

How To Activate A Website For An Internet Domain

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TIG – The Imperators Group

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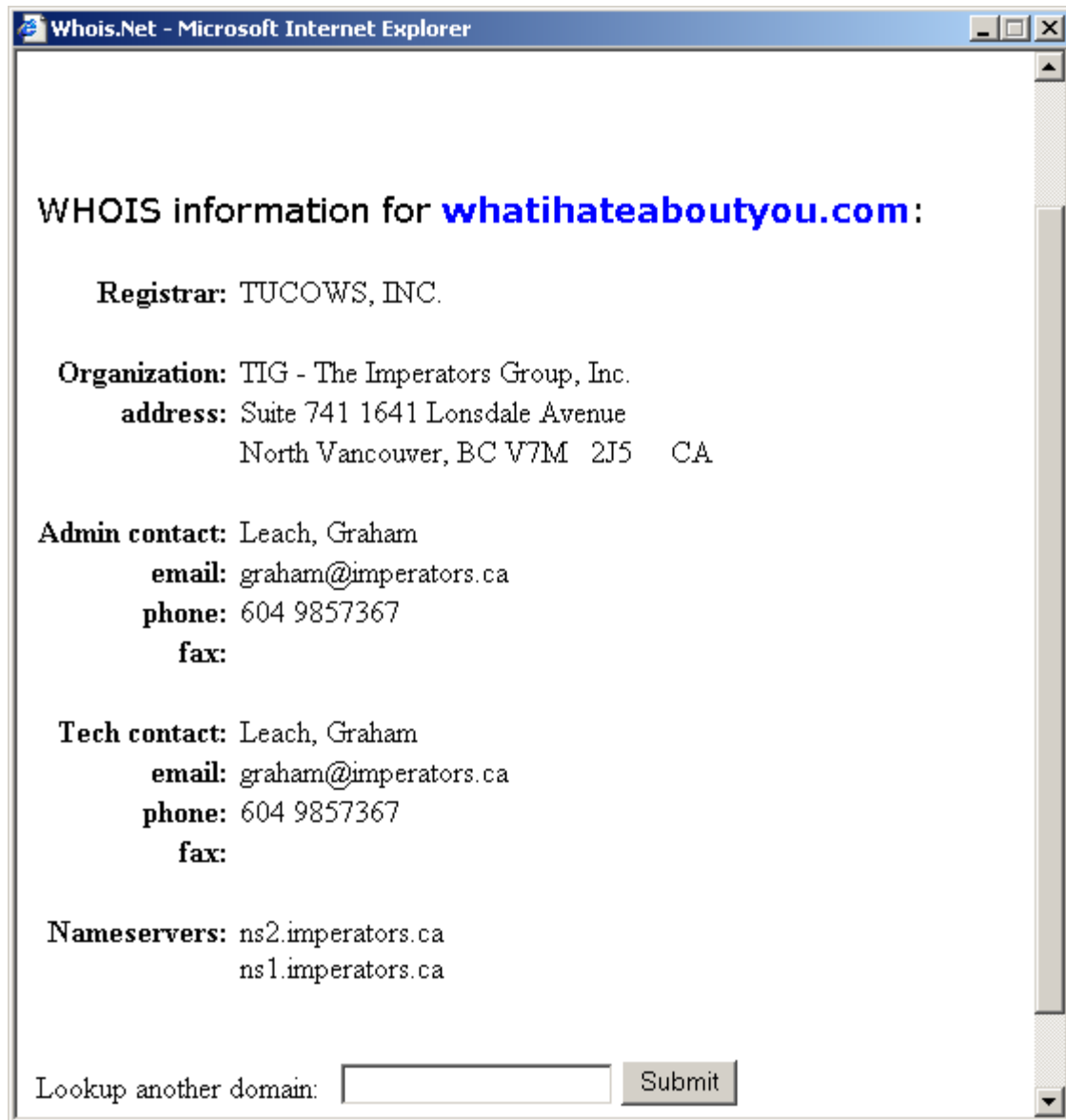
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An Activation: whatihateaboutyou.com

Our example uses a domain called **whatihateaboutyou.com**, a company that has already registered with an **Internet Registrar**.

Consider the following.



The screenshot shows a web browser window titled "Whois.Net - Microsoft Internet Explorer". The main content area displays the following information:

WHOIS information for whatihateaboutyou.com:

Registrar: TUCOWS, INC.

Organization: TIG - The Imperators Group, Inc.
address: Suite 741 1641 Lonsdale Avenue
North Vancouver, BC V7M 2J5 CA

Admin contact: Leach, Graham
email: graham@imperators.ca
phone: 604 9857367
fax:

Tech contact: Leach, Graham
email: graham@imperators.ca
phone: 604 9857367
fax:

Nameservers: ns2.imperators.ca
ns1.imperators.ca

At the bottom, there is a form with the text "Lookup another domain:" followed by a text input field and a "Submit" button.

In the example, there is a WHOIS record for the domain **whatihateaboutyou.com**. The domain is registered with **Tucows, Inc.**

The **DNS hosting** for this domain has been configured to use **name servers** provided by **imperators.ca** and the FQDN **www.whatihateaboutyou.com** is to be pointed to the IP address **203.80.245.2**.

The Activation: A High Level Overview

Bringing **www.whatihateaboutyou.com** online requires that several tasks be completed:

1. Configure the DNS hosting
 - a. Determine the IP address mapping to **www.whatihateaboutyou.com**
 - b. Configure the DNS servers to supply the IP address on demand
2. Assign the IP address for **www.whatihateaboutyou.com** to a computer
 - a. Configure an Internet-connected host to respond to the IP address
3. Configure the WWW hosting
 - a. Configure the web server to recognize **www.whatihateaboutyou.com**.
 - b. Install a "Coming Soon" website for **www.whatihateaboutyou.com**.
4. Test the Web Server

DNS Hosting Tasks

At the hosting DNS machine, two important changes must be done to activate the domain and host www.whatihateaboutyou.com:

1. The DNS server must be informed that it is responsible for a new domain .
2. A DNS database file must be created to support the DNS server.

To activate the **whatihateaboutyou.com** domain, an entry in **/etc/resolv.conf** must be created that indicates to the **named** daemon (which responds to DNS requests on **port 53**) that it is an **authority** for the domain **whatihateaboutyou.com**.

After that, a domain database file must be created in the **/var/named** subdirectory to define the entities that will exist in the **whatihateaboutyou.com**, particularly the entity named **www**.

Changes to resolv.conf

There are two entries of interest in the **/etc/named.conf** file, one tells **named** where to look for the **authority** information, the other is specific to the new **whatihateaboutyou.com** domain.

The Authorities Directory Stanza

```
options {  
    directory "/var/named";  
}
```

The above entry tells **named** to look for **authorities** in the **/var/named** directory. The next entry to look for is the actual entry for the domain:

The Domain Stanza

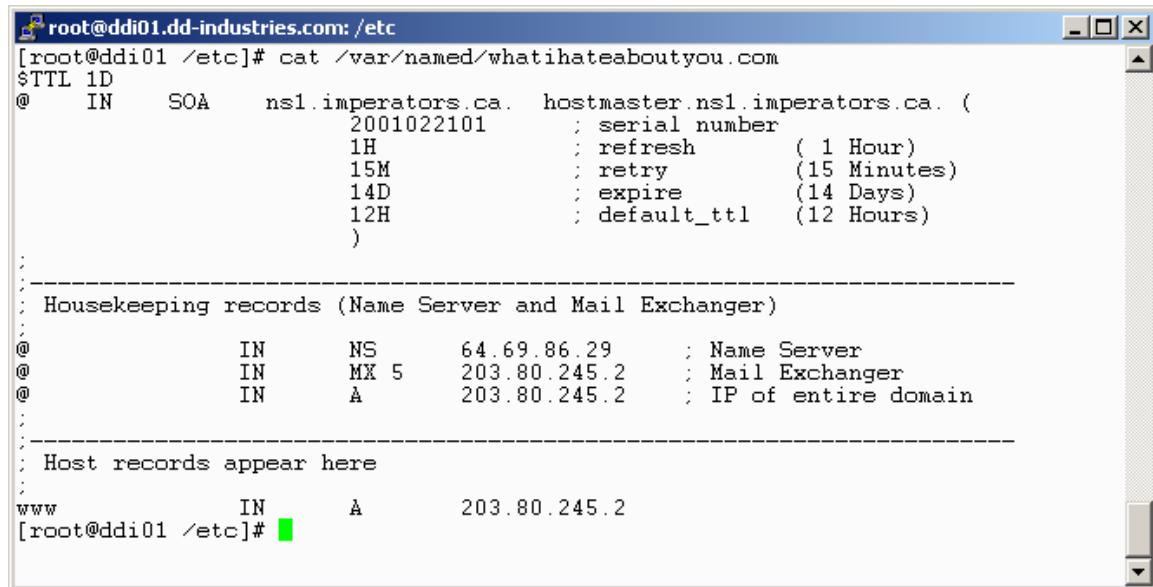
```
zone "whatihateaboutyou.com" in {  
    type master;  
    file "whatihateaboutyou.com";  
};
```

The above entry tells **named** that it is responsible for responding for requests regarding the **whatihateaboutyou.com** domain and the information for that domain is contained in a file named **whatihateaboutyou.com**.

The Authority File

Information about Internet domains is contained in specially formatted text files called **authorities**. The DNS server, **named**, reads these files into memory and then responds to resolution requests for entities within those domains on **port 53**. Here is the contents of the authority for **whatihateaboutyou.com**, contained in **/var/named/whatihateaboutyou.com**:

Consider the following:



```
root@ddi01.dd-industries.com: /etc
[root@ddi01 /etc]# cat /var/named/whatihateaboutyou.com
$TTL 1D
@      IN      SOA      ns1.imperators.ca.  hostmaster.ns1.imperators.ca. (
                                2001022101      ; serial number
                                1H               ; refresh      ( 1 Hour)
                                15M              ; retry       (15 Minutes)
                                14D              ; expire      (14 Days)
                                12H              ; default_ttl (12 Hours)
                                )
;
;-----
; Housekeeping records (Name Server and Mail Exchanger)
;
@              IN      NS       64.69.86.29      ; Name Server
@              IN      MX 5     203.80.245.2     ; Mail Exchanger
@              IN      A        203.80.245.2     ; IP of entire domain
;
;-----
; Host records appear here
;
www            IN      A        203.80.245.2
[root@ddi01 /etc]#
```

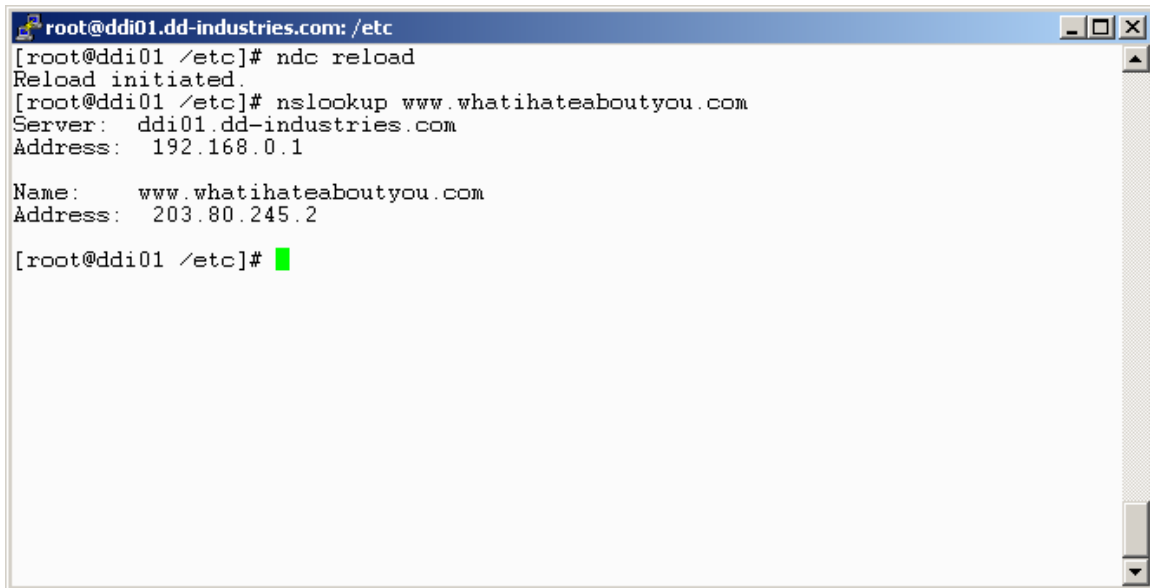
In the above example the **cat** command was used to output the contents of the authority for **whatihateaboutyou.com** to the screen. The file containing the authority for the domain is located at **/var/named/whatihateaboutyou.com**.

Authorities are complex documents. For more information about authorities, use **man named**.

Forcing named To Reload Its Data

Once the **/etc/resolv.conf** file and the **/var/named/whatihateaboutyou.com** file have been properly configured, the **named** daemon must be instructed to reload its configuration data.

Consider the following:



```
root@ddi01.dd-industries.com: /etc
[root@ddi01 /etc]# ndc reload
Reload initiated.
[root@ddi01 /etc]# nslookup www.whatihateaboutyou.com
Server: ddi01.dd-industries.com
Address: 192.168.0.1

Name: www.whatihateaboutyou.com
Address: 203.80.245.2

[root@ddi01 /etc]#
```

In the above example, the **ndc reload** command was issued to **named** to instruct it to reload its configuration, then the IP resolution for **www.whatihateaboutyou.com** was tested with the **nslookup** command, which consults **named** to resolve FQDN names to IP addresses.

The output of the **nslookup** command indicates (correctly) that the IP address of the Internet entity **www.whatihateaboutyou.com** is **203.80.245.2**.

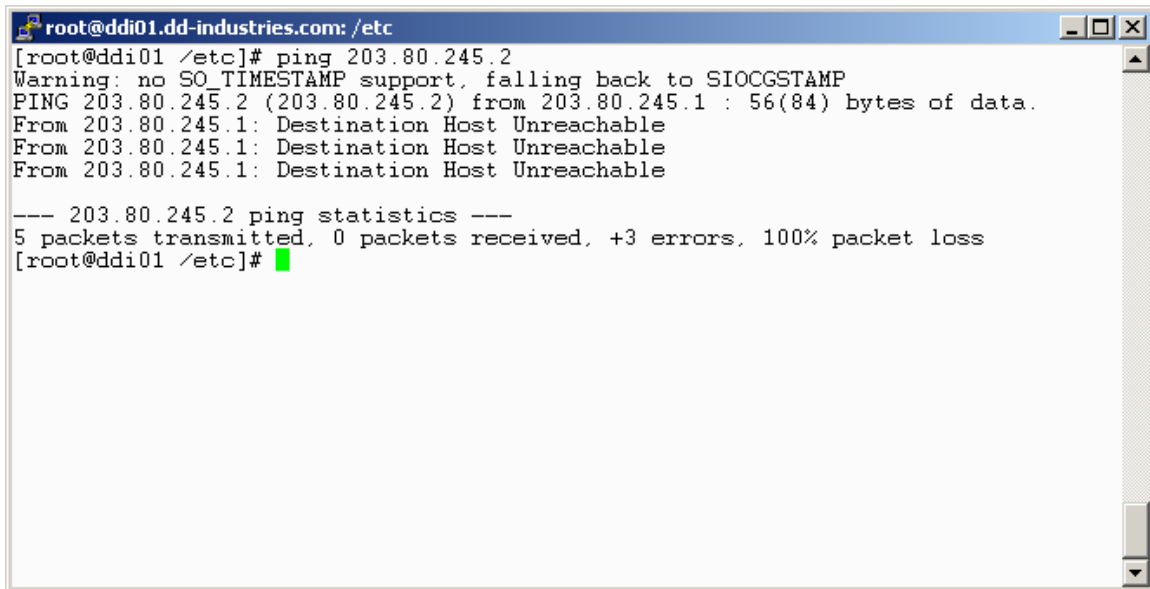
IP Address Provisioning

If the IP address assigned to the Internet entity is not already active on the Internet, it must be assigned to a physical host and that host configured to respond to that IP address.

Testing The IP Address

In our example, **www.whatihateaboutyou.com** has been assigned via DNS to the IP address **203.80.245.2**. It is prudent to test whether that IP address is currently active.

Consider the following:

A terminal window titled 'root@ddi01.dd-industries.com: /etc' showing a failed ping command. The user enters '[root@ddi01 /etc]# ping 203.80.245.2'. The output shows a warning about SO_TIMESTAMP support, followed by three 'Destination Host Unreachable' messages from 203.80.245.1. The statistics show 5 packets transmitted, 0 received, and 100% packet loss. The prompt ends with a green cursor.

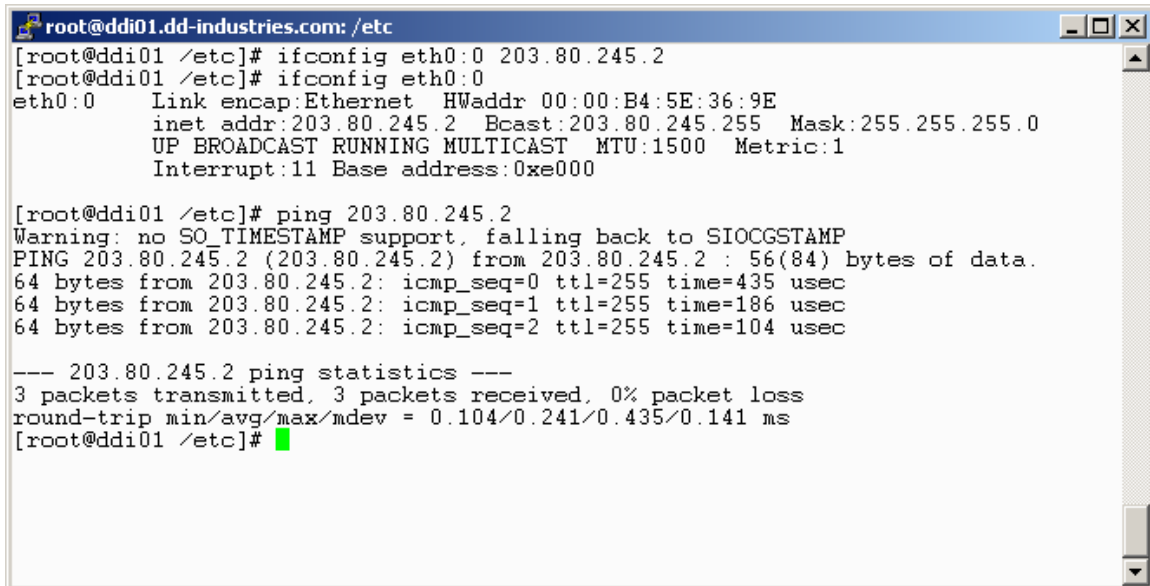
```
root@ddi01.dd-industries.com: /etc
[root@ddi01 /etc]# ping 203.80.245.2
Warning: no SO_TIMESTAMP support, falling back to SIOCGSTAMP
PING 203.80.245.2 (203.80.245.2) from 203.80.245.1 : 56(84) bytes of data.
From 203.80.245.1: Destination Host Unreachable
From 203.80.245.1: Destination Host Unreachable
From 203.80.245.1: Destination Host Unreachable

--- 203.80.245.2 ping statistics ---
5 packets transmitted, 0 packets received, +3 errors, 100% packet loss
[root@ddi01 /etc]#
```

In the above example the IP address 203.80.245.2 is demonstrated to be inactive.

Activating The IP Address

Consider the following:

A terminal window titled 'root@ddi01.dd-industries.com: /etc' showing the execution of network commands. The user runs 'ifconfig eth0:0 203.80.245.2' and 'ifconfig eth0:0'. The output of 'ifconfig eth0:0' shows the interface is up and running with a broadcast address of 203.80.245.255 and a metric of 1. Then, the user runs 'ping 203.80.245.2'. The output shows three successful ping requests with decreasing response times (435, 186, and 104 usec). Finally, the user runs 'ping 203.80.245.2' again, which shows the statistics: 3 packets transmitted, 3 received, 0% loss, with round-trip times of 0.104, 0.241, and 0.435 ms.

```
root@ddi01.dd-industries.com: /etc
[root@ddi01 /etc]# ifconfig eth0:0 203.80.245.2
[root@ddi01 /etc]# ifconfig eth0:0
eth0:0      Link encap:Ethernet  HWaddr 00:00:B4:5E:36:9E
            inet addr:203.80.245.2  Bcast:203.80.245.255  Mask:255.255.255.0
            UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
            Interrupt:11  Base address:0xe000

[root@ddi01 /etc]# ping 203.80.245.2
Warning: no SO_TIMESTAMP support, falling back to SIOCGSTAMP
PING 203.80.245.2 (203.80.245.2) from 203.80.245.2 : 56(84) bytes of data.
64 bytes from 203.80.245.2: icmp_seq=0 ttl=255 time=435 usec
64 bytes from 203.80.245.2: icmp_seq=1 ttl=255 time=186 usec
64 bytes from 203.80.245.2: icmp_seq=2 ttl=255 time=104 usec

--- 203.80.245.2 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max/mdev = 0.104/0.241/0.435/0.141 ms
[root@ddi01 /etc]#
```

In the example, the IP address **203.80.25.2** was assigned to the **eth0:0** interface of a host already connected to the Internet.

Full interface information was then obtained with the **ifconfig eth0:0** command and the functionality tested with the **ping 203.80.245.2** command.

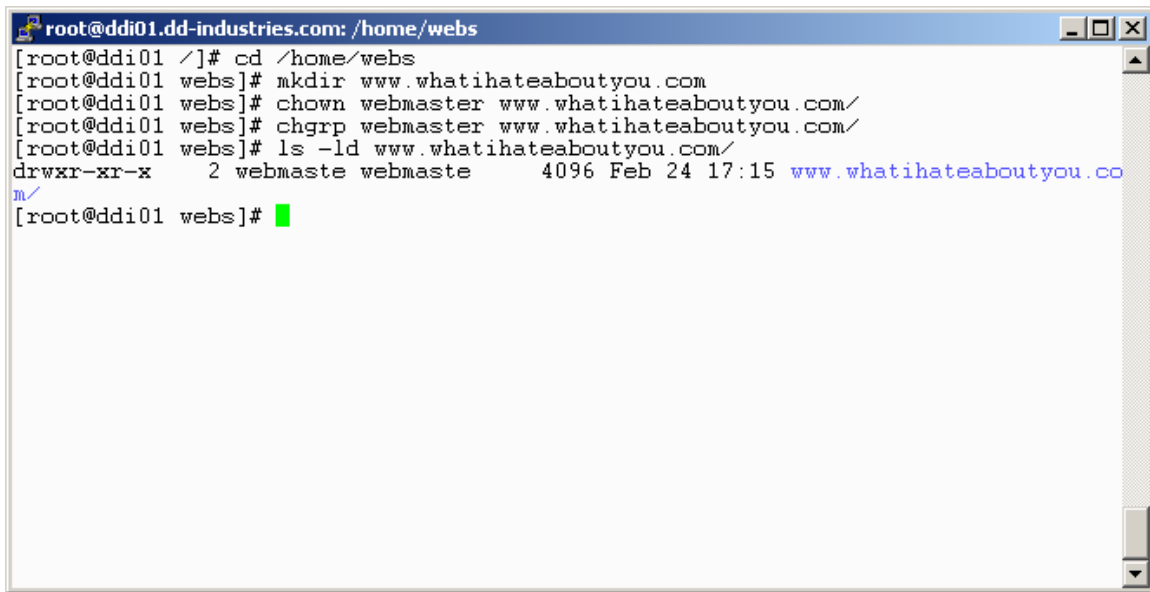
Website Directory Preparation

Websites are composed of files that a web server process (in this case **httpd**) reads and provides to inquiring web clients (also called **browsers**).

The Main Directory

A directory must be created on the hosting server to hold the content that will ultimately compose **www.whatihateaboutyou.com**.

Consider the following:

A terminal window titled 'root@ddi01.dd-industries.com: /home/webs' showing a series of commands and their output. The commands are: 'cd /home/webs', 'mkdir www.whatihateaboutyou.com', 'chown webmaster www.whatihateaboutyou.com/', and 'chgrp webmaster www.whatihateaboutyou.com/'. The final command is 'ls -ld www.whatihateaboutyou.com/', which outputs 'drwxr-xr-x 2 webmaster webmaster 4096 Feb 24 17:15 www.whatihateaboutyou.com/'. The prompt is '[root@ddi01 webs]#'.

```
root@ddi01.dd-industries.com: /home/webs
[root@ddi01 /]# cd /home/webs
[root@ddi01 webs]# mkdir www.whatihateaboutyou.com
[root@ddi01 webs]# chown webmaster www.whatihateaboutyou.com/
[root@ddi01 webs]# chgrp webmaster www.whatihateaboutyou.com/
[root@ddi01 webs]# ls -ld www.whatihateaboutyou.com/
drwxr-xr-x  2 webmaster webmaster 4096 Feb 24 17:15 www.whatihateaboutyou.co
m/
[root@ddi01 webs]#
```

In the example, the **/home/webs/www.whatihateaboutyou.com** directory was created and assigned to the user **webmaster**.

The “Coming Soon” Website

To properly test the website provisioning for **www.whatihateaboutyou.com**, a small “coming soon” web page will be installed in the directory to make sure that everything is working as it should be.

A terminal window titled 'webmaster@ddi01.dd-industries.com: /home/webs/www.whatihateaboutyou.com'. The window shows a series of commands and their outputs. The user runs 'whoami' and receives 'webmaster'. Then, they run 'cat - > index.html' to create a new file. The file is populated with HTML code for a 'Coming Soon' page. The code includes a title 'www.whatihateaboutyou.com - coming soon!', a heading 'Coming Soon...', and a paragraph tag. The terminal ends with a green cursor.

```
webmaster@ddi01.dd-industries.com: /home/webs/www.whatihateaboutyou.com
[webmaster@ddi01 www.whatihateaboutyou.com]$ whoami
webmaster
[webmaster@ddi01 www.whatihateaboutyou.com]$ cat - > index.html
<HTML>
<HEAD>
<TITLE>
www.whatihateaboutyou.com - coming soon!
</TITLE>
</HEAD>
<BODY>
<H1>Coming Soon...</H1>
<P>
</BODY>
</HTML>
[webmaster@ddi01 www.whatihateaboutyou.com]$
```

The logs Subdirectory

The webserver uses two special files, **access** and **error** for troubleshooting, tracking and auditing purposes. These files typically exist in the **logs** subdirectory. All must be created at this point.

Consider the following:

A terminal window titled 'webmaster@ddi01.dd-industries.com: /home/webs/www.whatihateaboutyou.com/logs'. The terminal shows the following commands and output:

```
[webmaster@ddi01 webs]$ cd www.whatihateaboutyou.com/  
[webmaster@ddi01 www.whatihateaboutyou.com]$ mkdir logs  
[webmaster@ddi01 www.whatihateaboutyou.com]$ ls  
index.html  logs  
[webmaster@ddi01 www.whatihateaboutyou.com]$ cd logs  
[webmaster@ddi01 logs]$ touch access  
[webmaster@ddi01 logs]$ touch error  
[webmaster@ddi01 logs]$ ls  
access  error  
[webmaster@ddi01 logs]$
```

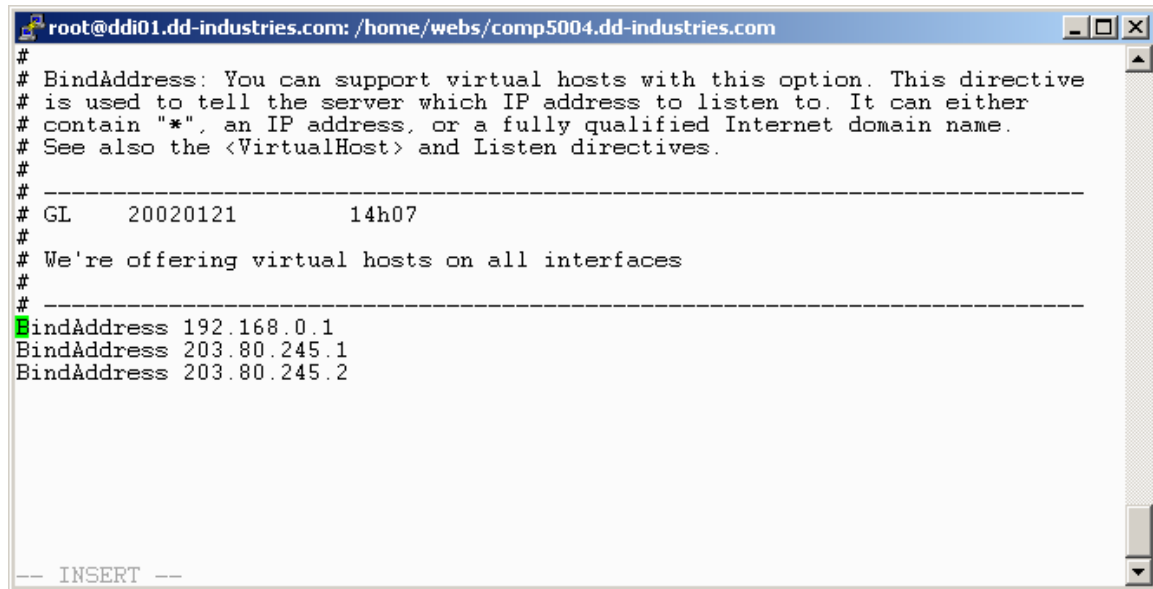
in the example the **logs** subdirectory was created and the files **access** and **error** created in that subdirectory.

Provisioning The Web Server

The IP Addresses Stanza

The BindAddress Directive

Consider the following:



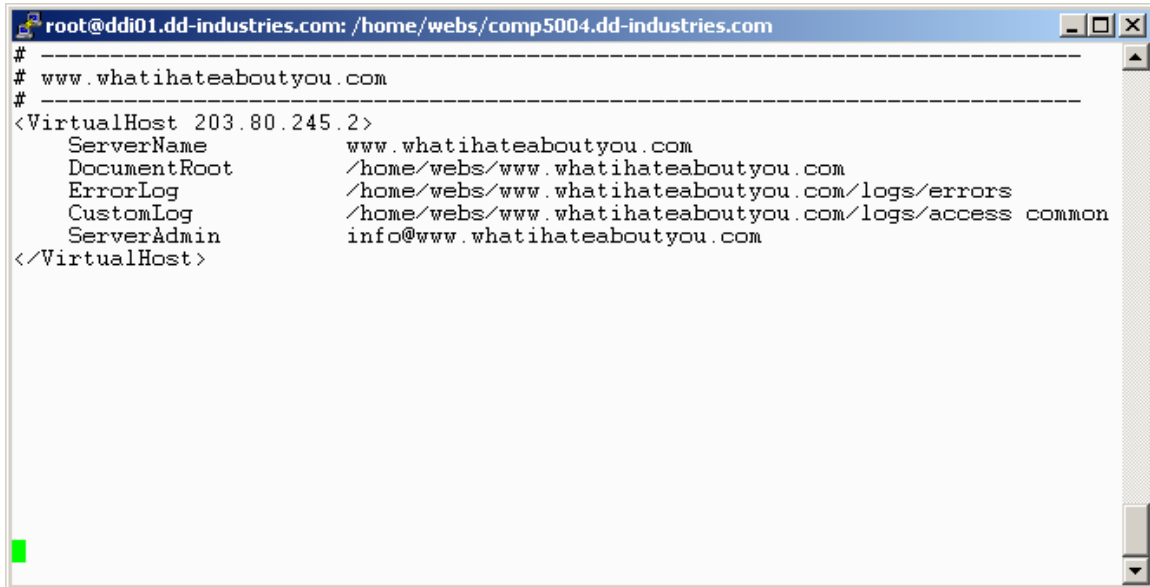
```
root@ddi01.dd-industries.com: /home/webs/comp5004.dd-industries.com
#
# BindAddress: You can support virtual hosts with this option. This directive
# is used to tell the server which IP address to listen to. It can either
# contain "*", an IP address, or a fully qualified Internet domain name.
# See also the <VirtualHost> and Listen directives.
#
# -----
# GL      20020121      14h07
#
# We're offering virtual hosts on all interfaces
#
# -----
BindAddress 192.168.0.1
BindAddress 203.80.245.1
BindAddress 203.80.245.2

-- INSERT --
```

In the example the **httpd** web server was made aware that it is to listen for incoming http requests for the IP address **203.80.245.2**.

The Web Site Stanza

Consider the following:

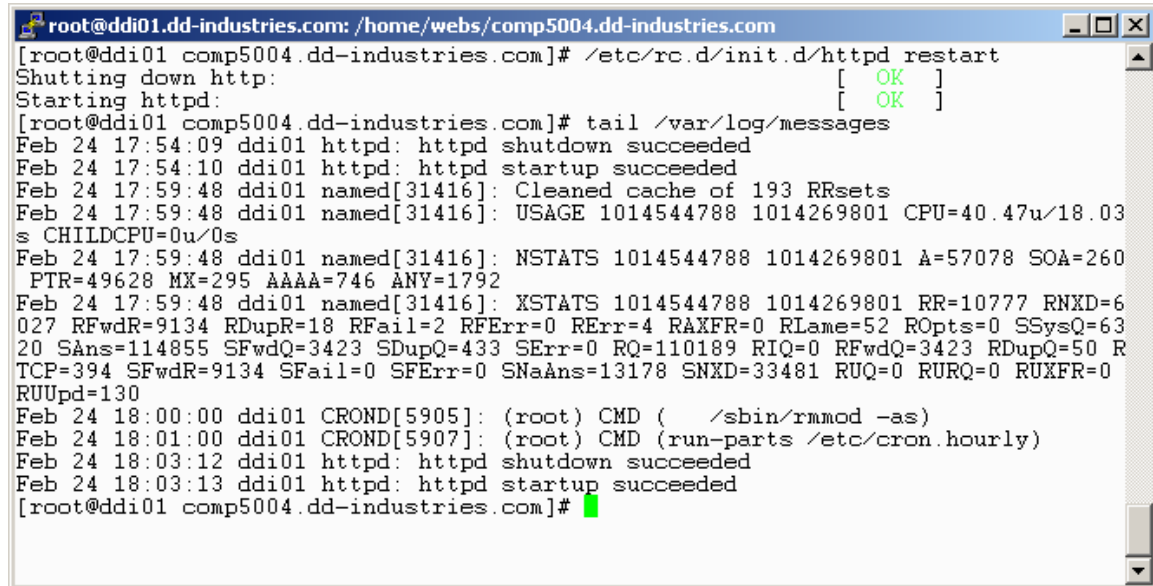
A terminal window with a blue title bar containing the text 'root@ddi01.dd-industries.com: /home/webs/comp5004.dd-industries.com'. The terminal content shows the configuration of a VirtualHost for the website www.whatihateaboutyou.com. The configuration is enclosed in XML-like tags: <VirtualHost 203.80.245.2>. Inside, several directives are listed: ServerName (www.whatihateaboutyou.com), DocumentRoot (/home/webs/www.whatihateaboutyou.com), ErrorLog (/home/webs/www.whatihateaboutyou.com/logs/errors), CustomLog (/home/webs/www.whatihateaboutyou.com/logs/access common), and ServerAdmin (info@www.whatihateaboutyou.com). The block ends with </VirtualHost>. The terminal has a scrollbar on the right and a small green cursor at the bottom left.

```
root@ddi01.dd-industries.com: /home/webs/comp5004.dd-industries.com
#
# www.whatihateaboutyou.com
#
<VirtualHost 203.80.245.2>
    ServerName      www.whatihateaboutyou.com
    DocumentRoot    /home/webs/www.whatihateaboutyou.com
    ErrorLog         /home/webs/www.whatihateaboutyou.com/logs/errors
    CustomLog        /home/webs/www.whatihateaboutyou.com/logs/access common
    ServerAdmin      info@www.whatihateaboutyou.com
</VirtualHost>
```

in the example, a website entry has been added to **/etc/httpd/conf/httpd.conf** detailing the specifics for the website **www.whatihateaboutyou.com**.

Restarting the Apache

Consider the following:



```
root@ddi01.dd-industries.com: /home/webs/comp5004.dd-industries.com
[root@ddi01 comp5004.dd-industries.com]# /etc/rc.d/init.d/httpd restart
Shutting down httpd: [ OK ]
Starting httpd: [ OK ]
[root@ddi01 comp5004.dd-industries.com]# tail /var/log/messages
Feb 24 17:54:09 ddi01 httpd: httpd shutdown succeeded
Feb 24 17:54:10 ddi01 httpd: httpd startup succeeded
Feb 24 17:59:48 ddi01 named[31416]: Cleaned cache of 193 RRsets
Feb 24 17:59:48 ddi01 named[31416]: USAGE 1014544788 1014269801 CPU=40.47u/18.03
s CHILD CPU=0u/0s
Feb 24 17:59:48 ddi01 named[31416]: NSTATS 1014544788 1014269801 A=57078 SOA=260
PTR=49628 MX=295 AAAA=746 ANY=1792
Feb 24 17:59:48 ddi01 named[31416]: XSTATS 1014544788 1014269801 RR=10777 RNXD=6
027 RFwdR=9134 RDupR=18 RFail=2 RFErr=0 RErr=4 RAXFR=0 RLame=52 ROpts=0 SSysQ=63
20 SAns=114855 SFwdQ=3423 SDupQ=433 SErr=0 RQ=110189 RIQ=0 RFwdQ=3423 RDupQ=50 R
TCP=394 SFwdR=9134 SFail=0 SFErr=0 SNaAns=13178 SNXD=33481 RUQ=0 RURQ=0 RUXFR=0
RUUpd=130
Feb 24 18:00:00 ddi01 CROND[5905]: (root) CMD ( /sbin/rmmod -as)
Feb 24 18:01:00 ddi01 CROND[5907]: (root) CMD (run-parts /etc/cron.hourly)
Feb 24 18:03:12 ddi01 httpd: httpd shutdown succeeded
Feb 24 18:03:13 ddi01 httpd: httpd startup succeeded
[root@ddi01 comp5004.dd-industries.com]#
```

In the above example the Apache web server, **httpd**, was restarted and any possible error messages were looked for in the **/var/log/messages** logfile.

Testing The Result

Testing With Telnet

Consider the following:

A terminal window titled 'root@ddi01.dd-industries.com: /home/webs/comp5004.dd-industries.com'. The prompt is '[root@ddi01 comp5004.dd-industries.com]#'. The user enters 'telnet www.whatihateaboutyou.com 80'. The output shows the connection attempt to IP 203.80.245.2, successful connection, and the retrieval of an HTML page. The HTML content includes a title 'www.whatihateaboutyou.com - coming soon!' and a body with 'Coming Soon...'. The connection is then closed by the foreign host.

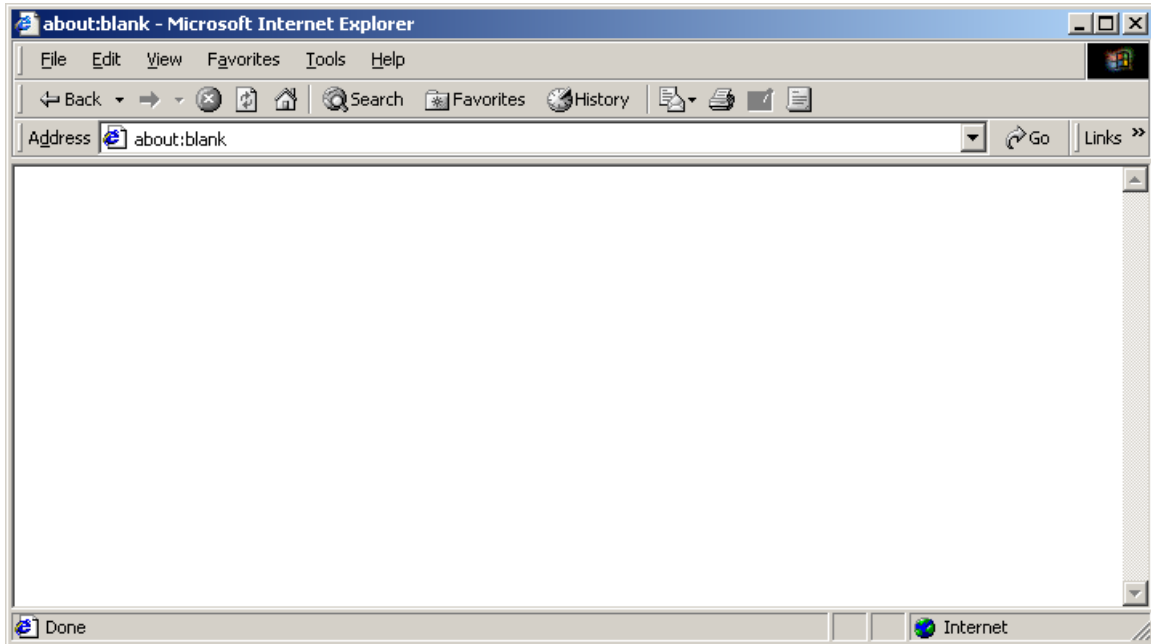
```
[root@ddi01 comp5004.dd-industries.com]# telnet www.whatihateaboutyou.com 80
Trying 203.80.245.2...
Connected to www.whatihateaboutyou.com.
Escape character is '^]'.
GET //index.html
<HTML>
<HEAD>
<TITLE>
www.whatihateaboutyou.com - coming soon!
</TITLE>
</HEAD>
<BODY>
<H1>Coming Soon...</H1>
<P>
</BODY>
</HTML>
Connection closed by foreign host.
[root@ddi01 comp5004.dd-industries.com]#
```

In the example the **telnet** command is being used to test whether the web server for **www.whatihateaboutyou.com** is working properly.

The response indicates that it is.

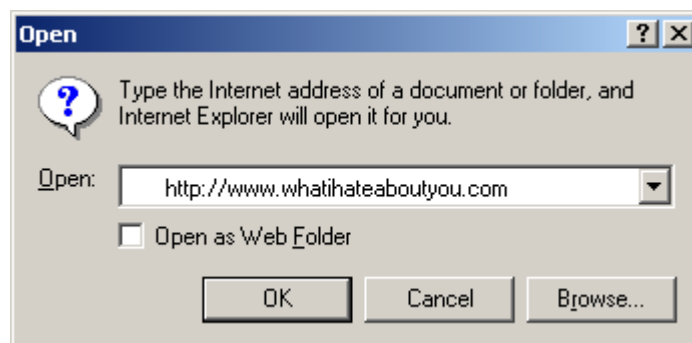
Testing With Internet Explorer

Consider the following:



In the example the **Internet Explorer** default page is displayed. Press **CTRL-O** to supply the FQDN of an Internet entity to browse.

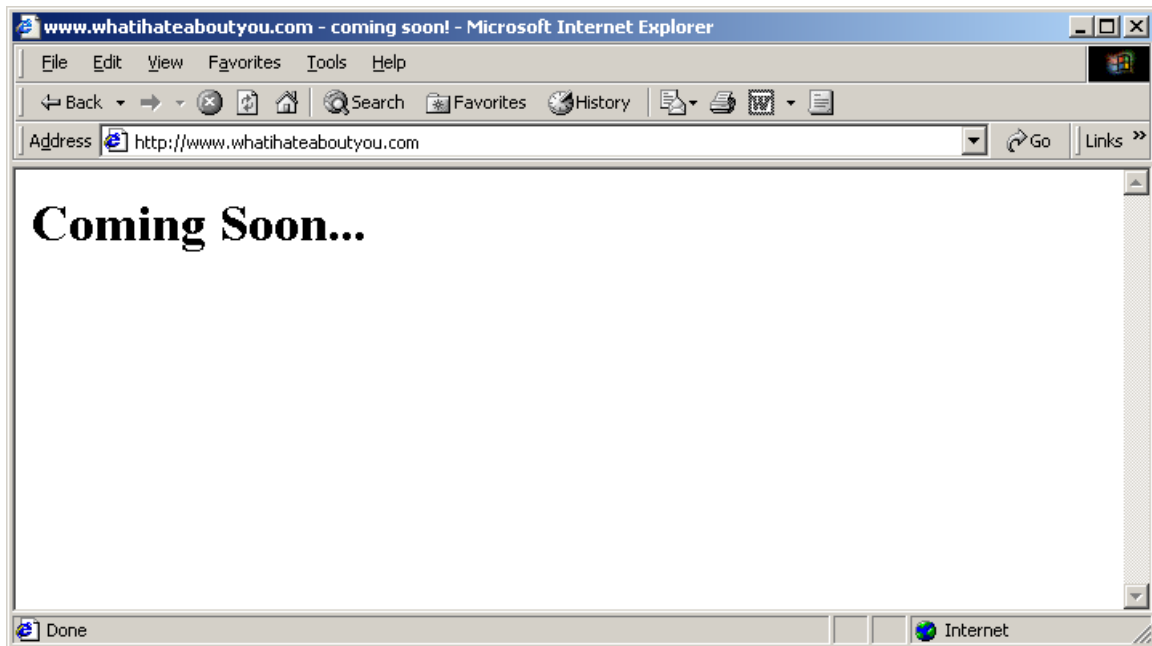
Consider the following:



In the example the FQDN **www.whatihateaboutyou.com** has been supplied as the Internet entity to be browsed by **Internet Explorer**.

The Running Website

Consider the following:



In the example the running web server can be seen to be operating.