



## How-to:

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### Load Balance Exchange 2010 Outlook 2003/2007/2010 Clients With RPC/HTTPS & TCP/IP

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## Synopsis

This document explains briefly the concept of Exchange 2010 and how to use an ALB to load balance Exchange 2010 Traffic.

## Overview

The ALB, ALB-X & ALB-VA are all Application Delivery Controllers (ADC) sometimes referred to as a next generation load balancer.

This document assumes that you are already familiar with the process, using the ALB interface.

This document assumes that you are already familiar with the process of installing Exchange, creating a DAG, and creating a CAS Array.

## Exchange 2010 Description

Brief overview of Exchange 2010 load balancing configuration is provided below:

### Outlook Clients

The Outlook clients we have used during testing are made up of Outlook 2003, Outlook 2007 & Outlook 2010 which send their requests to the CAS.

### Client Access Server (CAS) Role

The Client Access Server (CAS) role accepts connections from a variety of clients to allow them access to the Exchange Server infrastructure.

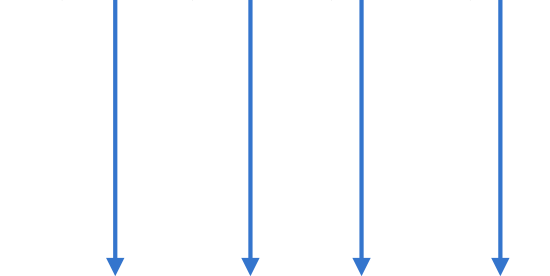
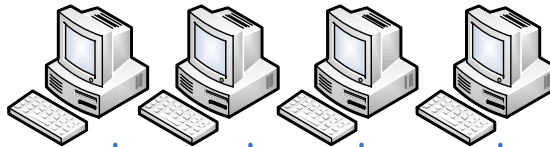
### Database Availability Group (DAG)

The Database Availability Group (DAG) is made up of Exchange Server 2010 Mailbox servers that provide automatic database-level recovery from a database, server, or network failure.

### Standard Exchange 2010 Diagram



Outlook clients



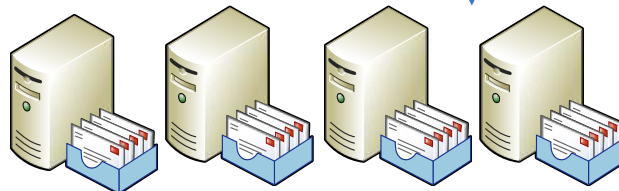
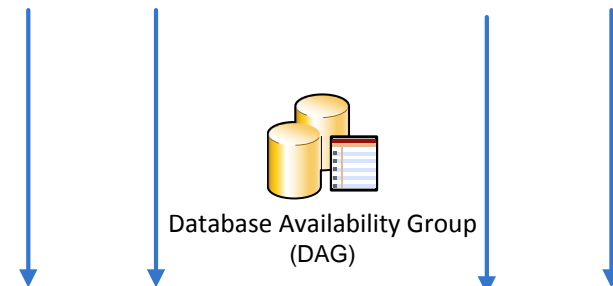
Client Access Servers  
`exserve2k10.jetnexus.local`



Exch\_2010\_Cas\_Svr1

Exch\_2010\_Cas\_Svr2

Exch\_2010\_Cas\_Svr3



Mailbox servers within DAG

## Modifying Exchange 2010

To enable load balancing on Exchange 2010 we will need to make some changes to each of the servers within CAS Array. We need to set static ports for RPC Client Access service and Address Book service.

By default they use a dynamic RPC port range (6005-59530) for outgoing connections.

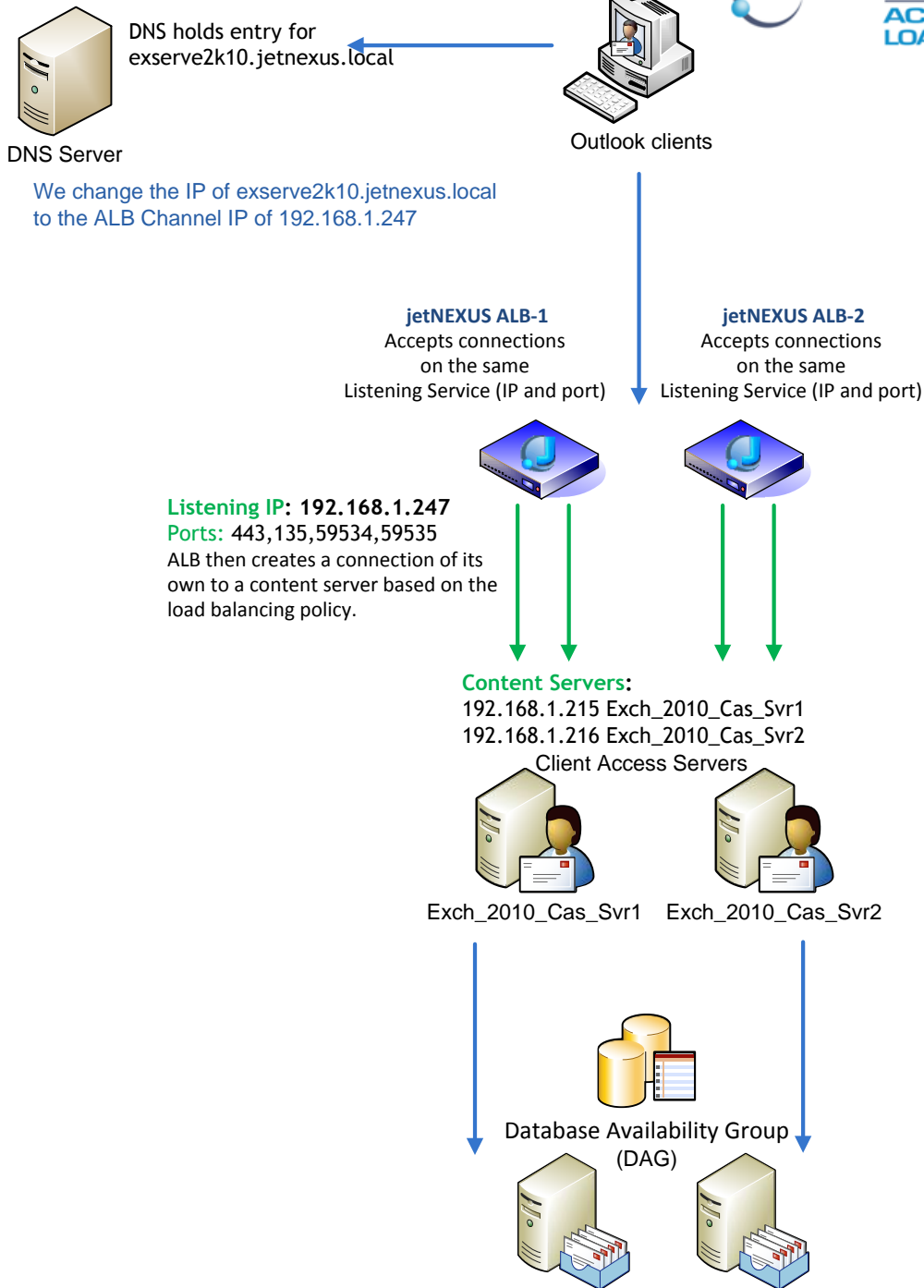
Microsoft recommends you set the RPC Client Access service to a unique value between 59531 and 60554. We have used **59534** in our example.

Microsoft recommends you set the RPC Address Book Service to a unique value between 59531 and 60554. We have used **59535** in our example.

Please click on the following link for instructions

[How to configure Static RPC Ports on an Exchange 2010 Client Access Server](#)

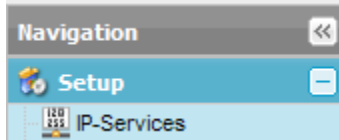
# jetNEXUS ALB Exchange 2010 Concept



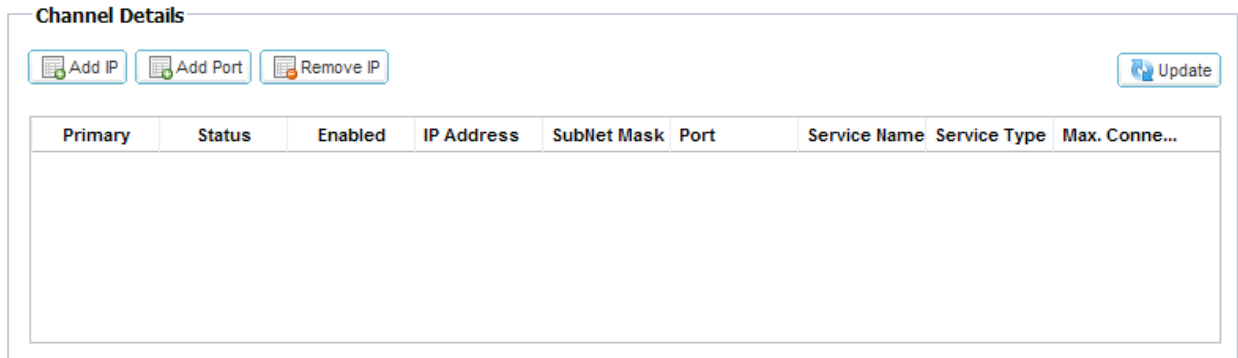
## jetNEXUS ALB Changes

### Adding a Load Balanced Service

The IP service configuration screen is the main configuration screen for load balancing functionality and it can be found in (Setup → IP Services).

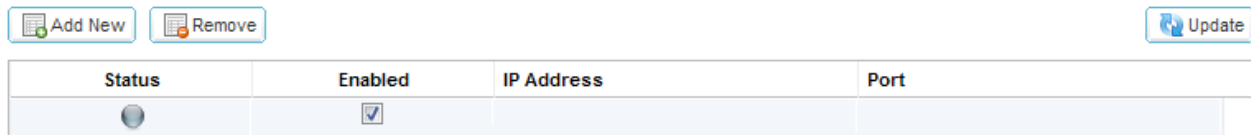


To set up a service you must have an IP address and port for it to listen on.



To configure a channel click the Add IP button

This will add the fields ready to input the settings:



## Configuring a New Channel

Configure the new channel with the IP details for your new service.

In this example we will configure the following IP details, based on a One-Armed Configuration.

### Channel details:

**Primary:** n/a  
**IP Address:** 192.168.1.247  
**Subnet Mask:** 255.255.255.0  
**Port:** 443  
**Service Name:** Exchange 2010 OWA  
**Service Type:** Layer4  
**Max connections:** n/a

Primary	Status	Enabled	IP Address	SubNet Mask	Port	Service Name	Service Type
		<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	443	Exchange 2010 OWA	Layer 4

### Destination:

**Content Server Details:** Exchange 2010 Client Access Server  
**Content Server IP:** 192.168.1.215  
**Content Server Port:** 443

Status	Enabled	IP Address	Port
	<input checked="" type="checkbox"/>	192.168.1.215	443

### Actions:

**Monitoring:** TCP Connection  
**LB Policy:** IP Based\*  
**Connectivity:** Off  
**Cache:** Off  
**SSL:** No SSL  
**Content SSL:** No SSL  
  
**Enable connection pooling:** N/A  
**Connection pool size:** 2000

\* Session persistence is required to ensure that a client always gets the same server. (Some Exchange protocols require stickiness/session affinity.) Additionally some ActiveSync clients may experience issues when using the IP Based persistency from carrier Nat-pools. Please contact [support@jetNEXUS.com](mailto:support@jetNEXUS.com) if you require more information.

Destination

Actions

Basic

Server Monitoring: TCP Connection ▼

Load Balancing Policy: IP Based ▼

Connectivity: Managed ▼

Caching Strategy: Off ▼

SSL: No SSL ▼

Content SSL: No SSL ▼

Enable Connection Pooling:

Connection pool Size: 2000

Update

We now need to add the additional content CAS servers click on the “Add New” button to add a new content server.

Add the secondary content server with the same port 443:

Click “Update” to enable the new content server.

In the example below I have added my 2 content CAS servers to my load balanced channel.

Content Servers			
<span style="border: 1px solid #ccc; padding: 2px 5px; font-size: 0.8em;">Add New</span> <span style="border: 1px solid #ccc; padding: 2px 5px; font-size: 0.8em;">Remove</span>			
	Status	Enabled	IP Address
	<span style="color: green;">●</span>	<input checked="" type="checkbox"/>	192.168.1.215
	<span style="color: green;">●</span>	<input checked="" type="checkbox"/>	192.168.1.216

We now need to add the additional ports to our channel.

### Adding another Service on the Same Channel

To set up another service on the same IP address and a different port click the “Add Port”.

IP Services							
Channel Details							
<span style="border: 1px solid #ccc; padding: 2px 5px; font-size: 0.8em;">Add IP</span> <span style="border: 1px solid #ccc; padding: 2px 5px; font-size: 0.8em;">Add Port</span> <span style="border: 1px solid #ccc; padding: 2px 5px; font-size: 0.8em;">Remove Port</span>							
	Primary	Status	Enabled	IP Address	SubNet Mask	Port	Service Name
		<span style="color: green;">●</span>	<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	443	Exchange 2010 OWA
							Layer 4

This will add another grouping of settings similar to the first set. This time you don’t need to specify the listening IP or subnet as it has already been added.

This now allows you to set up the new ports to each of the content CAS servers.

## Example of Completed Rule

Below you will see the completed set of services.

I have a Listening IP of 192.168.1.247, which has 2 Client Access Servers of 192.168.1.215 & 192.168.1.216 bound to it.

Traffic on the following ports 443, 135, 59534, 59535 is then forwarded to the Client Access Servers.

**IP Services**

**Channel Details**

Primary	Status	Enabled	IP Address	Subnet Mask	Port	Service Name	Service Type	Max. Connections
		<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	443	Exchange 2010 OWA	Layer 4	
		<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	135	Exchange 2010 RPC End Point Mapper	Layer 4	
		<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	59534	Exchange 2010 Static RPC Service	Layer 4	
		<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	59535	Exchange 2010 Static RPC Address Book	Layer 4	

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**Destination**    **Actions**

**Content Server Details**

Content Server Group Name:

---

**Content Servers**

Status	Enabled	IP Address	Port
	<input checked="" type="checkbox"/>	192.168.1.215	135
	<input checked="" type="checkbox"/>	192.168.1.216	135

## Outlook Client Changes

To implement the ALB in the current Exchange 2010 solution we need to now point the exserve2k10.jetnexus.local to the ALB Device.

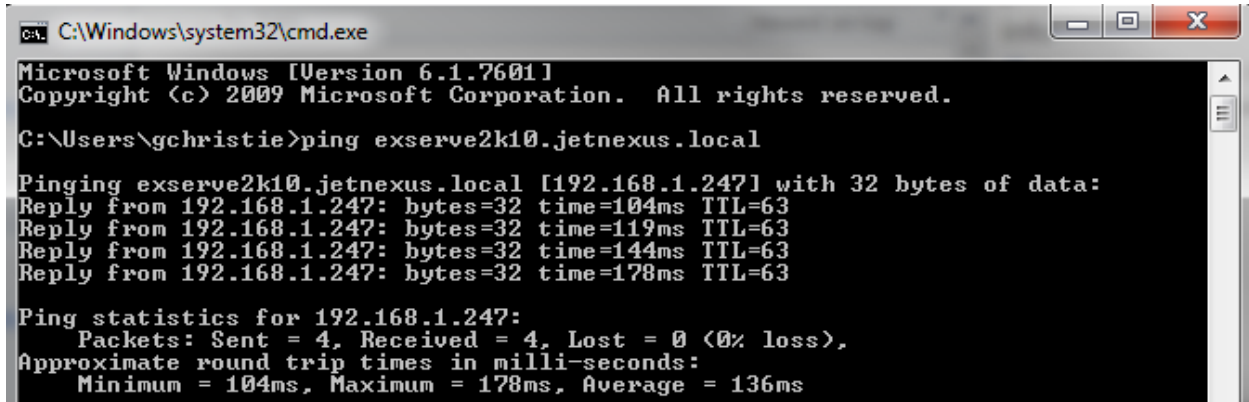
To test you can either modify the DNS entry for exserve2k10.jetnexus.local to the ALB Channel Address. Or modify the local machines host file to have an entry for

192.168.1.247            exserve2k10.jetnexus.local

## Testing

### Outlook Web Access (Outlook Web App 2010)

You should now be able to ping `exserve2k10.jetnexus.local` which responds on the ALB listening IP of `192.168.1.247`



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

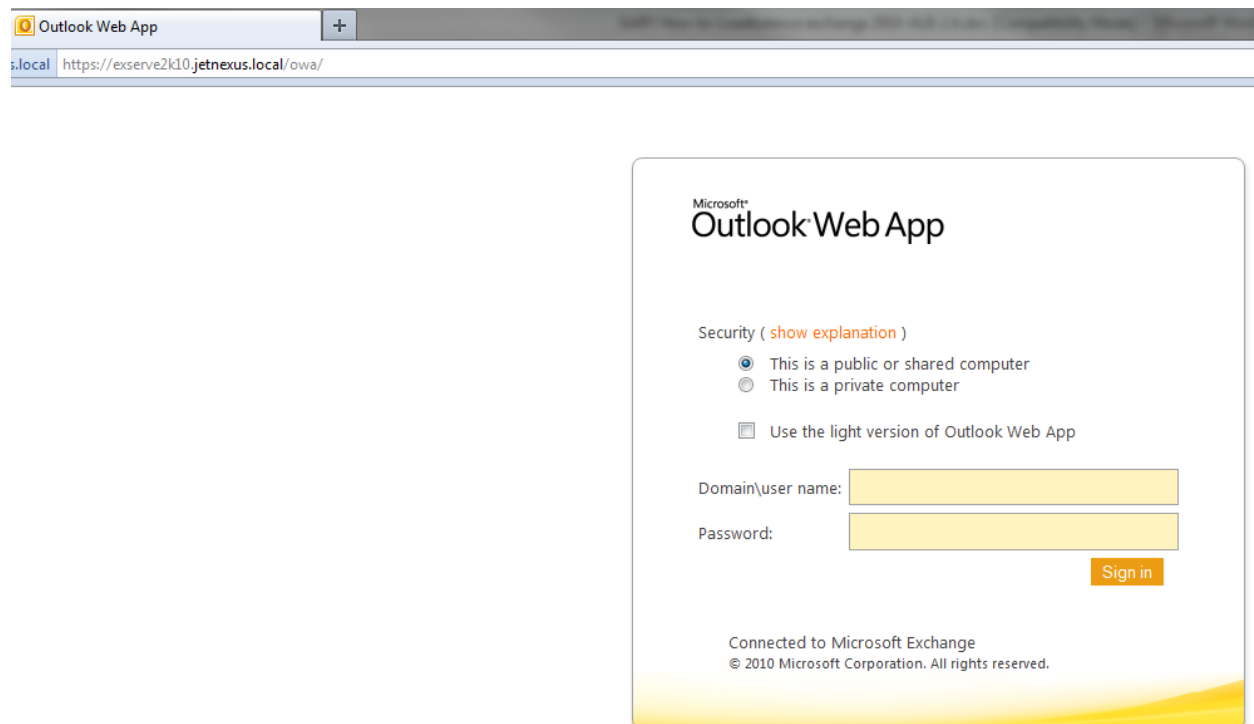
C:\Users\gchristie>ping exserve2k10.jetnexus.local

Pinging exserve2k10.jetnexus.local [192.168.1.247] with 32 bytes of data:
Reply from 192.168.1.247: bytes=32 time=104ms TTL=63
Reply from 192.168.1.247: bytes=32 time=119ms TTL=63
Reply from 192.168.1.247: bytes=32 time=144ms TTL=63
Reply from 192.168.1.247: bytes=32 time=178ms TTL=63

Ping statistics for 192.168.1.247:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 104ms, Maximum = 178ms, Average = 136ms
```

You should be able to open a web page to <https://exserve2k10.jetnexus.local/owa>

This will now access OWA via the load balancer.



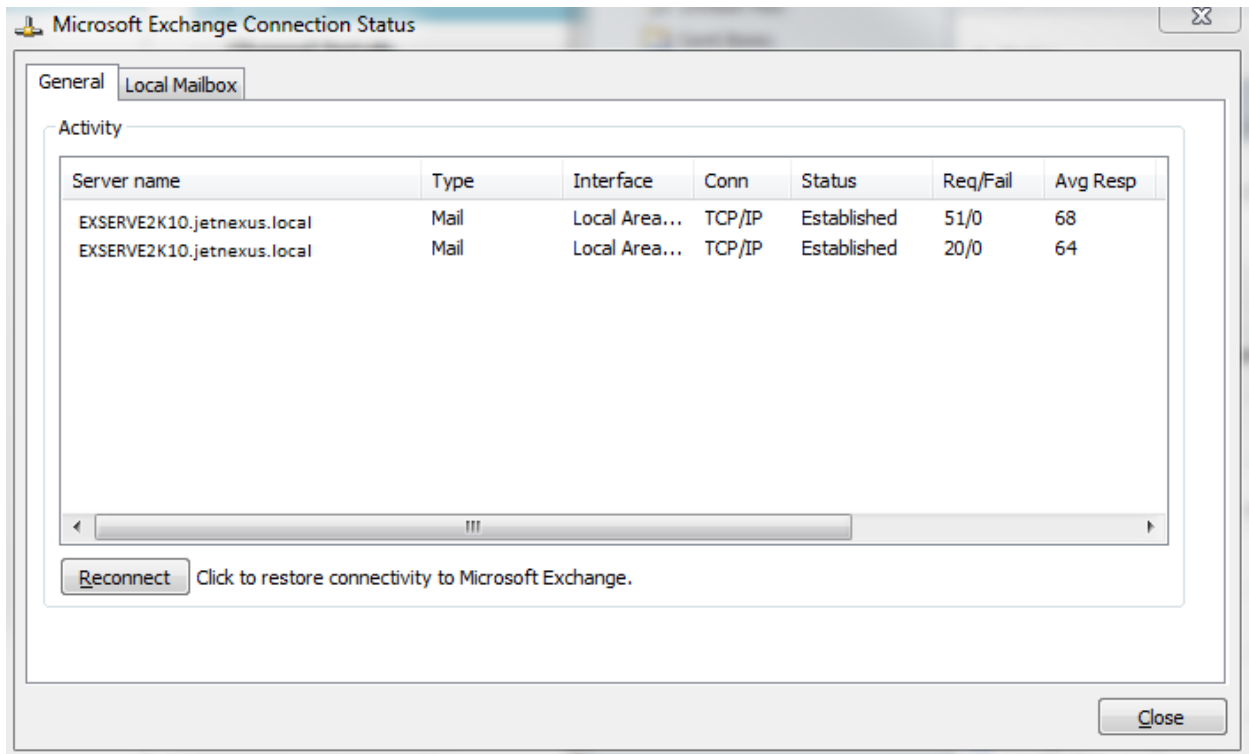
You will then be challenged for your username and password.

If you have any issues, please check your configuration settings above.

## Outlook Client

Run “outlook.exe /rpcdiag” which will open up your Outlook client and the Microsoft Exchange Connection Status window.

You should see that the Status is “Established”.



You should also see on the bottom right of your Outlook Client that you are “Connected to Microsoft Exchange”



## Open the ALB Web Interface

Using the Navigation bar on the left of the web interface, go to (Setup → IP Services) this will open the **IP-Services** tab allowing you to access the IP Services options.

Navigate to the Channel you created for Exchange testing with the Listening IP of 192.168.1.247  
Using the Tick box you can disable the rules. Below I have unchecked https 59534.

The screenshot shows the 'IP Services' interface with 'Channel Details' expanded. It includes buttons for 'Add IP', 'Add Port', and 'Remove Port'. Below is a table of services:

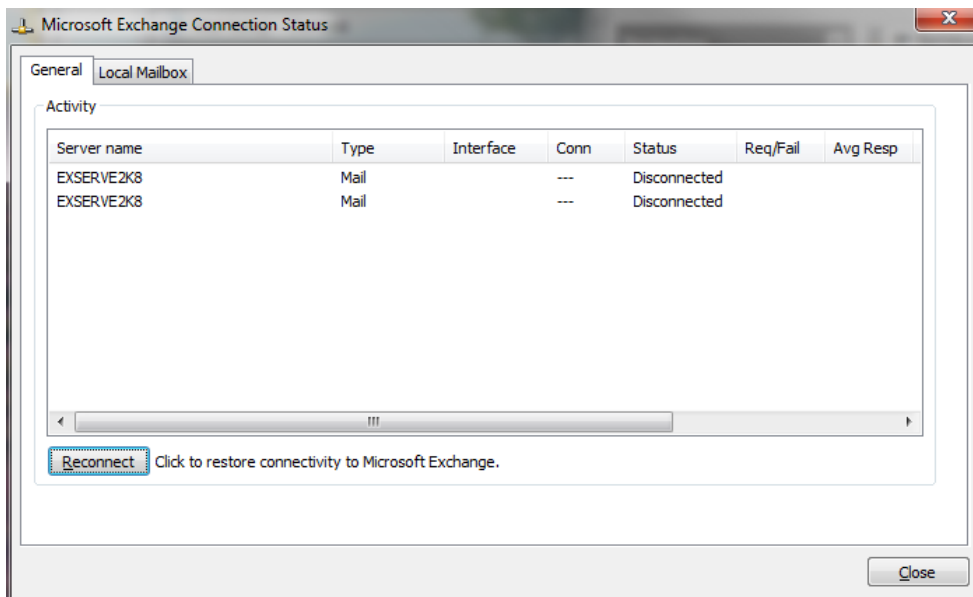
Primary	Status	Enabled	IP Address	Subnet Mask	Port	Service Name	Service Type
		<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	443	Exchange 2010 OWA	Layer 4
		<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	135	Exchange 2010 RPC End Point Mapper	Layer 4
		<input type="checkbox"/>	192.168.1.247	255.255.255.0	59534	Exchange 2010 Static RPC Service	Layer 4
		<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	59535	Exchange 2010 Static RPC Address Book	Layer 4

The channel now shows the servers that the listening IP 192.168.1.247:59534 are on are now offline.

The screenshot shows the 'Content Servers' interface with buttons for 'Add New' and 'Remove'. Below is a table of servers:

Status	Enabled	IP Address	Port
	<input checked="" type="checkbox"/>	192.168.1.215	59534
	<input checked="" type="checkbox"/>	192.168.1.216	59534

Your RPC connections should now show disconnected.



## Load Balance Testing

### Open the ALB Web Interface

The IP service configuration screen is the main configuration screen for load balancing functionality and it can be found in (Setup → IP Services).



Navigate to the Channel you created for Exchange testing with the Listening IP of 192.168.1.247

Using the Content servers, you can tick and uncheck any server you wish to remove.

On my 192.168.1.247:59534 Channel I will set 192.168.1.215 Offline.

Traffic will still work as I have only set one server to Offline.

IP Services

**Channel Details**

Primary	Status	Enabled	IP Address	SubNet Mask	Port	Service Name	Service Type
		<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	443	Exchange 2010 OWA	Layer 4
		<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	135	Exchange 2010 RPC End Point Mapper	Layer 4
		<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	59534	Exchange 2010 Static RPC Service	Layer 4
		<input checked="" type="checkbox"/>	192.168.1.247	255.255.255.0	59535	Exchange 2010 Static RPC Address Book	Layer 4

**Destination** | Actions

**Content Server Details**

Content Server Group Name:

**Content Servers**

Status	Enabled	IP Address	Port
	<input type="checkbox"/>	192.168.1.215	59534
	<input checked="" type="checkbox"/>	192.168.1.216	59534

## Troubleshooting

Further help can be found on the jetNEXUS websites

<http://www.jetNEXUS.com/support.html>

<http://forum.jetNEXUS.com/>

<http://www.jetnexus.com/load-balance-microsoft-exchange-tutorial.html>

## Contact Us

I hope you have found this How-To Guide informative, but if you need any clarification or further information, please do not hesitate to get in contact with jetNEXUS Support:

E-mail [pre-sales@jetNEXUS.com](mailto:pre-sales@jetNEXUS.com)

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