnail. You can verify if this is the case by checking the version number on the Students.

Note: If the teacher's password is compromised, it will be necessary to re-install both Teacher and Student computers with a new password.

Version Identifiers

If you hover with your mouse over the icon in the Student system tray, it will show a version number something like:

v7.8.0.20Ls, v7.7.0.20Sd or v7.7.0.20Sds

The lowercase letters are security identifiers, where "s" signifies Password Secure Mode, "d" signifies an Active Directory Secure Mode installation and "r" is appended to the version for Teacher and Student when connected through the LanSchool Connection Service.

The uppercase L and S are not actually security identifiers, rather they refer to the type of LanSchool install chosen. L is for the Light version and S indicates a Subscription license. The system is designed to lock out any devices that don't match security models. The Students will need to be reinstalled with the correct security mode option(s) in order to correct the security lock out issue.

Active Directory Secure Mode

LanSchool 7.8.2 has the ability to leverage Windows Active Directory to ensure that only authorized teachers can control students. This mode adds an extra level of security to prevent unauthorized consoles from being used. This mode will only function in an Active Directory Domain environment and on Windows 2000 or newer systems.

To fully configure this mode, you must have Domain Rights to create and populate a domain User Group.

Installation Steps:

1. After double clicking on either the *teacher.msi* or *student.msi* file, continue through the install as previously described. To install the password protected version, check the box to *Enable a security mode*.

2. Select *Active Directory Secure Mode*.

3. Repeat these steps for both Teacher or Student computers.

*If LanSchool is installed using the LanSchool Connection Service (LCS) the same process of selecting *Active Directory Secure Mode* must be leveraged during the installation of the LCS. The system who is hosting the LCS needs to be a member of the domain and can see the LanSchool Teachers Group, otherwise communication will not occur between the teacher and student systems.

To install the Active Directory Secure mode on the Teacher or Student using a script or Active Directory, refer to the section, "Scripting or Mass Deploying LanSchool 7.8.2 via MSI".

When in this mode, a teacher must be a member of the Domain User Group "LanSchool Teachers". If the teacher is not a member of that group, then Active Directory Secure students will not interact with that teacher.

Creation of the "LanSchool Teachers" Domain User Group is done using the appropriate Windows Server 2003 or 2008 Active Directory tools. Once the group has been created, those same tools can be used to populate the group with the appropriate teachers.

While Password Secure Mode requires that both Students and Teachers are installed with this option, Active Directory Mode is a bit different. If the Student has Active Directory Secure Mode enabled, then it will be Security Locked Out to any Teacher who was not installed with the Active Directory Secure Mode enabled (or is not a member of the "LanSchool Teachers" group). The restriction does not go the other way. An Active Directory Secured Teacher (who is also a member of the "LanSchool Teachers" group) will be able to control Students who do not have AD Secure Mode Enabled, without any restrictions.

Note: Active Directory Secure Mode is not available yet for Mac Teachers, Mac Students, Chromebooks, Android, or iOS and limited support when domain functional level is set to Windows 2000 mixed or Windows 2000 native mode.

Uninstalling LanSchool 7.8.2 from a Windows Computer

To prevent the unauthorized removal of LanSchool software, the installation has been designed to be tamper resistant. Rather than using the customary Add or Remove Programs mechanism in Windows, LanSchool requires the presence of the original install package to uninstall the software.

The .msi install package acts like a toggle switch. To uninstall LanSchool 7.8.2 from a Windows computer, simply double-click the same file you used to first install the product, to run the installation program again. This will remove the software. If you were to select and run the file again, the software would be re-installed.

If the download package is no longer available, you should be able to download it again from your customer account in the Customer Portal. If you are not able to access your account, please contact Technical Support and they will provide you a copy of the .msi file. It will be necessary to know the exact version of the software installed. This can be found in the Student List view of the Teacher console, or locally by hovering with your mouse over the LanSchool icon in the system tray. The version will be something similar to 7.7.0.20 for this release.

If your Students were installed in Stealth mode, the LanSchool icon will not be displayed in the system tray. To determine if a Student is installed in that case, you should just see it listed in the Teacher console. If for some reason it is not listed, but installed, there are two ways to check. If you can access the Task Manager on the student (typically you can do this using Ctrl-Alt-Esc), there will be an entry under Processes called student.exe and then you will know that LanSchool is installed.

If you are unable to access the Task Manager, there is a tool available in the Utility folder called Student Diagnostics. If you run this program on a Student computer, the first available test is called "Test Local Installation". This test will tell you if LanSchool is installed and running as well as the channel number, version and other pertinent data. Please contact Technical Support for assistance in using this tool.

In My Computer, go to the LanSchool product download location and double-click reacher.msi

1. If you are on a teacher computer, run *teacher.msi*. If you are on a student computer, run *student.msi*.

2. You will be prompted to remove the software, click *Next*.

3. Click *Remove*.

4. Click *Finish*.

To silently uninstall LanSchool 7.8.2 using a script, run Msiexec.exe with the following parameters:

Msiexec.exe /x "<path to teacher.msi>\teacher.msi" /qn

Msiexec.exe /x "<path to student.msi>\student.msi" /qn

Installing LanSchool 7.8.2 on a Mac

LanSchool 7.8.2 has the ability to both monitor and manage students on Mac computers as a Teacher as well as support for Students running on this platform. The installation process on Mac is similar to a Windows installation, but there are slight differences.

Manual Installation

After downloading the LanSchool installation file from the Customer Portal, unzip the file.

To install the software on a teacher computer follow these instructions:

1. Copy *lanschool_teacher.dmg* from the Mac folder to the Mac Teacher computer.

2. Double click on *lanschool_teacher.dmg*.

3. Double click on *lanschool_teacher.pkg*.

4. Follow the installation wizard to the Software License Agreement. After reading the terms of the license, select *Continue* and *Agree*.

5. Enter a teacher channel number (1 to 16,000). Choose a unique number for each classroom.

6. If desired, check the box to configure *Advanced Options*. These options are the same as previously described in the "Scripting or Mass Deploying LanSchool 7.8.2 via MSI" section. Again these options relate to the case when a Teacher becomes a Student or when a Student is remotely updated from this Teacher.

7. Click *Continue*. The installation location cannot be changed. LanSchool must be installed on the system drive.

8. Click *Install*. The installer will ask for the administrator credentials on that computer. Type in the username and password and click *OK*.

9. After the installation is successful, click *Close*.

By default, Teachers are installed without the ability to change their channel. If you wish to allow Teachers to have the ability to change the channel, or to view multiple channels, you must run the EnableChannelSelect utility located in the Utilities folder in the *lanschool_teacher.dmg* package.

This tool must be run with Administrative rights.

To install the software on a student computer follow these instructions:

1. Copy *lanschool_student.dmg* to the Mac student computer.

2. Double click on *lanschool_student.dmg*.

3. Double click on *lanschool_student.pkg*.

4. Follow the installation wizard to the Software License Agreement. After reading the terms of the license, select *Continue* and *Agree*.

5. Check the boxes to configure the student as desired. For an list and explanation of the options available, please review the section "Scripting or Mass Deploying LanSchool 7.8.2 via MSI".

6. Click *Continue*. The installation location cannot be changed. LanSchool must be installed on the system drive.

7. Click *Install*. The installer will ask for the administrator credentials on that computer. Type in the username and password and click *OK*.

8. After the installation is successful, click *Close*.

Note: The Mac student install will not work properly when installed from a user account with File Vault turned on. This is an Apple bug that displays "Insert the <username> disk".

Mac Student on OS X 10.9 (Mavericks)

Enabling Keystroke Monitoring and Keyboard Blocking

Due to security changes in OS X 10.9 (Mavericks), the LanSchool Mac Student can no longer block the keyboard or monitor keystrokes by default. This functionality can be enabled in Mavericks by approving the LanSchool Student as an Accessibility application in the System Preferences:

1) After installing the LanSchool Mac Student (version 7.7.4 or later), open System Preferences from the Apple menu.

2) Click the Security & Privacy icon.

3) Select the Privacy tab.

4) Select Accessibility from the list on the left side of the Privacy pane.

5) Click the lock icon in the lower left corner of the window and enter an admin account and password when prompted.

6) Select the checkbox next to "LanSchool" in the list of Accessibility applications. A logout is necessary before the approval will take effect.
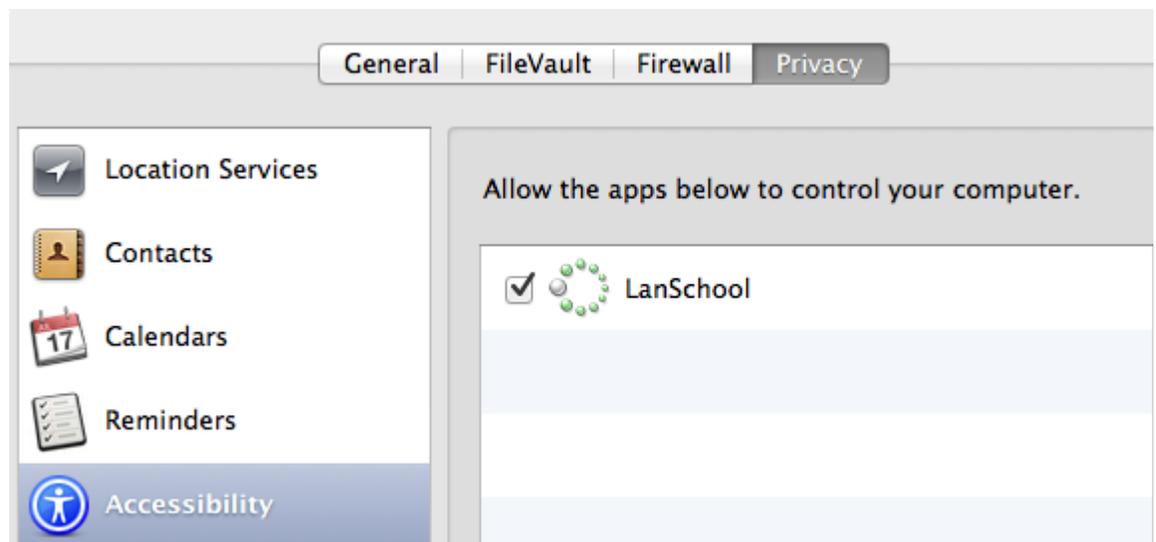
Automated Installation

The *lanschool_teacher.pkg* and the *lanschool_student.pkg* can be customized and installed through a desktop management application.

To customize this package complete the following steps:

1. Double click on *lanschool_teacher.dmg* or *lanschool_student.dmg*.

2. Double click on "*Create a custom package*".

3. Follow the installation wizard and select the appropriate options.

4. Name and save the package.

This will create a custom package that can be installed with the selected settings.

Uninstalling LanSchool 7.8.2 on a Mac

To prevent the unauthorized removal of LanSchool software, the installation has been designed to be tamper resistant. To accomplish this, LanSchool requires the presence of the original install package to uninstall the software, which acts like a toggle switch. Simply select the file to run the same installation program again that you used to install the product. This will remove the software. If you were to select and run it again, the software would be re-installed.

If the download package is no longer available, you should be able to download it again from your customer account in the Customer Portal. If you are not able to access your account, please contact Technical Support and they will provide a copy of the file. It will be necessary to know the exact version of the software installed. This can be found in the About menu item of the software. The version will be something similar to 7.7.0.20.

In My Computer, go to the LanSchool product download location and double-click *teacher.msi*.

1. If you are on a teacher computer, run *lanschool_teacher.dmg*.

2. If you are on a student computer, run *lanschool_student.dmg*.

3. Click on *Uninstall*.

4. Click *Yes, Uninstall*.

5. Type in an administrative username and password.

6. Click *OK*.

Installing LanSchool 7.8.2 on iOS devices

LanSchool provides free Student and Teacher Assistant for the Apple iPad, iPhone, or iPod. The capabilities described below will only work with an existing LanSchool v7.5 or greater environment.

Installation

iOS Student

The Student install is a simple download from Apple's iTunes App Store.

1. From the device, download and install the LanSchool Student from the App Store.

Teacher's Assistant

The Teacher's Assistant install is a two step process.

1. From the device, download and install the LanSchool Teacher's Assistant from the App Store.

2. Pair the Teacher's Assistant with a LanSchool Teacher's console running on either a Windows or Mac computer.

Pairing the Teacher's Assistant with a Teacher Console

Pairing the Teacher's Assistant with a Teacher Console is a critical step for the following reasons:

- The Teacher's Assistant will not discover Students unless it is first paired with a Teacher console.

- The settings to restrict students Internet access or limit application usage are read from the Teacher's Console.

To Pair the iOS Teacher's Assistant to a Teacher Console

1. Launch the LanSchool Teacher console on a Windows or Mac computer.

2. From the Administer menu, select Manage Teacher's Assistants. A window will be launched from which the iOS device will be authorized.

3. Connect the iOS device to the organization's wireless network.

4. Launch the Teacher's Assistant by clicking on the Teacher icon on the iOS device.

5. The iOS device will discover and list the available Teacher machines on the network using UDP port 2426. Select the appropriate Teacher machine from the list.

6. A passcode will be generated and displayed on the iOS device.

7. In the Manage Teacher's Assistants dialog on the PC or Mac, the iOS device will appear in the window. Select the device and click Authorize.

8. Type in the Passcode that was generated on the iOS device and click OK.

Once the Teacher's Assistant has been paired with the Teacher's Console, the pairing will automatically occur whenever the Assistant is launched. To stop pairing the iOS device to a Teacher, select the iOS device in the Manage Teacher's Assistants menu and click Remove.

With the pairing complete, the Teacher's Assistant will discover all of the Student computers on the Teacher's channel and download the appropriate feature settings. At this point the Teacher's Assistant will be able to perform the features even if the Teacher's Console is closed. However, if the Teacher's Assistant app is closed, you must start the Teacher's Console on the Mac or PC before re-starting the Teacher's Assistant app.

Features

With the Teacher Assistant paired to the Teacher's Console the Assistant will be able to perform the following functions:

- Discover Student computers

- Display a thumbnail of student screens

- Blank Screens

- Voting

- Web limiting

- App limiting

- Send Message

- Details View

    - Last used application

    - Last visited website

    - Battery information

- Student Question

- Send Tests

- Remote Control Student

- Remote Control Teacher

Selecting Students for Operations

To perform a feature on the student computers you may either select one student, multiple students or all students. To select a student, simply touch their thumbnail. To deselect, touch the thumbnail again. There is an implied all selection if no thumbnails are directly selected.

Once you've selected the pertinent thumbnails, touch the icon for the feature you want to enable. To turn off that feature, touch the feature icon again. If you want to configure a particular feature touch and hold the feature icon and a configuration dialog will appear.

Blank Screens

The blank screens messages are not pulled from the Teacher's Console. However, the messages can be modified and selected from the Teacher's Assistant either from the Settings menu or by touching and holding the message selection box.

Voting

True/False, Multiple Choice or Verbal questions can be sent to the students. Student results are tabulated and shown in real-time to the Teacher's Assistant.

Send Message

Customized messages can be sent to one, multiple or all students. Select the students or use the implied all by selecting no students and touch the Send Message icon. Input a message or select and existing message and touch the Send button.

App Limiting

When the Teacher's Assistant pairs with the Teacher Console, the current app limiting settings are downloaded to the Teacher's Assistant. To limit apps on the selected students, touch the app limiting icon. An app limiting icon will be displayed on the thumbnail. To stop app limiting touch the app limiting icon again.

Web Limiting

When the Teacher's Assistant pairs with the Teacher Console, the current web limiting settings are downloaded to the Teacher's Assistant. To limit the web on the selected students, touch the web limiting icon. A web limiting icon will be displayed on the thumbnail. To stop web limiting, touch the web limiting icon again.

Details View

To view the details about a student such as their battery information, last used application and last visited website, tap a thumbnail twice.

Student Question

Students can raise their hands electronically by clicking on the LanSchool icon on their computer and typing in a question to the teacher. That question is then displayed on the Teacher's Assistant.

Remote Control Student

Take remote control of a single student. This features allows you to remotely use the mouse and keyboard on the selected students's computer. With LanSchool you can even remote control a computer at the login prompt.

In order to send the *ctrl-alt-del* command to a computer during remote control, you will need to use the keyboard icon to then select those keys and send over the command.

Remote Control Teacher

Take remote control of the Teacher machine that is paired with the LanSchool Teachers Assistant App. This feature gives the teacher mobility in the classroom. Remote Control Teacher allows all the features inside the LanSchool Teacher Console to be leveraged remotely or any application running on the teacher machine to be utilized remotely by the Teacher Assistant App.

Installing LanSchool on Android devices

LanSchool provides a free Student for Android tablets. Specific Android validation was performed using the following platforms: Samsung Galaxy tablets, Lenovo tablets, Google Nexus tablets, and the Amazon Kindle Fire tablet.

The capabilities described below will only work with an existing LanSchool v7.7 or greater environment.

Installation

The Student install is a simple download from Google Play Store (formally Android Market). From within the Android device, login to the Google Play store and then download and install the LanSchool Student. Android is only supported in broadcast mode with v7.7.

Features

The following features are available with the LanSchool Android Student:

- View Android student thumbnails in the teacher console
- Receive a "Show Teacher" screen broadcast
- Receive a message from the teacher
- Receive tests administered by a LanSchool Teacher
- Ask the teacher a question
- Respond to a real-time vote
- Can change classroom channel
- Gather Inventory Information
    - Current application running
    - Network information
    - Battery information

Installing LanSchool Chromebook Student

LanSchool provides a Student for Chromebooks. LanSchool supports Chrome 33 and newer.

The LanSchool Chromebook Student operates within the LanSchool environment providing many of the same features as the LanSchool Student for Mac, Windows, iOS and Android.

The capabilities described below will only work with an existing LanSchool v7.8 or greater environment and requires the LanSchool Connection Service.

Requirements and set up

The LanSchool Connection Service should be installed and set up before continuing with the software installation below. If you have any questions or problems setting up the connection service, contact your LanSchool sales or support representative.

Manual Software Installation

(Note: If you are using the Google Admin Console to manage Google Apps for Business or Google Apps for Education, you can skip to the "Google Admin Console" section)

Now you're ready to install the LanSchool Chromebook Student software.

1. Log into your Chromebook.

2. Once you are logged in, click on the "apps" icon

3. Then click on the "store" icon.

4. In the Google Web Store, search for "LanSchool".   You should see two applications listed: LanSchool Student and the LanSchool Web Helper extension. You want to select the "LanSchool Student".   The Web Helper extension will be discussed below.

If you can't find the application in the store, you can go directly to it by entering the following URL:

https://chrome.google.com/webstore/detail/lanschool-student/ifeifkfohlobcbhmlfkenopaimbmnahb?authuser=1

5. This should take you to the Chrome student installation page.

6. On the installation page, click the "+ FREE" button to begin the installation process.

7. This will bring up a dialog asking if you want to install "LanSchool Student". If you agree to the permissions it uses, click the "Add" button to begin the install.   It will take a few minutes to download. Once it's complete you should see the apps list showing the LanSchool student icon.

8. On most installations, the LanSchool student will start automatically once it's finished installing, if it does not, clicking on the icon in the apps window will start it.   Once it's loaded, you should see the LanSchool icon in your task tray.

Important Note: Screen Sharing is part of the LanSchool Chromebook student and by default the active browser tab is shared with the Teacher Console. The active browser tab sharing does not require permission on behalf of the end user.

If you want to see the entire Chromebook student screen this is accomplished by enabling the "Full screen" option, you will be greeted with a message that says "LanSchool Student would like to share the contents of your screen. Choose what you would like to share." This is a security feature of Chrome and will only be asked once each time the student starts up. Selecting "Share" will allow thumbnails of the Student desktop to be sent to the Teacher. Selecting "Cancel" will disable the desktop sharing feature.   If you selected "Share", you will then be shown a small window in the bottom left that says "LanSchool Student is sharing your screen". Clicking on the "x" in this window will safely dismiss the window without affecting the functionality of the student.

9. LanSchool Web Helper is required for the Web limiting, Web History, Run URL and Screen Sharing (Active Browser tab) features. Installation of the Web Helper extension is similar to the Student.

1. Searching the Chrome Web Store for "LanSchool" should bring up the "LanSchool Web Helper" extension. If you can't find it, open Chrome to the following URL:

https://chrome.google.com/webstore/detail/lanschool-web-helper/honjcnefekfnompampcpmcdadibmjhlk?authuser=1

2. This will take you to the install page for the Web Helper. Click the "+ FREE" button to being the install.

3. When given the "Confirm new extension" dialog, click "Add".

4. When the install is complete you should see a window pop up that says "LanSchool Web Helper has been added to Chrome".

10. Congratulations, your LanSchool Student for Chrome is now installed. You should now proceed with the software configuration.

Software configuration

The LanSchool Student for Chrome needs to be configured to communicate with a LanSchool Connection service before it will appear on the Teacher console.   To perform this configuration step, you will need to know the IP address or network name and the connection port of the Connection service.   Typically the port will be 8080, but if your network admin has configured it differently you will need to know.

1. To configure the Student, click the student icon to bring up the menu and click on the "Preferences" option in the menu.

2. When the preferences window opens, you will be able to configure the following:

1. Device ID - This is coded into the app and will be unique for each installation. This cannot be changed.

2. Connection service host - This is required and must be set to the network address of the connection service.

3. Connection service port - This is required and must be set to the port that has been configured on the connection service host.

4. Screen sharing - This allows you to select between Active browser tab and Full screen sharing.

3. Once you have completed the configuration, click the "Save" button to save your changes. (Please keep in mind that if you ever un-install the Student software, all settings will be lost and must be re-entered if you re-install the software later.

4. Once your settings have saved, the Student software should begin communicating with the Connection Service. If you have a Teacher Console already configured to use the Connection Service then the Student should appear within a minute or two.   If it does not appear within a minute or two, try refreshing the teachers display. (Note: you can refresh the teachers console by pressing <F5>)

Features

The following features are available with the LanSchool Chromebook Student:

• Help Individual Students - The Student can interact with the Teacher by sending and receiving messages. Students can silently send questions or request help. A small question mark appears on the teacher's console when a Student sends a question.

• View Student Thumbnails - Student thumbnails appear on the Teacher Console allowing teachers a quick overview of what the students are working on.

• Show Student Details - The details view of Chromebook student will show student name, machine name, last website, last question and Teacher channel.

• Testing - The LanSchool Teacher can send a test to the Chromebook student and collect the test results. Test questions can include True / False, Multiple Choice, short answer and essay questions. Images can also be attached to each test question.

• Show Teacher Screen - The LanSchool Teacher has the ability to share a screen to all or select Students allowing them to follow along.

• Web Browsing - Temporarily disable all or selected student access to the web across browser. The Teacher controls the sites the Student may browse to or may direct the Student to specific sites.

• Internet History - Shows a searchable list of web sites visited by the selected student, which may be saved to a file.

• Blank Screen - The Teacher may blank-out all student screens and disable keyboard and mouse.

• Run URL - This feature allows a Teacher to run a web site on student computers.

• Class list support - Chromebook student will respond to Teacher request to be loaded into a class.

• Show Student Screen - The ability for the Teacher to send a student's screen to all other students in a class.

• View Student's Screen - Allows teachers to view and monitor a selected student machine.

• Chat - The Teacher may initiate a text-based chat session with one or more students from the Teacher's console.

• Save Student Screen Snapshot - Save a student's screen to a standard graphic file. (.jpg or .bmp) The date, time and student login name are displayed in the saved file.

Auto Configuration of LanSchool Student for Chromebooks

This section describes the method for automatically configuring LanSchool Student software for Chromebooks.

Before the LanSchool student for Chromebooks (Student) can connect to a LanSchool Teacher Console (Teacher) it must first be configured to connect to a LanSchool Connection Service (LCS). If deploying a large number of Chromebooks, this can be a daunting task.

It is possible to configure a large number of Chromebooks at start up time automatically.   There are two ways of accomplishing this:

1) Set an application-based setting in the Google Admin Console (ie: https://admin.google.com). 2) Set hidden configuration parameters in a web page that opens at the start of each session on the Chromebook devices.

Option #1 - Application specific settings in the Admin Console.

To use this option, you will need to have a Google Apps account for Education, or a Google Apps account for Business.   These accounts allow you to manage various applications and services for chrome devices and users. For more information on Google Apps accounts see:

https://www.google.com/edu/products/productivity-tools/

If you already have an apps account set up with your users and devices configured, you can set up auto configuration for LanSchool Students by following these steps:

1. Sign into your apps account at https://admin.google.com.

2. Setup up auto installation of the LanSchool Student and the LanSchool web helper:
   1. From the Admin console Home, click on "Device Management".
   2. Click the "Chrome Management" link on the left side of your screen.
   3. Choose "User Settings", then select the target organization on the left side of your screen for which you want to configure the installing of applications.
   4. Scroll down to "Force-installed Apps and Extensions", and click the "Manage force-installed apps" link.
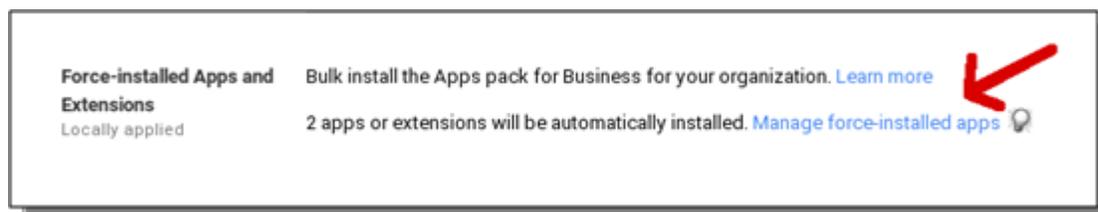
5. Click the "Chrome Web Store" button and enter "LanSchool" in the search window. When the search completes, you should see two applications in the list: "LanSchool Student" and "LanSchool Web Helper".

6. Click the "Add" link next to each of these, then click the "Save" button.
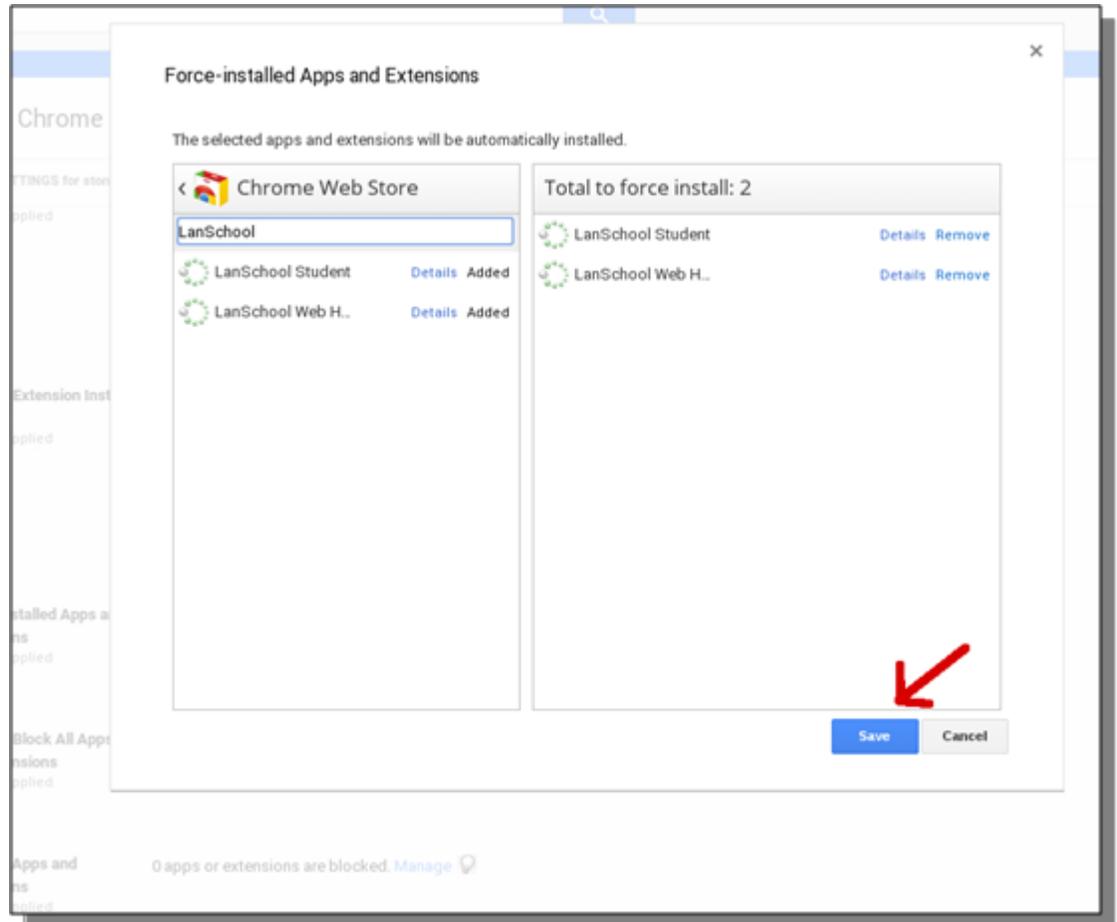
7. You have now set up "forced-install" of the LanSchool student and extension for your chrome users.

3. The next step is to configure the Application settings for the LanSchool Student.

1. Create the configuration file you want to use. This is a text file and should be saved to your local hard drive before continuing to the next step. It should be saved with UTF-8 encoding (See the sample configuration file at the end of this section)

2. Click back to the "Device Management > Chrome" heading at the top of your screen.
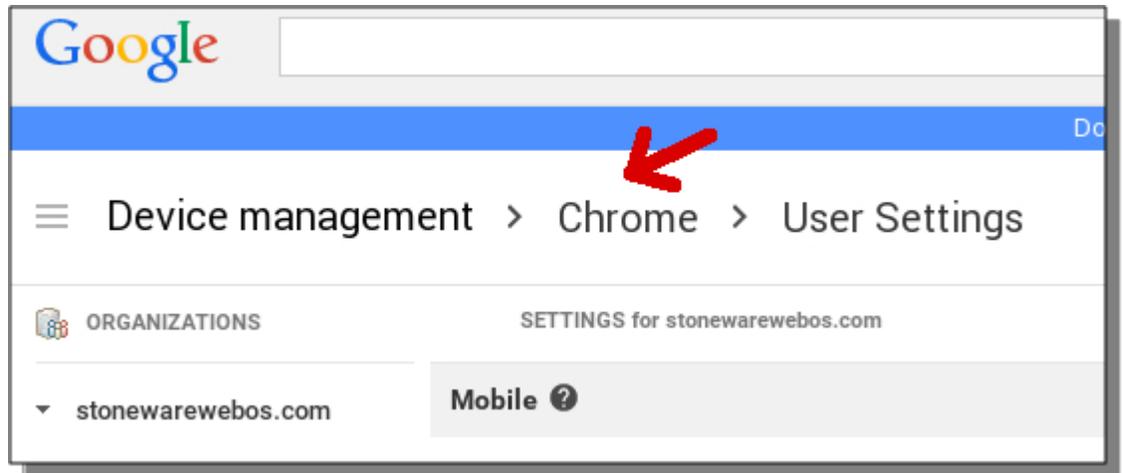
3. Then click on the "App Management" section. You should now see the LanSchool Student and LanSchool Web Helper apps listed in the apps list.   Click on the "LanSchool Student" app.

4. Click the "User settings" section from the settings screen.
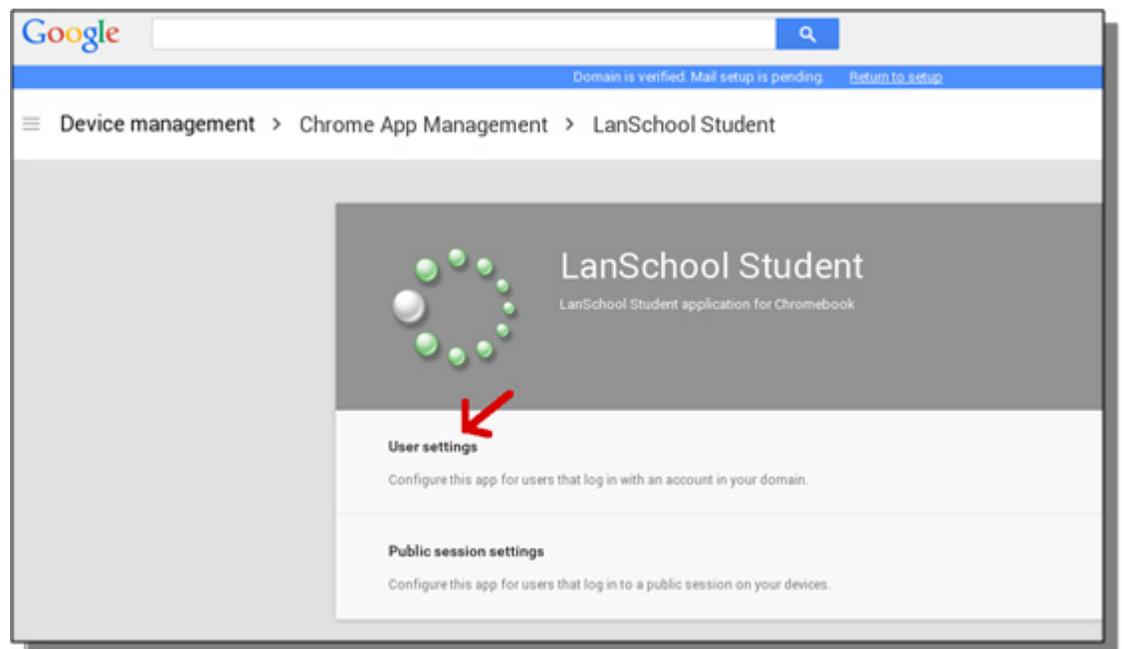
5. Choose the Organization you want to configure users settings for. (note: you can configure different settings for each organization you have defined.) You should now see the Configuration settings window.

6. Choose "upload configuration file" under the "Configure" option.
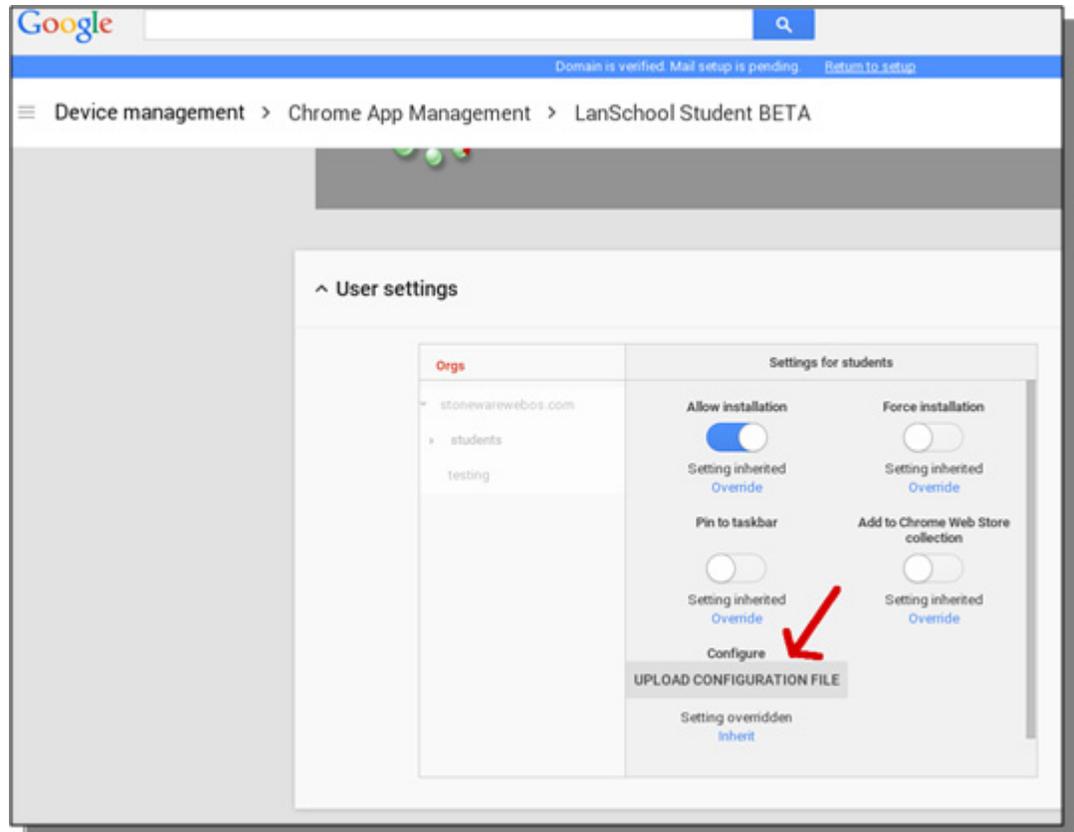
7. Upload a configuration file you created in step 1. (See example below). Clicking here will open a window allowing you to select the configuration file from your local hard drive.

8. After uploading the configuration file, make sure you click the "SAVE" button at the bottom of this window.

4. Test your settings - To see if your configuration settings are being applied on the student Chromebook:

1. Log into a Chromebook using one of the student accounts in the organization you selected above for the configuration.

2. Open the Chrome browser and type "chrome://policy" in the navigation window. This should open the policy display for that user account.

3. Click the "Reload policies" button at the to ensure you have the latest policy configuration.

4. Check the checkbox to the right that says "Show policies with no value set".

5. Scroll down to the section that shows the configuration for the "LanSchool Student".

LanSchool Student BETA

ID: hgdgmhjbhldlejgpjbphhoegapekcbcc

Applies to	Level	Policy name	Policy value	Status
Current user	Mandatory	allow_change_c...	false	OK
Current user	Mandatory	allow_preferen...	false	OK
Current user	Mandatory	connection_ser...	10.0.0.148	OK
Current user	Mandatory	connection_ser...	8080	OK
Current user	Mandatory	default_channel	5	OK
Current user	Mandatory	enabled	true	OK
Current user	Mandatory	full_screen_thu...	true	OK
Current user	Mandatory	password_secu...	pwspassword	OK
Current user	Mandatory	stealth_mode	false	OK

6. You should see each of the policy settings that you have configured from the sample configuration file below. If you don't see your settings shown here check the following:

   1. Did you log in as a user assigned to the organization you set the policy for in the Admin console?

   2. Is there an error in the policy file? (note: The admin console does not warn on errors. You can check your policy file format by testing it at jsonlint.com)

   3. Did you forget to click the "SAVE" button as described in Step 3.8?

SAMPLE configuration file:

```
{
"enabled": { "Value": true },
"default_channel": { "Value": 5 },
"allow_preferences": { "Value": false },
"allow_change_channel": { "Value": false },
"stealth_mode": { "Value": false },
"connection_server_host": { "Value": "10.0.0.148" },
"connection_server_port": { "Value": 8080 },
"full_screen_thumbnail": { "Value": true },
"password_secure": { "Value": "pwspassword" },
"context_data": { "Value": " in here" },
"organization": { "Value": "My Organization" }

"student_privacy": { "Value": true },

}
```

Description of settings:

(NOTE: Options in RED are only place holders for future enhancements and currently don't have any effect on the application.)

- "enabled" - is this configuration active (must always be "true")

   true

- "default_channel" - the channel the student will default to when starting up.

   true / false

- "allow_preferences" - Will the student be allowed access to the preferences settings?

   true / false

- "allow_change_channel" - Is the student permitted to change their channel?

   true / false

- "stealth_mode" - When enabled, the LanSchool icons and notifications are suppressed.

   true / false

- "connection_server_host" - DNS name, or IP address to the LanSchool connection server.

- "connection_server_port" - Network port for the LanSchool connection server.

   (defaults to 8080 if not set)

- "full_screen_thumbnail" - Enable "Full screen thumbnails" (note: Because of Google policy, the user will always be asked for permission to share full screen images)

- "password_secure" - If not empty, the given password will be used for password secured teacher connections.

- "context_data" - Currently unused. Place holder for future data.

- "organization" - The name of the organization you wish to show in various strategic locations when interacting with the student.

- "student_privacy" - If set to true, at startup time, the student can prevent the teacher from viewing their screen or screen thumbnail. If the student blocks access, a blank screen with a privacy message will be seen on the teachers console when viewing the student screen or thumbnail. (Note: Due to limitations in Chrome, if you have selected "full_screen_thumbnail", the student will always have the option to refuse full screen access regardless of this setting. If "student_privacy" is not set, the default action is to show the current browser tab.)

Additional suggestions

Additional suggestions for setting up Student accounts in the Google Admin Console.

1. Device Management > Chrome > User Settings:

   a. Disable "Incognito mode" - It is recommended that you disable "Incognito mode" on student accounts. Students can use this mode to get around the web limiting restrictions imposed by the LanSchool Student software.

   b. Disable "Developer Tools" - It is recommended that you disable the developer tools access in student accounts. If allowed, savvy students will be able to temporarily modify or disable the student application while using the developer tools built into the chrome browser.

Option #2 – Hidden configuration in a web page.

For this method to be effective, the hidden information needs to be in a web page that the students will automatically be directed to when they log into their Chromebooks.

This procedure requires access to a web server capable of serving a HTML web page, and a way to drive the Chromebook's web browser to that specific page.

The auto configuration information will be stored in a "meta" tag in an HTML page. As long as the "meta" tag exists in the HTML header data and is formatted correctly, the auto-configuration will function regardless of any other content in the web page.   The meta tag will be invisible to your users when viewing the web page.   The following is an example of the minimum required information in the contents of the meta tag :

```
<meta name=" studentconfig"  contents=" { 'lcs_host': '[host name]',  'lcs_port': [port] }" >
```

In the above example, you would replace the [host name] and [port] values with the ip address or DNS name and the port of your LCS server.   Please note that single quotes (') are used in the contents of the configuration information. DO NOT use double quotes, they will not work.   See the table below for a list of valid configuration values:

OPTION	VALUES

lcs_host	IP address or DNS name of the machine hosting the LCS service in single quotes. (ex: '10.0.0.5' or 'server.myschool.com')
lcs_port	Unquoted numeric port for the LCS service. If left off, the student will use the default port value of 8080. (ex: 8080)
change_channel	Whether or not to allow students to change their channel. Unquoted Boolean value: true or false. (ex: true or false)
channel	The default channel the student should choose when starting up. This is a numeric value between 1 and 16000. (example: 5)
stealth	Should the student start up in stealth mode? (ie: no menu) Unquoted Boolean value: true or false. (ex: true or false) *NOTE: This feature is not yet available in the current shipping software*
full_screen_thumbnail	This enables "full screen" thumbnails. NOTE: This requires user permission. At startup the user will be prompted to share their screen. If the user refuses, or at any time the user cancels the sharing, the application will revert back to thumbnail for only the current visible tab.
allow_prefs	This enables or disabled the "preferences" item in the main menu. If set to false, the student will not be able to access the preferences menu. Unquoted boolean value: true or false. (ex: true or false)

An example of the minimum web page for auto-configuration is shown here:

```
<html>
<head>
    <meta name="studentconfig" contents="{ 'lcs_host': '<host name>', 'lcs_port': <port>,
'change_channel': false, 'channel': 5, 'stealth': false, 'allow_prefs': false }">

</head>
<body>
</body>
</html>
```

This web page needs to be placed on a web server where the Student machines can reach the page from a browser window without having to log in or authenticate.   If you wish to obfuscate the configuration settings in the web page, you can "base64" encode the data using any compliant encoding tool. The Student will detect that the data is encoded and decode it.

```
<meta

name=" studentconfig"
contents=" eyAnbGNzX2hvc3QnOiAnMTAuMC4wLjE0OCcsICdsY3NfcG9ydCc6IDgwODAsICdjaGFuZ2VfY2hhbm5lbCc6IGZh
bHN lLCAnY2hhbm5lbCc6IDUsICdzdGVhbHRoJzogZmFsc2UgfQ=="

>
```

NOTES: For security reasons, the LanSchool Student for Chromebooks will only read the auto-configuration data one time per session.   If you change the auto configuration information in the web page, you will need to log your Chromebooks out, then log them back in to update them with the new settings.

Auto Configuration from the Google Admin Console using the web page configuration

If you're using the Google Admin Console, the preferred method of auto configuring students is the first option "Option #1" listed above, however if that is not available to you, or you prefer the web page (meta tag) option then this will help.

(http://admin.google.com)

1. Set up a web page as instructed above with the appropriate meta tag. Make sure this web page can be browsed to from web browsers of any Chromebooks you want to be auto configured.

2. Log into your Google admin console.

3. From the main dashboard click on the "Device Management" item and choose "Chrome" from the list, then select "User Settings".

4. On the User Settings page, make sure you've selected the correct organization from the "Organizations" tree on the left side of the page.

5. Scroll down the page until you see the section on "Pages to Load on Startup".

6. Enter the URL for the web page containing the meta tag you created as described above.

7. Click the "Save Changes" button at the bottom of the page.

Note: Depending on your other policy settings, these changes should update to the Chromebooks within a few hours.   Logging out of the Chromebook, then logging back in should cause it to update its policy immediately.   You can view and/or force policy updates on any given Chromebook from the "chrome://policy" page on that Chromebook.

Remotely Updating LanSchool 7.8.2

After the initial installation of LanSchool Students and the discovery of those computers in the Teacher console, Student machines may be updated or re-configured with different settings through the Remote Update feature.

Update LanSchool on Selected Students

LanSchool strives to quickly address any defect or issue found and reported by our customers through frequent maintenance releases. In addition, significant new functionality is added in product releases like this one. Once a version of LanSchool Student is installed on a device, from that point on it is possible to deploy new versions from one central "administrative" view or from an individual Teacher console view.

You may select an individual Student from the List, or multi-select a group of Students to update from the currently installed version to the latest release. To accomplish this, simply copy the specific Student installation files from their download location to the location where the Teacher is installed.

Note: If you are using Deep Freeze or similar "lock-down" software on the Student computers, you will have to disable or "thaw" it during this update procedure to allow the new software to be installed onto the student computers.

Student Installation Files

From the download location, copy the appropriate student files and place them in the location where the Teacher console was installed. The specific Student files are:

For Windows Students deployed from a Windows Teacher: student.msi

For Windows Students deployed from a Mac Teacher: pcupdate.zip and student.msi

For Mac Students deployed from a Windows Teacher: mupdate.zip

For Mac Students deployed from a Mac Teacher: mupdate.zip

Updating LanSchool on Windows Students

1. Begin by installing the latest build of LanSchool onto the Teacher computer (see the "Updating the LanSchool Teacher" section or "Installing LanSchool 7.8.2 on Windows.")

2. If updating from a Windows Teacher, copy the *student.msi* file from the Windows folder in the download location to the LanSchool install folder on the Teacher's computer (the default folder is C:\Program Files\LanSchool on Windows.)

If updating from a Mac teacher, copy the *pcupdate.zip* and the *student.msi* file from the Mac and Windows subfolders in the download location to the LanSchool install folder on the Teacher's computer (the default folder is Applications\LanSchool on a Mac.)

3. In the LanSchool console, select the computers that you would like to update.

4. Click *Administer* and then the *Update LanSchool on Selected Students* menu option.

This will take a few seconds for every student selected. When it is done, you may need to press the *View*, then *Refresh (F5)* menu item to see the newly installed version on the student computers.

When deploying students through *Update LanSchool on Selected Students* menu, the settings that are pushed out to the student are the same as the *Advanced Options* set during the Teacher install.

Note: This method will only work if there already exists a v6.5 or newer Student running on the computer. This method cannot be used to upgrade a v6.2 student to v7.7 student. Upgrading from v6.2 to v7.7 requires a reinstall of the software on the local device.

Updating LanSchool on Macs

1. Begin by reinstalling the latest build of LanSchool onto the Teacher computer (See "Updating LanSchool" section above.)

2. Copy *mupdate.zip* from the Mac directory to the LanSchool Install folder on the Teacher's computer (the default folder is C:\Program Files\LanSchool on Windows or "/Applications\LanSchool" on a Mac).

3. In the LanSchool console, select the computers that you would like to update.

4. Click *Administer* and then the *Update LanSchool on Selected Students* menu option.

This will take a few seconds for every student selected. When it is done, you may need to press the *View*, then *Refresh* menu item to see the newly installed version on the student computers.

Mac Students are logged out after this process and will need to be logged in again after completion.

When deploying students through *Update LanSchool on Selected Students* menu, the settings that are pushed out to the student are the same as the *Advanced Options* set during the Teacher install.

Using Auto Update with LanSchool Connection Service

The LanSchool Connection Service can now update all Windows and Apple-Mac students and Teachers to the same version of LanSchool software.

Even with software distribution tools it was often difficult to push out a new version of the LanSchool Student.msi (or the Apple MUpdate.zip) or Teacher package to large numbers of machines. The "LCS Auto Update" feature automates this operation.

Student Update

To enable this feature for the Student, copy the Student.msi and/or the MUpdate.zip file to the same folder as the LscConSvr.exe file. By default, that would be C:\Program Files (x86)\LanSchool on the machine which hosts the LanSchool Connection Service.
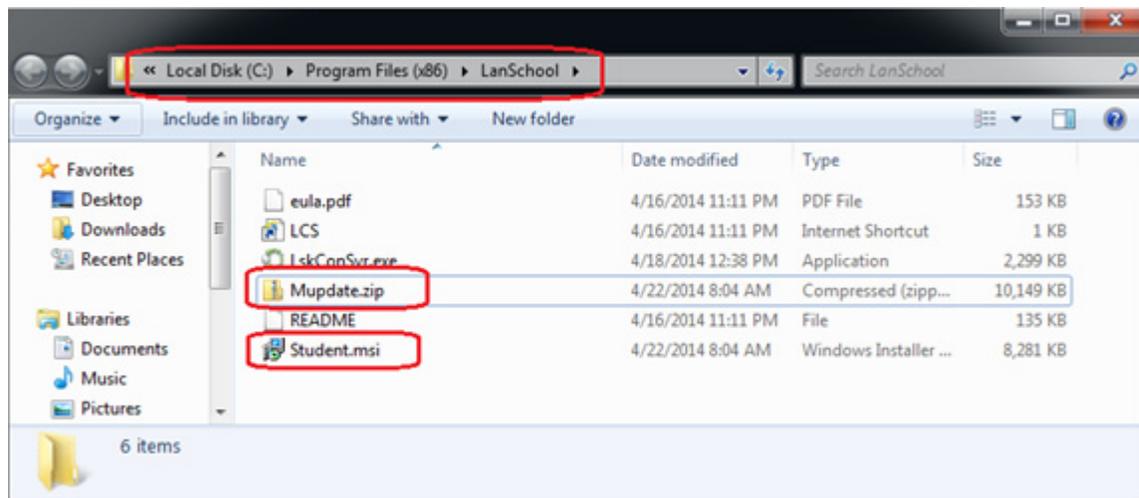
The LanSchool Connection Service then needs to be stopped and re-started. The Services.msc utility can do that for you.

When students attach to the LCS, their version is compared to the version of the Student.msi or MUpdate.zip files which were copied. If the versions are not the same, the LCS will transfer and run the proper software package to the student machine. This will not update any LanSchool settings on the Student; it only updates the LanSchool student software.

There is a simple log file which can be monitored to see the results of the updates. The file is located at C:\Windows\Temp\LskLog.txt. It is a text-based CSV format file. It will show all Auto Update activity performed by this LCS.

To disable this feature, delete the Student.msi and/or MUpdate.zip files from the LCS folder and restart the LCS service.

Teacher Update

To enable this feature for the Teacher, copy the Teacher.msi and/or the MTupdate.zip file to the same folder as the LscConSvr.exe file. By default, that would be C:\Program Files (x86)\LanSchool on the machine which hosts the LanSchool Connection Service.

When teachers attach to the LCS, their version is compared to the version of the Teacher.msi or MTupdate.zip files which were copied. If the versions are not the same, the LCS will transfer and run the proper software package to the student machine. This will not update any LanSchool settings on the Teacher; it only updates the LanSchool Teacher software.

There is a simple log file which can be monitored to see the results of the updates. The file is located at C:\Windows\Temp\LskLog.txt. It is a text-based CSV format file. It will show all Auto Update activity performed by this LCS.

To disable this feature, delete the Teacher.msi and/or MTupdate.zip files from the LCS folder and restart the LCS service.

Update via Registry

Create a registry entry on the LCS machine that points to a different install folder, and then copy the desired MSI and/or .ZIP files to that folder.

Key: HKLM\Software\LanSchool

Value: "InstallFolder" (REG_SZ)

Running LanSchool 7.8.2 in Kiosk Mode

In LanSchool 7.8.2 you can run the Teacher Console on Windows in Kiosk Mode. This mode configures the LanSchool console so it cannot be minimized or terminated.

To run the LanSchool console in Kiosk mode follow these instructions:

1. On the Teacher computer, the LanSchool *teacher.msi* file.

2. Open *regedit.exe*.

3. Browse to
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run.

4. Add *KiOsK* to the LanSchool Teacher Key C:\Program Files\LanSchool\Teacher.exe KiOsK

5. Click *OK*.

The next time the system is rebooted, the LanSchool Teacher Console will run in Kiosk Mode.

Configuring LanSchool Preferences

LanSchool is easy to configure. All preferences are controlled by one dialog with seven tabs. Most preferences are controlled by making a change to these settings on the Teacher computer.

The available configuration tabs are:

- Teacher

- Student

- Web Limiting

- Application Limiting

- Drive Limiting

- Keystroke Alerts

- Network

Teacher Preferences

The Teacher tab lets you configure the following preferences:

Show Teacher Screen

Full Screen

The Teacher's screen will be shown on the Student's screens. The Students will not be able to control their mice and keyboards during Show Teacher.

Windowed

The Teacher's broadcasted screen will appear in a window on the Students' screens. This way the students can "follow along" with the teacher and use their computers during the teacher's broadcast session.

Color Reduction

Limits the number of colors and suppresses the background image used by the Teacher during Screen Broadcast, Remote Control and Show Student. This both improves performance and lowers network bandwidth requirement.

Show Dual Monitors

Allows the Teacher to show dual monitors and return thumbnails of students using dual monitors.

Blank Screens Message

This option allows teachers to specify the text to display on the student's screens when they are blanked. Enter the text message into the drop down list and select *Apply*. The last 10 messages are saved so they can be quickly selected when blanking screens. These messages can be seen from the Blank Screen button on the console toolbar. You may view, select or delete message from that button.

Use an image when blanking screens allows the teacher to select an image to be displayed in the background rather than the default blue background.

Notifications

Show system tray notification when teacher minimizes - This option allows teachers to show or hide the LanSchool icon in the system tray when the console is minimized.

Show unload notification when dismissing classes - This option will prompt teachers to unload on-demand students at dimissal of a class list.

Automatically check for LanSchool updates - If enabled the LanSchool console will check for updates at load time.

Warn before disruptive actions (Screen Blanking, Limiting, Show Screen, Clear Desktop) - This option will prompt with a warning dialog prior to preforming one of these actions listed above.

Sounds

If checked, the LanSchool sound effect will be played when showing the Teacher's screen to Students.

Student Preferences

The Student tab lets you configure the following preferences:

Remote Control

Disable Student Keyboard and Mouse

This option allows the teacher to "lock-out" the student's inputs while the teacher is Remotely Controlling a student computer.

Student Thumbnails

Show Current Application Icon On Thumbnails

When in the thumbnail view, this option will show an icon in the upper left hand corner that represents the current application that the student is running.

Show Last Visited Website Icon On Thumbnails

When in the thumbnail view, this option will show an icon in the upper right hand corner that represents the website that the student last visited.

Show Student Name (from Directory) when available

Shows the student directory name below the thumbnail if it is available.

Single-Click toggles thumbnail selection

Selects the student to preform LanSchool actions

Note: Both the student name and the machine name are automatically shown on medium to large thumbnails. You may choose either option to be shown on small thumbnails.

Task Manager / Activity Monitor

> Disables Task Manager or Activity Monitor on Student computers.

LanSchool Folder on Student

> **Student Folder**
>
> This option lets you specify the path of the LanSchool folder on student computers. This can be on the local hard drive or on a network drive.

Display notification on student when web is accessed

> This option will turn on or off the notice that is displayed on the Student when they try to access the Internet if Web Limiting is turned on.

Web Limiting

> The Web Limiting tab lets you configure the following preferences for Limiting the Web.
>
> **Block All**
>
> This option blocks all web browsing, instant messaging and e-mail programs.
>
> **Allowed Web Sites**
>
> This option allows you to type in a list of websites that are allowed when Limit Web is turned on.The list of web sites do not need to include the http:// or the www. prefix. One site is entered at a time, followed by a return (enter). The lists of websites can be saved and loaded by using the Load and Save buttons. The files are saved as .lsu files. A sample list might look like this:
>
> www.cnn.com
>
> nationalgeographic.com
>
> *.microsoft.com
>
> **Block the following Web Sites**
>
> This option allows you to type in a list of websites that are blocked when Limit Web is turned on. The list of web sites do not need to include the http:// or the www. prefix. One site is entered at a time, followed by a return (enter). The lists of websites can be saved and loaded by using the Load and Save buttons. The files are saved as.lsu files to a location of your choice.
>
> In both the Allowed and Blocked Websites sections you may use the "*" and "?" wildcards to specify websites.
>
> In general, Web limiting will work for Windows Internet Explorer (32- and 64-bit), Firefox, and Chrome across student supported devices.
>
> Web limiting on the Mac is supported on Safari, Firefox and Chrome.
>
> **Restrict IP Address Browsing /Private/Incognito/Microsoft Edge browsing**
>
> Prohibits students from using the InPrivate Browsing feature and browsing to websites using their dotted decimal (IP Address) Internet addresses.

Application Limiting

The Application Limiting tab lets you configure the following preferences:

Allowed Applications

This option allows you to specify a list of applications that are allowed when Limit Apps is turned on. The entries should include the appropriate file extension if one exists. Similar to Limit Web, enter the applications one at a time, with a carriage return (enter) after each entry. The lists of applications can be saved and loaded by using the Load and Save buttons. The files are saved as .lsa files.

Applications can be typed in directly, added by clicking on the add button and selecting an active application on the Teacher's computer, or by adding an application from the Student's computer by clicking on View Student's Running Programs in the Monitor menu.

The application display name is typically an .exe file in Windows, though the Application Limiting software actually uses the internal name of the file. While the default display name and the internal name are usually identical, they can also be very different, so check the properties of the executable to determine its internal name if problems occur limiting that application. On Mac, enter the display name of the file as it appears in Finder.

Block Applications

This option allows you to specify a list of applications that are blocked when Limit Apps is turned on.

The lists of applications can be saved and loaded by using the Load and Save buttons. The files are saved as .lsa files.

Applications can be typed in directly, added by clicking on the add button and selecting an active application on the Teacher's computer or by adding an application from the Student's computer by clicking on View Student's Running Programs in the Monitor menu.

Note: On both Windows and Mac there are some applications that can not restricted, as their usage is fundamental to the working system. And example of this would be File Explorer in Windows and Finder in Mac.

Drive Limiting

The Drive Limiting tab allows you to configure the types of drives that will be blocked when you click the Limit Drives button. LanSchool 7.8.2 can block USB drives and CD/DVD drives on most students. This is not supported however on Thin clients or LabQuest students.

Keystroke Alerts

The Keystroke Alerts tab allows you to specify a list of banned words. If a student types a banned word, the teacher will be notified with a yellow caution icon on the student's thumbnail. Use your mouse to hover over the thumbnail, and it will display the word that was typed by the student.

Network

The Network tab lets you configure the following preferences:

Data Transmission

IP-Broadcast

This default option uses broadcast packets when the teacher needs to contact all student computers. This option assumes that student are on the same subnet as the teacher.

Note that broadcast packets do not cross subnets or other segments. If you need to cross a subnet we recommend either IP-Multicast or IP-Directed Broadcast.

IP-Multicast

Transports LanSchool data to students via TCP/IP-Multicast. Multicast allows networking hardware to keep LanSchool traffic local to LanSchool computers. If your network hardware supports this option, it's highly recommended.

IP-Directed Broadcast / LanSchool Connection Service

If the teacher is on a different IP-Subnet from some or all of the students, and Multicast is not possible, this option can be used. To calculate the proper address, use the DirBCastAddr.exe utility in the Utilities folder on the LanSchool product download.

Note: Some additional configuration of the Routers/Switches may be needed to enable Multicast and/or Directed Broadcasts on your network. Consult your hardware guide for your switches/routers to be sure. For more information regarding these options, refer to the section "Installing LanSchool 7.8.2 in a VLAN."

Multiple Network Adapters

Specify Network Interface Card

Some computers actually have more than one Network Interface card (NIC) and/or multiple IP addresses (i.e. a router).   Many times these may be virtual or wireless network adapters.

LanSchool will always use the "first" NIC that responds, but that is not always the desired NIC or network. You can use this checkbox to specify which NIC you prefer to use.

If your Teacher computer has multiple real or virtual network adapters, specify the adapter that LanSchool should use from the drop down box.

Teacher Channel

Channel Number

This feature is normally disabled so that Teachers cannot change the channel number assigned to them. If you prefer to allow a teacher to change channels, or view multiple channels, this feature must be enabled after the install, on each Teacher machine where the ability is desired. There is a utility called *EnableChannelSelect.exe* that is available in the Utilities directory in the product download.Copy the utility to the Teacher machine and double-click it to run to enable this feature.

Listed below are the command-line parameters for *EnableChannelSelect.exe:*

* *EnableChannelSelect.exe* TRUE

* *EnableChannelSelect.exe* FALSE

*Note: *EnableChannelSelect.exe* will also make it so that teachers or administrators can change student channels remotely. To access this feature, select one or more Students and Click on *Administer*, then *Change Student Channel…*

Administrator Channel

Channel "0" (zero) is the administrator channel and has the ability to monitor all assigned channels and see all Student machines that have been installed.

Use Multiple Channels

This feature allows the teacher to "group" any of the 16,000 channels. Each channel must be separated by a comma. For example: 1,3,4 will configure the teacher console to be able to monitor all students on channels 1, 3 and 4 at the same time.

Changing Channels

If you ever need to change the channels of student computers there are several ways to accomplish this task.

- Uninstall and re-install the product, selecting a new channel in the install dialog.

- On Windows, run Setchannel.exe, which is located in the Utilities directory.

- Change the channel from the LanSchool console. If *EnableChannelSelect.exe* has been run, it is possible to change the Student channels remotely from the console.

    1. Select the Students whose channel is to be changed.

    2. Click *Administer* then *Change Student Channel...*

    3. Enter the new channel.

    4. Click OK.

- Set the channel with student.adm or student.admx using Active Directory

Note: LanSchool works well with imaging tools such as Ghost. The key consideration when using an imaging tool is how to change the channel for all of the computers in a particular classroom. For large organizations, the recommended method is to use Active Directory or *Setchannel.exe* through a login script. Smaller organizations may find it easier simply to change the channel through the Teacher console.

Updating the LanSchool Teacher

To update LanSchool with a new product version, simply run the new Teacher installation files. It will automatically update the LanSchool files to the new version without the need to uninstall the old version before installing the new version. If the old version is previous to v6.0, uninstalling is not required, but is recommended.

Updating the LanSchool Student

Improvements to the LanSchool software are released as needed. If you ever wish to update the Student computers to the latest build of LanSchool, there is an automated way to do this. It is no longer necessary to re-install the software manually on all Student computers. See the section "LanSchool 7.8.2 Remote Update" earlier in this guide for more information.

LanSchool Security Monitoring

With a tool as powerful as LanSchool, there's always a possibility for misuse. A student may be tempted to find an unauthorized copy and load the Teacher software to disrupt a class.

There are three ways to deal with possible misuse.

1. Set school policies around appropriate behavior, monitor and enforce the policy.

2. Install LanSchool 7.8.2 in Active Directory Secure Mode which requires teachers to belong to a domain group called "LanSchool Teachers" in order to manage student computers. (Recommended method)

3. Install LanSchool 7.8.2 in Password Secure Mode, which requires a password on both the Teacher and Student machines before access is allowed.

Security Monitor

Security Monitor is also available in the Utilities folder from the LanSchool download folder. This application runs on any PC and will capture a log of LanSchool activity, including the installation or uninstall of the LanSchool program.

With this utility, many schools have quickly been able to pinpoint students who are abusing the "appropriate use policy" of their classroom. There is a *LanSchool 7.8.2 Utilities.pdf* file in the same folder which describes this utility in detail.

Teachers can also access the Security Monitoring data by clicking *View* then *Status Window*. As soon as teachers perform actions you will see the security messages.

Students downloading and installing a demo version of LanSchool caused the largest security problem with the previous versions. Starting with *LanSchool v6.1*, the demo version cannot interact with the released version.

LanSchool in a NAL environment

NAL (NetWare Application Launcher) is part of the Novell ZEN Works package. NAL can be used to control the student desktop, giving students access to only administrator-approved applications. In the most restrictive mode (and perhaps most useful mode for schools), ONLY the applications specified can be run.

To install LanSchool 7.8.2 in a NAL environment, push out both the Teacher and Student programs using the supplied Windows .msi files.

Note for Teacher computers:

If the teacher's computer is also locked-down by NAL, the teacher will not have a System Tray and will not be able to click the LanSchool Teacher Icon to control LanSchool. Instead, the hot-key sequence "<Ctrl><Alt><L>" can be used to bring up the LanSchool Teacher's menu.

Wake-On-LAN Support

Wake-On-LAN (WOL) technology can be used to remotely "power-on" student computers. However, Student computers must be configured to enable WOL. The steps needed to do this vary with every computer model. Generally, the computer needs special hardware to support this and there is a BIOS switch which needs to be enabled. It is best to consult with your computer supplier to determine the actual steps needed.

In the utilities folder of the LanSchool 7.8.2 product download, there is a utility, *WakeUp.exe*, which can test compliance of WOL.

This utility will send a WOL "Wake Up" signal to a specified target computer. To use this utility, you will need two computers: the target computer and a console computer. Both will need to belong to the same IP subnet. You will have to determine the Physical MAC Address of the target computer.

If this computer is a Win9x computer, you can use the Window's *winipcfg.exe* utility. Otherwise, you can run the IPCONFIG /ALL command from a command prompt.

Once you have the Physical MAC address of the target computer, shut down that computer and from a command prompt on the other (console) computer you can run the *WakeUp.exe* utility. This will send the WOL Wake Up packet to the target computer.

If WOL is properly configured on the target computer, it will then power-on. If not, you will have to check with the hardware manufacturer to see what additional steps need to be taken. If WOL is not properly configured on a student computer, the LanSchool teacher computer will NOT be able to perform a WOL Wake-Up on that computer.

Note: Apple's version of Wake-On-LAN will only wake a Mac from sleep, not power-on a Mac that is off.

802.11 Wireless Support

LanSchool 7.8.2 includes a wireless protocol that is automatically selected when the Teacher computer senses that it is communicating over a wireless network. This protocol significantly increases the performance of LanSchool on wireless networks.

Special Hardware Requirements

1. Please make sure that all computers are using the latest NIC (Network Interface Connector) drivers available from the NIC vendor. The "world of wireless" is similar to the LAN environment of a decade ago. Wireless network drivers are being updated and improved frequently.

2. Enterprise Class Access points are recommended. There are two basic types of Access Points: Residential and Enterprise. The easiest way to differentiate is with the price.

• A "Residential" Access Point will generally sell for around $100 (i.e. LinkSys, DLink, Belkin, etc…). They work fine in a home environment where several computers will be sharing an Internet link and perhaps a printer.

• The "Enterprise" Access Point is designed to truly support 50 or more clients at the same time. They generally sell for around $300. Unless you really have less than five student computers, you want an "Industrial" class Access Point. (Our favorite is the Meru, but similar products are produced by HP, Dell, Cisco (NOT the LinkSys division), IBM, etc…) This will benefit not only LanSchool, but general student computing as well.

3. Turn off Power Save on the student computer's NICs. In our testing we've found that LanSchool performance is improved as well as the battery life of the computer.

Installation

It is assumed that all wireless computers are associated to the same Access Point. Other than this, there are no other special installation concerns. Simply run the installation programs on the teacher and student computers, as specified earlier in this installation guide.

Performance

The speed of the Teacher's screen broadcasts to student computers will NOT be as good over a wireless network when compared to the performance over a wired network. There is no way to overcome this.

A wired network can send broadcast and multicast data at 100Mbits per second. An 802.11 wireless network generally sends broadcast and multicast data at 1MBit per second (a mere 1% of the wired speed).

In addition to the drastic bandwidth reduction of wireless networks, the Access Point architecture of 802.11 will quite often add significant propagation delays to broadcast and multicast data. This is due to the Power Save architecture of the 802.11 world.

However, the LanSchool Show Teacher feature will still work reasonably well. Even complex Teacher screens should appear on Student screens within three seconds. Simple Teacher screen changes should appear almost immediately.

Wireless Performance Tweaks

If you optionally wish to improve performance, you can attempt to configure your Access Point(AP). Since this differs from vender to vender, we can only give general guidelines. You'll have to consult your Access Point's manual to see how to actually make the change on your particular Access Point.

1. Drop the Beacon Interval as low as possible. Generally, this can go down to 50ms.

2. Set the DTIM to ZERO. This allows broadcast and multicast packets to be sent after EVERY beacon packet.

3. Increase the Broadcast or Multicast speed. Not all AP's allow this to be set.

SSID Limiting

LanSchool Network Tamping has been enhanced to force Student machines to associate with the school's wireless network when available.

One common way students use to avoid being limited with the LanSchool software is to avoid the schools wireless network entirely by starting a Mobile Hotspot with their cell phone and associating their laptop to that SSID instead of the school's SSID. Once they have done this they are no longer filtered by the school's filtering software and are no longer observable from the LanSchool Teacher Console.

SSID Limiting allows for a list of "approved" SSID's to be specified to the LanSchool Student software. This is used in conjunction with the Network Tampering feature of LanSchool.
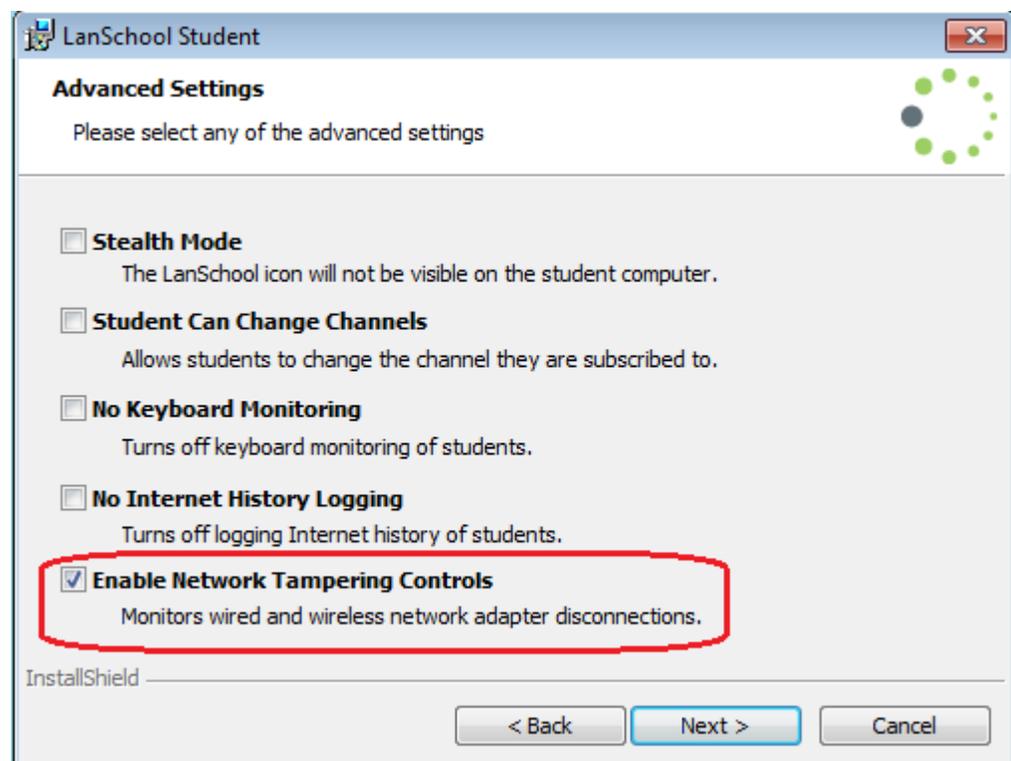
Once that has been selected, you can specify the list of approved SSID's.
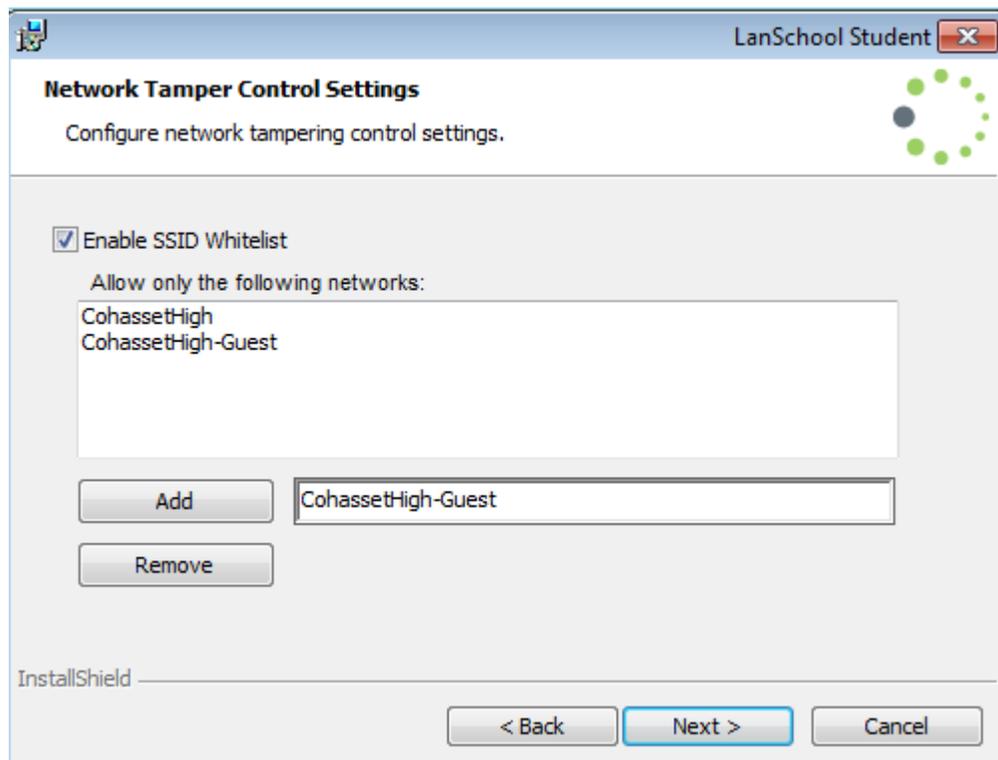
Now the LanSchool Student software will periodically check to make sure that the local machine is associated with an approved SSID. If the local machine is not associated with an approved SSID and an approved SSID is currently accessible then the student's screen will be "blanked" for ten seconds with a message telling him to associate with one of the accessible approved SSID's. The student will then have ten seconds to make the proper association or else the blank screen message will again be displayed.

Only Windows and Mac students currently support this feature. All approved SSID's need to be visible. Hidden SSID's are not supported.

The MSI scripting options are:

ENABLE_SSID_WHITELIST and SSID_WHITELIST_NETWORKS

ENABLE_SSID_WHITELIST=0 will turn this feature off, to turn it on use it in conjunction with ENABLENETWORKTAMPERCONTROL.

For example :
ADVANCED_OPTIONS=1
ENABLENETWORKTAMPERCONTROL=1
ENABLE_SSID_WHITELIST=1
SSID_WHITELIST_NETWORKS="net1;net2,net 3;etc.."

Additional LanSchool Utilities

SecurityMonitor.exe

If you suspect a student has a rogue copy of LanSchool, you can quickly identify that student with the new LanSchool Security Monitor. The LanSchool Security Monitor will capture all traffic and optionally save the data out to a log file. Click the Options button, select the logging tab and type in a filename.

Clicking on the options button also allows you to filter by Teacher and by message. This new filter capability allows you to sift through all of the messages to just find the inappropriate use. If you find a rogue Teacher console is in use, you can show Real-time Alerts by selecting that computer. At that point, all traffic from that computer is flagged with a warning sign.

EnableChannelSelect.exe

By default, a teacher cannot alter the settings in the Teacher Channel area of the Network tab of the Teacher Preferences dialog. This information is set during installation and generally does not need to be set. However, if a teacher does need to change these settings, running this utility on the teacher's machine will then allow that teacher to update his or her local channel, groups, and remote student channels. This utility must be run with local Administrator privileges. If you have need to revoke these rights, you can run this utility with the "FALSE" command-line option.

DisableAudio.exe

By default, a teacher can use the audio capabilities of LanSchool. If you do not want a teacher to be able to use the audio settings you can run this utility (DisableAudio.exe TRUE) on the teacher's machine and it will make it so the speak\audio section will be grayed out and disabled. The changes made by this utility do not take effect until the next time you start the Teacher Console.

You can set it back to the default by running DisableAudio.exe FALSE.

DisableDataTransmission.exe

By default, a teacher can alter the settings in the Data Transmission area of the Network tab of the Teacher Preferences dialog. If you do not want a teacher to change the Data Transmission settings you can run this utility on the teacher's machine and it will make it so the Data Transmission section will be grayed out and disabled.

You can set it back to the default by running DisableDataTransmission.exe FALSE.

DirBCastAddr.exe

When configuring the Teacher preferences, the Network tab allows for up to 3 different "IP-Directed Broadcast" addresses. These are special addresses which (when properly formed) will traverse your network as a single directed UDP packet until the destination subnet is reached. Upon reaching the destination subnet, the router will then convert the packet into a standard UDP-Broadcast packet.

For this to function, the routers must be configured to forward IP-Directed Broadcast packets (sometimes routers refer to these as "UDP Directed Broadcasts") and the address of these packets must be properly formed. This utility will help with the later. You must enter the IP address of any student machine on the target subnet along with the subnet mask for that subnet. After both addresses have been entered, click on the "Calculate" button. Copy the resulting address into one of the three Subnet entries in the Data Transmission area of the Network tab of the Teacher Preferences dialog.

LSeries.bat

> This file is used with all NComputing U and L-Series devices. The install.pdf manual explains its use

LSeriesLocation.exe

> This utility will display the local Client Name of a U and L-Series NComputing device. It can be used to verify the proper setup of an NComputing U and L-Series device as explained in the Install.pdf manual

SetChannel.exe

> The Teacher Channel is generally set during installation. The LanSchool software can always be re-installed to update the local Teacher Channel on a student or teacher machine. This utility can also be used to update that local Teacher Channel. It must be run with local Administrator rights. On a Teacher machine, it can also be used to group channels together. It is a console application. All parameters are passed on the command-line. The new Teacher channel must be a number between 0 and 16000. (Note that channel 0 has no real use for a Student machine.) If the machine is a Teacher machine, you can specify a group of channels by enclosing the comma separated channels within brackets. (i.e. {1,4,63}) SetChannel.exe also accepts a special -TC command line parameter to allow you to change the channel on a PC Tech Console.

SetDataTrans.exe

> This will alter the base data transmission type on a Teacher machine between IP-Broadcast, IP-Multicast, and IP-Directed Broadcast. As a console application, the parameters are passed on the command line. They are "Broadcast", "Multicast", or "Directed:w.x.y.z,w1.x1.y1.z1,...". For IP-Directed Broadcasts, you can specify up to 4 dotted-decimal IP-Directed Broadcast addresses. You can use the DirBCastAddr.exe utility to properly form these addresses.

StudentDiagnostics.exe

> This is a diagnostic utility used by LanSchool Technical Support personnel. It is generally used to detect network connectivity issues involving firewalls and routers.

StudPopUp.exe

> If the student or teacher computer does not have a system tray (it is possible to remove the system tray with Group Policies or with Novell's NetWare Application Launcher) there will be no way to access the local LanSchool menu. Running this app will bring up the local LanSchool menu.

SwitchToTeacher.exe

> While the Teacher console has an option to switch functionality to that of a Student, there is no easy way for a Student machine to switch to the functionality of a Teacher machine. This utility will provide that option. For this to function, you must first install the Teacher software on that student machine and then over-install the Student software. Running this utility will stop the local Student application and launch the Teacher application.

WakeUp.exe

The LanSchool Teacher console can issue a Wake-On-Lan packet to wake up specified student computers. For this to work, the student computers must be configured in their BIOS to all for a remote wakeup. Unfortunately, all computer manufacturers seem to set these BIOS settings in a different way. This utility is used to verify that a particular machine has been setup properly. It will take the MAC address of the target computer as a command-line option. For example, if the MAC address of a target student machine were 00-22-64-AD-9C-AC, you could use WakeUp.exe to "wake-up" that machine with the following command line: WakeUp.exe 00-22-64-AD-9C-AC [Enter].

NOTES: