JISC Regional Support Centre of the NORTH

Setting up the DNS for Windows NT with less than 256 addresses

- The following example is based on a college being assigned 16 addresses, the college as been assigned the range 200.200.200.17 – 200.200.200.32

Requires NT Server
TCP/IP protocol
Microsoft DNS Server service
Latest Service Pack minimum 6a

The DNS Manager tool administers the Domain Name System (DNS). DNS is networked, distributed database that manages the mapping of TCP/IP hostnames to IP addresses and IP addresses to Hostnames. The inclusion of a DNS server in NT 4.0 enables NT to provide Internet services without having to rely on other non NT platforms.

DNS data is complex and requires all entries to be in exact format. DNS Manager acts as a front end to the DNS data files and ensures that the files are maintained in the correct format. You are still responsible for making sure that the data itself makes sense.

The following terms are used within DNS Manager

- A *server* is the DNS service running on an NT computer.
- A *Zone* is an administration grouping of domain names
- A *domain name* is a name that identifies an organisation on the Internet.
- A *record* is the individual unit of DNS data.

Simple Configuration for NT Server DNS Manager

Installing the DNS Service

1. Start the Network Control Panel Applet (***Start*** - ***Settings*** - ***Control Panel*** - ***Network***)

2. Click the **Services** tab and click **Add**

3. Select "**Microsoft DNS Server**" and click **OK**

4. The software will be installed and the machine will then reboot (it may ask for the NT Server CD)

Installing the latest service pack

1. Install the Latest service pack, available from http://www.microsoft.com

2. Reboot the server

To add a zone on the DNS Server

1. Start the DNS Manager (***Start - Programs - Administrative Tools - DNS Manager***)

2. From the DNS menu, select New Server and enter the IP address of the DNS Server, e.g.

   195.195.200.18

   click **OK**

3. The server will now be displayed with a CACHE sub part

   Next we want to add the domain, e.g. ***sunshine-coll.ac.uk.*** *from the DNS menu,*

4. Select **New Zone** Select **Primary** and click **Next**

5. Enter your domain name

   sunshine-coll.ac.uk.

   > **nb.** *ensure there is a* **.** *at the end to fully qualify the domain name*

   and then click **tab**, it will fill in the Zone File Name

   Click **Next**

   Click **Finish**

Changing the SOA record

The SOA record needs to be updated for the DNS to work correctly change the administrator to a correct Email and address and the serial number to the format

2000100501 year/month/day/sequence

6. Add a record for the DNS server, by right clicking on the domain and select "**New Record**" enter the hostname eg, **dns0**. For adding a new host accept the default, record type **A** and enter and IP address, e.g. **195.195.200.18** and click **OK**

7. Enter a record for the web server, e.g. **www**, and enter and IP address, e.g. **195.195.200.19**, set the record type to **A** and click **OK**

To add a reverse zone on the DNS Server

8. When you created you're the forward zone a reverse zone was automatically created, such as **200.195.195.in-addr.arpa**

Right click on the reverse zone and select **delete zone**

9. Select **DNS**, **New Zone** Select **Primary** and click **Next**

In the Zone name field enter

16/28.200.195.195.in-addr.arpa

In the Zone File field enter

16.28.200.195.195.in-addr.arpa.dns

nb. *In the Zone Field the / is substituted for a* **.** *as DOS cannot accept / in filenames*

nb. *16 is the start of the IP allocation, 28 is the subnet mask*

Click **Next** then **Finish**

You now need to stop the DNS server to enable you to manually edit the reverse text file created.

Click on **Start**, **Run** and enter the text **cmd** then click on **OK**

Type in the command

net stop dns

nb. *It is important that you stop the DNS service before editing the Zone files or you may lose manually recorded information.*

Open **notepad** and change to the directory **c:\winnt\system32\dns**

Open the file **16.28.200.195.195.in-addr.arpa.dns**

The file will look something similar to below: -

```
;
;  Database file 16.28.200.195.195.in-addr.arpa.dns for 16/28.200.195.195.in-addr.arpa zone.
;  Zone version:  1
;
@                       IN  SOA dns0.sunshine-coll.ac.uk. . (
                        1     ; serial number
                        3600        ; refresh
                        600         ; retry
                        86400       ; expire
                        3600         ) ; minimum TTL
@                       NS        dns0.sunshine-coll.ac.uk.
;
;  Zone NS records
;
```

You now need to create the PTR records for each host you added to the forward Zone.

Enter the two A records you added earlier to the bottom of the file

18	PTR	dns0.sunshine-coll.ac.uk.
19	PTR	www.sunshine-coll.ac.uk.

nb. *Ensure there is a* **.** *at the end to fully qualify the domain name*

nb. *Follow the above procedure for any additional records you add*

nb. *Ensure that there is a carriage return after the last record*

nb. *Change the serial number everytime you manually update the file*

nb. *Only edit the reverse Zone manually, never use the GUI*

Save and **Exit** the file

From the **cmd** prompt, type in the command

net start dns

Host on the Internet should now be able to perform a reverse lookup for IP addresses.

Records which need to be added

Name	Record type	Other info
<Gateway>	A	router ip address
Secondary DNS	NS	Domain name of the secondary server

Configuring a client to use the DNS?

For an NT machine (and Windows 95) perform the following:

1. Start the Network Control Panel Applet (**Start - Settings - Control Panel - Network**)

2. Select the **Protocols** tab

3. Select **TCP/IP** and select **Properties**

4. Click the **DNS** tab

5. Make sure the machines name is entered in the first box e.g. **PC1**, and the domain name, e.g. **sunshine-coll.ac.uk** in the Domain box

6. In the DNS Server part click **Add**, and in the dialog box enter the **IP address** of the DNS Server and click **Add**

7. In the Domain Suffix Search Order part, click **Add** and enter the domain, e.g. **sunshine-coll.ac.uk** and then click Add

8. Click **OK**

To test, you can start a command prompt and enter

nslookup pc1.sunshine-coll.ac.uk

The IP address of PC1 will be displayed. Also try the reverse translation by entering

nslookup 195.195.200.x

The name PC1 will be displayed.

The DNS entries for the registry are located at

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters

The Text files are located in the directory

C:\winnt\system32\dns

More detailed information regarding setting up Windows NT DNS for use with classless ip addresses is available at

http://support.microsoft.com/support/kb/articles/Q174/4/19.ASP