TechNote

Windows 2003

How to Configure the Windows DNS Server

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Objective

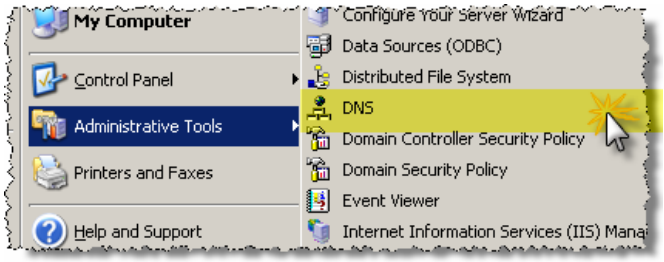
This document demonstrates how to configure domains and record on the Windows 2003 DNS Server. Windows 2003 DNS Server is the de facto DNS server used with Active Directory.

Detailed Table of Contents

Overview

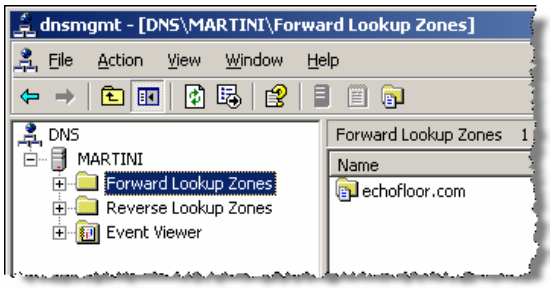
Windows 2003 DNS Server Management is managed by the **dnsmgmt** console. The console can be opened by going to **Start > Administrative Tools > DNS**.

Figure 1: Invoking Windows 2003 DNS Server



The DNS Server Management Console (Figure 2) divides itself into Forward Lookup Zones and Reverse Lookup Zones. Reverse Lookup Zones contain the Reverse DNS or PTR records information whereas the Forward lookup zones contain all the other records.

Figure 2: DNS Server Management Console



Normally each zone represents a domain. Different records can be added to each zone.

DNS Record Types

There are 6 basic types of DNS records.

Table 1: DNS Record Types

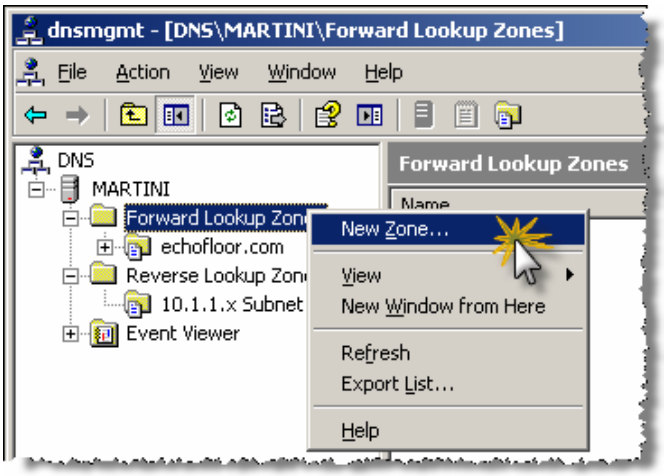
DNS Record	Description
CNAME	CNAME or alias, records add secondary DNS names attached to an A record
MX	MX, or mail exchange, records describe the machines to contact in order to send mail to a given DNS node;
NS	An NS record tells name servers which machines are in charge of a given domain Zone;
SOA	This is a record used when using DNS to synchronize data between multiple computers.
SPF	SPF records are actually TXT records.
PTR	PTR or Pointer, records are used in reverse DNS and describe the DNS name to a given IP address

Note: A given zone must have precisely one SOA record. Microsoft DNS server will set itself as SOA by default when creating a zone.

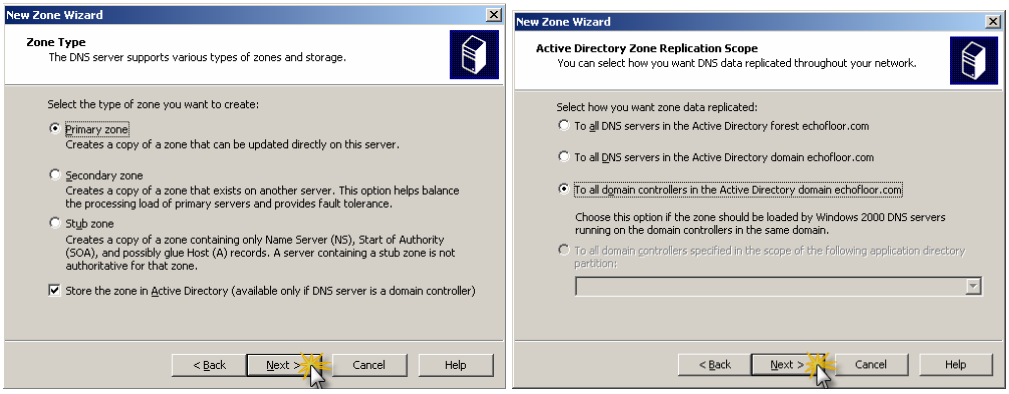
Section 2: Adding a New Zone

The DNS server uses a different zone for each domain. To add a new zone, follow the procedure described below.

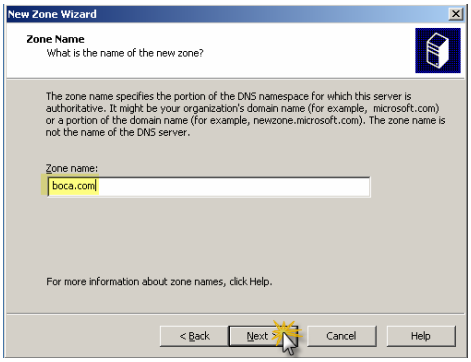
1. Select **DNS > Server Name > Forward Look-up Zone**, right click and choose **New Zone**.



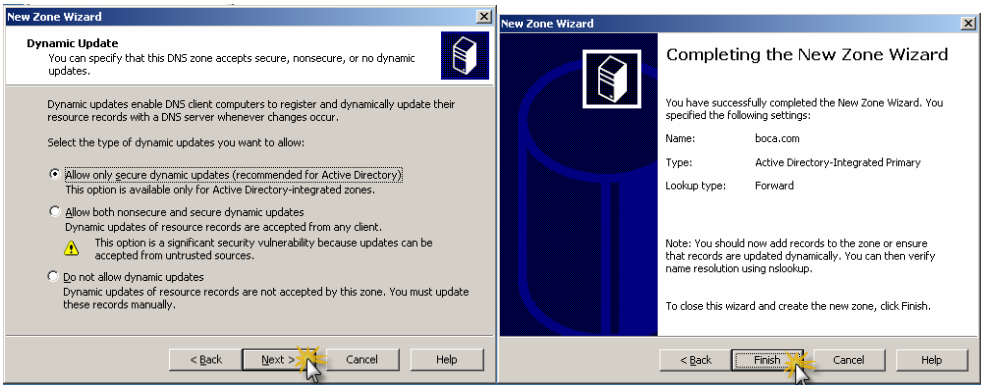
2. Choose **Primary zone**, click on **Next** and, then, click **Next** again.



3. Enter the domain name (for example, `boca.com`) and click **Next**.

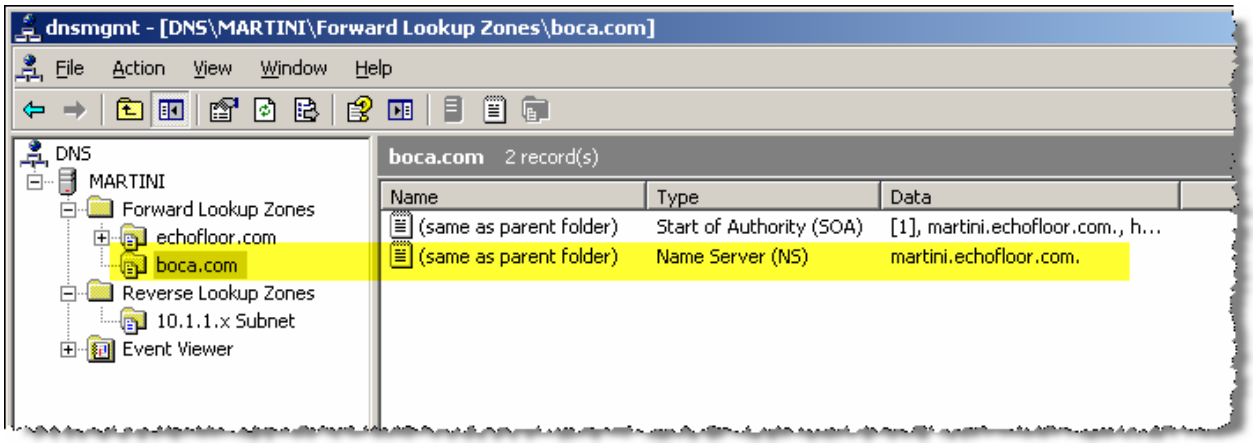


4. Click on **Next** and then **Finish**.



The zone for boca.com will show up in the dnsmgmt window.

Figure 3: Just added Boca.com Zone



Section 2: Adding Records to a Zone

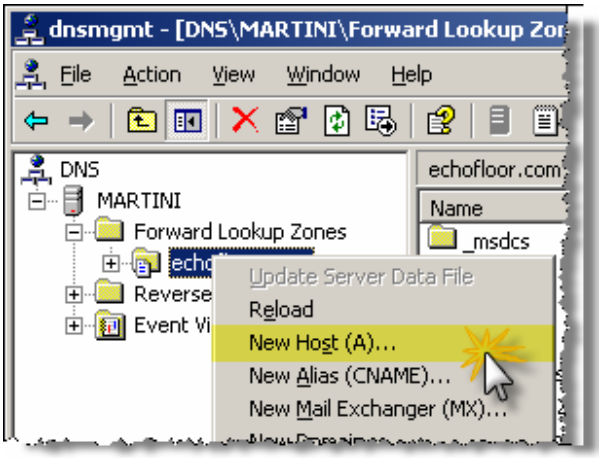
This section shows how different DNS record types can be added to a zone.

Adding an A Record

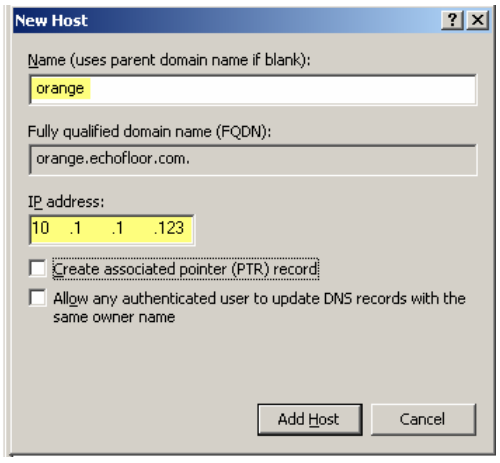
An A record, or host record consists of a name and an IP address.

To add an A record:

1. Under forward lookup zones, select the zone to which the A record will be added. In this example this would be echofloor.com.
2. Right click and select **New Host (A).**



3. Fill in the Name (the domain name will be automatically added) and IP address;



4. Optionally check the **Create associated pointer record** (also see next section).
5. Verify by typing `nslookup orange.echofloor.com` from the Windows command prompt.

The record can be verified on the same server by using nslookup.

Note: Duplicate A records can be created to map a DNS name to multiple IP addresses.

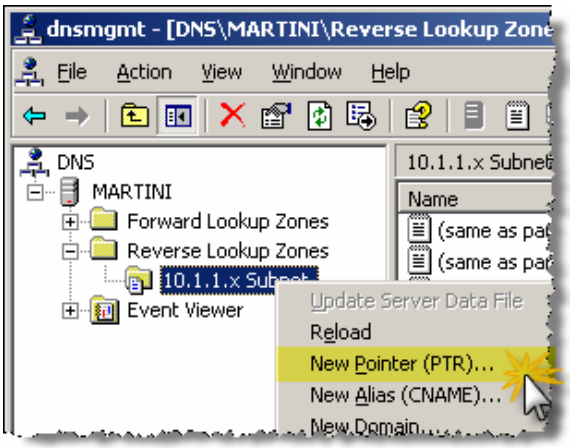
Adding a PTR Record

A PTR, or pointer record, consists of a Host IP Number and a Host name. Note that unlike other records, PTR records are created in the Reverse Lookup Zone.

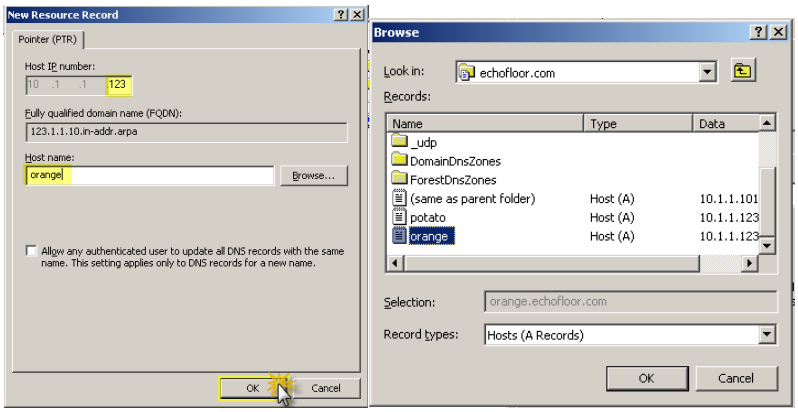
To add a PTR record:

1. Under reverse lookup zones select the subnet to which a reverse DNS address name is to be added.

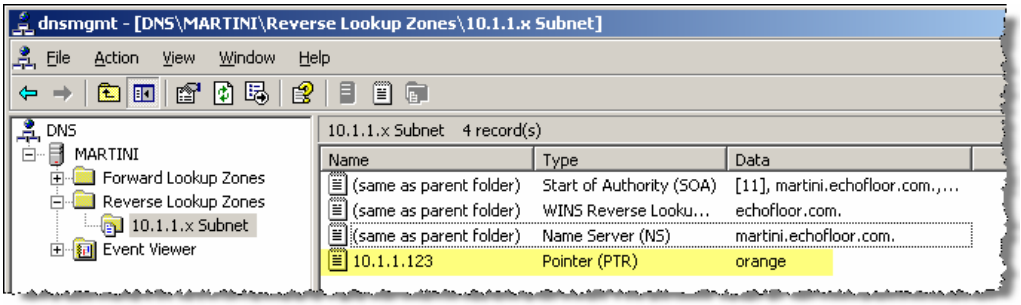
6. Right click and select **New Pointer** (PTR).



7. Enter the Host IP number. Enter the Host name or Browse to the appropriate A record (if already created).



8. Verify that the PTR record is created in the **Reverse Lookup Zone**.



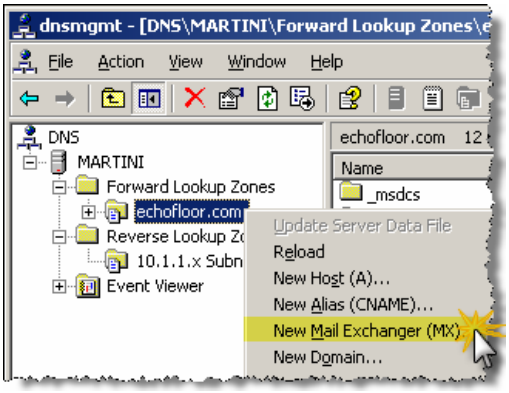
Adding an MX Record

An MX record, or Mail Exchanger record, consists of a domain name, an A record, and a priority.

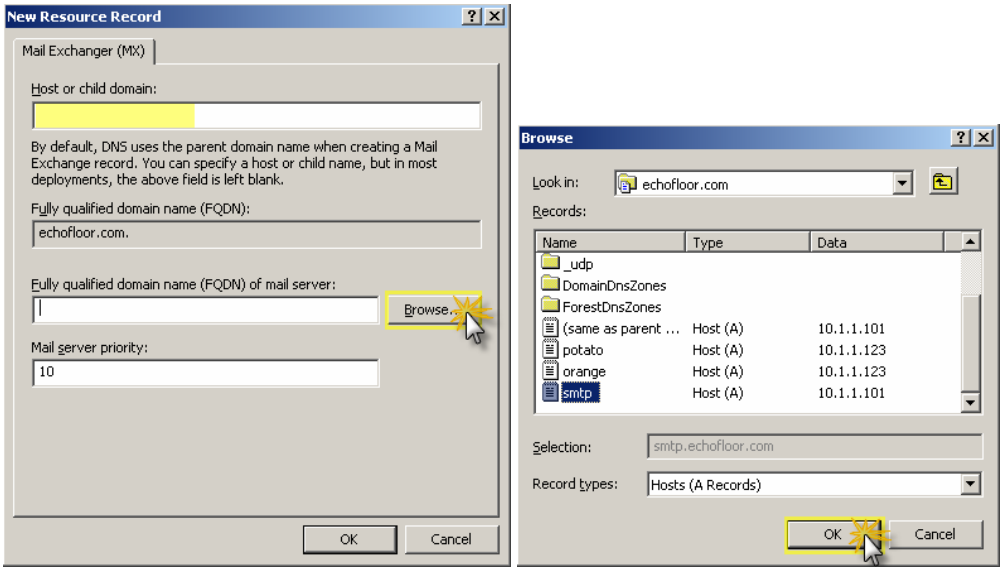
Priority is used for failover. The lowest priority will be used first.

To add an MX record:

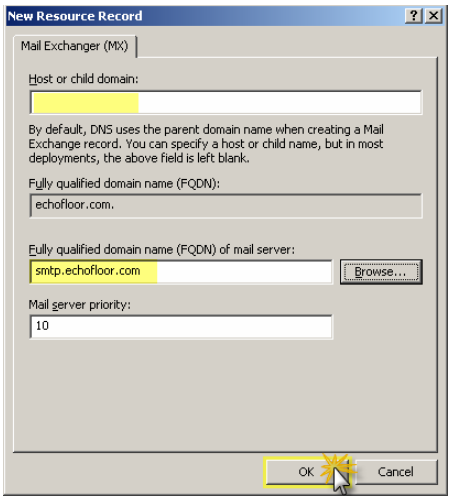
1. Under forward lookup zones, select the zone to which the A record will be added. In the example below, this would be echofloor.com.
2. Right click and select **New Mail Exchange (MX)**.



3. Set the hostname (in this case it is kept blank because it is the MX record for the root of the domain echofloor.com) and browse to the existing (A) record pointing to the email server.

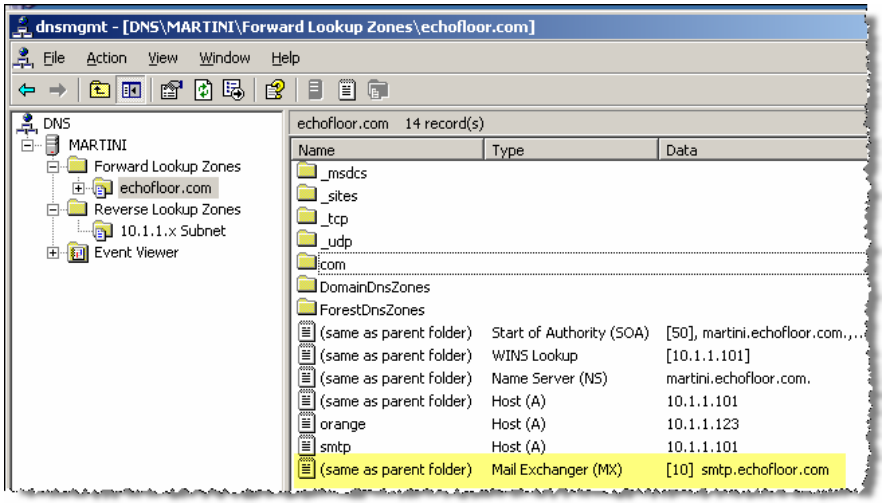


4. Set the Mail Server Priority (default is 10).



The MX record will show under the echofloor.com domain.

Figure 4: Just added an MX record

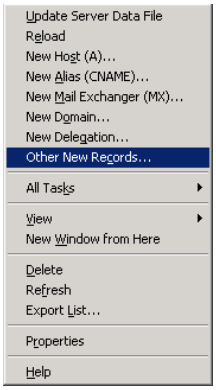


Adding an SPF (or TXT) Record

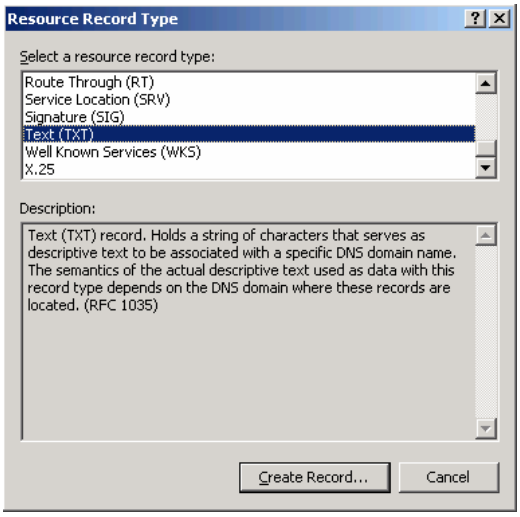
An SPF (Sender Policy Framework) record consists of an optional Record name. With SPF a domain can inform the IP addresses that are allowed to send email on its behalf.

To add an SPF record:

2. Select **Other New Records**.



5. Select **Text (TXT)**.



6. Add the Text "`v=spf1 mx -all`".
7. Click **Ok**.
8. Repeat the process but add the Mail Server's name in the **Record name** field.

An Example: Adding a Complete Domain

Overview

In this example, different DNS settings are configured for the domain boca.com as indicated in Table 2.

The setup is such that a central server (located at 10.1.1.103) is both a web server responding to queries from boca.com and www.boca.com. The server is also an email server receiving email using exchange.boca.com (from the MX record) which is mapped to 10.1.1.103 with an A record. Email clients use the pop3.echofloor.com address to retrieve email and exchange.boca.com to send email.

Table 2: DNS Setup for boca.com

FQDN	Record Type	Value	Comments
boca.com	A	10.1.1.103	
www.boca.com	A	10.1.1.103	
exchange.boca.com	A	10.1.1.103	
pop3.boca.com	A	10.1.1.103	
chianti.boca.com	A	10.1.1.03	
chianti.boca.com	PTR	10.1.1.103	
boca.com	MX	smtp.boca.com	
boca.com	TXT (SPF)	V = “spf1 ip4:10.1.1.103/32”	

Note: The IP addresses used are normally public IP addresses. The private IP addresses are used to support the SonicWALL Email Security class which has the entire system running in an enclosed private network.

Configuration

To perform this configuration the following steps are taken:

1. Add the boca.com zone. The exact same configuration as performed in Section 1.
9. Add records to the boca.com zone. Follow configurations of section 2. Note that, though not necessary, it is easier to add records in the A, PTR, MX and TXT order.

After performing the first two steps, visual inspection of the zones should show the following:

Figure 5: Boca.com Forward Lookup Records

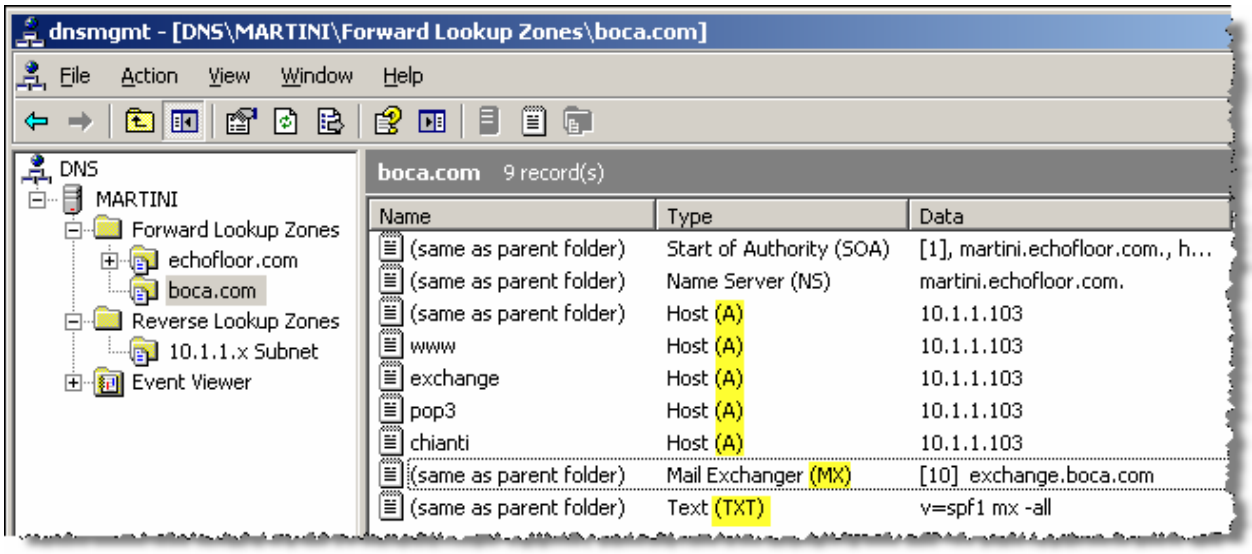
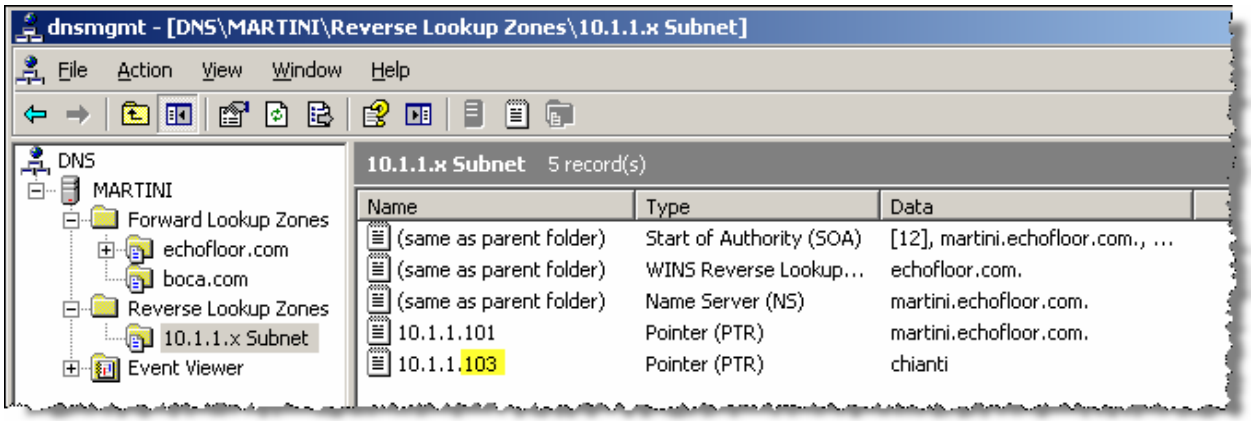


Figure 6: Boca.com Reverse Lookup Records

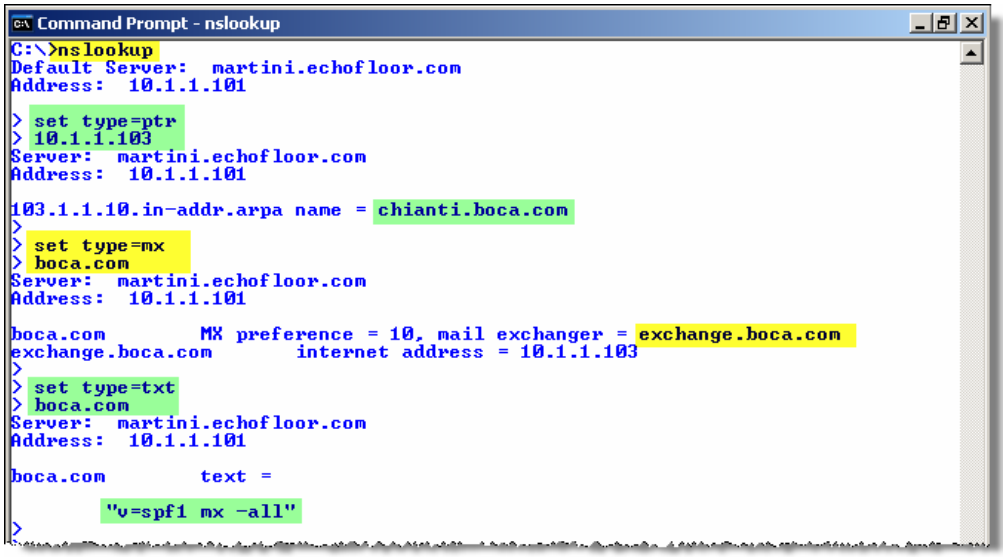


Validation

Validation of the DNS configuration can be done via visual inspection making sure intended configurations described in Table 2 show up in Figure 5 and Figure 6. Validation can also be performed by using the Windows nslookup utility as shown in Figures 7 and 8.

Figure 7: Nslookup Validation of A Records

Figure 8: Nslookup Validation of PTR, MX and TXT Records



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