6.5 SmartConnect

SmartConnect is a client connection balancing management application. The application enables client and application connections to be load-balanced across all nodes within an Isilon IQ cluster or across selected nodes. SmartConnect is available in two versions:

- The SmartConnect Basic version of the application manages client connections using a simple round robin client connection balancing policy within a single management zone. The basic version is included with Isilon IQ's OneFS operating system as a standard feature.
- The SmartConnect Advanced version of the application offers CPU utilization, connection counting, and aggregate throughput client connection balancing policies in addition to the simple round robin policy. The advanced version allows multiple management zones to be defined to support multiple subnets and supports NFS failover. In the event that a node is unavailable, NFS failover redistributes the node's client connections across the remaining nodes in the cluster. NFS connections can also be rebalanced (reshuffled) on demand or on a schedule. To activate SmartConnect Advanced, a license key must be entered.

To a client system, the cluster appears as a single network element. Both cluster and client performance can be enhanced when connections are more evenly distributed. SmartConnect provides intelligent connection balancing that does not require extensive configuration by users. Even in its minimum implementation, it can remove nodes that have gone offline from the request queue, and prevent new clients from mounting a down node. In addition, SmartConnect can be configured so new nodes are automatically added to the connection balancing pool.

NOTE See Section 7.6, 'Licenses,' for information on activating the SmartConnect Advanced application

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The SmartConnect discussion contains the following topics:

- Section 6.5.1, 'Modifying DNS Infrastructure for SmartConnect'
- Section 6.5.2, 'SmartConnect Basic'
- Section 6.5.3, 'SmartConnect Advanced'

SmartConnect and SSh Host Key Mismatches

Administrators should be aware that there is an SSh Host Key ID mismatch issue that can affect SmartConnect usage and generate user warning messages. The zone name/IP address/host key is stored by SmartConnect in the `~/.ssh/known_hosts` file. The default behavior for SSh will cause it to refuse to connect if users are connecting to multiple nodes (different IP addresses and host keys) within the same SmartConnect zone. Different SSh implementations handle this mismatch differently.

- With PuTTY in Windows, you can choose to ignore the mismatch and continue to log in, by clicking **Yes**:
- In Linux, you must remove the conflicting hostname/ip address/host key from `~/.ssh/known_hosts` file or add the following to the `/etc/ssh/ssh_config` file:

```
Host 10.13.*
StrictHostKeyChecking no
CheckHostIP no
```

This workaround assumes a user remains in the 10.13.* network, and that there are no hostile or malicious computers/users within this 10.13.X.X network. If a user establishes an SSh connection to a computer outside the 10.13.X.X network, the host key and IP checking won't be done. This could potentially result in a security risk.

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6.5.1 Modifying DNS Infrastructure for SmartConnect

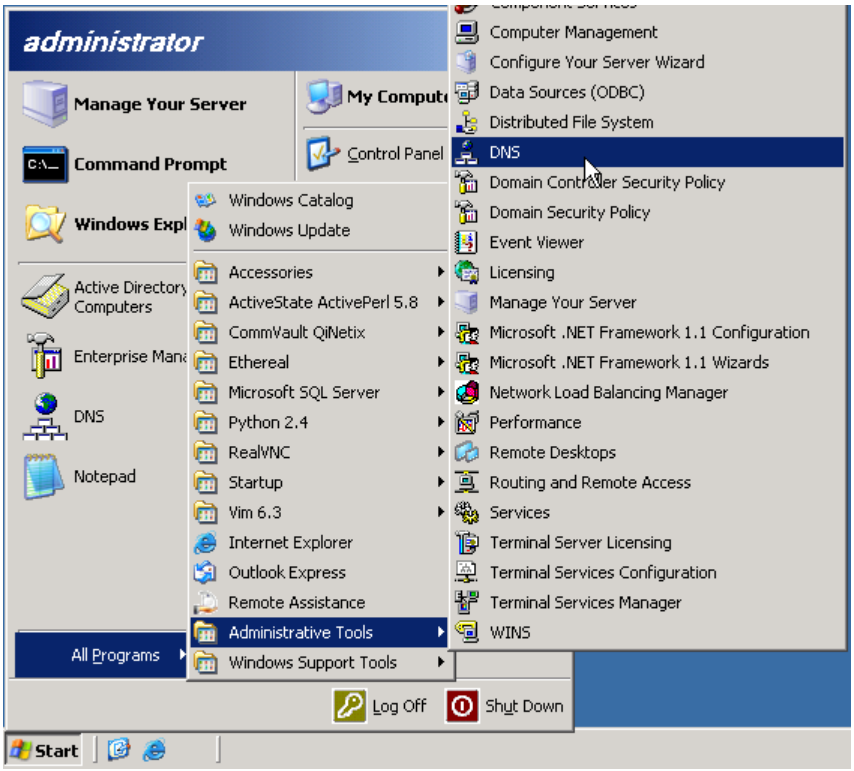
SmartConnect requires that a new name server (NS) record be added to the existing authoritative DNS zone that contains the cluster. In the Microsoft Windows DNS Management utility, this type of record is called a **New Delegation...**, which is just an NS record.

NOTE The procedure in this subsection details the use of the Microsoft Windows DNS Management utility to add a new NS record to an existing authoritative DNS zone. Alternately, in an UNIX or Linux environment, a new NS record can be added using BIND.

Perform the following steps to modify the DNS infrastructure using the Microsoft Windows DNS Management utility:

1. On the taskbar, click **Start**, point to **All Programs**, select **Administrative Tools**, and then click **DNS** to open the **DNS Management** utility.

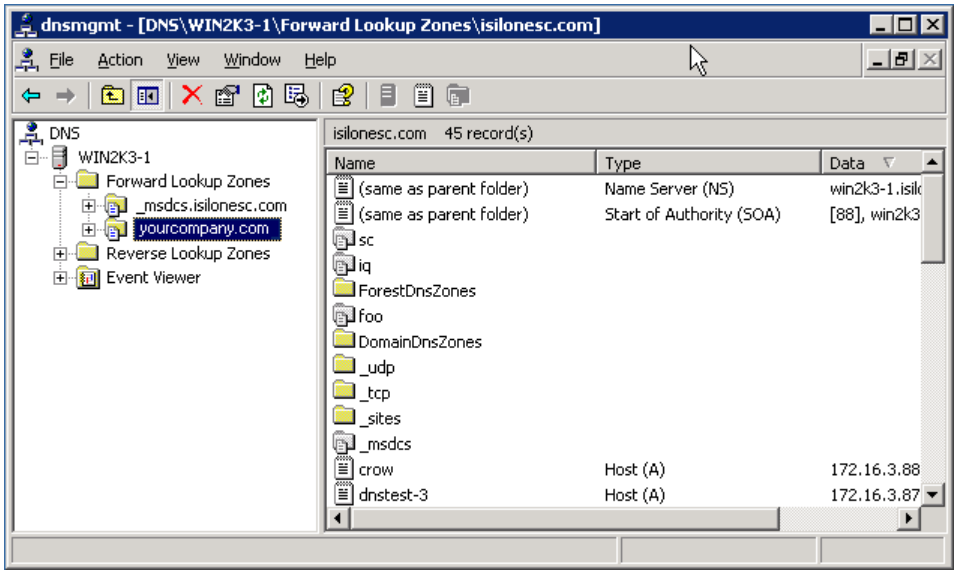
Figure 6.57 Starting the DNS Management Utility



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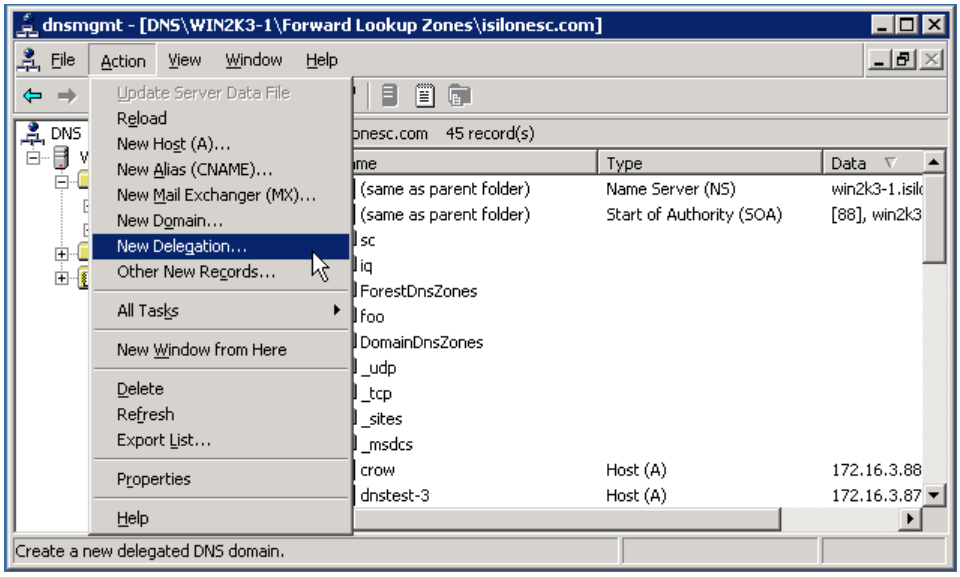
2. In the left navigation pane of the **DNS Management** utility, expand the **Forward Lookup Zones** folder.

Figure 6.58 DNS Management Utility



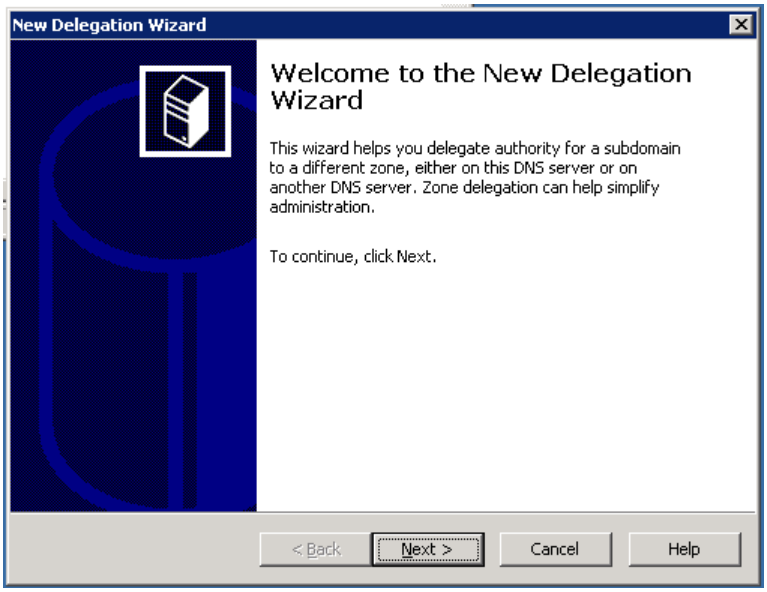
3. In the list of domain names in the **Forward Lookup Zones** folder, click to select your domain.
4. On the **Action** menu, click **New Delegation...** to open the **New Delegation** wizard.

Figure 6.59 Microsoft Windows DNS Server Interface



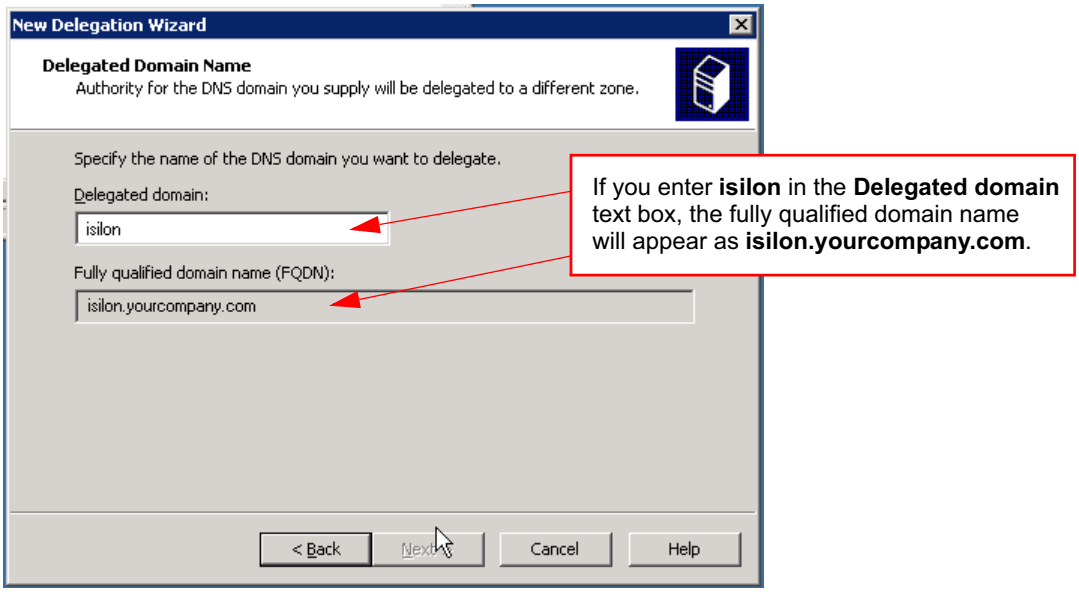
5. On the **New Delegation** wizard **Welcome** view, click **Next** to open the **Delegated Domain Name** view.

Figure 6.60 New Delegation Wizard: Welcome View



6. In the **Delegated domain** text box, enter an *authoritative* DNS domain name.

Figure 6.61 New Delegation Wizard: Delegated Domain Name View

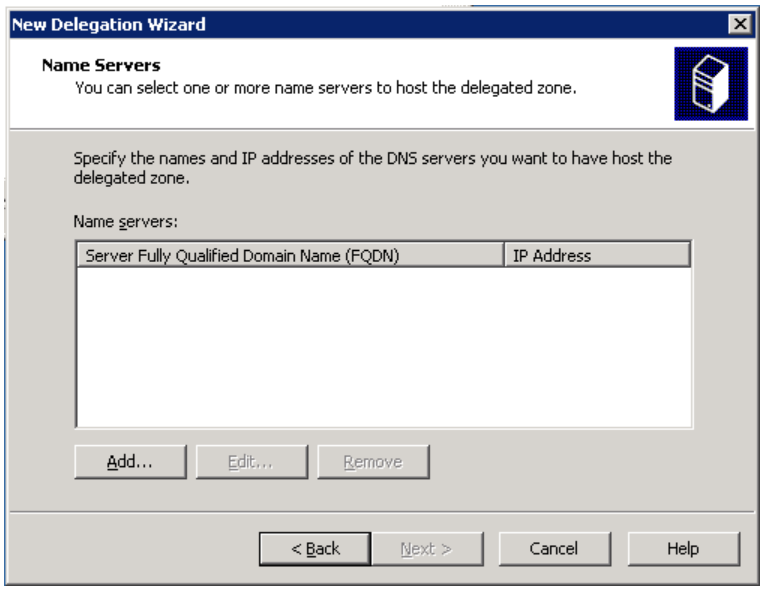


NOTE The *authoritative* DNS domain name you enter in the **Delegated domain** text box is responsible for answering host name requests in that namespace.

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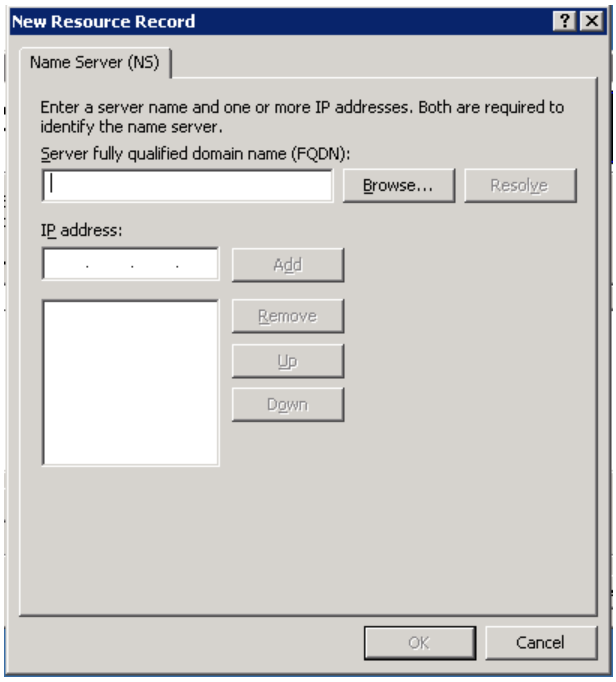
7. Click **Next** to open the **Name Servers** view.

Figure 6.62 New Delegation Wizard: Name Servers View



8. Click **Add** to open the **New Resource Record** dialog box.

Figure 6.63 New Resource Record Dialog



9. In the **Server fully qualified domain name (FQDN)** text box, enter the FQDN that appeared in Figure 6.61.

10. In the **IP_address** text box, enter a virtual IP address.

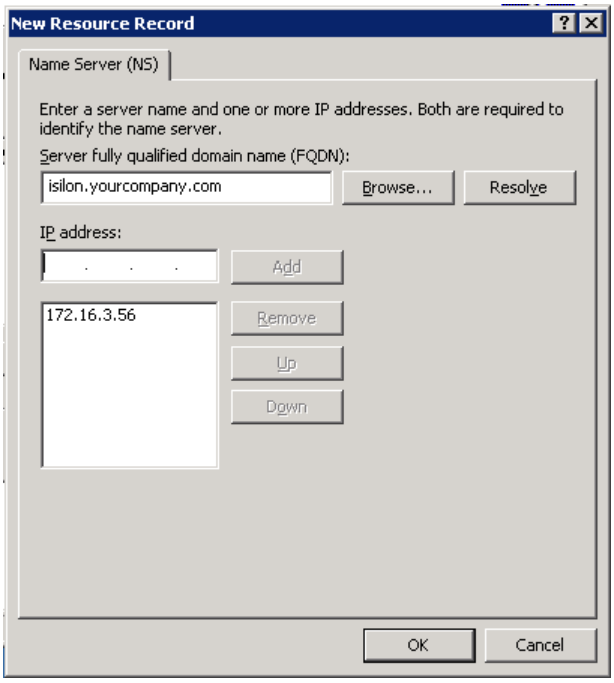
Virtual IP Address

The IP address that you enter in the **IP_address** text box is the virtual IP address used by SmartConnect to answer all DNS requests sent to its zone. In selecting a virtual IP address, the IP address must be on the same subnet as the cluster's external interface(s) and not in the range of IP addresses reserved for nodes in the cluster.

NOTE The virtual IP address entered in the **IP_address** text box in step 10 must match the virtual IP address entered in Section 3.3.2, 'Manage External Networks,' in step 4c on page 3-33.

11. Click **Add** to add the name server to the list.

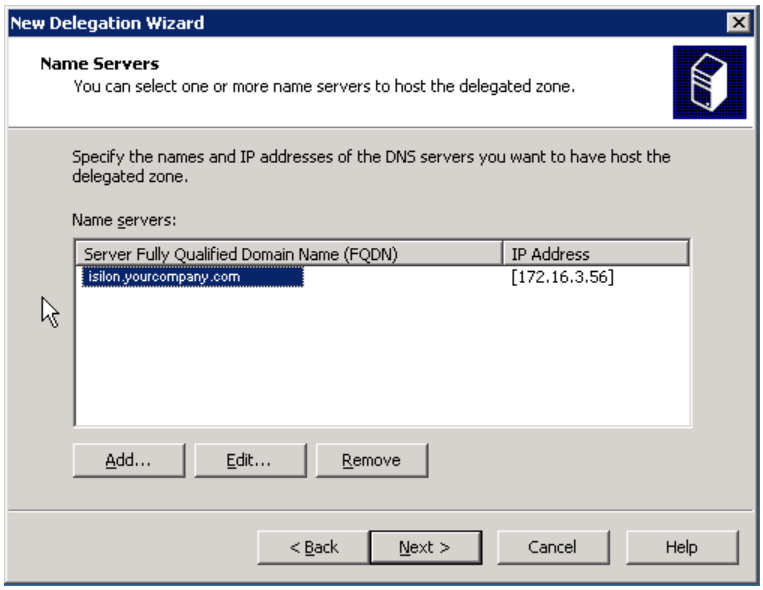
Figure 6.64 New Resource Record Dialog - Updated



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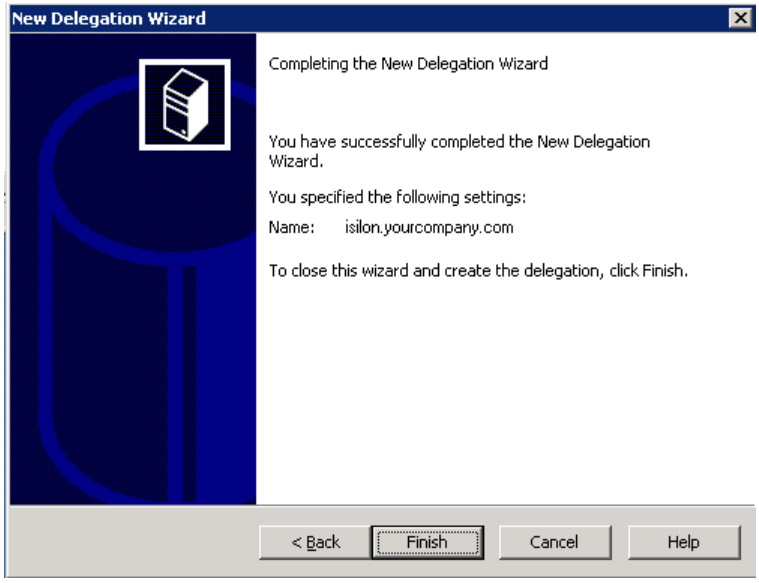
12. Click **OK** to return to the **Name Servers** view.

Figure 6.65 New Delegation Wizard: Name Servers View



13. Click **Next**.

Figure 6.66 New Delegation Wizard: Finish View



14. Click **Finish**.