

NLB

Network load balancing (commonly referred to as dual-WAN routing or multihoming) is the ability to balance traffic across two WAN links without using complex routing protocols like BGP.

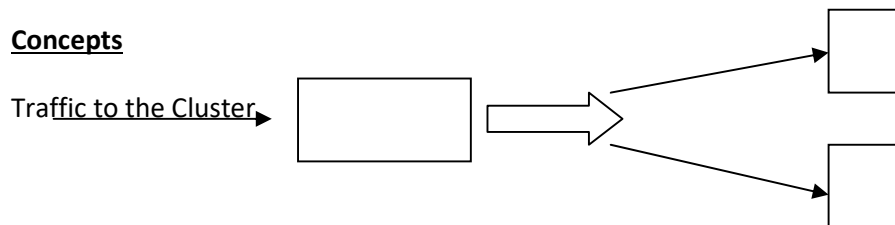
This capability balances network sessions like Web, email, etc. over multiple connections in order to spread out the amount of bandwidth used by each LAN user, thus increasing the total amount of bandwidth available. For example, a user has a single WAN connection to the Internet operating at 1.5Mbit/s. They wish to add a second broadband (cable, DSL, wireless, etc.) connection operating at 2.5Mbit/s. This would provide them with a total of 4Mbit/s of bandwidth when balancing sessions.

Session balancing does just that, it balances sessions across each WAN link. When Web browsers connect to the Internet, they commonly open multiple sessions, one for the text, another for an image, another for some other image, etc. Each of these sessions can be balanced across the available connections. An FTP application only uses a single session so it is not balanced; however if a secondary FTP connection is made, then it may be balanced so that on the whole, traffic is evenly distributed across the various connections and thus provides an overall increase in throughput.

Additionally, network load balancing is commonly used to provide network redundancy so that in the event of a WAN link outage, access to network resources is still available via the secondary link(s). Redundancy is a key requirement for business continuity plans and generally used in conjunction with critical applications like VPNs and VoIP.

Finally, most network load balancing systems also incorporate the ability to balance both outbound and inbound traffic. Inbound load balancing is generally performed via dynamic DNS which can either be built into the system, or provided by an external service or system. Having the dynamic DNS service within the system is generally thought to be better from a cost savings and overall control point of view.

Concepts



Creating NLB

Need to install the feature from server manager

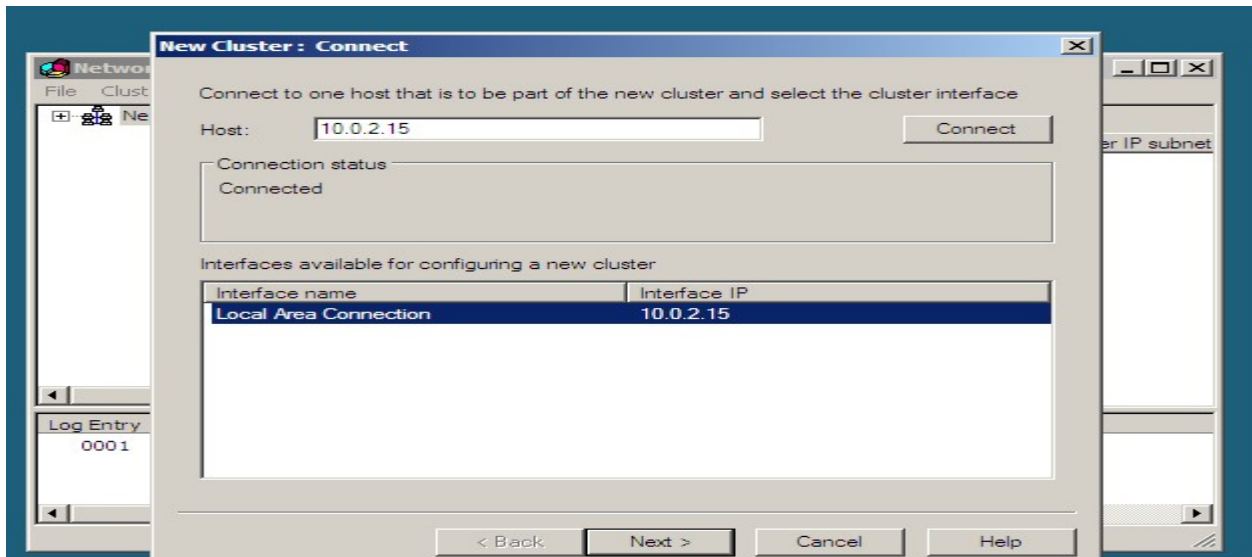
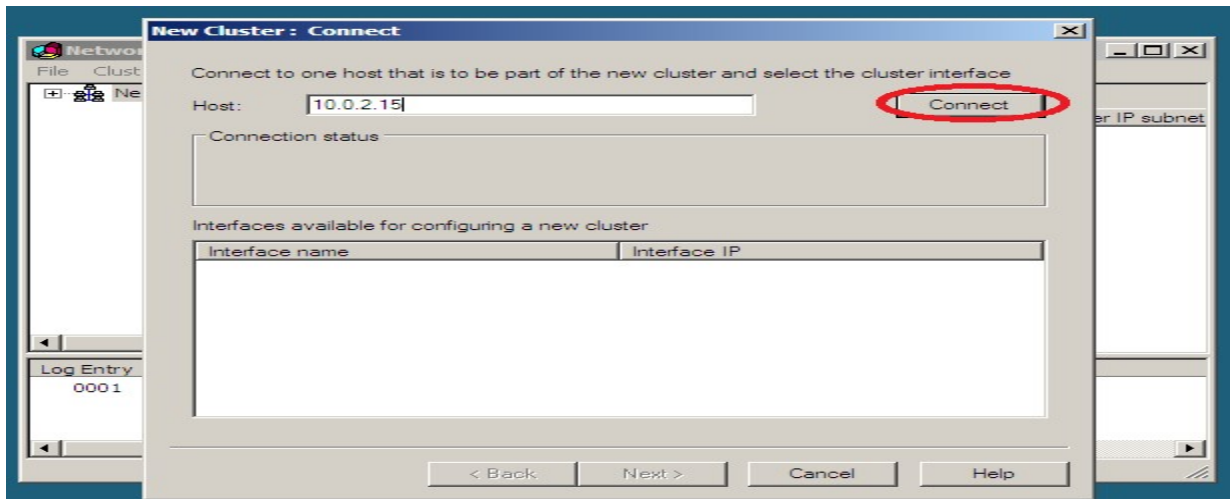
In this example I am using 2 systems 10.0.2.15 and 10.0.2.16 with cluster IP of 10.0.2.12

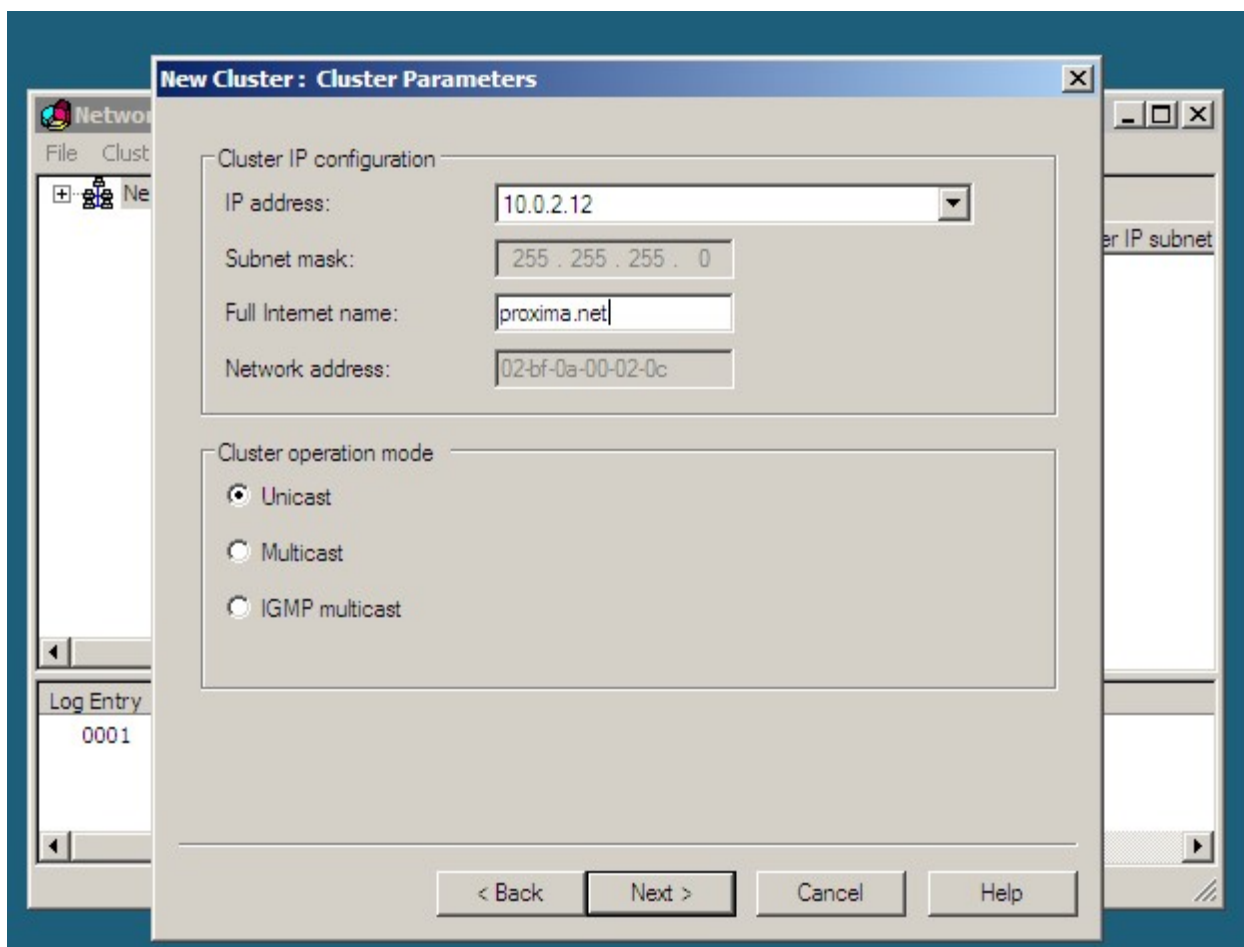
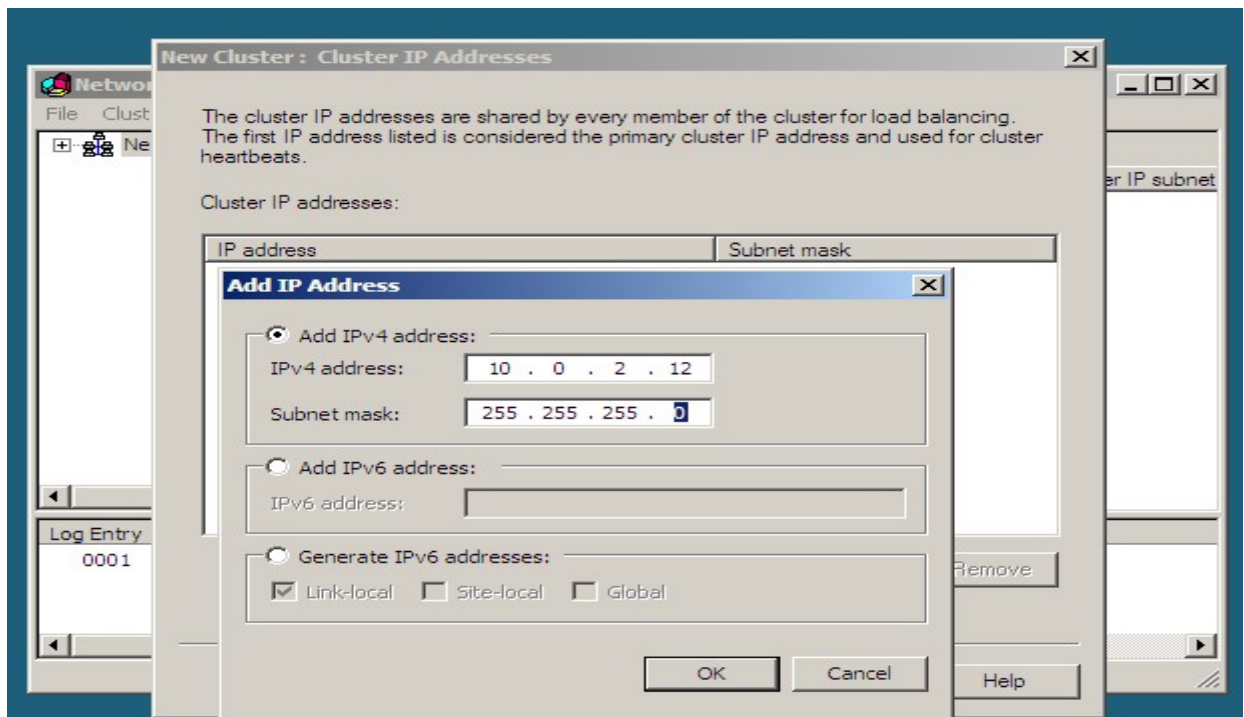
From start > administrative tools > open Network Load Balancing Manager

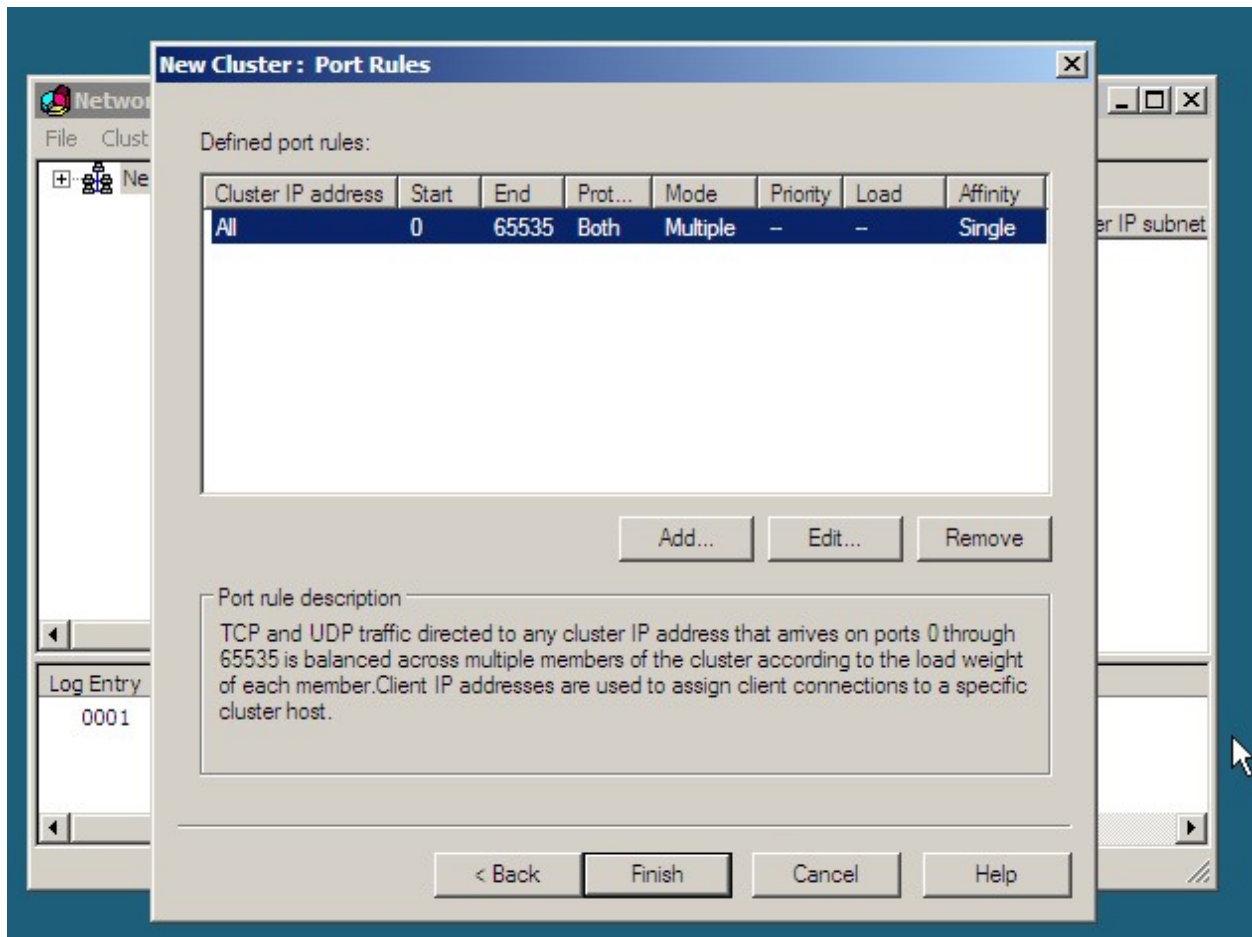
Create a new cluster named promima.net which is of 10.0.2.12

In this below I am using single NIC

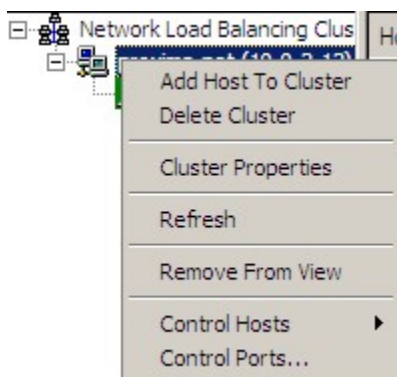
Note: There should be a second NIC to handle the communication between cluster hosts.

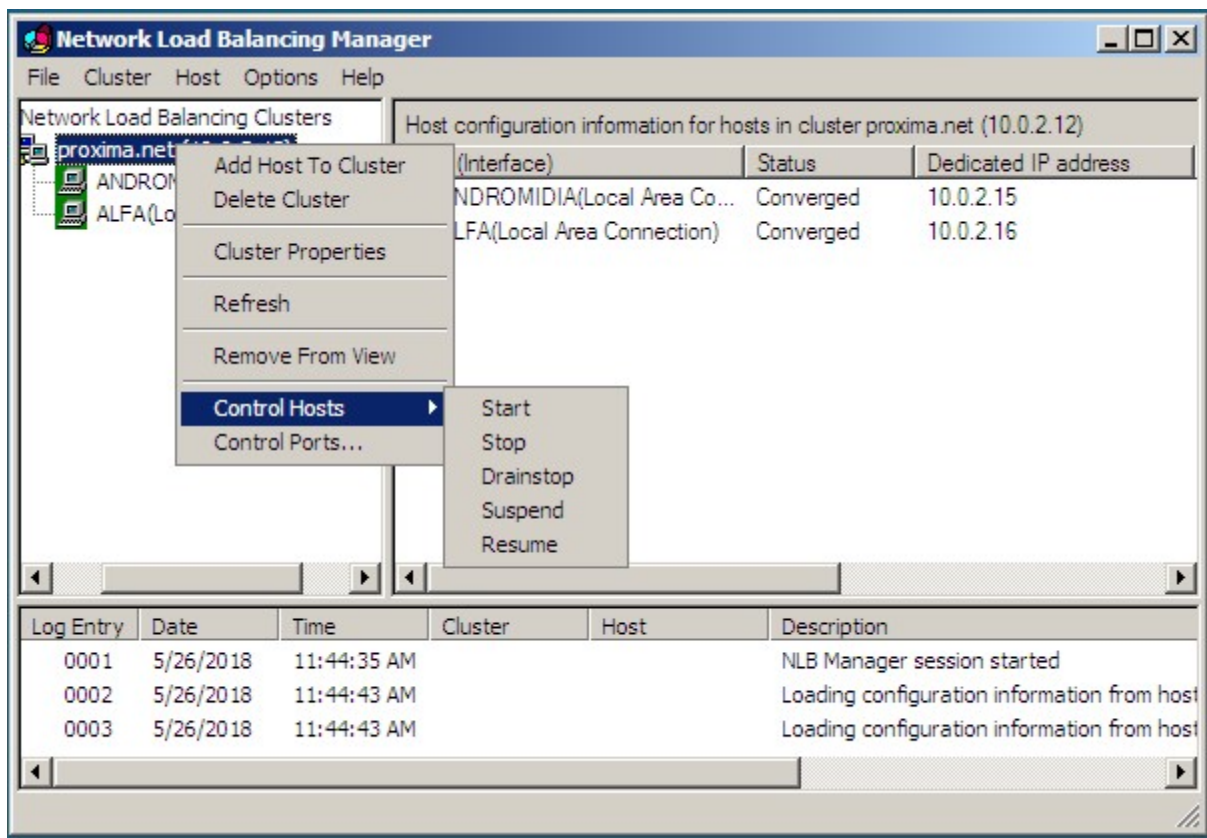
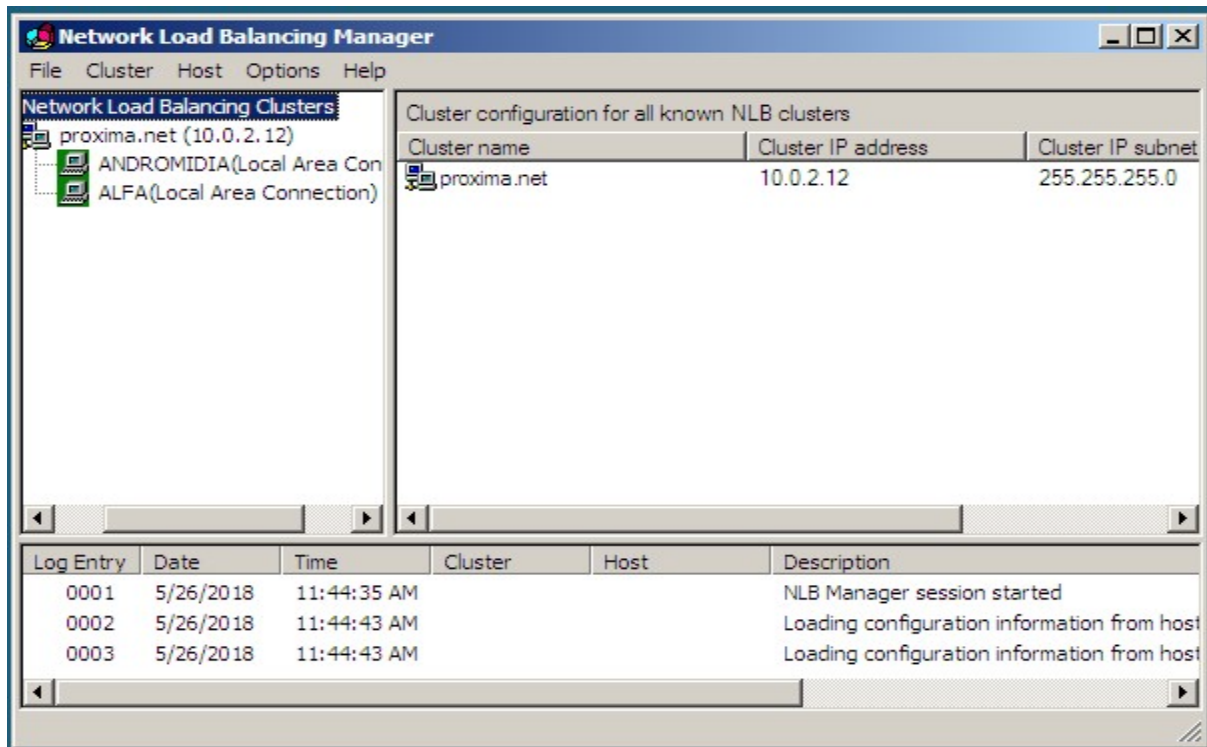






Add the additional hosts to the proxima.net cluster.

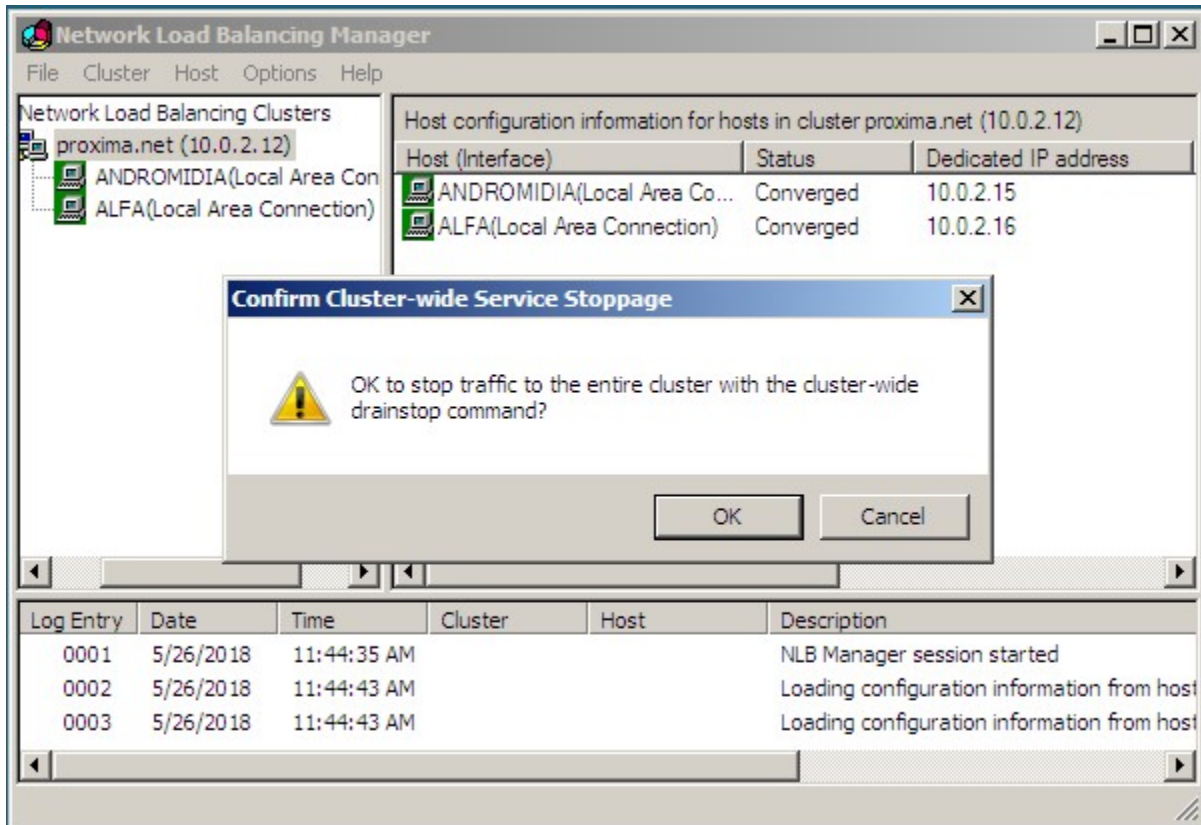


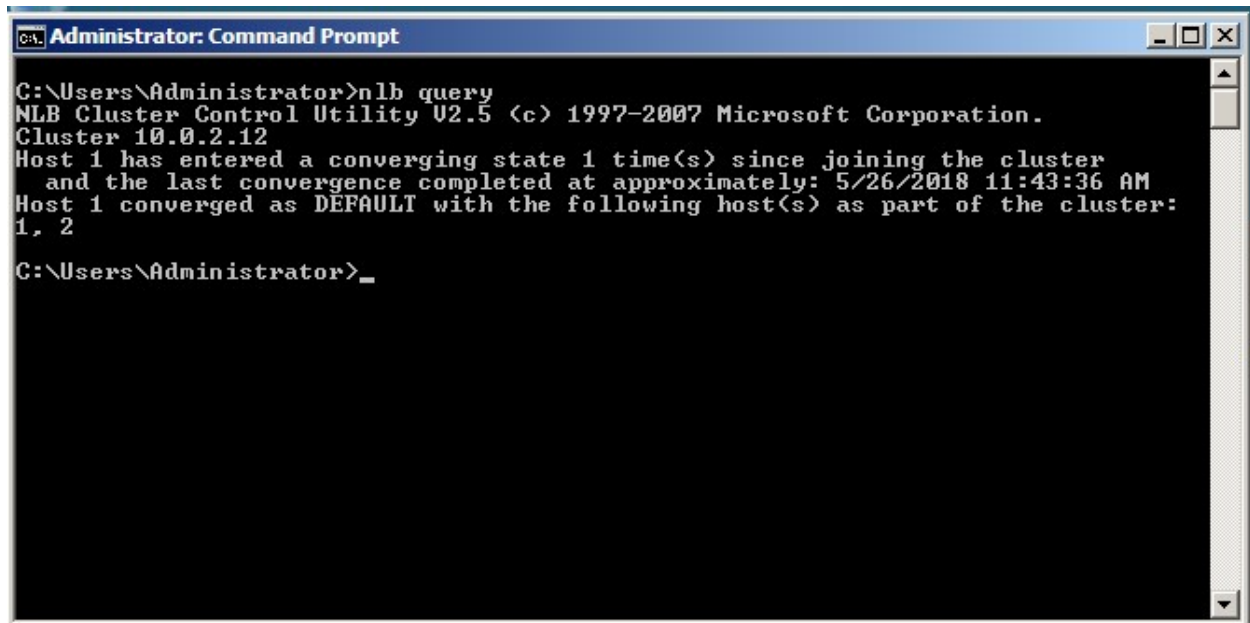
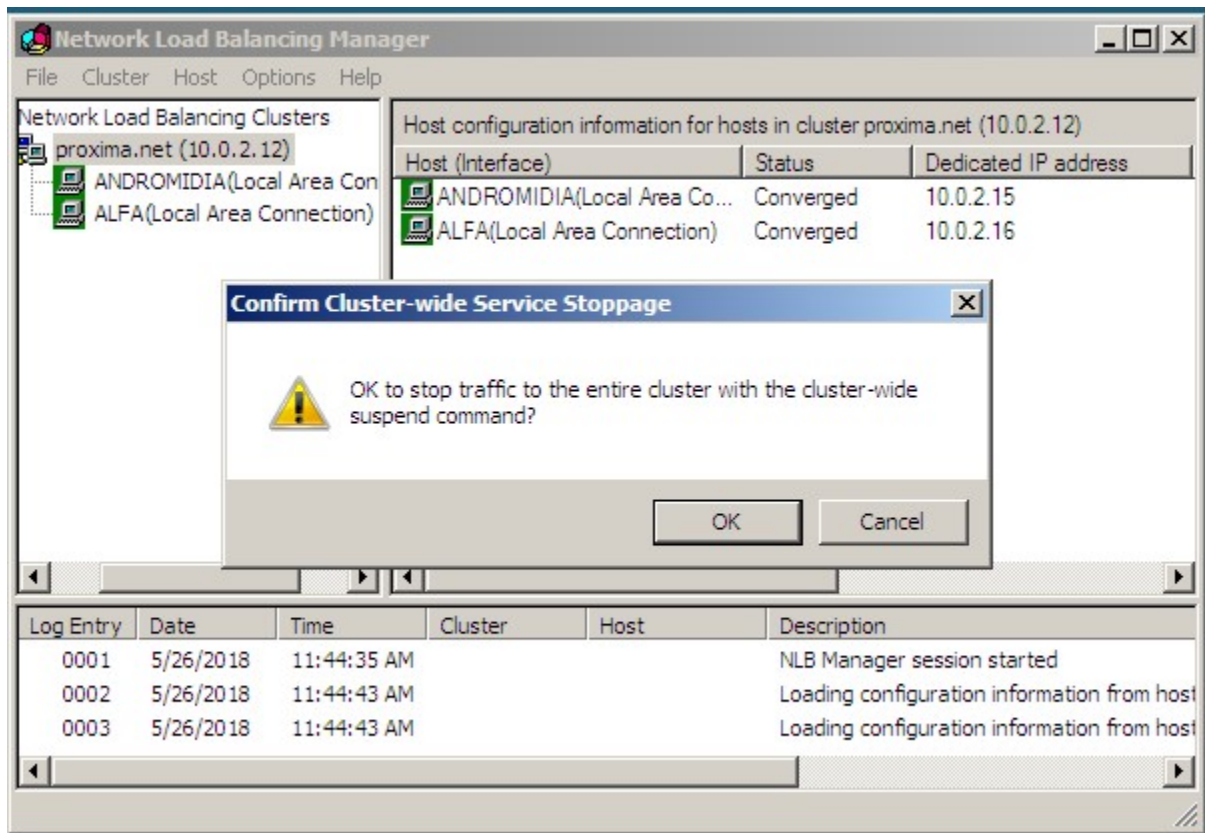


Control hosts

Start/Stop/Suspend/Resume/Drain.

Disables all new traffic handling on the specified hosts. While draining, hosts continue to service opened connections and stop their cluster operations when there are no more active connections. Draining mode can be terminated by explicitly stopping cluster mode with stop or by restarting new traffic handling with start.





Commands

command is `nlb <command> <remote options>`

Table 3-6 lists the commands available for use with the `nlb.exe` command.

Command

Description

`help`

Displays the help listing all commands.

`suspend [<cluster>[:<host>] | all <local>\<gbbal>]`

Suspends all cluster operations until the Resume command is issued. Using `suspend` prevents remote control commands from being carried out by the cluster. The `Suspend` command can be targeted at a specific cluster, a specific cluster on a specific host, all clusters on the local machine, or all global machines that are part of the cluster.

`resume [<cluster>[:<host>] 1 all <locat>\<globat>]`

Instructs a suspended cluster to resume cluster operations. Using the `Resume` command doesn't restart clustering operations but, instead, allows the use of Cluster Control commands, including those sent remotely. The `Resume` command can be targeted at a specific cluster, a specific cluster on a specific host, all clusters on the local machine, or all global machines that are part of the cluster.

`start [<cluster>[:<hos/>] 1 all <locat>\<globat>]`

Directs that cluster operations on the specified hosts should start. This enables all ports that might have been previously disabled. The `Start` command can be targeted at a specific cluster, a specific cluster on a specific host, all clusters on the local machine, or all global machines that are part of the cluster.

`stop [<cluster>[:<host>] 1 all <locat>\<globat>]`

Directs that cluster operations on the specified hosts should stop. The `Stop` command can be targeted at a specific cluster, a specific cluster on a specific host, all clusters on the local machine, or all global machines that are part of the cluster.

`drainstop [<cluster>[:<host>] 1 all <locat>\<globat>]`

Instructs the specified hosts not to add any new network traffic. The specified hosts drain (servicing existing connections, while not allowing new connections) and stop all cluster operations when all active connections have terminated. You can cease draining by issuing the `Stop` command or the `Start`

command. The Drainstop command can be targeted at a specific cluster, a specific cluster on a specific host, all clusters on the local machine, or all global machines that are part of the cluster.

```
enable [v/p[:port:all] \ all[:port:all]] [<cluster>[:<host>] \ all <local>\<global>]
```

Enables traffic handling for the port rule, which contains the specified port in its port range.

Using the first set of optional parameters, the Enable command can be targeted at every VIP, a specific VIP on a specific port rule, or all port rules.

Using the second set of optional parameters, the Enable command can be targeted at a specific cluster, a specific cluster on a specific host, all clusters on the local machine, or all global machines that are part of the cluster. All ports specified by the port rule are affected.

If all is specified for the port, then the Enable command is applied to the ports covered by all port rules. If the hosts specified in the command haven't yet started cluster operations, the Enable command is ignored.

NLB Commands and Remote Control Options

Command Description `disable [v/p[:port:all] | all[:port:all]] [<cluster>[:<host>] | Issuing the Disable command immediately disables and blocks all all <local>|<global>] traffic handling for the port rule whose port range contains the specified port.`

Using the first set of optional parameters, the Disable command can be targeted at every VIP, a specific VIP on a specific port rule, or all port rules.

Using the second set of optional parameters, the Disable command can be targeted at a specific cluster, a specific cluster on a specific host, all clusters on the local machine, or all global machines that are part of the cluster. All ports specified by the port rule are affected.

If all is specified for the port, then the Disable command is applied to the ports covered by all port rules. If you want to maintain existing active connections, use the Drain command instead. If the hosts specified in the command haven't yet started cluster operations, the Disable command is ignored.

```
drain [wp[:port:all] | all[:port:all]] [<cluster>[:<host>] | Disables new traffic handling for the rule whose port range all <local>|<global>] contains the specified port.
```

The Query command can be targeted at a specific cluster, a specific cluster on a specific host, all clusters on the local machine, or all global machines that are part of the cluster.

Table 3-6. NLB Commands and Remote Control Options (continued)

Command

Description

reload [cluster | all] (local only)

Instructs NLB to reload the current parameter set from the Registry. If required to complete the process, cluster operations are stopped and subsequently restarted. Any errors that exist within the parameters prevent the host from joining the cluster and also cause a warning dialog box to be displayed.

display [cluster | all] (local only)

Displays information about the current NLB parameters, cluster state, and past cluster activity. The Display command also displays the last several event log entries produced by the NLB service, including any binary data attached to the log entry. The Display command is typically used for troubleshooting cluster operations.

ip2mac <cluster>

Displays the MAC address corresponding to the specified cluster name or IP address. The ip2mac command is useful when creating a static ARP entry in routers.

Table 3-6. NLB Commands and Remote Control Options (continued)

The following table lists the Remote Control options:

/PASSW password

Supplies the remote control password to initiate a remote control session.

/PORT port

Specifies the cluster's remote control UDP port.

Power shell command let

cmdlet

Description

Add-NlbClusterNode

Adds a new node to the Network Load Balancing (NLB) cluster.

Add-NlbClusterNodeDip

Adds a dedicated IP address to a Network Load Balancing (NLB) cluster.

Add-NlbClusterPortRule

Adds a new port rule to a Network Load Balancing (NLB) cluster.

Add-NlbClusterVip

Adds a virtual IP address to a Network Load Balancing (NLB) cluster.

Disable-NlbClusterPortRule

Disables a port rule on a Network Load Balancing (NLB) cluster or on a specific host in the cluster.

Enable-NlbClusterPortRule

Enables a port rule on a Network Load Balancing (NLB) cluster or on a specific node in the cluster.

Get-NlbCluster

Retrieves information about the Network Load Balancing (NLB) cluster object that is queried by the caller.

Get-NlbClusterDriverInfo

Retrieves information about the Network Load Balancing (NLB) driver on the local machine.

Get-NlbClusterNode

Retrieves information about the Network Load Balancing (NLB) cluster object that is queried by the caller.

Get-NlbClusterNodeDip

Retrieves the dedicated IP address that is queried by the caller.

Get-NlbClusterNodeNetworkInterface

Retrieves information about interfaces, including information about the Network Load Balancing (NLB) driver, on a host.

Get-NlbClusterPortRule

Retrieves the port rule objects that are queried by the caller.

Get-NlbClusterVip

Retrieves virtual IP addresses that are queried by the caller.

New-NlbCluster

Creates a Network Load Balancing (NLB) cluster on the specified interface that is defined by the node and network adapter name.

New-NlbClusterIpv6Address

Generates IPv6 addresses to create cluster virtual IP addresses or node dedicated IP addresses.

Remove-NlbCluster

Deletes a Network Load Balancing (NLB) cluster.

Remove-NlbClusterNode

Removes a node from the Network Load Balancing (NLB) cluster.

Remove-NlbClusterNodeDip

Removes a dedicate IP address from a Network Load Balancing (NLB) cluster.

Remove-NlbClusterPortRule

Removes a port rule from a Network Load Balancing (NLB) cluster.

Remove-NlbClusterVip

Removes a virtual IP address from a Network Load Balancing (NLB) cluster.

Resume-NlbCluster

Resumes all nodes in a Network Load Balancing (NLB) cluster.

Resume-NlbClusterNode

Resumes the node in a Network Load Balancing (NLB) cluster that was suspended.

Set-NlbCluster

Edits the configuration of a Network Load Balancing (NLB) cluster.

Set-NlbClusterNode

Edits the Network Load Balancing (NLB) cluster node settings.

Set-NlbClusterNodeDip

Edits the dedicated IP address of a Network Load Balancing (NLB) cluster.

Set-NlbClusterPortRule

Edits the port rules for a Network Load Balancing (NLB) cluster.

Set-NlbClusterPortRuleNodeHandlingPriority

Sets the host priority of a port rule for a specific Network Load Balancing (NLB) node.

Set-NlbClusterPortRuleNodeWeight

Sets the load weight of a port rule for a specific Network Load Balancing (NLB) node.

Set-NlbClusterVip

Edits the virtual IP address of a Network Load Balancing (NLB) cluster.

Start-NlbCluster

Starts all nodes in a Network Load Balancing (NLB) cluster.

Start-NlbClusterNode

Starts a Network Load Balancing (NLB) cluster node.

Stop-NlbCluster

Stops all nodes of a Network Load Balancing (NLB) cluster.

Stop-NlbClusterNode

Stops a node in a Network Load Balancing (NLB) cluster.

Suspend-NlbCluster

Suspends all nodes of a Network Load Balancing (NLB) cluster.

Suspend-NlbClusterNode

Suspends a specific node in a Network Load Balancing (NLB) cluster.

<https://support.microsoft.com/en-us/help/556067>