A Practical Guide to Running SNORT on Red Hat Linux 7.2 and Management Using IDS Policy Manger MySQL

Firewalls and virus protection software add layers of security but in most cases this is not enough. SNORT which is a free NIDS (Network Intrusion Detection System) adds another layer to your security blanket. To give you a better picture of what I mean by this, I will quote Wes Simonds of Search Networking as saying "If a firewall is the initial gate, Snort is the highly-trained Doberman pack that roams the company grounds pawing at intruders, sniffing at their packets in a deceptively unobtrusive manner and occasional...
A practical guide to running SNORT on Red Hat Linux 7.2 and Management Using IDS Policy Manger MySQL+IIS+ACIDFrom your Workstation.

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Introduction

In the brief time that I have been on this planet the state of computing has changed drastically. The high-powered computers and blink of the eye internet connectivity once reserved for universities and major corporations has now become a staple in small businesses around the United States and the world. As more and more these small businesses get connected to the global network we call the internet, we must focus our attention on securing these systems. It used to be that hacking systems such as these could only be done by high skilled programmers and network gurus. This has also changed with the birth of “script kiddies” who are hackers who use programs and scripts that are freely available and easy to use to attack such systems. Firewalls and virus protection software add layers of security but in most cases this is not enough.

SNORT which is a free NIDS (Network Intrusion Detection System) adds another layer to your security blanket. To give you a better picture of what I mean by this, I will quote Wes Simonds of Search Networking as saying “If a firewall is the initial gate, Snort is the highly-trained Doberman pack that roams the company grounds pawing at intruders, sniffing at their packets in a deceptively unobtrusive manner and occasionally when things are manifestly uncool biting them gently in half.” SNORT will watch and analyze your network traffic and will alert you when there are possible hacking attempts against your computer system(s). SNORT was originally written by Martin Roesh for *nix operating systems, and according to one study can keep up with the heavy weights such as Cisco and ISS (Study done by the Gartner Group http://www.gartner.com/DisplayTechOverview?id=320015). I will show you how to setup snort on Red Hat 7.2 and I will show you how to manage your sensor and view alerts from your windows 2000 workstation.

Getting Started

There are a few things that we are going to need to get started:
Access to the internet
Access to a cd-burner
A computer dedicated to Red Hat and snort.
A computer used as a management workstation. This can be your desktop. In this example I use windows 2000 but this configuration should work for any Windows NT variant.

A hub to monitor, if you are in a switched network you must setup a monitor port for the sensor where the traffic you desire to watch can be mirrored to. If this is the case you must configure your sensor with two network cards. One Network card to plug into the monitor port and one to communicate with your management workstation.

Two static IP address on your network. Assign one to the sensor and one to the management workstation.
Snort on Red Hat Linux 7.2

Installing Red Hat

1. Burn the Red Hat 7.2 ISO images to CD the ISO images should be enigma-i386-disc1.iso and enigma-i386-disc2.iso, most cd-writing software supports ISO images. I know that Roxio Easy CD Creator and Ahead Nero Burning ROM both support this format.
2. Configure your bios to auto-boot from cd-rom. If your bios does not support auto-booting to cd consult the red hat 7.2 documentation http://www.redhat.com/docs for creating an installation boot disk. Insert Red Hat disc 1 into your cd-rom and reboot your computer.
3. After your computer posts a text based Red Hat Linux Installation screen will appear. Press the <Enter> key to continue
4. On the Language Selection Screen select English as the language you wish to use during install. Select the next button to proceed to the keyboard configuration screen.
5. Select your keyboard model, layout and select enable dead keys. Select the next button to proceed to the Mouse Configuration screen.
6. Select your mouse type and select whether or not to emulate three buttons. Select the next button to proceed to the Red Hat welcome screen.
7. Select the next button to proceed to the Installation Type screen.
8. Select the custom installation radio button. Select the next button to proceed to the Disk Partitioning Setup screen.
9. Select the Have the installer automatically partition for you radio button. Select the next button to proceed to the Auto Partitioning screen.
10. Select the Remove all partitions on this system radio button. Uncheck the Review Results check box. Select next button to proceed to the warning prompt.
11. At the warning prompt click Yes, this will take you to the Boot Loader Configuration screen.
12. On the Boot Loader Configuration accept the defaults and select the next button to proceed to the Boot Loader Password Configuration screen.
13. Check the Use a Grub Password? Checkbox. Enter your password in each twice once in the password box and once in the confirm box. I suggest using mixed case numbers and special characters with a minimum length of eight characters. Select the next button to proceed to the Network Configuration Screen.
14. Configure your network card(s) as suited for your network, I can’t really help you here if you don’t know what to input into these boxes contact somebody on your network team to get these settings. Once you have configured your network card select the next button to proceed to the Firewall Configuration Screen.
15. Select the No Firewall radio button. If you put a firewall in place snort will not be able to see the traffic from anything that you block. Select the next button to proceed to the Additional Language Support screen.
16. Select any additional languages you may need and select the next button to proceed to the Time Zone Selection Screen.
17. Select your time zone by selecting it out of the list or by clicking on the point in your region on the map that represents your time zone. Select the next button to proceed to the Account Configuration Screen.

18. Enter your root account password once into the **Root Password:** box and once into the **Confirm** box. Once again use mixed case letters special characters and numbers. Make the password longer than eight characters. Select the next button to proceed to the authentication configuration screen.

19. Select the defaults and then select the next button to proceed to the Package Group Selection screen.

20. Uncheck all of the check boxes that are checked by default. Check the **Select individual packages** check box and select the next button to proceed to the Individual Package Selection screen.

21. Select the Flat View radio button. Select the check box next to following items:
   - autoconf
   - automake
   - binutils
   - cpp
   - freetype
   - ftp
   - gcc
   - gcc-c++
   - gcc3
   - gcc3-c++
   - gd
   - glibc-devel
   - kernal-headers
   - libgcc
   - libjpeg
   - libcap
   - libpng
   - libstdc++
   - libstdc++-devel
   - libstdc++3
   - libstdc++3-devel
   - linuxconf
   - lynx
   - m4
   - make
   - mysqlclient
   - openssh
   - openssh-server
   - perl
   - wget

   Uncheck the checkbox next to **sendmail**, it should be toward the bottom of the list. Select the next button to proceed to the Unresolved Dependencies screen.
Accept the default setting on this page and select the next button to proceed to the About to Install screen.

22. Accept the default settings on this page and select the next button to proceed to the installing packages screen.

23. Red Hat will automatically begin installing you can probably go smoke a cigarette or grab a cup of coffee and come back……………. Great you’ve returned and the Red Hat installation should prompt you for disc 2. Insert disc 2 and select the Ok button. It should starting installing packages automatically from disc 2. Once Red Hat is done copying files it will automatically take you to the Boot disk Creation screen.

24. It is optional to you whether or not you want to create a boot disk but it is always a good idea. Check or uncheck the check box as you see fit and then select the next button to proceed to the Congratulations screen.

25. Select Exit and Red Hat will reboot eject the cd-rom and bring up a logon prompt.
Installing Snort 1.8.4

Download the following RPM’s by using wget which I will explain in a minute or by using a different computer and downloading the the RPM’s and burning them to CD or copying them to floppy disk.

http://www.snort.org/dl/binaries/RPMS/snort-1.8.4-1snort.i386.rpm
http://www.snort.org/dl/binaries/RPMS/libnet-1.0.2a-1snort.i386.rpm
http://www.snort.org/dl/binaries/RPMS/snort-mysql+flexresp-1.8.4-1snort.i386.rpm
http://mysql.orst.edu/Downloads/MySQL-3.23/MySQL-shared-3.23.49a-1.i386.rpm
http://mysql.orst.edu/Downloads/MySQL-3.23/MySQL-devel-3.23.49a-1.i386.rpm
http://mysql.orst.edu/Downloads/MySQL-3.23/MySQL-client-3.23.49a-1.i386.rpm

1. Log into the sensor as user root and when prompted input the password that you assigned to the root user. You should now have a shell prompt, if you inputted your hostname into the network configuration screen your prompt will be [username@hostname homedir]# enter the following commands:

   mkdir /snort-install
   cd /snort-install

2. Now we need to get those RPM packages that we downloaded copied to the snort-install directory.
   To use wget on your sensor that has access to the internet enter the following commands

   wget http://www.snort.org/dl/binaries/RPMS/snort-1.8.4-1snort.i386.rpm
   wget http://www.snort.org/dl/binaries/RPMS/libnet-1.0.2a-1snort.i386.rpm
   wget http://www.snort.org/dl/binaries/RPMS/snort-mysql+flexresp-1.8.4-1snort.i386.rpm
   wget http://mysql.orst.edu/Downloads/MySQL-3.23/MySQL-shared-3.23.49a-1.i386.rpm
   wget http://mysql.orst.edu/Downloads/MySQL-3.23/MySQL-devel-3.23.49a-1.i386.rpm
   wget http://mysql.orst.edu/Downloads/MySQL-3.23/MySQL-client-3.23.49a-1.i386.rpm

To copy from a floppy drive format the floppy disks and copy the RPMS to the disks. enter the following command mount /dev/fd# where # is the number of your floppy drive. In Linux almost all things start at zero so for most systems with only one floppy drive type the following

   mount /dev/fd0
   cp /mnt/floppy/* /snort-install
   umount /dev/fd0

   insert your second floppy so on and so on. Enter the following commands again.
mount /dev/fd0
cp /mnt/floppy/* /snort-install
umount /dev/fd0

To copy from a cd-rom burn the RPMS to a cd and enter the following commands

mount /dev/cdrom
cp /mnt/cdrom/* /snort-install
umount /dev/cdrom

3. Double check and make sure that all of your RPM packages are in the /snort-install directory by doing the following

cd /snort-install
ls

you should see the following:

libnet-1.0.2a-1snort.i386.rpm
libpcap-0.6.2-9.i386.rpm
MySQL-shared-3.23.49a-1.i386.rpm
snort-1.8.4-1snort.i386.rpm
snort-mysql+flexresp-1.8.4-1snort.i386.rpm
MySQL-devel-3.23.49a-1.i386.rpm
MySQL-client-3.23.49a-1.i386.rpm

4. To install the packages type the following commands:

rpm -v -i /snort-install/libnet-1.0.2a-1snort.i386.rpm
rpm -v -i /snort-install/MySQL-shared-3.23.49a-1.i386.rpm
rpm -v -i /snort-install/MySQL-client-3.23.49a-1.i386.rpm
rpm -v -i /snort-install/MySQL-devel-3.23.49a-1.i386.rpm
rpm -v -i /snort-install/snort-1.8.4-1snort.i386.rpm
rpm -v -i /snort-install/snort-mysql+flexresp-1.8.4-1snort.i386.rpm

5. Run the following commands to get the snort daemon to start automatically

vi /etc/rc.d/init.d/snortd
press the <insert> key
find the lines that read

daemon /usr/sbin/snort -A fast -b -l /var/log/snort -d -D \
-I $INTERFACE -c /etc/snort/snort.conf
note: If you are using two network cards you must configure the $INTERFACE variable to reflect the interface that is plugged into a promiscuous port on your switch.

change these lines to be

```
  daemon /usr/sbin/snort-mysql+flexresp -D \
       -i $INTERFACE -c /etc/snort/snort.conf
```

next find the line that reads

```
  killproc snort
```

change this to be

```
  killproc snort-mysql+flexresp
```

finally change the line that reads

```
  status snort
```

change this to be

```
  status snort-mysql+flexresp
```

press the <Esc> key

press the <Shift> plus <;> keys

press the <w> key

press the <q> key

this should take you back to your shell prompt. Type the following to test your Snort Daemon.

```
  service snortd start
```

Should return

```
Starting snort: [ OK ]
```

```
  service snortd status
```

Should return something like

```
  snort-mysql+flexresp (pid 959) is running...
```

```
  service snortd stop
```

Should return

```
Stopping snort: [ OK ]
```

Now we are going to setup snort to run at startup by typing in the following commands

```
  cd /etc/rc3.d
  ln -s /etc/rc.d/init.d/snortd S40snortd
```

reboot your sensor by typing in the following command

```
  reboot
```
shutdown –r now

Look for the following line during the initialization of Linux

Starting snort: [ OK ]

You can check any alerts that snort is logging by typing in the following commands:

```
vi /var/log/snort/alert
```

you should get screen with your alerts you can use the up and down arrow buttons or the <page up>, <page down> buttons to maneuver through the document. To exit the document type the following commands:

```
<Ctrl>plus<q>
```

this should take you back to your shell prompt. Type the following to log out of the console.

```
exit
```

Viola you are snorting!!!! Now to tune your sensor to watch your network, get rid of pesky port scan messages and to get it log to a MySQL Database.
The Management Workstation:
Create a directory on your local hard drive c:\snortM Download the following items to a folder on your local hard drive for the rest of the paper we are going to assume that you downloaded everything into c:\snortM

Win Zip

Putty
http://the.earth.li/~sgtatham/putty/latest/x86/putty.exe

IDS Policy Manager
http://www.activeworx.com/downloads/IDSPolMan-1.2.full.zip

MySQL Server
http://mysql.orst.edu/Downloads/MySQL-3.23/mysql-3.23.49-win.zip

PHP Lot
http://www.silicondefense.com/software/snort-win32/binaries/phplot-4.4.6.zip

PHP

ACID
http://www.silicondefense.com/software/snort-win32/binaries/acid-0.9.6b20.zip

ADODB
http://www.silicondefense.com/software/snort-win32/binaries/adodb172.zip

Snort 1.8.4 tar
http://www.snort.org/dl/snort-1.8.4.tar.gz

Install WinZip
Install WinZip by running c:\snortM\winzip81.exe accepting all of the defaults

Install Activeworx IDS Policy Manager
Extract all of the files in c:\snortM\IDSPolMan-1.2.full.zip by double-clicking on the zip file and extracting all files to a directory let’s say c:\snortM\IDSpol

Navigate to c:\snortM\IDSpol and run IDSPMFULL1.2 to setup your IDS Policy Manager.
1. On the Screen above Select the Next button

2. On the Screen below press the browse button to change to default path that IDS policy Manger installs in. The space in the path name i.e. “c:\program files” causes problems with secure copy which IDS policy Manager uses to upload files to your sensor. Choose something like C:\Activeworx
3. When you hit the Browse button you should get this change your path and hit the OK button. When you return to the Choose Destination Location Screen press the Next button.

4. Accept the defaults on the screen below so just hit the next button.
5. Once Again just hit the next button on the screen below.

Setup will install the VB6 runtimes and IDS Policy Manger and exit quietly.

6. Navigate to the directory where you installed IDS Policy Manager and create directories for each one of your sensors. i.e. make directories

C:\Activeworks\Sensor1
C:\Activeworks\Sensor2

Go into the Official Folder in the directory where you installed IDS Policy Manger and select all of its contents and copy them into your Sensor directories.

7. Now go to start→programs→Activeworx→IDS Policy Manager

You should get something like the screen below I said yes it will take you to the website when new versions are available

Now you should have a screen like the one below. Select the Policy Manger tab, now select Policy→Add Policy
8. You should get a screen like the one below. Enter your policy name for your first sensor in this example the IDS/System Version is Snort 1.8.4 so leave the default setting there. In your Policy Location field enter C:\Activeworx\Sensor1\snort.conf remember this is the folder that we created to hold our first sensor’s configuration files. Press the Ok button and you should have a new entry in your window called Sensor1. Repeat the above steps for any other sensors you may have changing the Policy Name, Policy Location, and Description.
9. Now go back to the Sensor Manager screen by selecting the Sensor Manager tab. From the menu bar select Sensor \(\rightarrow\) Add Sensor. The box below should open up, Enter all of your information as follows about your sensor.

Sensor Name: For this example it was Sensor1
IP Address of Sensor: In this example 192.168.1.222 (This will change depending on your network)
IDS System: For this example it is Snort 1.8.4 (default)
Policy: Sensor1 This the policy that we just created
Upload Protocol scp (default) Port: 22 (default) This is part Secure Copy part of the SSH daemon package on our Sensor.
Username: root
Password: (The secure password that you entered when you installed Red Hat on the Sensor)
Password(Confirm): (The secure password that you entered when you installed Red Hat on the Sensor)
Upload Directory: /etc/snort (Remember this where we are reading the snort configuration file from.)
10. When you press the Ok button you will be prompted with the following box. Telling you that you need to setup Secure Copy. Press the OK button to proceed.

You should get the screen below as to whether or not you want to store the remote key in your cach press the <y> key and the <Enter> key.

If all is well you should get the following screen. Press the OK button and this should take you back to the Sensor Manager Screen.

We will come back and work on the settings in a minute next we are going to setup a MySQL Database for snort to log to.
INSTALL MYSQL

Extract all of the files in c:\snortM\mysql-3.23.49-win.zip by double-clicking on the zip file and extracting all files to a directory let’s say c:\snortM\sqlinst

Navigate to c:\snortM\sqlinst and run Setup.exe to setup your MySQL Database.
1. On the Screen below Select Next button to proceed to another information screen.

![Welcome Screen](image)

2. On this information screen it tells you what you need to get mysql to run if you are not going to install it in c:\msql. Press the Next button to proceed to the Choose Destination Location Screen.
3. On the screen below select the default installation directory by selecting the Next button.

4. On this screen select the default “Typical” installation by selecting the Next button. Setup will proceed to install MySQL.
5. Once completed you should get the screen below. Press the Finish button to exit setup.

![Setup Complete](image)

***Most of The Information below on configuring IIS, MySQL, and Acid have been taken from papers written by Michael Steele of Silicon Defense only slightly modified for this paper. [http://www.silicondefense.com/techsupport/windows.htm](http://www.silicondefense.com/techsupport/windows.htm)***

6. Navigate to `c:\mysql\bin\winmysqladmin.exe` alternate click and hold navigate to “send to” select “desktop as shortcut.”

Go to your desktop and double click on the shortcut to `winmysqladmin.exe` to get the box below. Enter the username: “root” password: “****” where **** is the password that you want. And then press the OK button.
7. Alternate click on the stop light in the taskbar on the lower right side of your screen. And select Show Me from the menu. You should get the screen below.
8. Select the databases tab to bring up the databases screen.

![MySQL database management interface]

9. Select the line that has your computer name on it and alternate click and select create new database. Name your database snort. Select create the database.

![Adding Database dialog box with snort entered]

If all goes well you should see the following box. Select the Ok button to proceed.

![Database created confirmation]

Press the Cancel button to get out of the Adding Database box.
10. Extract the create_mysql script from snort-1.8.4.tar using WinZip into c:\snortM\snortdb

Uncheck the use folder names checkbox if checked.

11. Open a shell window by going to Start→Run→cmd.exe Enter the following commands in your shell window:

   cd c:\mysql\bin

   MySQL grant INSERT,SELECT,CREATE,DELETE on snort.* to snort;
   grant INSERT,SELECT,CREATE,DELETE on snort.* to
   sensor1@192.168.1.222;

   (change the above to match your network environment where sensor1 is your sensor name and 192.168.1.222 is the address of your sensor. You will have to create a user for every sensor you create.)

   exit

   MySQL -u snort snort < c:\SnortM\snortdb\create_mysql

   Exit (To exit the shell window)

**Install IIS**

Insert your windows2000 cd into your cd-rom

1. Go to Start→Settings→Control Panel→Add/Remove programs
2. Select the Add/Remove Windows Components button.
3. Highlight Internet Information Services and Select the Details button.
4. Select the button that says Front Page Server Extensions 2000(This will install all other needed components)
5. Select the Ok button
6. Select Next
   The System will begin copying files from the CD
   Once finished you will get the following screen,
7. Select the Finish button to exit the installation.
8. Patch IIS Microsoft Windows Update Web page supports updates for IIS you can access this by opening an Internet Explorer window and selecting Tools→Windows Update from the menu bar. Or type the following into your address bar http://windowsupdate.microsoft.com. Install all patches under critical updates, this may take multiple reboots.

**Install PHP**

Navigate to the directory c:\snortM\phpinst\ and run php-4.2.0-installer.exe.

1. On the screen below select the next button to proceed to the License Agreement Screen.

2. On the Screen Below Select the I Agree button to proceed to the Installation Type screen.
3. On the Screen below Select the Advanced radio button. Select the Next button to proceed to the Choose Destination Location screen.

4. On the screen below accept the defaults and press the next button to proceed to the Backup Replaced Files screen.
5. On the screen below accept the defaults and select the next button to proceed to the Choose Upload Temporary Directory.

6. On the screen below Select the next button to proceed to the Mail Configuration screen.
7. On the screen below press the next button to proceed to the Choose Session Save Directory.

8. On the screen below select the next button to proceed to Error Reporting Level screen.
9. On the screen below select the next button to proceed to the Server Type screen.

![Error Reporting Level](image1)

10. On the Screen below select the Microsoft IIS 4 or higher radio button and select the next button to proceed to the File Extensions screen.

![Server Type](image2)
11. On the screen below select all three check boxes and select the next button to proceed the Start Installation screen.

![File Extensions](image1)

12. On the screen below select the next button to start installation.

![Start Installation](image2)

Setup will prompt with the box below select the Yes button.

![Existing php.ini file found](image3)
Select the Ok button to proceed to IIS Script Node Selection.

![Warning dialog box](image)

Select the WWW Service Master Properties checkbox and select the OK button to proceed to the Installation complete screen.

![IIS Scriptmap Node Selection](image)

13. Press the OK button to exit setup.
Install Acid and Configure its Components

Navigate to c:\snortM and Extract the following with the use folder names option checked in WinZip

adodb172.zip to C:\snortM\ADODB
acid-0.9.6b20.zip to c:\inetpub\wwwroot\Location of your root web folder
phplot-4.4.6.zip to c:\snortM

1. Navigate to c:\snortM\ADODB and open adodb.inc.php in WordPad.

   Change the line:
   
   $ADODB_Database = "";
   To read
   $ADODB_Database = 'C:\snortM\adodb';

2. Navigate to c:\inetpub\wwwroot\acid and open acid_conf.php with WordPad

   Change the line that reads
   $DBlib_path = "";
   To read
   $DBlib_path = "C:\snortM\adodb";

   Change the lines that read
   $alert_dbname   = "snort_log";
   $alert_host     = "localhost";
   $alert_port     = "";
   $alert_user     = "root";
   $alert_password = "mypassword";

   /* Archive DB connection parameters */
   $archive_dbname   = "snort_archive";
   $archive_host     = "localhost";
   $archive_port     = "";
   $archive_user     = "root";
$archive_password = “mypassword”;

To Read
$alert_dbname   = “snort”;
$alert_host     = “localhost”;
$alert_port     = “”;
$alert_user     = “snort”;
$alert_password = “”;

/* Archive DB connection parameters */
$archive_dbname   = “snort”;
$archive_host     = “localhost”;
$archive_port     = “”;
$archive_user     = “snort”;
$archive_password = “”;

and then change
$ChartLib_path = “”;

To read
$ChartLib_path = “c:\snort\phpplot”;

Reboot your management workstation now.

**Configuring Your Sensor**

Once your management workstation has rebooted open IDS Policy Manager by going to Start \ programs \ IDS Policy Manager.

1. Select the Policy Manager Tab and Highlight the Sensor1 entry in the Policy Manager screen and press <Ctrl> plus <O> to bring up the Policy Editor. You should have the screen below. Select the Settings tab to pull up the settings screen.
2. On the Settings screen under the variables tab we are going to change the variables to reflect our network. $HOME_NET is the network that we wish to monitor. I usually choose the network that I'm on for example if we are on a 192.168.1. network with a net mask of 255.255.255.0 then we are using a 24 bit mask so our HOME_NET entry would be like this. Once completed uncheck the default entry HOME_NET = any
3. Next input your HTTP servers. I have two of them so my entry would look something like this. Once again since these computers have a mask of 255.255.255.255 they have a 32-bit mask hence the /32. Using this logic do the same for the SQL_SERVERS and DNS_SERVERS variables.

![Edit Variable](image1)

4. Edit the RULE_PATH variable to be /etc/snort remember this is the directory on the sensor where the snort daemon is pulling its configuration from.

![Edit Variable](image2)

5. In the Left Hand Side of the screen select the Logging button and check the Database checkbox.

   - Enter the name of your sensor in the Sensor Name field.
   - Enter the name of the MySQL database we created which in this case was snort, into the DB Name field.
   - Select the mysql entry out of the DB Type drop down menu.
   - Select the log entry entry out of the Log Rule Type drop down menu.
   - Enter the user that we created for this sensor into the User field. In mysql it adds @ip address you connect from to your username so we just need to put in sensor1 MySQL will see it as sensor1@192.168.1.222
In this case we have not yet set a password on our sensor1@192.168.1.1 so leave the User Pass: field blank.

The DB Host is the address of our management system in my case it is 192.168.1.108 this will change based on your environment.

In the DB port field enter 3306 this is the default port that MySQL listens on.

Once finished select file→Save and Exit

6. This will take you back to the Policy Manager window. Select the Sensor Manager tab, Highlight your sensor (in my case Sensor1) and press the <Ctrl>plus<P> keys. This will upload your policy to your sensor.

7. Now we need to test our configuration. Navigate to c:\snortM and select putty.exe, you should get the screen below. Enter the IP address of your sensor and select the SSH radio button and select the Open button.
8. When we setup SCP in IDS Policy it should have cached the servers host key as SCP is part of SSH. If for whatever reason the key is not in your local cache you will receive the prompt below. Select the Yes button.

9. You should get a screen like the one below, log in as root with your secure password. Now we are going to test are snort configuration by entering the following commands

   `snort-mysql+flexresp -v -c /etc/snort/snort.conf`

   The –v means verbose mode and the –c is the switch to tell the snort executable which configuration file to use.
10. Snort will give you a short summary of the options that you have enabled and then it should start showing you the traffic that is passing over its interface. Press the <Ctrl> plus <C> keys to kill snort.
   If you don’t get a screen with traffic passing over it double check the configuration settings in IDS policy manger.

11. Great you snort is working with configuration file that we have produced. Now restart the snortd service by typing the following into your putty session.

   service snortd stop
   service snortd start

**Viewing Alerts with ACID**

Open a Internet Explorer browser window and type the following into address bar: [http://127.0.0.1/acid/index.html](http://127.0.0.1/acid/index.html) You should get a screen where Acid tells you that it has an error.

1. Select the go to Setup Page link.

2. Select Create ACID AG.

3. When this is complete return to the address above you should get the Acid main screen. Select the number next to the The Total Number of Alerts line. Now you should something like the screen below. If nothing is there don’t worry it will probably take some time to see your first alert.
Congratulations you have just made yourself a snort sensor.

Conclusion

Snort provides small and enterprise environments alike a robust and reliable Intrusion Detection System. While I gave you an example of the basic setup of snort there is still a great deal of tuning that needs to be done at this point. More than likely you will need to use IDS policy manger to enable disable certain signatures to suit your environment. For more information on rules consult the Snort Users Manual included in the Snort-1.8.4.tar.gz or on the snort website at http://www.snort.org/docs/writing_rules/

For all of you who work in a pure win32 environment have no fear. Silicon Defense updates a binary of snort ported for the win32 Operating Systems. They Also have extensive documentation on the Setup of snort on win32. http://www.silicondefense.com

The Sensor that we created is relatively secure due to the fact the we stripped down the normally bloated install of Red Hat. The packages that we installed need to be updated due to potential exploits in them. There is documentation on how to do this included in the Center For Internet Security Linux Benchmark v1.0.0. This can be obtained from http://www.cisecurity.org
For future updates of Snort I have included all that is needed to compile the latest version of snort in its binary format. At the time I completed this writing they had released a binary only version of snort 1.8.6. Out of the box the binary does not support MySQL to upgrade to the most recent version of snort you would do the following on your snort sensor with internet access.

```
cd /snort-install
wget http://www.snort.org/dl/snort-1.8.6.tar.gz
.tar -xzvf snort-1.8.6.tar.gz
cd /snort-install/snort-1.8.6.tar.gz
./configure --with-mysql
make
make install
```

this will place the snort binary into /usr/local/bin
change your snortd script accordingly.

Also depending on what rules you have enabled you may need to update to the new rule set. If you download snortrules.tar.gz from http://www.snort.org/dl/signatures/snortrules.tar.gz you can extract these files into a new directory in you Activeworx folder and create a new policy by pointing IDS policy manger to the updated snort.conf.

I hope that this paper was both helpful and informative and provides the reader with enough information to build a IDS sensor on the cheap.

**Technical Reviewers**

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**Resources**

Snort Users Manual available from:
http://www.snort.org/docs/writing_rules/

ActiveWorx FAQ available from:
http://www.activeworx.com/idspm/faq.htm

Snort 1.8.6b105 RELEASE running IIS / MySQL Acid... (Michael Steel) available from
http://www.silicondefense.com/techsupport/winsnortacid-iis_1.8.6.htm

Red Hat Linux 7.2 Official Reference Guide available from
MySQL Manual available from:

Bad Packets: Snort -- the Dobermans behind the firewall (Wes Simonds) available from:
http://searchnetworking.techtarget.com/originalContent/0,289142,sid7_gci804882,00.html

Intrusion Detection Systems (IDSs): Perspective (The Gartner Group) available from:

Network Intrusion Detection Using Snort (Dave Wreski & Christopher Pallack) available from :

PHP : Manual : FAQ available from:

The Putty User Manual available from:
http://the.earth.li/~sgtatham/putty/0.52/htmldoc/

Center For Internet Security Linux Benchmark v1.0.0. Available from:
http://www.cisecurity.org

# Upcoming SANS Training

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