

# Section 0

## Student Kit & Classroom Setup

Your Wireless LAN Security Assessment Toolkit student kit is a great set of hardware, software, devices, and training to help you in WLAN security. Even though we tried very hard to make your student kit as prepared as possible, there are some things we need to cover to help you 'own' your kit.

In this section we'll be walking through the custom designed hard drives and images we've included. These have been developed over years of providing 'quick reset' capabilities to our classroom environments.

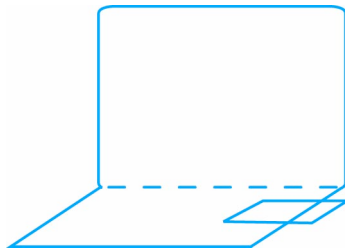
We'll also walk you through getting your equipment connected to the Internet through the classroom wireless Access Point as well as setting up some accounts that we'll be using in future labs later today and tomorrow.

The little Nokia N800 Internet Tablet is a great addition to this kit - plus it's real fun! We'll help you get your N800 up to the latest firmware, and also load it with software we'll be using in specific labs later on.

And finally, in this section we'll have you step through the process of getting the Linksys WRT54GL loaded with a special firmware called DD-WRT in preparation for using it as \*your\* Access Point for classroom lab exercises.

We put together this set of equipment and software because it is things we like to carry with us in our 'kit' as we travel and teach/consult on Wireless LAN Security.

Welcome, and Enjoy!



## Lab 0.1: Imaging the Laptop- Student Lab Kit Inventory

**This to be provided onsite.**

## Lab 0.2: Wireless internet connectivity from laptop and Setup GoogleTalk and Gizmo accounts



To setup the Wireless Security Assessment Laptop and related accounts we will be using in the WLSAT class, you need to have internet connectivity. In the classroom you will be connecting your laptop wirelessly to the classroom AP using the internal Intel 3945 a/b/g wireless adapter.

This lab will only be for setting up access to the classroom wireless assessment environment, and the setup of a couple accounts we'll be using in different lab exercises, and will only need to be performed once.

### Requirements / Dependencies

- Internet Access via Classroom AP

#### What you will do in this lab:

- Connect the internal wireless adapter on the WLSAT laptop to the classroom AP for internet access
- Create goooglemail (gmail) accounts
- Create a googletalk accounts
- Create a gizmo accounts

### Lab Part 1 - Connect the WLSAT laptop to the internet

- Step 1. Right Click on the **Intel Centrino ABG Wireless icon** in the system tray, then **select view Available Networks**.
- Step 2. Click on the Wireless Network called **HOTlabs** and **click** the **connect** button.

### Lab Part 2 - Setup Google Mail (gmail) Accounts

- Step 1. Open a web browser. **Mozilla Firefox** and **Internet Explorer** are both in the system tray on the WLSAT laptop.
- Step 2. Type **gmail.com** in the address bar and click **enter**.
- Step 3. Click on the Sign up for Gmail on the bottom right of the browser

[Sign up for Gmail](#)

[About Gmail](#)

[New features!](#)

- Step 4. Fill out the Get started with Gmail web form to setup a gmail account. You'll be doing this process twice. Once for your WLSAT laptop, and a second time for your Nokia N800 Internet Tablet.
- Step 5. For the first one use WLSAT as the account's first name, and then your full name as the last name. This should ensure a unique name, and still make the account identifiable.
- Step 6. First Name WLSAT
- Step 7. Last Name \_\_\_\_\_ (first.last)

### Get started with Gmail

First name:

Last name:

Desired Login Name:  @gmail.com  
 Examples: JSmith, John.Smith

Choose a password:  Password strength: **Good**  
 Minimum of 6 characters in length.

Re-enter password:

Remember me on this computer.

Creating a Google Account will enable Web History. Web History is a feature that will provide you with a more personalized experience on Google that includes more relevant search results and recommendations. [Learn More](#)

Enable Web History.

**WLSAT.first.last** is available

- Step 8. For our example we just used the password of '**12password34**'. But for class, it's easy to remember.

Of course, you can set your own account name and passwords. But for the examples in this WLSAT Class it might be easier to just follow these instructions.

- Step 9. If you got everything right - you should now be on a Introduction to Gmail page.



**Congratulations!**

- Step 10. You can check out your new web-based Gmail account.

[I'm ready - show me my account](#)

- Step 11. Now go back to the gmail.com web page and do it all over again. This time use the following for account name.

### Get started with Gmail

**First name:**

**Last name:**

**Desired Login Name:**  @gmail.com  
Examples: JSmith, John.Smith

**NOKIA.first.last** is available

- Step 12. You should now have two new Gmail accounts to use during your WLSAT class.

**Laptop - WLSAT.First.Last@gmail.com**

**Password**

**Nokia - NOKIA.First.Last@gmail.com**

**Password**

## Lab Part 2 - Setup Google Talk Accounts

- Step 13. Open a web browser. [Mozilla Firefox](#) and [Internet Explorer](#) are both in the system tray on the WLSAT laptop.
- Step 14. Type [www.google.com/talk](http://www.google.com/talk) in the address bar and click [enter](#).
- Step 15. Click Launch Google Talk and use the accounts you made above.
- Step 16. The Google Talk mini application is also available from your Start menu. [Start](#) → [Applications](#) → [Google Talk](#).

Sign in to Google Talk with your  
**Google Account**

Email:

Password:

## Lab Part 2 - Setup Gizmo Project Accounts

- Step 1. Launch **Gizmo** from the **Start** → **Applications** → **Gizmo Project**.

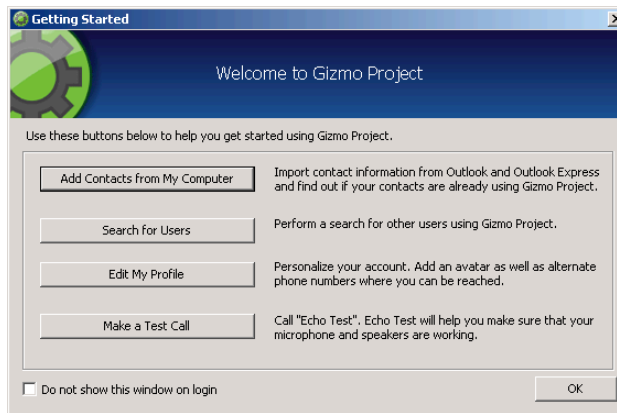


- Step 2. Choose **Register a new account name** and complete the new account form.

A screenshot of the "Gizmo Project - Login" window. The window has a blue header with the Gizmo Project logo and a gear icon. Below the header, there are two radio buttons: "Login using my current account name" (unselected) and "Register a new account name" (selected). To the right of the radio buttons, it says "Version: 3.0". Below the radio buttons, there are several input fields: "Account Name" (containing "WLSAT\_First\_Last"), "Password" (masked with dots), "Confirm Password" (masked with dots), "Email" (containing "WLSAT.First.Last@gmail.com"), and "Security Code" (containing "369482"). Below the "Security Code" field, there is a note: "A valid email address is needed for password recovery. [Privacy Policy](#)". Below the "Security Code" field, there is a checkbox labeled "I have read the [user agreement](#) and agree to the terms" (checked) and another checkbox labeled "Remember my account name and password on this computer" (unchecked). At the bottom right, there are "Login" and "Cancel" buttons.

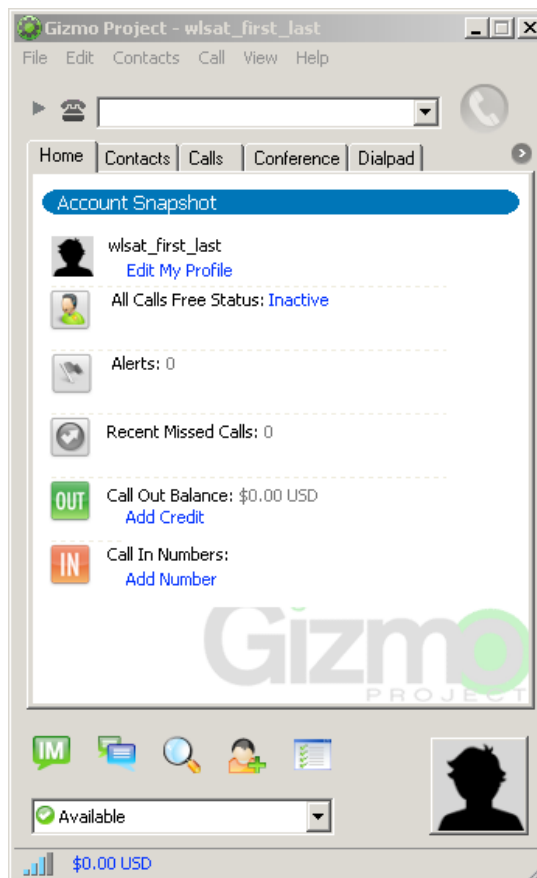
NOTE: You will be using Gizmo Project on both the Dell D620 laptop (WLSAT) and the Nokia800 Internet Tablet (NOKIA) so a suggestion is to create two accounts using the format **WLSAT\_yourfirstname\_yourlastname** and **NOKIA\_yourfirstname\_yourlastname** - Gmail uses '.' Periods, Gizmo uses '\_' underscores.

- Step 3. Click the **Login** button to complete the new account setup and to start the Gizmo Project.



9

- Step 4. Redo this entire process a second time, but this time use the NOKIA\_first\_last and setup account #2



Document your Gizmo account information here. You will need this information for future labs.

*Gizmo account for Laptop* \_\_\_\_\_

*Gizmo password for Laptop* \_\_\_\_\_

*Gizmo account for Nokia* \_\_\_\_\_

*Gizmo password for Nokia* \_\_\_\_\_

---

### What you learned in this Lab:

In this Lab you learned to:

1. Connect the WLSAT laptop to a wireless network and the internet
2. Create a Googletalk account
3. Create a Gizmo account

---

### Lab Variables:

Internet connectivity is provided by the *HOTlabs* SSID AP

*GoogleMail account for Laptop* \_\_\_\_\_

*GoogleMail password for Laptop* \_\_\_\_\_

*GoogleMail account for Nokia* \_\_\_\_\_

*GoogleMail password for Nokia* \_\_\_\_\_

*Gizmo account for Laptop* \_\_\_\_\_

*Gizmo password for Laptop* \_\_\_\_\_

*Gizmo account for Nokia* \_\_\_\_\_

*Gizmo password for Nokia* \_\_\_\_\_

## Lab 0.3: Nokia N800 setup and application installation and to classroom AP

This lab will show you how to install new applications on the Nokia N800, connect the Nokia N800 to the internet, and setup googletalk and gizmo accounts on the Nokia N800. For most of the labs the Nokia N800 will be the wireless client, while the WLSAT laptop will be used to assess the security of the wireless network.

This lab will only be for setting up the Nokia 800 initially and will only need to be performed once.



### Requirements / Dependencies

- Wireless Internet Access

#### What you will do in this lab:

- Connect the internal wireless adapter on the Nokia N800 to the classroom AP for internet access
- Test Internet Access
- Load and install applications on the Nokia N800
- Setup Googletalk on the Nokia N800
- Setup Gizmo on the Nokia N800

### Lab Part 1 - Connect the Nokia N800 to the internet via the classroom AP

- Step 1. Turn on the Nokia N800 using the power button on the top.
- Step 2. Go through the normal setup process to set local language, date and time.
- Step 3. If you have a Bluetooth Phone with the ability to 'share' Internet access, then complete the next configuration section on the N800, if not just **click Cancel**.
- Step 4. Click the **wireless connection icon** on the top of the screen (it looks like a blue globe) and click **select connection**. 
- Step 5. Choose **HOTLabs** as the Wireless Network name and click **Connect**.
- Step 6. Click **Yes** to save the connection. And then **OK** to save.
- Step 7. Test internet connectivity by opening a web browser. Click the **globe icon** on the **left** side of the screen then click **google → search**. 



**NOTE:** The Google search screen should appear. If it does not connect verify you are connected to the classroom AP.

- Step 8. Click the small 'X' in the upper right corner to close the browser window.

### Lab Part 3 - Load and Install applications on the Nokia N800

The applications for the Nokia N800 are on the WLSAT Laptop in the 'shared' drive in the 'Student Folder', on the Student DVD, And on the SD Card in the N800. They can be installed from any of these locations. The following steps will detail how to install the applications from the SD card. To install applications located on a PC use the USB cable to plug the Nokia N800 into the WLSAT laptop.

You might want to leave the Nokia N800 charger plugged in, and open the N800's stand and leave it open on your desktop during this next section - it might be easier than holding it the entire time.

- Step 9. Click the **application icon** → **tools** → **application manager**.



- Step 10. Click the **Browse installable applications button**.

If no applications are present in the installable applications screen, click **cancel** then click the **Application Manager drop down** at the top of the screen. Click **Application** → **Install from file...** Then click on the **removable memory card** and choose the **application to install**.

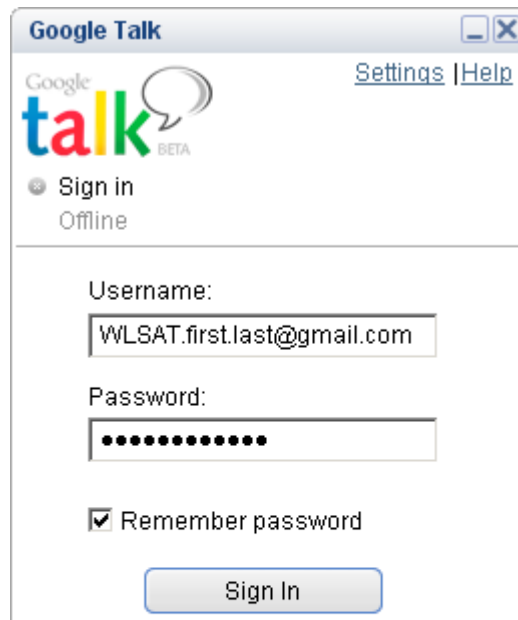
**NOTE:** When the USB cable is attached from the Nokia N800 to the PC the removable media card appears as a storage device in your PC. You can copy applications or files to the Nokia N800 removable media card in this manner. When the USB cable is attached to the PC the removable memory card is inaccessible on the Nokia N800. Disconnect the cable in order to access the Lab removable memory card on the Nokia N800

**NOTE:** You can click on each of the other applications named and install all the applications listed.

### Lab Part 4 - Setup GoogleTalk on the Nokia N800

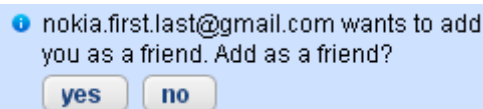
- Step 1. Click the **Application Menu** → **Contact** → **IM**.
- Step 2. Click **OK** to define a new account and start the Account Setup Wizard.

- Step 3. Work through the Account Setup Wizard, **Next**. Choose **googletalk** as your IM client, **Next**.
- Step 4. **Enter the account settings for googletalk** you recorded in the previous lab. (or if you haven't yet setup your GoogleTalk accounts you can do it from this wizard.)
- Step 5. After setting up the Gmail Account information as your IM in the Nokia (remember the NOKIA.First.Last@gmail account? If you open the GoogleTalk mini-application on your laptop, you can do a test call between the two.
- Step 6. Login to the GoogleTalk application with your WLSAT.First.Last@gmail.com account on the laptop.

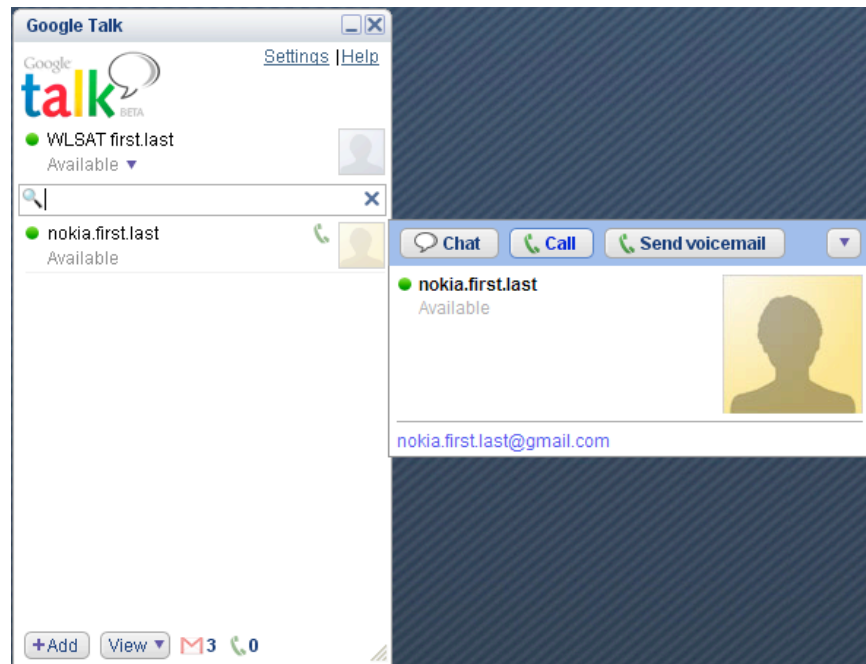


- Step 7. On the Nokia, add a **New Contact**. Enter the Laptop's account (WLSAT.first.last@gmail.com)
- Step 8. Double Click on the WLSAT.first.last contact to start a connection.

Note: on the Laptop you'll need to Add the Nokia as a 'Friend' in order to start the conversation.



- Step 9. From the Laptop - make a call to the Nokia.



Note: You might get feedback from the two devices being too close together, try walking away from the laptop with the Nokia while talking.

- Step 10. You can also open an IM Chat window to have a text based conversation as well.
- Step 11. You might also want to try to add another WLSAT student's Nokia in your contact list and converse from Nokia to Nokia (Then try it with the camera on...)
- Step 12. Close out the IM application on the Nokia and the Laptop.

## Lab Part 5 - Setup Gizmo on the Nokia N800

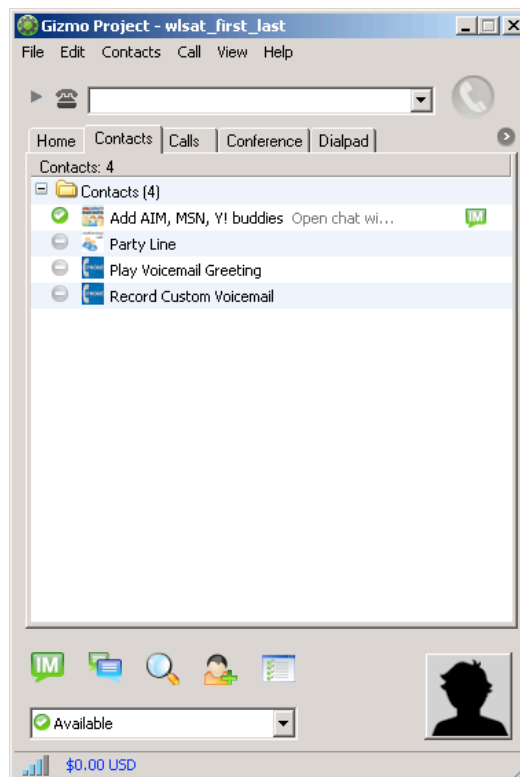
- Step 1. Click **the application icon** → **File Manager**.
- Step 2. Open up the **Pentesting tools directory** located on the removable memory card.
- Step 3. **Double click gizmo-project\_xxx**
- Step 4. Choose **OK** to install.
- Step 5. Choose **OK** to the notice that it is not Nokia software.
- Step 1. Click **OK** to install to the Contact folder
- Step 2. Click the **Application Menu** → **Contact** → **Gizmo Project** (voice & IM). (This menu won't be available unless you have previously loaded the Gizmo Project software application)
- Step 3. **Enter the account settings for Gizmo** you recorded in the previous lab.

The new N800 Internet Tablet can make crystal clear Wifi calls using Gizmo Project with just a few taps of the stylus.


Key Features:

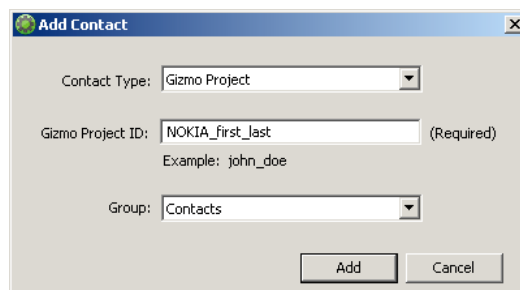
- Use your Internet Tablet to make Internet phone calls
- Free calls to other Gizmo, Google Talk or MSN users
- Ultra cheap calls to landlines and mobile phones anywhere in the world
- Voicemail, call forwarding and conference calling included
- Access your existing Gizmo Project contacts from the Nokia N800
- Presence lets you instantly see which of your contacts are online

Step 4. Open the Gizmo Project on the Laptop - **Start → Applications → Gizmo Project.**

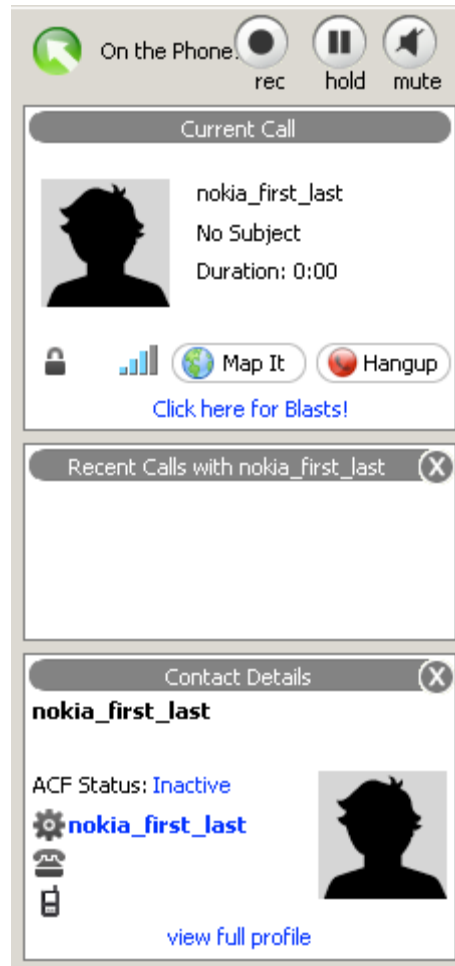


Step 5. Log on to the Laptop Gizmo Project with your WLSAT\_first\_last account, and the Nokia with the NOKIA\_first\_last account.

Step 6. From the laptop, click Add Account , and enter in the Nokia's Gizmo account information.



- Step 7. On the Nokia, you'll see the request to be added to the 'buddy list' of the WLSAT Laptop. Click on the +Add button to complete.
- Step 8. Try calling from the Laptop to the Nokia account. (Remember the 'feedback' if you are too close together)



- Step 9. You can also use the Gizmo Project to make calls to 'landlines'.
- Step 10. You have to 'load' your account with some cash to cover the small costs of calling land lines. (Each account has a \$.25 credit to start with - enough to try it out)
- Step 11. Close the Gizmo Project applications on the Nokia N800 as well as the WLSAT Laptop.

---

## Lab Part 6 - Setup Dropbear SSH client/server

This client/server application is needed in order to run the terminal app in the next part.

- Step 1. Click **the application icon** → **File Manager**.
- Step 2. Open up the ***Pentesting tools directory*** located on the removable memory card.
- Step 3. **Double click** ***dropbear-client***
- Step 4. Choose **OK** to install.
- Step 5. Choose **OK** to the notice that it is not Nokia software.
- Step 6. Click **OK** once installation is finished.
- Step 7. Click **the application icon** → **File Manager**.
- Step 8. Open up the ***Pentesting tools directory*** located on the removable memory card.
- Step 9. **Double click** ***dropbear-server***
- Step 10. Click **OK** to install.
- Step 11. Choose **OK** to the notice that it is not Nokia software.
- Step 12. Click **OK** once installation is finished.

---

## Lab Part 7 - Setup xterm on the Nokia N800

- Step 1. Click **the application icon** → **File Manager**.
- Step 2. Open up the ***Pentesting tools directory*** located on the removable memory card.
- Step 3. **Double click** on ***osso-xterm***.
- Step 4. Choose **OK** to add to catalogue.
- Step 5. Choose **OK** to install.
- Step 6. Choose **OK** to the notice that it is not Nokia software.
- Step 7. The terminal can now be located by choosing the **application icon** > **Extras**.
- Step 8. You can see the terminal shell opens, and you can type **'help'** to see what is available.
- Step 9. Close the Terminal window.

---

## Lab Part 8 - Setup VNC server/client

- Step 1. Click the **application icon** → **File Manager**.
- Step 2. Open up the **Pentesting tools directory** located on the removable memory card.
- Step 3. **Double click** on **x11vnc\_0.8-3\_armel**.
- Step 4. Choose **OK** to install.
- Step 5. Choose **OK** to the notice that it is not Nokia software.
- Step 6. The VNC server can now be located by choosing the **application icon** → **Extras** → **x11vnc**.
- Step 7. Click the **application icon** → **File Manager**.
- Step 8. Open up the **Pentesting tools directory** located on the removable memory card.
- Step 9. **Double click** **vncviewer** to install the VNC client.
- Step 10. Choose **OK** to add to catalogue.
- Step 11. Choose **OK** to install.
- Step 12. Choose **OK** to the notice that it is not Nokia software.
- Step 13. Click **OK** to select the 'Extra' folder as location (unless you would like it somewhere else).
- Step 14. Click **OK** once installation is finished.

---

## Lab Part 9 - Setup Metasploit

- Step 1. Click the **application icon** → **File Manager**.
- Step 2. Open up the **Pentesting tools directory** located on the removable memory card.
- Step 3. **Double click** on **ruby\_1.8.4\_armel**.
- Step 4. Choose **OK** to install.
- Step 5. Choose **OK** to the notice that it is not Nokia software.
- Step 6. Click **OK** once installation is finished.
- Step 7. **Metasploit** is already setup in the framework-3.0 folder on the external memory card; no other setup is required as it has already been done for you. **You will NOT see the image below as a result of installing ruby.**

```


/media/mmc1/framework-3.0 $ ruby msfconsole
[ ASCII art logo ]

=[ msf v3.0
+ -- --=[ 176 exploits - 104 payloads
+ -- --=[ 17 encoders - 5 nops
=[ 30 aux

msf > exit
/media/mmc1/framework-3.0 $

```

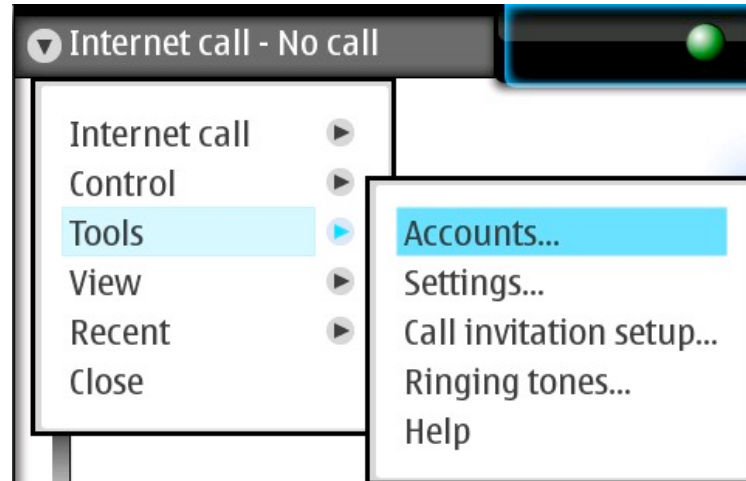
## Lab Part 10 - Setup Kismet

- Step 1. Click the **application icon** → **File Manager**.
- Step 2. Open up the ***pentesting tools directory*** located on the removable memory card.
- Step 3. **Double click** on ***ncurses-base***.
- Step 4. Click **install** then Click **OK** to install.
- Step 5. Choose **OK** to the notice that it is not Nokia software.
- Step 6. Click the **application icon** → **File Manager**.
- Step 7. Open up the ***pentesting tools directory*** located on the removable memory card.
- Step 8. **Double click** on ***libpcap0.8\_0.9.5-1\_armel***.
- Step 9. Choose **OK** to install.
- Step 10. Choose **OK** to the notice that it is not Nokia software.
- Step 11. Click **OK** once installation is finished.
- Step 12. Go back into File Manager by clicking on the **icon to the left** . 
- Step 13. **Double click** ***kismet\_2007.01.R1b-1.0\_armel***.
- Step 14. Choose **OK** to install. Click **OK** once installation is finished.

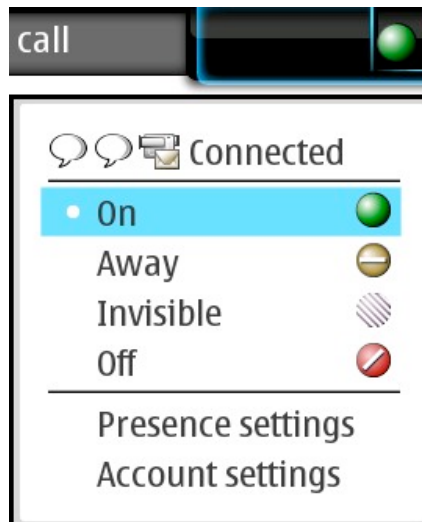
## Lab Part 11 - Setup internet calling



- Step 1. Click the **contacts icon**.
- Step 2. Choose **New Internet call**.
- Step 3. Click the **internet call menu** in the upper left-hand corner > **Tools** → **Accounts**.



- Step 4. Click **New**.
- Step 5. At the account setup wizard click **Next**.
- Step 6. Choose which type of service you prefer and click **Next** (google talk might be easier).
- Step 7. If you don't already have a gmail account then create one. If you do have a gmail you can use it with google talk.
- Step 8. Enter your **username** and **password**.
- Step 9. Click **Finish** to complete the account setup.
- Step 10. Verify that your account shows up in the accounts list and click **Close**.
- Step 11. If you supplied all the correct account information then there should be a solid green circle in the top tray indicating that you are connected and ready to receive/make calls.



**NOTE:** If you get an error about the encryption certificate expiring then make sure your clock is set correctly by clicking the clock on the desktop and setting the correct time. Then you shouldn't have any problems receiving and utilizing the Google SSL certificate.



- Step 12. Click **select contact button**.
- Step 13. If the person you would like to call is not already in the list you can click **New contact**, fill out the appropriate fields, and click **OK**. Then you should see your contact populate the list. Select **a contact with a green circle next to their names**.
- Step 14. The camera is located on the left - push it in to pop it out.
- Step 15. Click **OK** to talk to selected contact.

**NOTE:** If you get a question mark next to the contacts name it could be because that person has not yet accepted your invitation to communicate with them. The person will have to click on the contacts icon to see a list of those



who have sent an invitation to speak.

## What you learned in this Lab:

In this Lab you learned to:

1. Connect the WLSAT Nokia N800 to a wireless network and the internet
2. Install Applications on the Nokia N800
3. Setup googletalk on the Nokia N800
4. Setup gizmo on the Nokia N800

## 0.4: Loading DD-WRT firmware on the Linksys WRT54GL Access Point

DD-WRT is alternative firmware to the Linksys standard firmware. Alternate AP firmware gives a wireless pen tester greater control over the configuration of the AP. The DD-WRT firmware allows for a higher transmit power of the radio to increase the range, a Captive Portal to capture login authentications, MAC address changing ability to spoof a MAC on the radio, and other useful feature.

This Lab will detail the steps to load the DD-WRT firmware on the Linksys WRT54GL and make configuration changes to the AP. Once the AP is configured you will connect to the AP with the Nokia N800.

### Product Information

#### Source

**DD-WRT**

Free

[www.dd-wrt.com](http://www.dd-wrt.com)

#### Where, When, Why

A wireless pen tester would use a modified version of the Linksys Access Point firmware when testing a WLAN for a variety of reasons. The higher transmit power of the DD-WRT firmware allows the AP to reach a greater population of wireless clients. Also the captive portal feature enables a wireless pen tester to authenticate clients connecting to the AP.

A Linux based version of the WRT54G is important hence the L designation at the end of the model number. The newer WRT54G access points have been stripped down to a lower level of hardware which makes it more difficult to create a customized firmware platform and load alternate firmware. The WRT54GL is the easiest Linksys AP to use and configure with alternative firmware and provides the most functionality because of increased processing power.

#### Usage and Features

- Captive Portal
- 802.1x EAP Authentication
- WPA/WPA2
- High transmit power
- RADIUS Authentication

#### Requirements / Dependencies

- Linksys WRT54GL

- Wireless client (Nokia N800 Internet Tablet PC)
- Wireless Pen Testing Laptop PC

## Where to Go for More Information

- <http://www.dd-wrt.com>

What you will do in this lab:

- Connect to the Linksys Access Point
- Load DD-WRT firmware on the AP
- Connect to the AP to ensure the firmware loaded correctly
- Configure the AP with Wireless settings
- Connect a wireless client to the AP

## Lab Part 1 - Connect to the WRT54GL AP using the Linksys firmware

- Step 1. Plug the power cable of the Linksys Access Point into a power source.
- Step 2. Connect a your WLSAT Laptop to the back of the Linksys AP with an Ethernet cable. (switch port, not the router port)
- Step 3. Open a **web browser** to the Linksys AP with the address **192.168.1.1**.
- Step 4. Login with a blank username and password **admin**.



## Lab Part 2 - Load the DD-WRT firmware on the Linksys AP

- Step 1. Click on the **Administration tab > Firmware Upgrade**.



- Step 2. Click the **browse button** to locate the DD-WRT firmware on you PC.

**NOTE:** It is highly recommended that you install the generic mini version (dd-wrt.vXX\_mini\_generic.bin) and flash it from the web GUI interface. After this first flashing you can change to any other distribution, if you want.

- Step 3. Click the upgrade button and wait for the AP to load the firmware

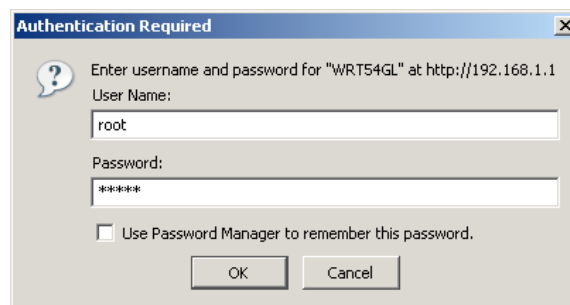
**WARNING - DO NOT POWER OFF THE AP WHILE IT IS LOADING FIRMWARE.** This will cause the AP not to boot and unusable. This is also known as turning the AP into a brick or “bricking” it.



### Lab Part 3 - Connect to the AP using the DD-WRT firmware

- Step 1. **NOW WAIT AT LEAST 5 MINUTES AFTER** the upload successful screen appears.
- Step 2. Open a web browser to **192.168.1.1**  
You should see the DD-WRT information screen.

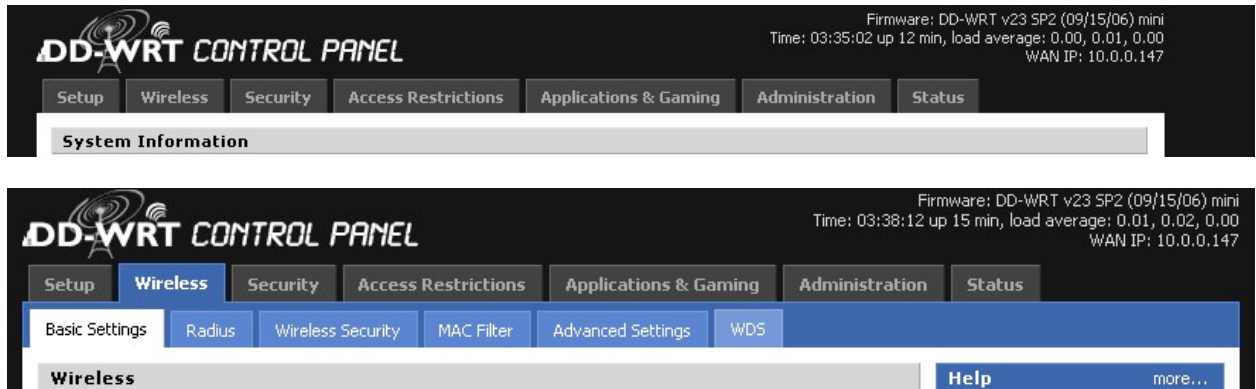
Username: **root** Password: **admin**



**NOTE:** If you do not see the DD-WRT information screen then hold the reset button in for 30 seconds (you will see the orange Cisco light disappear), let go, and try again.

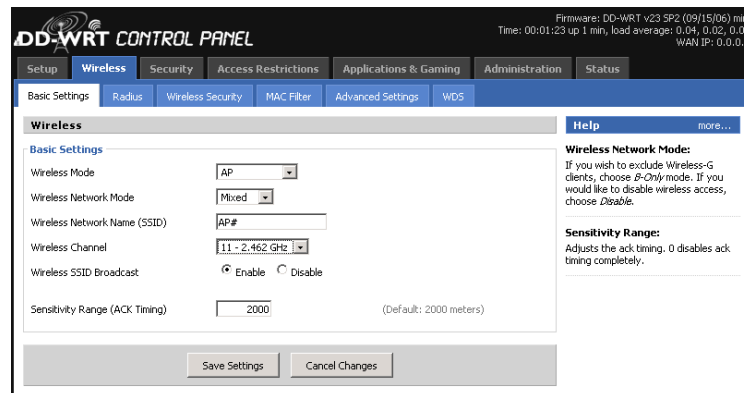
If you are unable to connect to or ping the AP then you have successfully created a Linksys brick otherwise known as “bricking” it. Proceed to the steps at the end of the lab to recover from a failed firmware load.

Step 3. Familiarize yourself with the DD-WRT interface.



## Lab Part 4 - Configure Wireless settings on the Linksys AP using DD-WRT firmware

- Step 1. Click the **wireless tab** and type **ap#** in the SSID field (where # is your student number designated by the instructor).
- Step 2. Choose the **channel** (either **1** or **11**). (we'll leave the classroom Internet Access on channel 6)



Step 3. Click **Save Settings**.

Wireless Status	
MAC Address	00:1A:70:5A:61:C9
Radio	Radio is On
Mode	AP
Network	Mixed
SSID	AP#
Channel	11
Xmit	28 mW
Rate	24 Mbps
Encryption	Disabled
PPTP Status	Disconnected

---

## Lab Part 5 - Connect the Nokia N800 to the Linksys AP

- Step 1. Power on the Nokia N800.
- Step 2. Tap the wireless connections icon in the upper right hand corner of the screen.
- Step 3. Connect to the SSID **AP#** (where # is your student number).
- Step 4. Since your Linksys Access Point is not connected to the Internet, your Nokia will now only be able to see the Linksys with DD-WRT firmware.
- Step 5. Open a **browser** and go to **192.192.1.1** to confirm what SSID and Access Point you are connected to.

---

## Lab Part 6 - Configure Wireless settings on the Linksys AP using DD-WRT firmware for an WEP encrypted wireless network.

This section is performed by each student. Through the wired connection to the AP, enter the AP's administration screen.

- Step 1. With the IP wired connection established, use your browser to open an administrative session to configure your AP. In your browser, browse to the AP's default IP address of `http://192.168.1.1`.



- Step 2. At the Prompt screen, enter the User Name: **admin**, enter the Password: **admin** and click OK.
- Step 3. You should see the main administration screen. Click on the **wireless link**, and then click on **wireless security**.
- Step 4. In the Security Mode field, use the drop-down menu to change from Disabled to **WEP**.
- Step 5. In the WEP key 1: field, enter your WEP key with this sequence:

**0123456789**

(You do not need to enter anything in the optional fields WEP Key 2, 3, or 4.)

- Step 6. Click on **Save Settings**. Minimize the Mozilla browser screen.

## Lab Part 7 Reconnect Nokia with AP, Using WEP Encryption

- Step 1. Power on the N800. Then Tap the wireless connections icon in the upper right hand corner of the screen.



- Step 2. Connect to the SSID **AP#** (where # is your student number).
- Step 3. Type the WEP key **0123456789** when prompted.
- Step 4. Choose Yes to save the connection.
- Step 5. Name the connection **AP#-WEP** when prompted.

## Lab Part 8 - Configure Wireless settings on the Linksys AP using DD-WRT firmware for an WPA secured wireless network.

This section is performed by each student. Through the wired connection to the AP, enter the AP's administration screen.

- Step 6. With the IP wired connection established, use your browser to open an administrative session to configure your AP. In your browser, browse to the AP's default IP address of **<http://192.168.1.1>**.



- Step 7. At the Prompt screen, enter the User Name: **admin**, enter the Password: **admin** and click OK.
- Step 8. You should see the main administration screen. Click on the **wireless link**, and then click on **wireless security**.
- Step 9. In the Security Mode field, use the drop-down menu to change from Disabled to **WPA Pre-Shared Key**.

Wireless Security	
Security Mode	WPA Pre-Shared Key
WPA Algorithms	TKIP
WPA Shared Key	
Group Key Renewal	3600 seconds

- Step 10. Enter in the WPA Pre-Shared Key of **alabama99**

Wireless Security	
Security Mode	WPA Pre-Shared Key
WPA Algorithms	TKIP
WPA Shared Key	alabama99
Group Key Renewal	3600 seconds

- Step 11. You do not need to modify the WPA algorithms or Group Key Renewal time.
- Step 12. Click on **Save Settings**. Minimize the Mozilla browser screen.

## Lab Part 9 Reconnect Nokia with AP, Using WEP Encryption

- Step 1. Power on the N800. Then Tap the wireless connections icon in the upper right hand corner of the screen.
- Step 2. Connect to the SSID **AP#** (where # is your student number).

- Step 3. Type the WPA key **a1abama99** when prompted.
- Step 4. Choose **Yes** to save the connection.
- Step 5. Name the connection **AP#-WPA** when prompted.

---

## Lab Part 6 - Recovering from a failed firmware load

### ONLY DO THIS LAB IF YOU BRICKED YOUR AP.

Usually the AP will indicate a failed boot up to firmware by a blinking power light. Also the radio may not power on so the SSID will not be visible from a wireless scan.



- Step 1. Plug an Ethernet cable in the Linksys AP.
- Step 2. Statically configure the IP address of your laptop to 192.168.1.10.
- Step 3. Try to ping the IP address of the AP - usually 192.168.1.1 (If this works this is a good sign that the AP can be revived).
- Step 4. Start a TFTP server on your laptop.
- Step 5. Put the code.bin file in the directory for the TFTP server.
- Step 6. Unplug the power from the AP and reconnect it and enter the command TFTP code.bin code.bin (you must run the TFTP command just as the AP is booted. If you miss the boot up sequence unplug the AP and try it again. You may need to do this several times in order to catch the boot up sequence. The AP should then load the firmware from the TFTP server and boot up normally. This is indicated by a solid power light and the visibility of the SSID in scanning tools.

---

## What you learned in this Lab:

In this Lab you learned to use DD-WRT to:

- Utilize additional feature set on the Linksys AP by loading alternate firmware
- Install DD-WRT firmware on the Linksys AP
- Configure wireless settings on the Linksys AP
- Connect to Linksys AP using the Nokia N800