SOLUTION GUIDE

Stingray Traffic Manager Solution Guide

Load Balancing and Optimization for Microsoft Exchange 2010 Client Access Servers

Riverbed Technical Marketing

Version 2.7

Contents

1.0 Solution Overview

1.1 Riverbed Stingray™ Traffic Manager

Despite increasing traffic loads, rapid change, and complex deployment infrastructures, online applications are still expected to deliver consistently excellent service levels. Stingray traffic management solutions provide complete control over user traffic, allowing administrators to accelerate, optimize, and secure key business applications. Now it's possible to deliver these services more quickly and ensure the best possible performance across any deployment platform.

Application delivery controllers accelerate transactions, maximize availability, manage security policies, and provide a point of control to monitor and manage application traffic. Stingray Traffic Manager is a software-based ADC that provides unprecedented scale and flexibility to deliver applications across the widest range of environments, from physical and virtual data centers to public and hybrid clouds.

Stingray Traffic Manager Benefits include:

- Speed: Accelerate services, increase capacity, and reduce costs by offloading performance-draining tasks such as SSL and compression onto Stingray Traffic Manager's optimized implementations. Cache commonly requested content and optimize traffic delivery to applications so they'll run as fast as they would in a perfect benchmark environment.
- Reliability: Improve application availability by intelligently distributing traffic, avoiding failed or degraded servers, monitoring performance problems, and shaping traffic spikes.
- Improved security: Stingray Traffic Manager operates as a deny-all gateway, only admitting traffic types it has been configured to admit. This provides full control over how traffic is internally routed. High-performance inspection can interrogate any part of a request or response to apply global filtering or scrubbing policies. The Stingray Application Firewall option also protects against a broad range of web application attacks.
- Ease of management: Stingray Traffic Manager makes it easy to manage how users interact with applications, and the infrastructure those applications depend on. Use it to shape, prioritize, and route traffic, to drain infrastructure resources prior to maintenance, and to upgrade user sessions across application instances, all while preserving the user experience that business demands.

1.2 Microsoft® Exchange 2010 Server

Built to deliver the enterprise-grade security and reliability that businesses require, Microsoft Exchange provides email, calendar and contacts on your PC, phone and web browser.

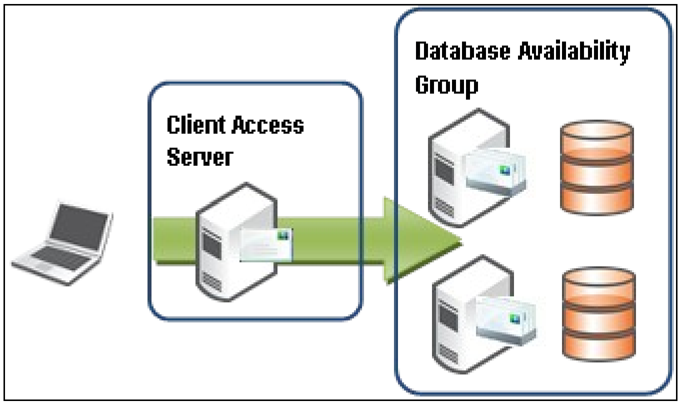
- Support for a variety of browsers, including Internet Explorer, Firefox, Safari and Chrome, allows you to work and collaborate no matter where you are
- Mobile sync to hundreds of devices, including Windows Phone, iPhone, and Android, means you can access and update your info while on the go
- Multi-layered anti-spam filtering with continuous updates helps guard against spam and phishing threats
- A new, unified approach to high availability and disaster recovery helps your business achieve increased levels of reliability

1.3 Microsoft Exchange 2010 High Availability

For the 2010 version of Exchange, Microsoft provides a solution to most of the High Availability and load sharing requirements. The only missing piece is for that of the Client Access Server(s) (CAS). Microsoft suggests that an array of CAS can be built using a third party Load Balancer. It is this role therefore, that this document will address.

2.0 Exchange 2010 architecture

2 .1 Single Client Access Server



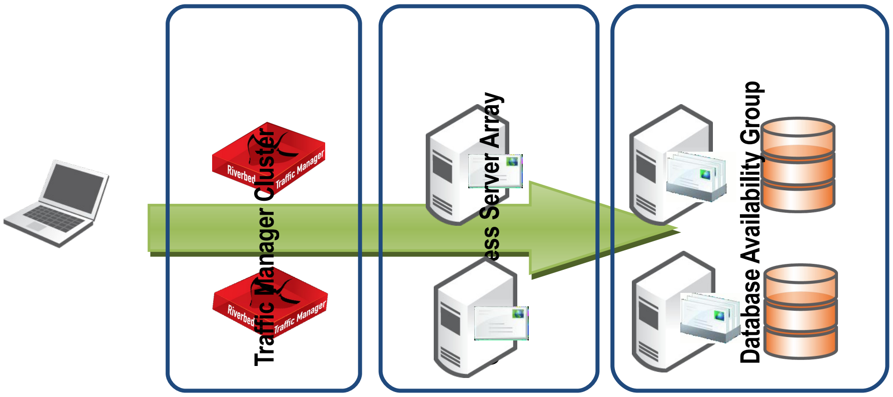
A typical Microsoft Exchange 2010 deployment would contain a number of server roles (e.g. Hub Transport Servers, Edge Transport Servers etc.), however as these have built-in mechanisms for High Availability and load sharing these have been left out of the diagram (left) for the sake of clarity.

In this diagram we only see the Client Access Server and the Database Availability Group (containing the Mailbox Servers that the CAS connects to). The clients in this scenario are configured to access the CAS using a DNS name for the service. This name translates to the physical IP address of the CAS, should this device fails (for whatever reason), then the whole service becomes unavailable for the clients.

Also, should the number of clients accessing the Exchange service exceed the capabilities of the single CAS then the responsiveness of the service is (at best) likely to be degraded, and may possibly also fail.

The answer to both of these issues is to deploy more than one CAS, however, there then becomes an issue of how the individual clients are shared across the array of CAS.

2.2 Client Access Server Array



The answer to the problem of distributing clients across the array of CAS is to deploy a load balancing or traffic management product. In the diagram (right) this role is provided by the Stingray Traffic Managers. The Traffic Managers are deployed logically in front of the CAS array, and the clients are configured to access the service via a name that translates to an IP address managed by the Traffic Managers. A cluster of Traffic Managers are deployed to cope with any HA issues that may occur at this level of the infrastructure.

When a client makes a connection to their Exchange 2010 service, this connection now passes through the Stingray Traffic Manager cluster. One of the Traffic Managers will receive this connection and select a CAS for the client to be forwarded to. It makes this decision based on a number of configurable metrics, but essentially it will choose the CAS that will provide the client with the best possible user experience. In this way any performance issues or failure occurrences are dealt with transparently to the clients accessing the service.

2.3 Client Access server changes

Overview

There are a number of services that run underneath the covers of Exchange 2010.

A good number of these services use HTTPS or on occasion HTTP (TCP ports 443 and 80) for their transport, for example Outlook Web App, Exchange ActiveSync, Outlook Anywhere, and Exchange Web Services. Depending on the client software used in the environment, POP3 and IMAP4 may also be required (TCP ports 110 and 143 unencrypted, 995 and 993 under SSL).

Other Exchange services, such as the RPC Client Access service and the Exchange Address Book service, are RPC services. When an Outlook client connects directly to the Client Access server using these protocols, instead of using Outlook Anywhere, the endpoint TCP ports for these services are allocated by the RPC endpoint manager. Allocation occurs when the services are started.

This allocation is based on a “random” port being selected from a range. The configuration of the Stingray Traffic Manager requires that a node be added to the pool using the IP address and Port number, obviously if the TCP port is not known then this configuration cannot be added. Therefore, a static port mapping needs to be made for the RPC services. Once this is done then the RPC services will be restricted to port 135 and the two static ports configured via the registry. From a network perspective, nothing should need to be changed on the CAS, i.e. all network interface settings can remain the same (e.g. IP address, mask, gateway, DNS etc.). Following section of the document highlights the entire configuration necessary on Microsoft Exchange 2010 CAS server to be set up for load balancing behind Stingray Traffic Manager

3.0 Prerequisites and Configuration tips for Microsoft Exchange 2010 Client Access Role on CAS Array

For most part this deployment guide covers the details on setting up the Riverbed’s Stingray Traffic Manager for load balancing Microsoft Exchange 2010 CAS servers. In order to make sure the Microsoft Exchange 2010 services are setup properly for load balancing most of the Exchange 2010 configuration steps are provided below. For detailed information on how to deploy or configure Microsoft Exchange 2010, refer appropriate Microsoft documentation.

3.1 Setting up Microsoft Exchange 2010 CAS Array

Microsoft Exchange 2010 CAS servers need to be setup as CAS array first so that they can be setup behind Traffic Manager for load balancing. Refer to documentation on Microsoft Exchange 2010 and here is the article on TechNet which explains the steps involved in setting up CAS array http://blogs.technet.com/b/ucedsg/archive/2009/12/06/how-to-setup-an-exchange-2010-cas-array-to-load-balance-mapi.aspx.

3.2 RPC Client Access (MAPI)

Configuring Static Port Mapping for RPC-Based Services

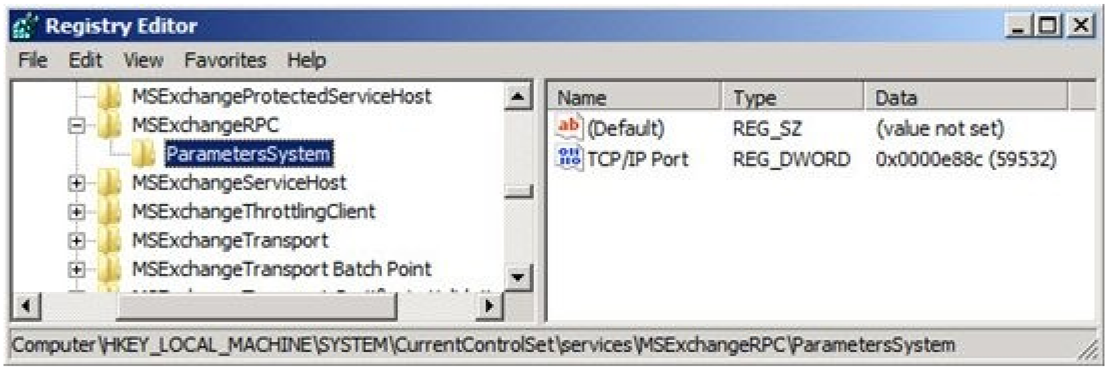
The following information is taken directly from Microsoft’s TechNet website. Located here:

http://social.technet.microsoft.com/wiki/contents/articles/configure-static-rpc-ports-on-an-exchange-2010-client-access-server.aspx

By default the RPC Client Access service on an Exchange 2010 Client Access server uses the TCP End Point Mapper port (TCP/135) and the dynamic RPC port range (6005-59530) for outgoing connections, every time an Outlook clients establish a connection to Exchange. There are two static port mappings needed, the configuration of which is described below. To set a static port for the RPC Client Access service on an Exchange 2010 Client Access server, you need to open the registry on the respective server and navigate to:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\MSExchangeRPC

Here, you need to create a new key named **ParametersSystem**, and under this key create a **REG_DWORD** named **TCP/IP Port**. The Value for the **DWORD** should be the port number you want to use.



- MSExchangeProtectedServiceHost
- MSExchangeRPC
  - ParametersSystem
- MSExchangeServiceHost
- MSExchangeThrottlingClient
- MSExchangeTransport
- MSExchangeTransport Batch Point

Name	Type	Data
(Default)	REG_SZ	(value not set)
TCP/IP Port	REG_DWORD	0x0000e88c (59532)

Computer\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\MSExchangeRPC\ParametersSystem

Configuring static ports for the RPC Client Access service

Note

Microsoft recommends you set this to a unique value between 59531 and 60554 and use the same value on all CAS in any one AD site.

When you've configured the port, it's required to restart the Microsoft Exchange RPC Client Access service in order for the changes to be applied.

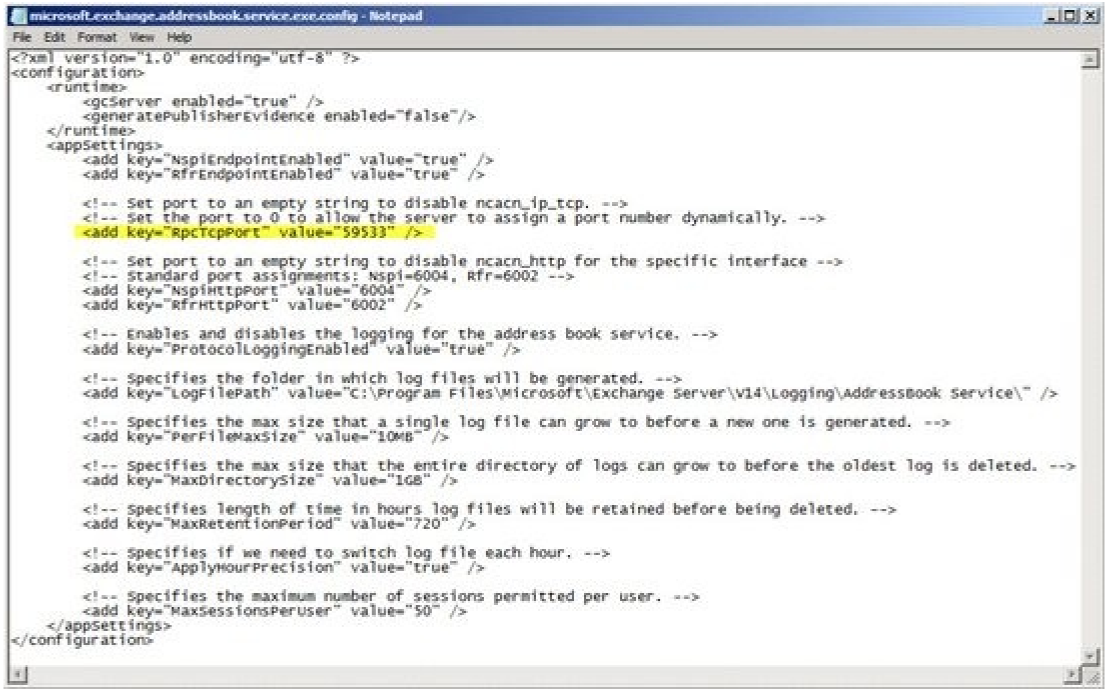
3.3 Exchange 2010 Address Book Service

By default the Exchange Address Book service on an Exchange 2010 Client Access server uses the TCP End Point Mapper (TCP/135) and the dynamic RPC port range (6005-59530) for outgoing connections, every time an Outlook client establish a connection to Exchange.

Exchange 2010 RTM

In Exchange 2010 RTM a static port for the Exchange Address Book service is set using the following steps:

- Open the **microsoft.exchange.addressbook.service.exe.config** configuration file located in **C:\Program Files\Microsoft\Exchange Server\V14\Bin** using Notepad.
- Change the value for the key **RpcTcpPort** to the port you want to use as the static port for this service. Bear in mind you cannot use the same port as you configured for the RPC Client Access service.


microsoft.exchange.addressbook.service.exe.config - Notepad
File Edit Format View Help

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
    <runtime>
        <gcServer enabled="true" />
        <generatePublisherEvidence enabled="false"/>
    </runtime>
    <appSettings>
        <add key="NspiEndpointEnabled" value="true" />
        <add key="RfrEndpointEnabled" value="true" />

        <!-- Set port to an empty string to disable ncacn_ip_tcp. -->
        <!-- Set the port to 0 to allow the server to assign a port number dynamically. -->
        <add key="RpcTcpPort" value="59533" />

        <!-- Set port to an empty string to disable ncacn_http for the specific interface -->
        <!-- Standard port assignments: Nspi=6004, Rfr=6002 -->
        <add key="NspiHttpPort" value="6004" />
        <add key="RfrHttpPort" value="6002" />

        <!-- Enables and disables the logging for the address book service. -->
        <add key="ProtocolLoggingEnabled" value="true" />

        <!-- Specifies the folder in which log files will be generated. -->
        <add key="LogFilePath" value="C:\Program Files\Microsoft\Exchange Server\V14\Logging\AddressBook Service\" />

        <!-- Specifies the max size that a single log file can grow to before a new one is generated. -->
        <add key="PerFileMaxSize" value="10MB" />

        <!-- Specifies the max size that the entire directory of logs can grow to before the oldest log is deleted. -->
        <add key="MaxDirectorySize" value="1GB" />

        <!-- Specifies length of time in hours log files will be retained before being deleted. -->
        <add key="MaxRetentionPeriod" value="720" />

        <!-- Specifies if we need to switch log file each hour. -->
        <add key="ApplyHourPrecision" value="true" />

        <!-- Specifies the maximum number of sessions permitted per user. -->
        <add key="MaxSessionsPerUser" value="50" />
    </appSettings>
</configuration>
```

Configuring static port for the Exchange Address Book Service in Exchange 2010 RTM

Note

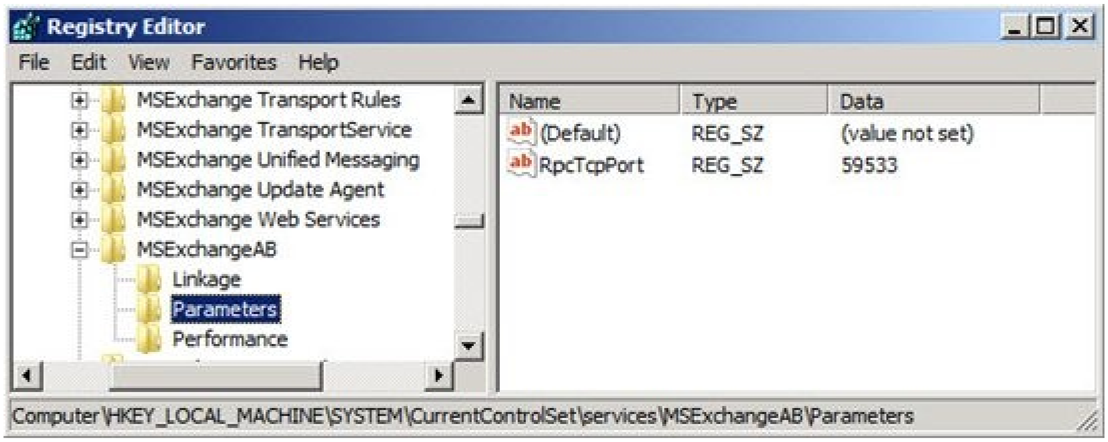
Microsoft recommends you set this to a unique value between 59531 and 60554 and use the same value on all Exchange 2010 Client Access servers in any one AD site.

When you've configured the port, it's required to restart the Microsoft Exchange Address Book service in order for the changes to be applied.

Exchange 2010 SP1

With Exchange 2010 SP1, you no longer use the "Microsoft.exchange.addressbook.service.exe.config" file to assign a static RPC port to the Exchange Address Book Service. Instead this configuration setting is controlled using the registry. To set a static RPC port for the Exchange Address Book Service, create a new REG_SZ registry key named "RpcTcpPort" under:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\MSExchangeAB\Parameters


Registry Editor
File Edit View Favorites Help
MSExchange Transport Rules
MSExchange TransportService
MSExchange Unified Messaging
MSExchange Update Agent
MSExchange Web Services
MSExchangeAB
Linkage
Parameters
Performance

Name	Type	Data
(Default)	REG_SZ	(value not set)
RpcTcpPort	REG_SZ	59533

Computer\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\MSExchangeAB\Parameters

Configuring static port for the Exchange Address Book Service in Exchange 2010 SP1

Important

When upgrading from Exchange 2010 RTM to SP1, you need to set this key manually after the upgrade.

Note

Microsoft recommends you set this to a unique value between 59531 and 60554 and use the same value on all Exchange 2010 Client Access servers in any one AD site.

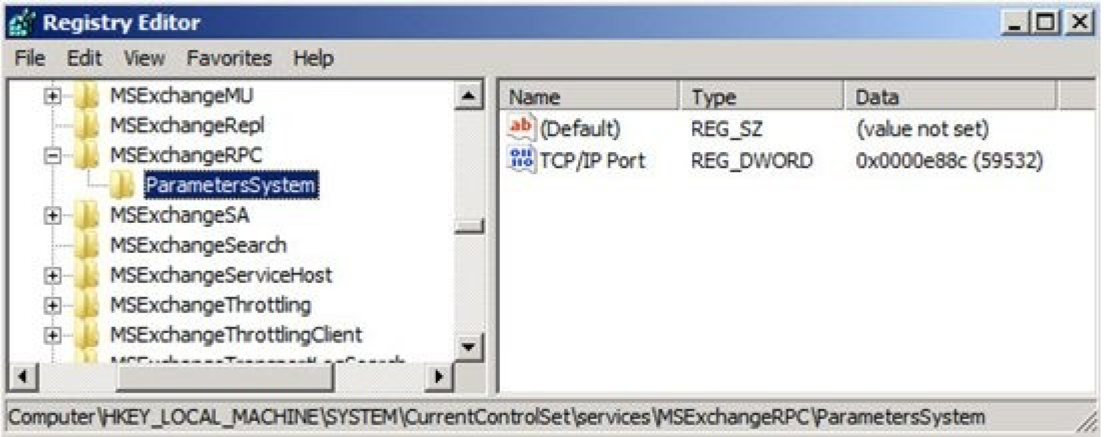
When you’ve configured the port, it's required to restart the Microsoft Exchange Address Book service in order for the changes to be applied.

3.4 Exchange 2010 Public Folder connections

By default public folder connections uses the TCP End Point Mapper (TCP/135) and the dynamic RPC port range (49152-65535) for outgoing connections, every time an Outlook client establish a connection to Exchange.

NOTE: Exchange 2010 Public Folder Connections from the Outlook Client is directly occurs directly with Mailbox server and below configuration is not relevant for Stingray Traffic Manager configuration. Follow the below section only if you want to assign static port for public folder access from clients.

To set a static port for public folder connections, follow the same steps as those required for configuring static ports for the RPC CA service. Just bear in mind you need to perform them on the Exchange 2010 servers that stores public folder databases. This is because public folder connections from an Outlook client occur against the RPC Client Access service on the Mailbox server role.



Name	Type	Data
(Default)	REG_SZ	(value not set)
TCP/IP Port	REG_DWORD	0x0000e88c (59532)

Computer\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\MSExchangeRPC\ParametersSystem

Configuring a static port for Public Folder connections

When the port has been set for public folder connections, it's required to restart the Microsoft Exchange RPC Client Access service on the Mailbox server in order for the changes to be applied.

Important

Unlike in previous versions of Exchange Server, you configure static RPC ports for an Exchange 2010 Mailbox server under the **MSExchangeRPC** key and not under **MSExchangeSA\Parameters** since all MAPI connections to an Exchange 2010 Mailbox server are handled by the RPC Client Access service. For information on how to configure static RPC ports in Exchange 2007 and earlier see Microsoft KB article: Exchange Server static port mappings.

3.5 Changing the External URLs of Exchange HTTP services for respective Virtual Directories on CAS IIS Server

Below are list of EMS (Exchange Management Shell) cmdlets that can be used to setup the external URLs for all the Exchange applications.

Outlook Web App (OWA)

```
Set-OwaVirtualDirectory -Identity "CAS_Server\OWA (Default Web Site)" -ExternalURL https://mail.domain.com/OWA
```

Exchange Control Panel (ECP)

```
Set-EcpVirtualDirectory -Identity "CAS_Server\ECP (Default Web Site)" -ExternalURL https://mail.domain.com/ECP
-FormsAuthentication $True -BasicAuthentication $True
```

Exchange ActiveSync (EAS)

```
Set-ActivesyncVirtualDirectory -Identity "CAS_Server \Microsoft-Server-ActiveSync (Default Web Site)" -ExternalURL
https://mail.domain.com/Microsoft-Server-Activesync -BasicAuthentication $True
```

Offline Address Book (OAB)

```
Set-OABVirtualDirectory -Identity "CAS_Server\oab (Default Web Site)" -ExternalUrl https://mail.domain.com/oab;
```

Exchange Web Services (EWS)

```
Set-WebServicesVirtualDirectory -Identity "CAS_Server\EWS (Default Web Site)" -ExternalUrl
https://mail.domain.com/ews/exchange.asmx
```

Unified Messaging (UM)

```
Set-UMVirtualDirectory -Identity "CAS_Server\unifiedmessaging (Default Web Site)" -InternalUrl
https://mail.domain.com/unifiedmessaging/service.asmx
```

4.0 Stingray Traffic Manager Configuration: Separate Virtual Server For Each Microsoft Exchange 2010 CAS Client Access HTTP Service

4.1 Overview

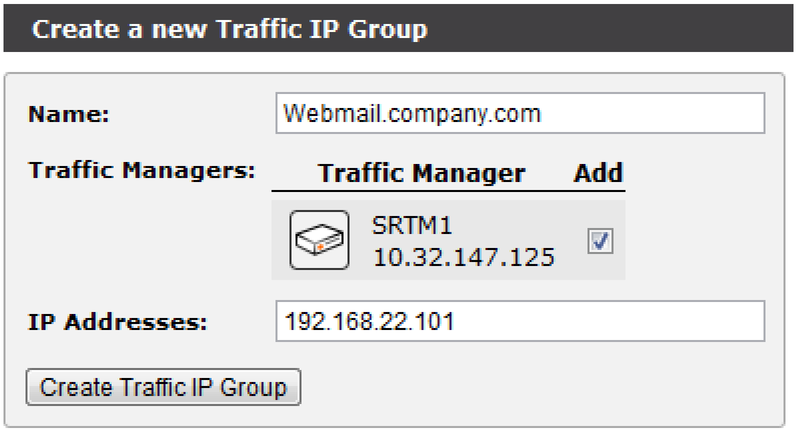
The Traffic Manager configuration is very straight-forward, there simply needs to be provision made for all the services passing through it. This means at least five Virtual Servers and Pools, with a further two if POP3 and IMAP4 need to be supported. Most of these services need to have Session Persistence configured, and specific Health Monitors setup for them. Apart from these minimal changes however, not much else needs to be changed from the default settings received Therefore, the actual Stingray Traffic Manager setup takes just a few minutes.

4.2 Configuring Stingray Traffic Manager for Outlook Web App (OWA)

This section walks through the steps required to configure Outlook Web App on dedicated/separate Traffic IP group and later portion of document will go through configuring all the Client Access HTTP services to be hosted on single Traffic IP group and single Virtual Server using Traffic Script.

1. **Traffic IP Groups and Clustering**
   Outlook Web app service will resolve the FQDN to Traffic IP Group address and this IP address will be active a Traffic Manager cluster. As we are talking about making Exchange 2010 highly available and scalable, it is likely that the Traffic Managers will also be deployed in a cluster (two or more Traffic Managers all active for the traffic passing through the cluster). Traffic IP Group is a configuration object that can contain a number of externally facing IP addresses, which can be raised by any member of the cluster. This spreads the traffic load across the cluster and also provides for failures within the cluster.

   Keeping the configuration simple, the minimum requirement is for one IP in the Group. In this way the Traffic Managers will act in an active-passive manner, with one of the machines in the cluster keeping the IP address raised, whilst any others stand by in readiness. Create a new Traffic IP group by accessing the WebGUI and it is located under **Services →Traffic IP Groups** as shown below



Create a new Traffic IP Group

Name: Webmail.company.com

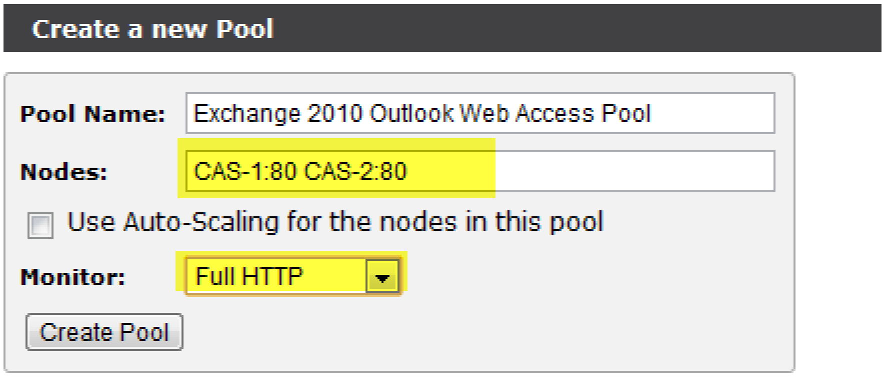
Traffic Managers:

Traffic Manager	Add
SRTM1 10.32.147.125	☑

IP Addresses: 192.168.22.101

2. **Pools**

   This is important section of the deployment for Traffic Manager as the configuration steps vary depending on whether a single pool or multiple pools for each Microsoft Exhcnage 2010 CAS Client Access HTTP service is choosen. Advantage of configuring dedicated pool for each Microsoft Exchange 2010 CAS Client Access HTTP service is the ability to configure different health monitors to each Client Access HTTP service. This documentation highlights the use of dedicated pool for each Client Access HTTP service. So below is the step for creating dedicated pool for Outlook Web App pool. This is done by accessing the **Services → Pools** section on WebGUI. Note that the port for nodes is set to 80 (HTTP) as the Traffic Manager is offloading SSL from servers. Also note that Full HTTP monitor is selected and later section will highlight the detailed configruation of Health Monitor. Nodes section is filled with the hostname of the CAS servers as Traffic Manager has been configured with DNS server which can resolve the hostname. If DNS server is not configured then manually you can enter the hostname to IP mappings by accessing the **System → Networking → DNS** section of Traffic Manager's WebGUI.



Create a new Pool

Pool Name: Exchange 2010 Outlook Web Access Pool

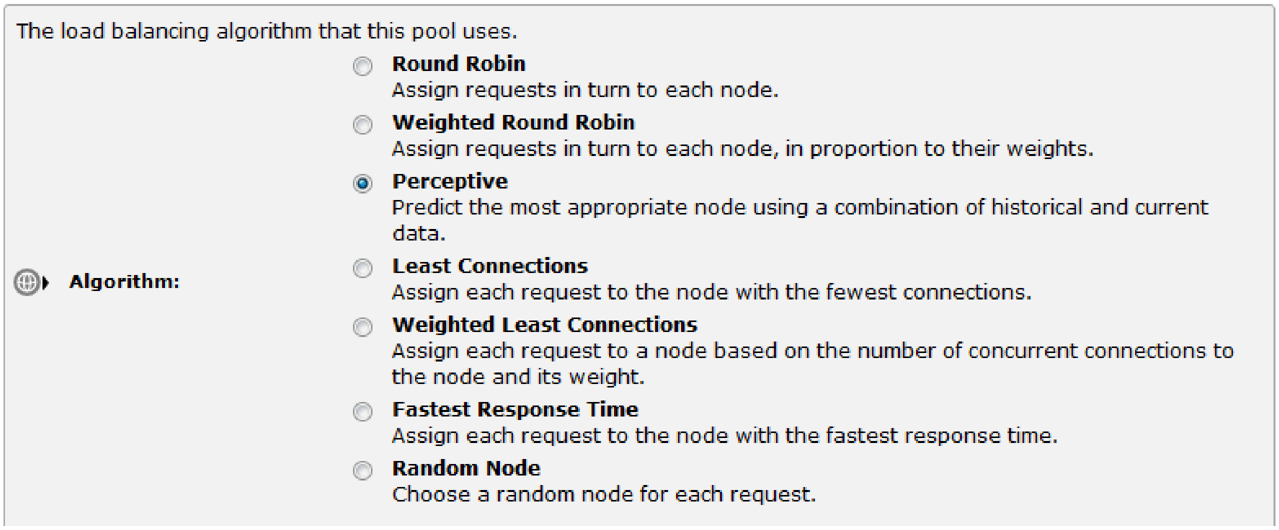
Nodes: CAS-1:80 CAS-2:80

□ Use Auto-Scaling for the nodes in this pool

Monitor: Full HTTP

Though the default settings will work with the Exchange deployment there are some changes that should be made to these services. These are all at the Pool level of the configuration.

Navigate to the Pools of the new services and change the load balancing algorithms from “Round Robin” to a more useful algorithm, for example “Perceptive”. Round Robin is a nice simple and predictable algorithm for testing or very simple deployments. However it can create some issues in a production environment due to the inherent lack of intelligence of the algorithm. The Perceptive algorithm achieves a very even distribution of traffic (it uses a combination of information including current connections and responsiveness), it also has the benefit of “slow starting” recovering servers. This means that when a server fails, when it returns to the load balancing algorithm it is slowly brought up to full load. This avoids overwhelming the CAS with too much traffic.



The load balancing algorithm that this pool uses.

Algorithm:

○ **Round Robin**
Assign requests in turn to each node.

○ **Weighted Round Robin**
Assign requests in turn to each node, in proportion to their weights.

● **Perceptive**
Predict the most appropriate node using a combination of historical and current data.

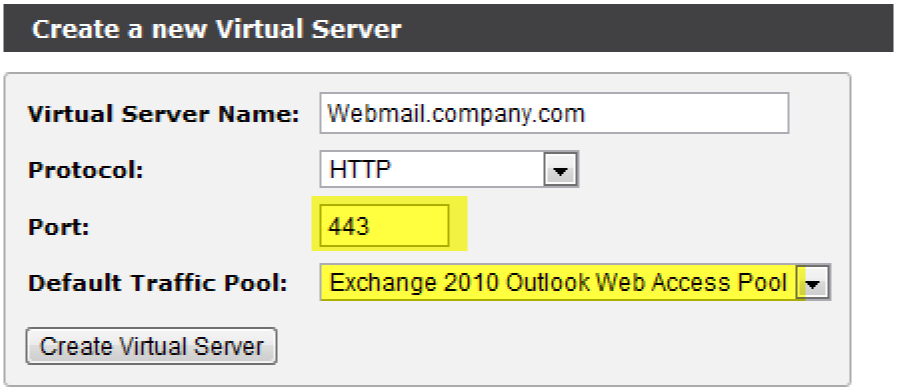
○ **Least Connections**
Assign each request to the node with the fewest connections.

○ **Weighted Least Connections**
Assign each request to a node based on the number of concurrent connections to the node and its weight.

○ **Fastest Response Time**
Assign each request to the node with the fastest response time.

○ **Random Node**
Choose a random node for each request.

3. **Virtual Servers**
In order to configure the Virtual Server for OWA access the Service → Virtual Servers section of WebGUI and fill out the relevant sections under Create a new Virtual Server section.

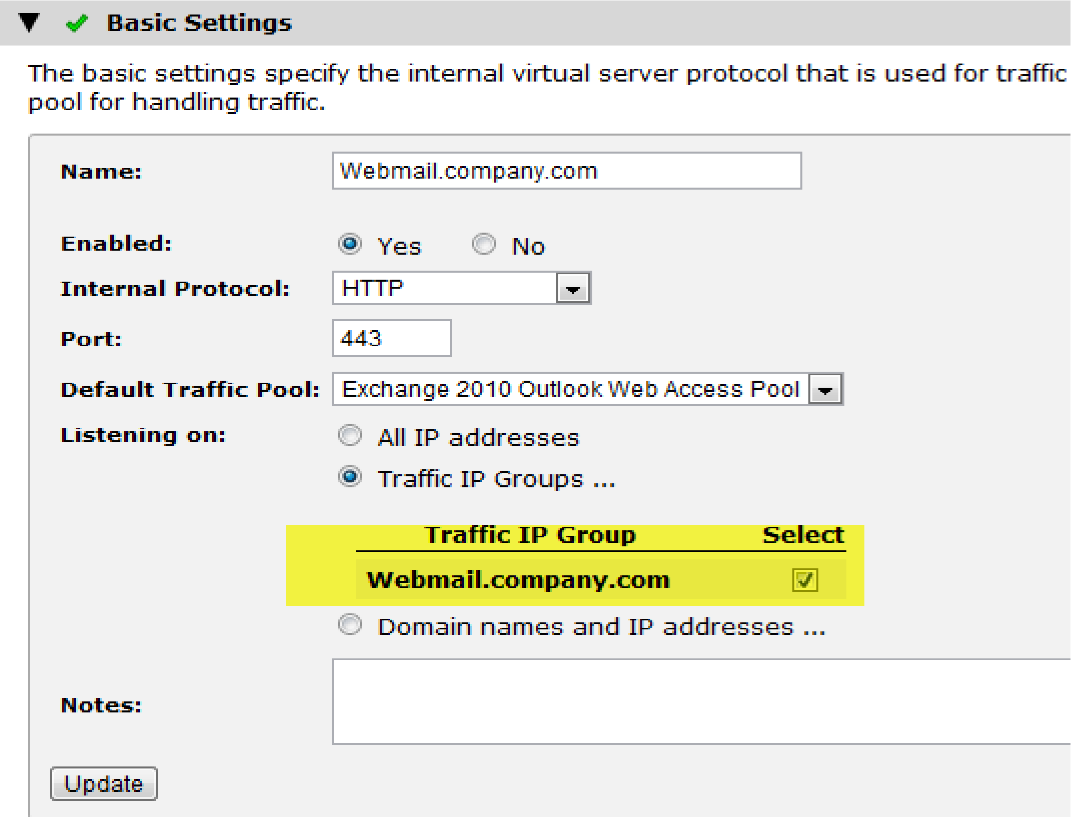


Create a new Virtual Server

Virtual Server Name:	Webmail.company.com
Protocol:	HTTP
Port:	443
Default Traffic Pool:	Exchange 2010 Outlook Web Access Pool

Note that in the above screen the port is configured as 443 whereas protcol is HTTP. This is due to the fact that Traffic Manager will be offloading SSL from the Microsoft Exchange 2010 CAS servers. In order to configure SSL Offloading on the CAS servers for all HTTP based applications (OWA, ECP, EWS, OAB) please follow the guidelines highlighted at *http://social.technet.microsoft.com/wiki/contents/articles/how-to-configure-ssl-offloading-in-exchange-2010.aspx*

4. **Associating the Traffic IP group to configrued OWA Virtual Server**
Next step is to associate the Traffic IP group to OWA virtual server. This can be done by accessing the **Services → Virtual Servers** and selecting the OWA virtual server's **Basic Settings.** In this section select the **Listening on:** section and select Traffic IP Groups radio button. Select the appropriate Traffic IP group and click update button



▼ ✓ Basic Settings

The basic settings specify the internal virtual server protocol that is used for traffic pool for handling traffic.

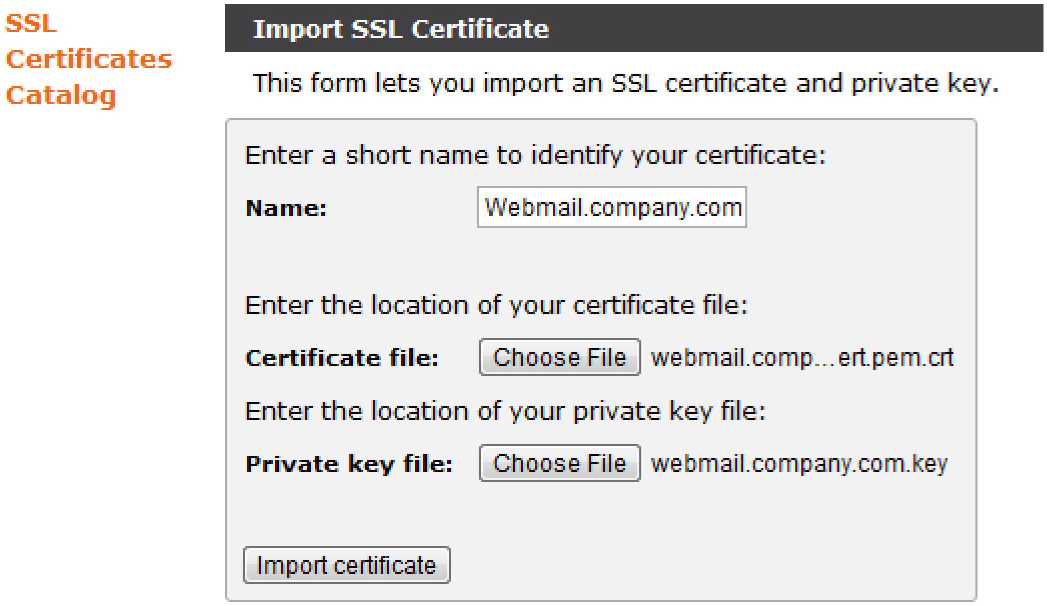
Name:	Webmail.company.com
Enabled:	● Yes ○ No
Internal Protocol:	HTTP
Port:	443
Default Traffic Pool:	Exchange 2010 Outlook Web Access Pool
Listening on:	○ All IP addresses ● Traffic IP Groups ...

Traffic IP Group	Select
Webmail.company.com	☑

○ Domain names and IP addresses ...

Notes:

5. **SSL Key and Certificate upload for OWA**
Since the Traffic Manager is offloading SSL from CAS servers, SSL Keys and Certs need to be imported to Traffic Manager. Even though Traffic Manager does have the ability to create a self-signed Certificate it is recommended to use the certificate signed by Certificate Authority. As Traffic Manager will be offloading SSL for many of Client Access HTTP services, Microsoft recommends leveraging Subject Alternate Name certificate extensions. Some examples of using SAN certificates with Exchange 2010 are shown in this TechNet Article. When you request a SAN certificate from a certification authority, you must define all desired FQDNs in the Subject Alternative Name field; clients will ignore the Common Name in the certificate Subject. Although the Traffic Manager GUI cannot create SAN certificates, and will not display the Subject Alternative Name values of imported certificates, use of SAN certificates is otherwise supported. In order to import the certificate access the **Catalogs → SSL → SSL Certificates catalog** and click on import button to upload the certificate and key file.



Import SSL Certificate

This form lets you import an SSL certificate and private key.

Enter a short name to identify your certificate:

Name: Webmail.company.com

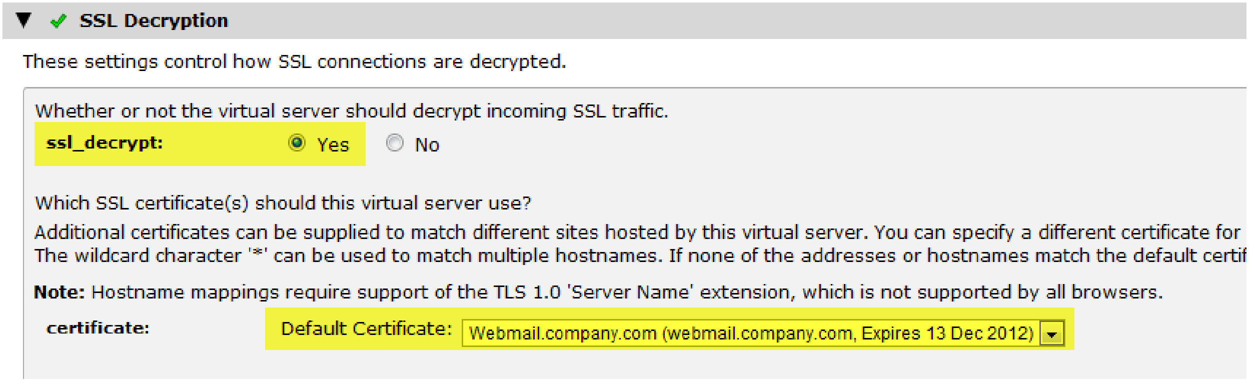
Enter the location of your certificate file:

Certificate file: Choose File webmail.comp...ert.pem.crt

Enter the location of your private key file:

Private key file: Choose File webmail.company.com.key

6. **Enable SSL decrypt and associate SSL Certificate to Virtual Server**
   Next step once the SSL Key and Certs are uploaded, associate it to the virtual server and enable SSL decrypt on the virtual server. This is done by accessing the appropriate virtual server under **Services → Virtual Servers.** Click SSL Decryption section under the virtual server and select the appropriate certificate that was uploaded. Check the **ssl_decrypt** setting to **Yes** and click update button at the bottom of the page. Now the Virtual Server is enabled for SSL Decryption.



▼ ✓ **SSL Decryption**

These settings control how SSL connections are decrypted.

Whether or not the virtual server should decrypt incoming SSL traffic.

ssl_decrypt: ● Yes ○ No

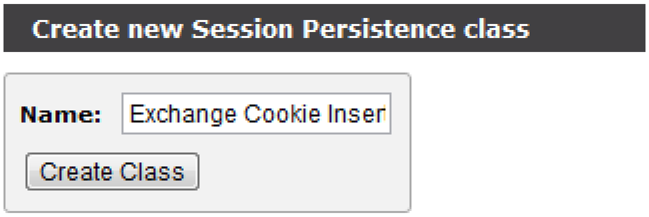
Which SSL certificate(s) should this virtual server use?

Additional certificates can be supplied to match different sites hosted by this virtual server. You can specify a different certificate for
The wildcard character '*' can be used to match multiple hostnames. If none of the addresses or hostnames match the default certif

Note: Hostname mappings require support of the TLS 1.0 'Server Name' extension, which is not supported by all browsers.

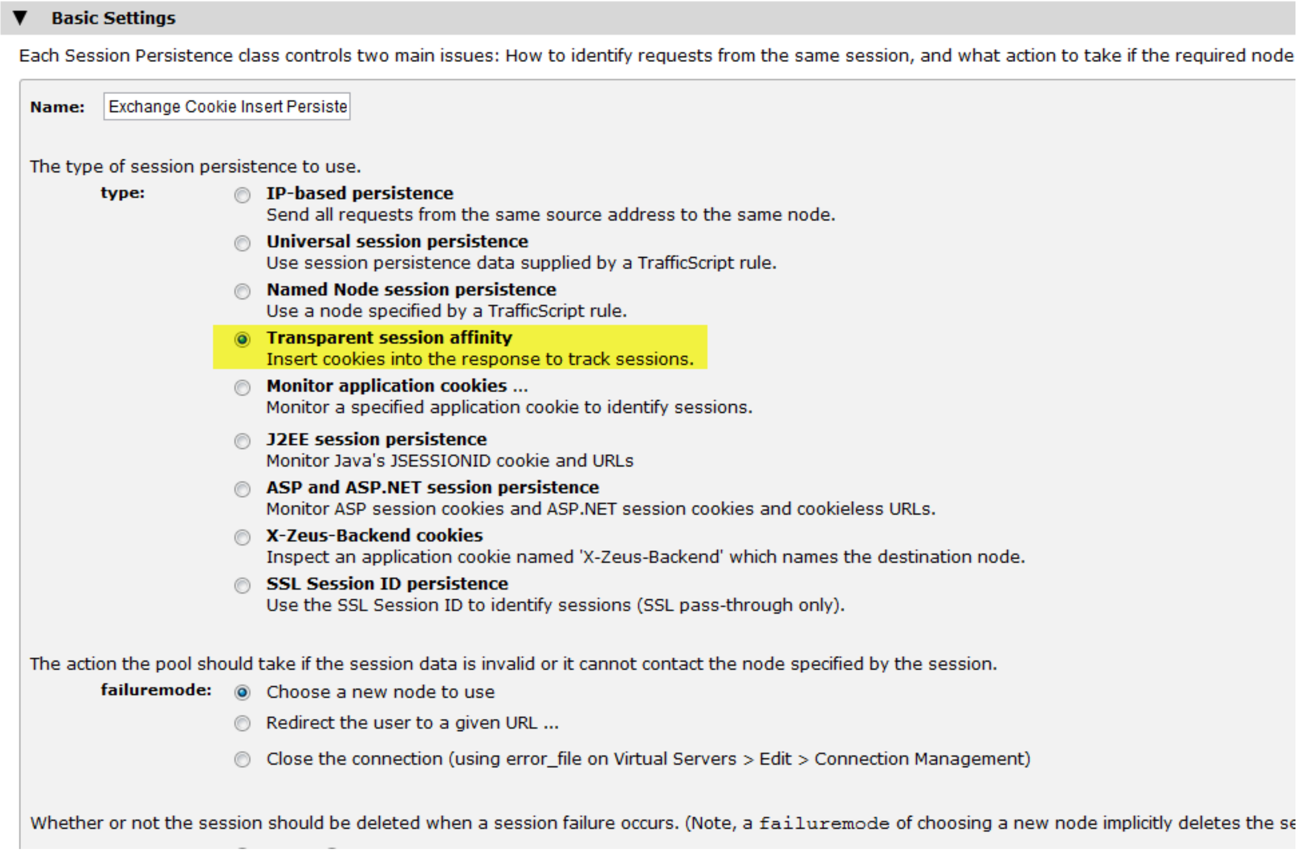
certificate: Default Certificate: Webmail.company.com (webmail.company.com, Expires 13 Dec 2012)

7. **Create a OWA Persistence Class**
   Microsoft recommends use of cookie persistence for OWA application and refer to the affinity options at http://technet.microsoft.com/en-us/library/ff625247.aspx for Microsoft's recommendation for setting up persistence for different Client Access services when using ADCs like Traffic Manager. Setup persistence class of type Transparent Session affinity persistence by accessing **Catalogs →Persistence,** create a new class with name and press the create class button and then select Transparent session affinity and click update button to apply changes.



Create new Session Persistence class

Name: Exchange Cookie Inser



▼ Basic Settings

Each Session Persistence class controls two main issues: How to identify requests from the same session, and what action to take if the required node

Name: Exchange Cookie Insert Persiste

The type of session persistence to use.

type:

○ **IP-based persistence**
Send all requests from the same source address to the same node.

○ **Universal session persistence**
Use session persistence data supplied by a TrafficScript rule.

○ **Named Node session persistence**
Use a node specified by a TrafficScript rule.

● **Transparent session affinity**
Insert cookies into the response to track sessions.

○ **Monitor application cookies ...**
Monitor a specified application cookie to identify sessions.

○ **J2EE session persistence**
Monitor Java's JSESSIONID cookie and URLs

○ **ASP and ASP.NET session persistence**
Monitor ASP session cookies and ASP.NET session cookies and cookieless URLs.

○ **X-Zeus-Backend cookies**
Inspect an application cookie named 'X-Zeus-Backend' which names the destination node.

○ **SSL Session ID persistence**
Use the SSL Session ID to identify sessions (SSL pass-through only).

The action the pool should take if the session data is invalid or it cannot contact the node specified by the session.

failuremode:

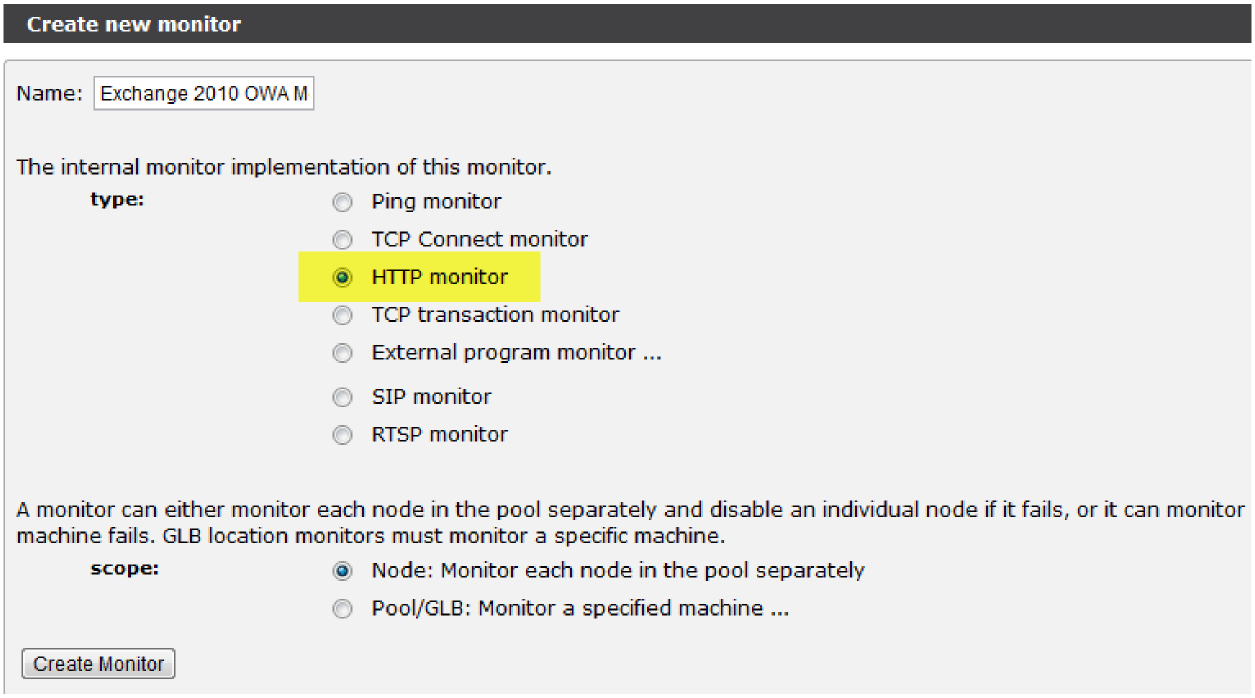
● Choose a new node to use

○ Redirect the user to a given URL ...

○ Close the connection (using error_file on Virtual Servers > Edit > Connection Management)

Whether or not the session should be deleted when a session failure occurs. (Note, a `failuremode` of choosing a new node implicitly deletes the se

8. **Create Health Monitor for OWA**
As it is recommended to have separate pool for each Client Access HTTP service, create a specific Health Monitor for OWA by accessing **Catalogs → Monitors**



Create new monitor

Name: Exchange 2010 OWA M

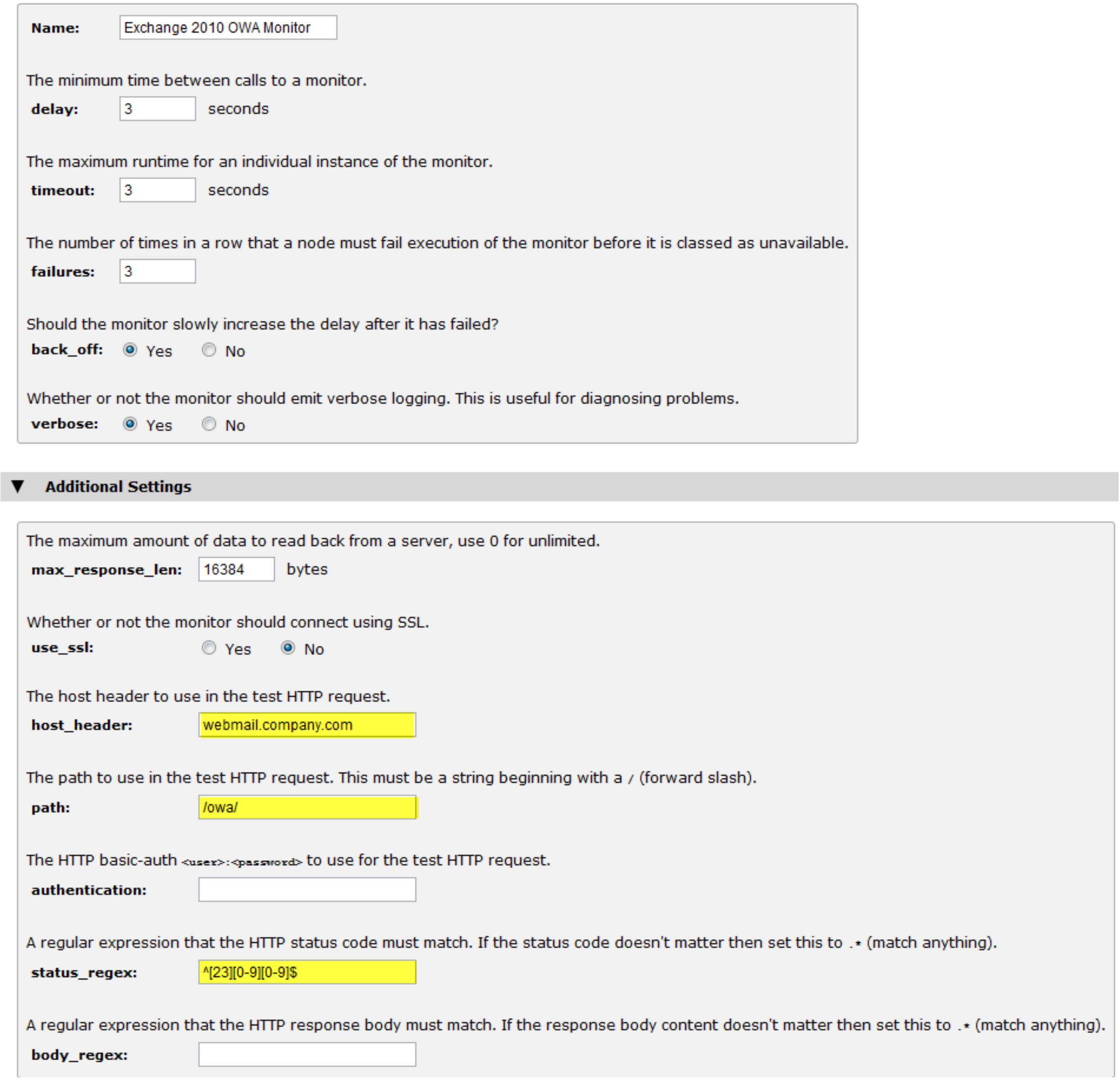
The internal monitor implementation of this monitor.

type:
- ○ Ping monitor
- ○ TCP Connect monitor
- ● HTTP monitor
- ○ TCP transaction monitor
- ○ External program monitor ...
- ○ SIP monitor
- ○ RTSP monitor

A monitor can either monitor each node in the pool separately and disable an individual node if it fails, or it can monitor machine fails. GLB location monitors must monitor a specific machine.

scope:
- ● Node: Monitor each node in the pool separately
- ○ Pool/GLB: Monitor a specified machine ...

This completes the configuration for separate virtual servers for the OWA Client Access service.



Name: Exchange 2010 OWA Monitor

The minimum time between calls to a monitor.

delay: 3 seconds

The maximum runtime for an individual instance of the monitor.

timeout: 3 seconds

The number of times in a row that a node must fail execution of the monitor before it is classed as unavailable.

failures: 3

Should the monitor slowly increase the delay after it has failed?

back_off: ● Yes ○ No

Whether or not the monitor should emit verbose logging. This is useful for diagnosing problems.

verbose: ● Yes ○ No

▼ **Additional Settings**

The maximum amount of data to read back from a server, use 0 for unlimited.

max_response_len: 16384 bytes

Whether or not the monitor should connect using SSL.

use_ssl: ○ Yes ● No

The host header to use in the test HTTP request.

host_header: webmail.company.com

The path to use in the test HTTP request. This must be a string beginning with a / (forward slash).

path: /owa/

The HTTP basic-auth <user>:<password> to use for the test HTTP request.

authentication:

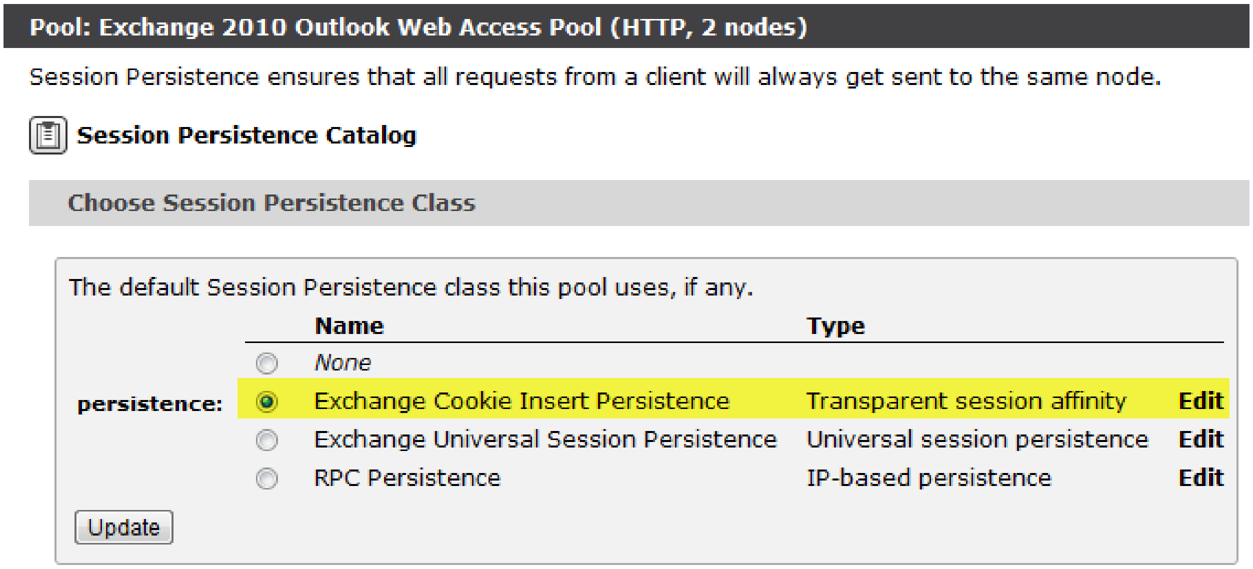
A regular expression that the HTTP status code must match. If the status code doesn't matter then set this to .* (match anything).

status_regex: ^[23][0-9][0-9]$

A regular expression that the HTTP response body must match. If the response body content doesn't matter then set this to .* (match anything).

body_regex:

9. **Associate Session Persistence and Health Monitor to OWA Pool**
   Access the **Services → Pools,** and select the OWA pool that was configured earlier in step 2. Click on Session Persistence section and select the persistence class created earlier for OWA.



Pool: Exchange 2010 Outlook Web Access Pool (HTTP, 2 nodes)

Session Persistence ensures that all requests from a client will always get sent to the same node.

Session Persistence Catalog

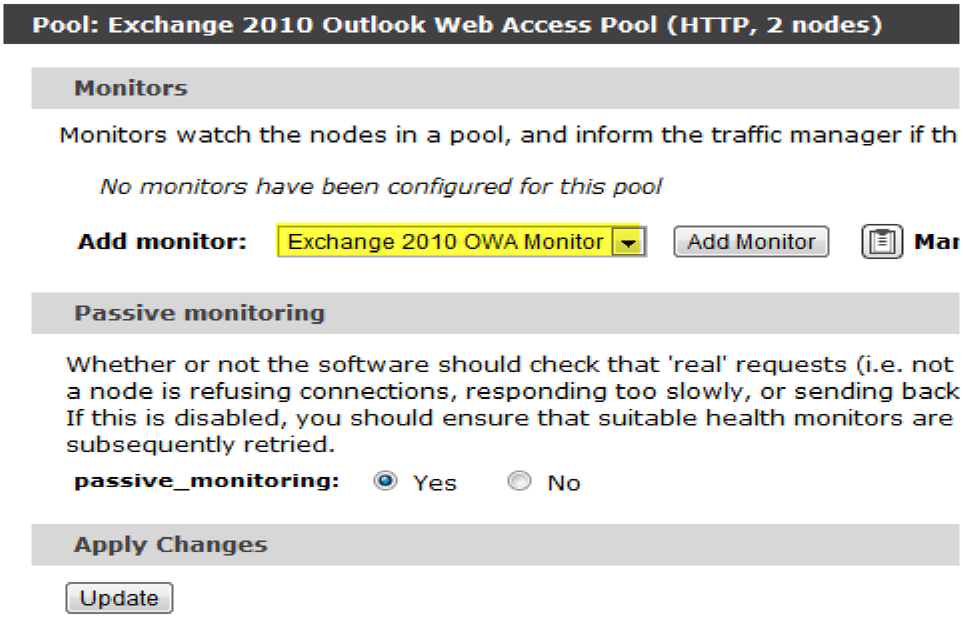
Choose Session Persistence Class

The default Session Persistence class this pool uses, if any.

persistence:

	Name	Type	
○	*None*		
●	Exchange Cookie Insert Persistence	Transparent session affinity	**Edit**
○	Exchange Universal Session Persistence	Universal session persistence	**Edit**
○	RPC Persistence	IP-based persistence	**Edit**

Next select the Monitors section under the OWA pool and select the approriate monitor from the drop down menu under **Add monitor:** section.



Pool: Exchange 2010 Outlook Web Access Pool (HTTP, 2 nodes)

Monitors

Monitors watch the nodes in a pool, and inform the traffic manager if th

No monitors have been configured for this pool

Add monitor: Exchange 2010 OWA Monitor

Passive monitoring

Whether or not the software should check that 'real' requests (i.e. not
a node is refusing connections, responding too slowly, or sending back
If this is disabled, you should ensure that suitable health monitors are
subsequently retried.

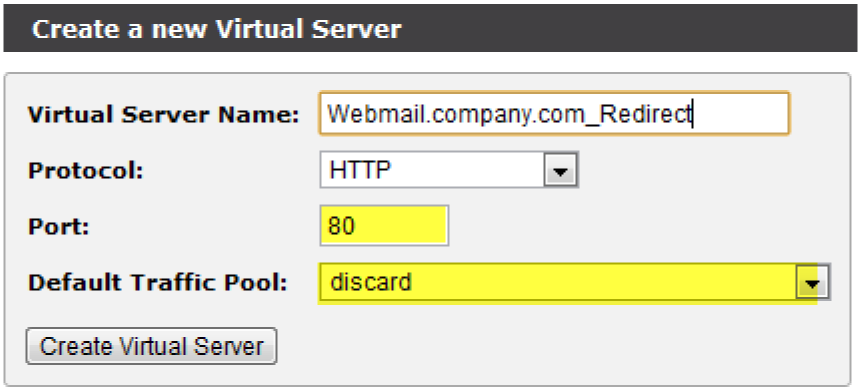
passive_monitoring: ● Yes ○ No

Apply Changes

4.3 Configuring Stingray Traffic Manager to Redirect All HTTP requests to SSL

As Traffic Manager will only be handling SSL traffic, clients trying to access the applications on port HTTP should be redirected to connect back on SSL. Following steps walks through configuration of virtual server with a traffic script which will redirect all the clients trying to connect on port http.

1. **Create a Virtual Server with Traffic Pool set to Discard**
   Access the WebGUI and create new virtual server by navigating to **Services** → **Virtual Servers**



Create a new Virtual Server

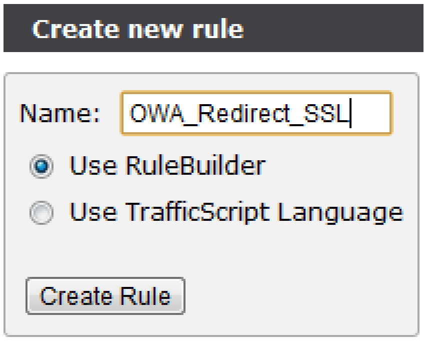
Virtual Server Name: Webmail.company.com_Redirect

Protocol: HTTP

Port: 80

Default Traffic Pool: discard

2. **Create a Traffic Script to redirect to proper SSL URL**
   Acess the WebGUI and creae a Traffic Script by navigating to **Catalogs → Rules** and create the following Traffic Script. The traffic script is available in appendix section for copying the code and modifying.

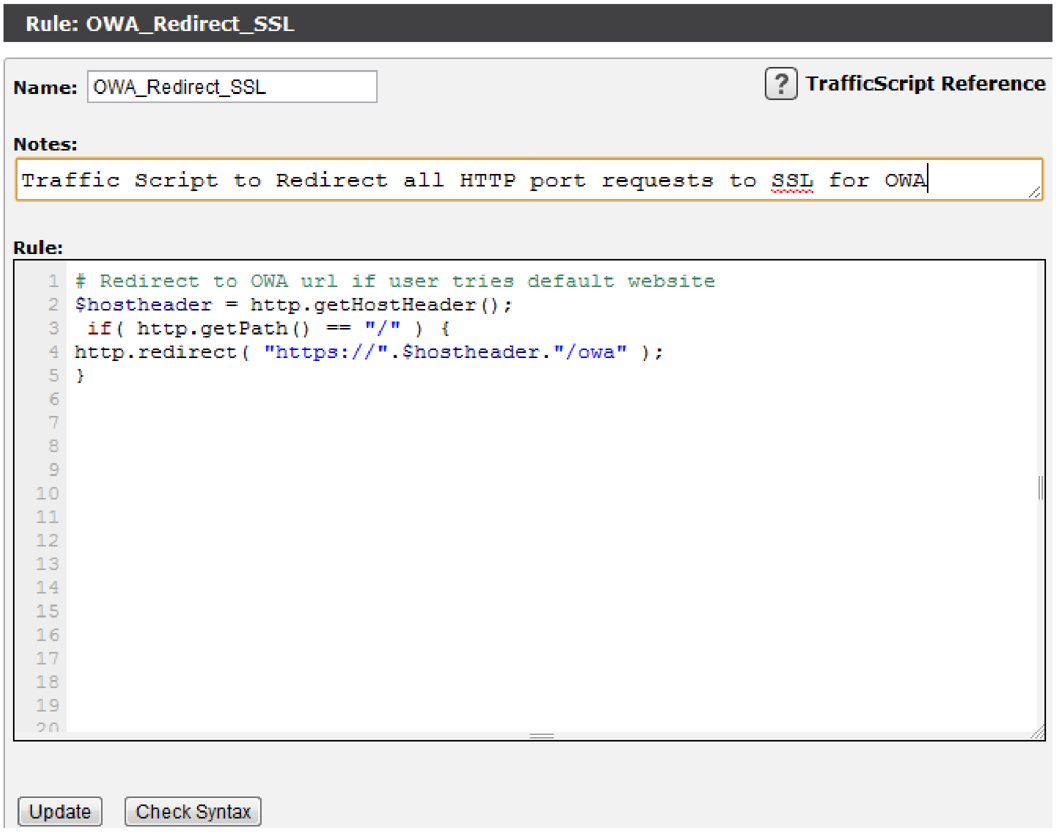


Create new rule

Name: OWA_Redirect_SSL

● Use RuleBuilder

○ Use TrafficScript Language



Rule: OWA_Redirect_SSL

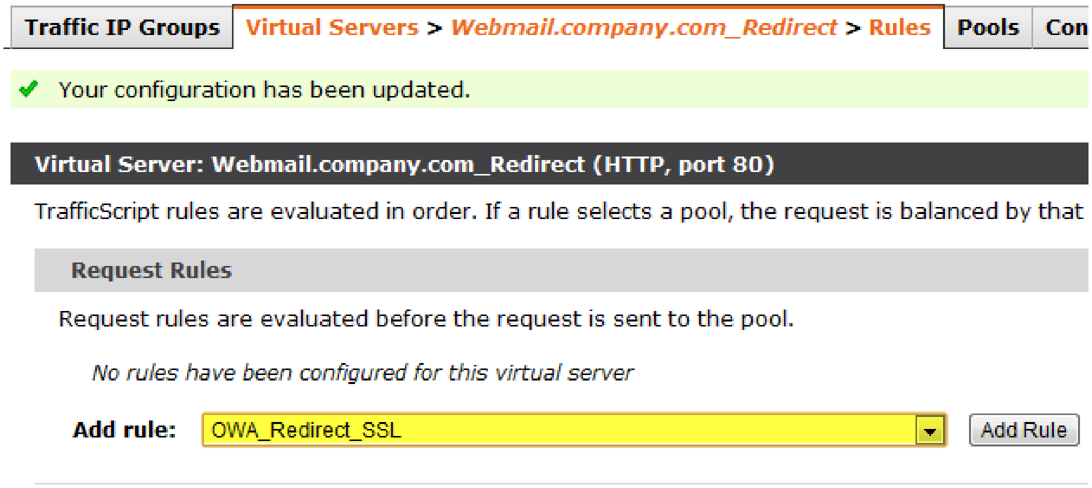
Name: OWA_Redirect_SSL

Notes: Traffic Script to Redirect all HTTP port requests to SSL for OWA

Rule:

```
# Redirect to OWA url if user tries default website
$hostheader = http.getHostHeader();
 if( http.getPath() == "/" ) {
http.redirect( "https://".$hostheader."/owa" );
}
```

3. **Associating the redirect TrafficScript to the Virtual Server**
   Traffic Script created in step 2 needs to be associated with the virtual server created in step 1. This can be done by navigating to **Services → Virtual Servers,** selecting the appropriate virtual server created in step 1 and selecting the traffic script created in step 2 from the drop down menu for **Add Rule:** under Request Rules section and click Add Rule button.



✓ Your configuration has been updated.

Virtual Server: Webmail.company.com_Redirect (HTTP, port 80)

TrafficScript rules are evaluated in order. If a rule selects a pool, the request is balanced by that

Request Rules

Request rules are evaluated before the request is sent to the pool.

No rules have been configured for this virtual server

Add rule: OWA_Redirect_SSL

This completes creating a redirect Virtual Server.

4.4 Configuring Stingray Traffic Manager for Outlook Anywhere

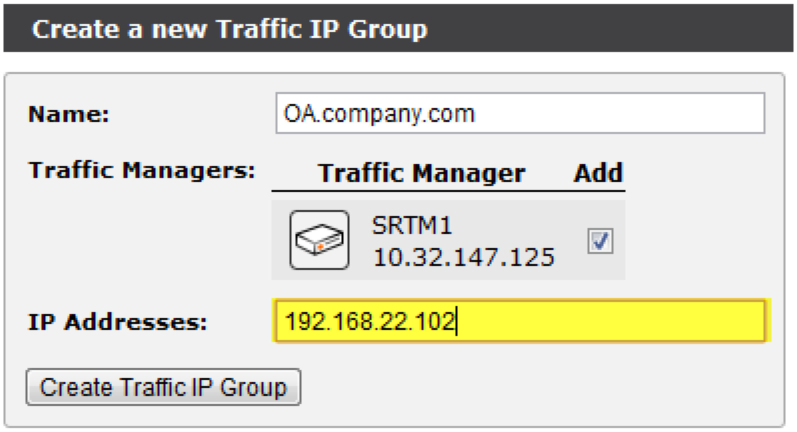
Outlook Anywhere for Exchange 2010 allows you to use Microsoft Outlook clients to connect to your Exchange server over the Internet, using HTTPS to encapsulate RPC (MAPI) traffic.

Important

To enable and require SSL for all communications between the Client Access server and the Outlook clients, trusted certificate signed by Certificate Authority should be obtained and published at the default Web site level. It is recommended that the certificate be purchased from a third-party certification authority whose certificates are trusted by a wide variety of Web browsers. By default, applications and Web browsers do not trust root certification authority when there is internal/non-trusted certification authority, such as a Stingray Traffic Manager self-signed certificate. When a user tries to connect to Microsoft Outlook by using Outlook Anywhere, and the user's computer does not trust the certificate and root Certificate Authority, the connection fails. For more information on this topic, see the following Microsoft TechNet article: http://technet.microsoft.com/en-us/library/aa997703.aspx.

Following are the steps to create an Outlook Anywhere Virtual Server tied to dedicated Traffic IP group

1. **Create Traffic IP group that is mapped to FQDN of Outlook Anywhere service**



Create a new Traffic IP Group

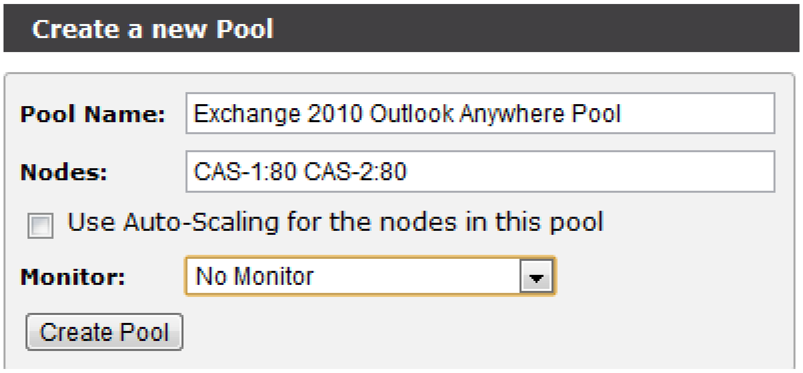
Name: OA.company.com

Traffic Managers:

Traffic Manager	Add
SRTM1 10.32.147.125	☑

IP Addresses: 192.168.22.102

2. **Create a Pool for Outlook Anywhere Service**



Create a new Pool

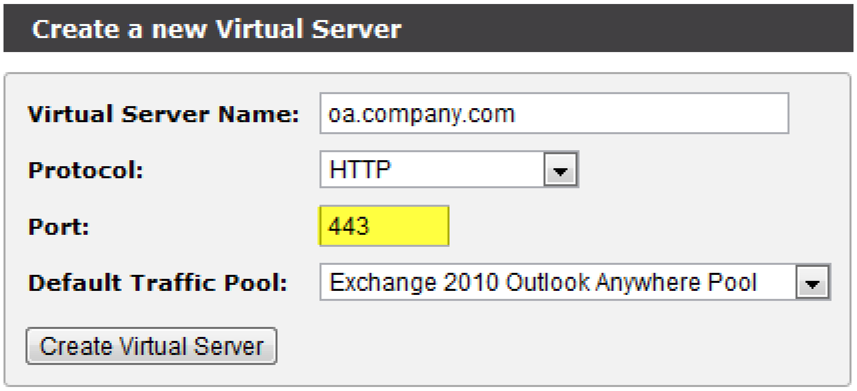
Pool Name: Exchange 2010 Outlook Anywhere Pool

Nodes: CAS-1:80 CAS-2:80

☐ Use Auto-Scaling for the nodes in this pool

Monitor: No Monitor

3. **Create Virtual Server for Outlook Anywhere Service**
Note that the Port is set to 443 as the Virtual server will be offloading the SSL from the CAS servers. We will use the same certificate that we uploaded for the OWA service to take advantage of the Subject Alternative Names. Make sure that the FQDN DNS name is part of the SAN Field.



Create a new Virtual Server

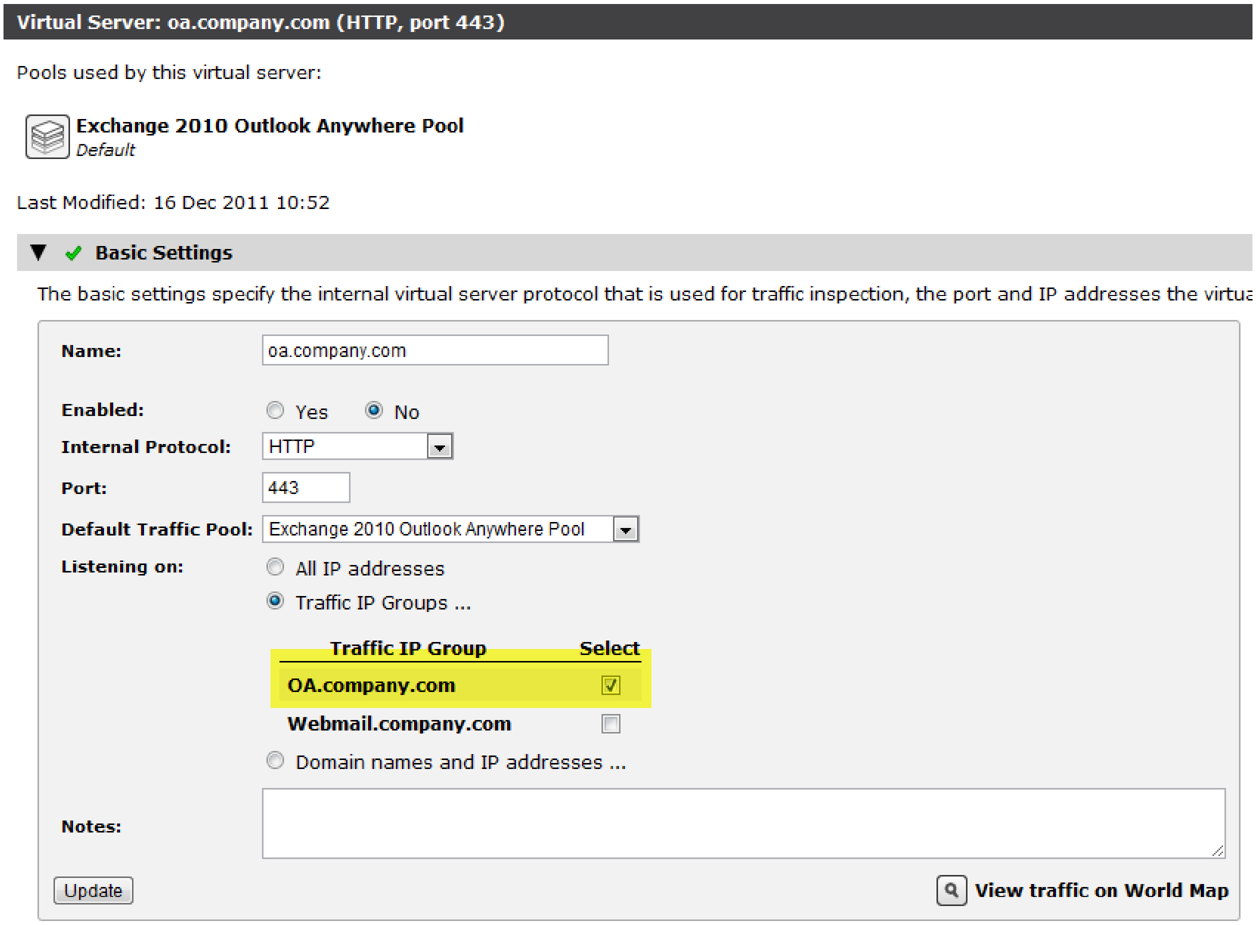
Virtual Server Name: oa.company.com

Protocol: HTTP

Port: 443

Default Traffic Pool: Exchange 2010 Outlook Anywhere Pool

4. **Associate Traffic IP Group to Outlook Anywhere Virtual Server**
In the Virtual Server configuration associate the Traffic IP Group created in step 1 to OA virtual server created in step 3.



Virtual Server: oa.company.com (HTTP, port 443)

Pools used by this virtual server:

Exchange 2010 Outlook Anywhere Pool
Default

Last Modified: 16 Dec 2011 10:52

▼ ✓ **Basic Settings**

The basic settings specify the internal virtual server protocol that is used for traffic inspection, the port and IP addresses the virtua

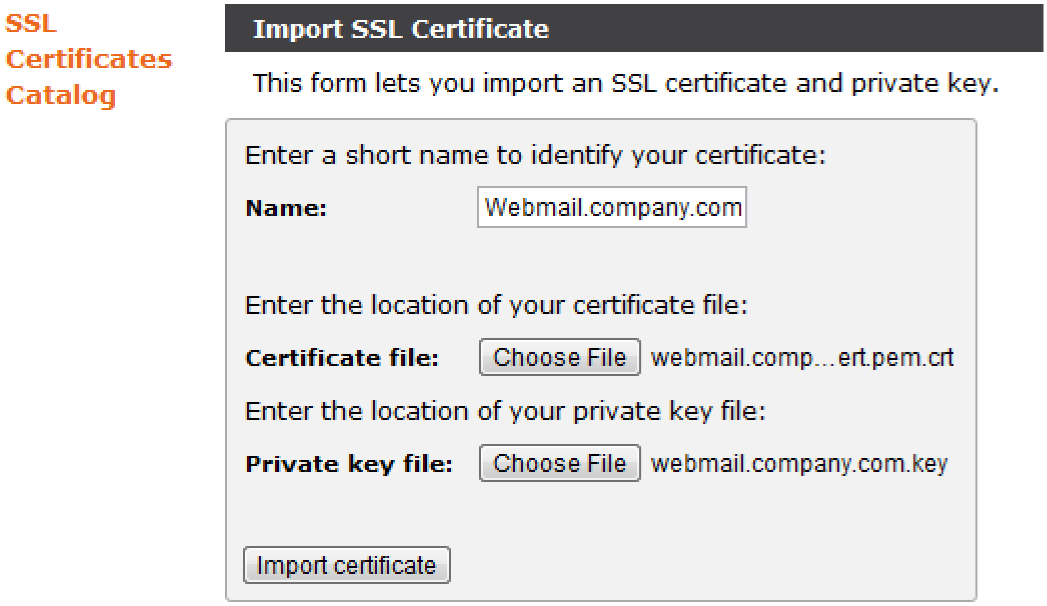
Name:	oa.company.com
Enabled:	○ Yes ● No
Internal Protocol:	HTTP
Port:	443
Default Traffic Pool:	Exchange 2010 Outlook Anywhere Pool
Listening on:	○ All IP addresses ● Traffic IP Groups ...

Traffic IP Group	Select
OA.company.com	☑
Webmail.company.com	□

○ Domain names and IP addresses ...

Notes:

5. **SSL Key and Certificate upload for Outlook Anywhere**
   Since the Traffic Manager is offloading SSL from CAS servers, SSL Keys and Certs need to be imported to Traffic Manager. Even though Traffic Manager does have the ability to create a self-signed Certificate it is recommended to use the certificate signed by Certificate Authority. As Traffic Manager will be offloading SSL for many of Client Access HTTP services, Microsoft recommends leveraging Subject Alternate Name certificate extensions. Some examples of using SAN certificates with Exchange 2010 are shown in this TechNet Article. When you request a SAN certificate from a certification authority, you must define all desired FQDNs in the Subject Alternative Name field; clients will ignore the Common Name in the certificate Subject. Although the Traffic Manager GUI cannot create SAN certificates, and will not display the Subject Alternative Name values of imported certificates, use of SAN certificates is otherwise supported. In order to import the certificate access the **Catalogs → SSL → SSL Certificates catalog** and click on import button to upload the certificate and key file.



SSL Certificates Catalog

Import SSL Certificate

This form lets you import an SSL certificate and private key.

Enter a short name to identify your certificate:

Name: Webmail.company.com

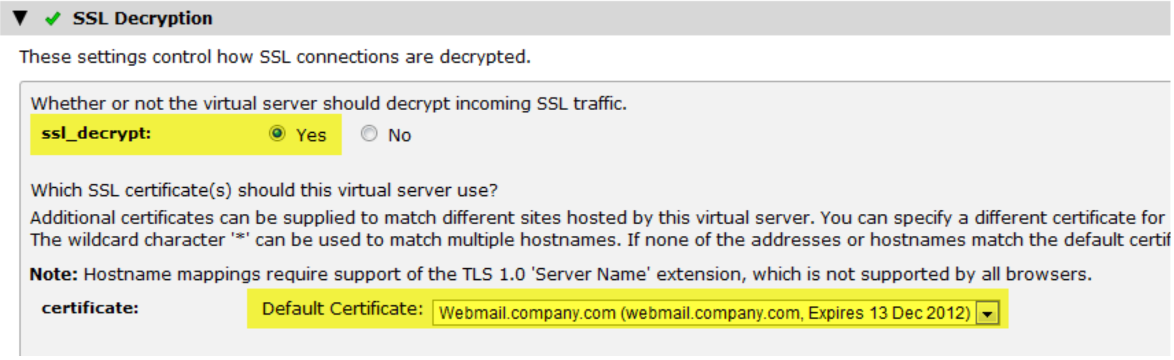
Enter the location of your certificate file:

Certificate file: webmail.comp...ert.pem.crt

Enter the location of your private key file:

Private key file: webmail.company.com.key

6. **Enable SSL decrypt and associate SSL Certificate to Virtual Server**
   Next step once the SSL Key and Certs are uploaded, associate it to the virtual server and enable SSL decrypt on the virtual server. This is done by accessing the appropriate virtual server under **Services → Virtual Servers.** Click SSL Decryption section under the virtual server and select the appropriate certificate that was uploaded. Check the **ssl_decrypt** setting to **Yes** and click update button at the bottom of the page. Now the Virtual Server is enabled for SSL Decryption.



▼ ✓ SSL Decryption

These settings control how SSL connections are decrypted.

Whether or not the virtual server should decrypt incoming SSL traffic.

ssl_decrypt: ● Yes ○ No

Which SSL certificate(s) should this virtual server use?

Additional certificates can be supplied to match different sites hosted by this virtual server. You can specify a different certificate for

The wildcard character '*' can be used to match multiple hostnames. If none of the addresses or hostnames match the default certif

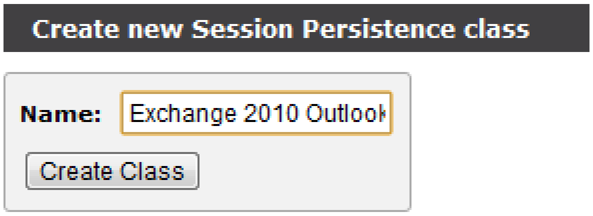
Note: Hostname mappings require support of the TLS 1.0 'Server Name' extension, which is not supported by all browsers.

certificate: Default Certificate: Webmail.company.com (webmail.company.com, Expires 13 Dec 2012)

7. **Confiiguring Persistence Class and Create a Traffic Scruipt for Persistence for Outlook Anywhere service**
   Outlook Anywhere requires persistence as clients split the RPC connections into two (RPC_IN_DATA and RPC_OUT_DATA). If the CAS servers are behind a load balancer, then load balancer needs to make sure that both connections are sent to same CAS server. Traffic Manager's Universal Persistence type is used to create persistence records based on the type of the client accessing the service. The reason for tracking different type of Outlook client is that some of the older versions of Outlook clients(prior to Outlook 2010) doesn't support **OutlookSession** cookie. So for these older version of Outlook clients the value of HTTP header **Authorization** is used to create presistence records and for Outlook 2010 presistence records are created using **OutlookSession** cookie. The text of the traffic script is in the appendix section for copy and modifcation.

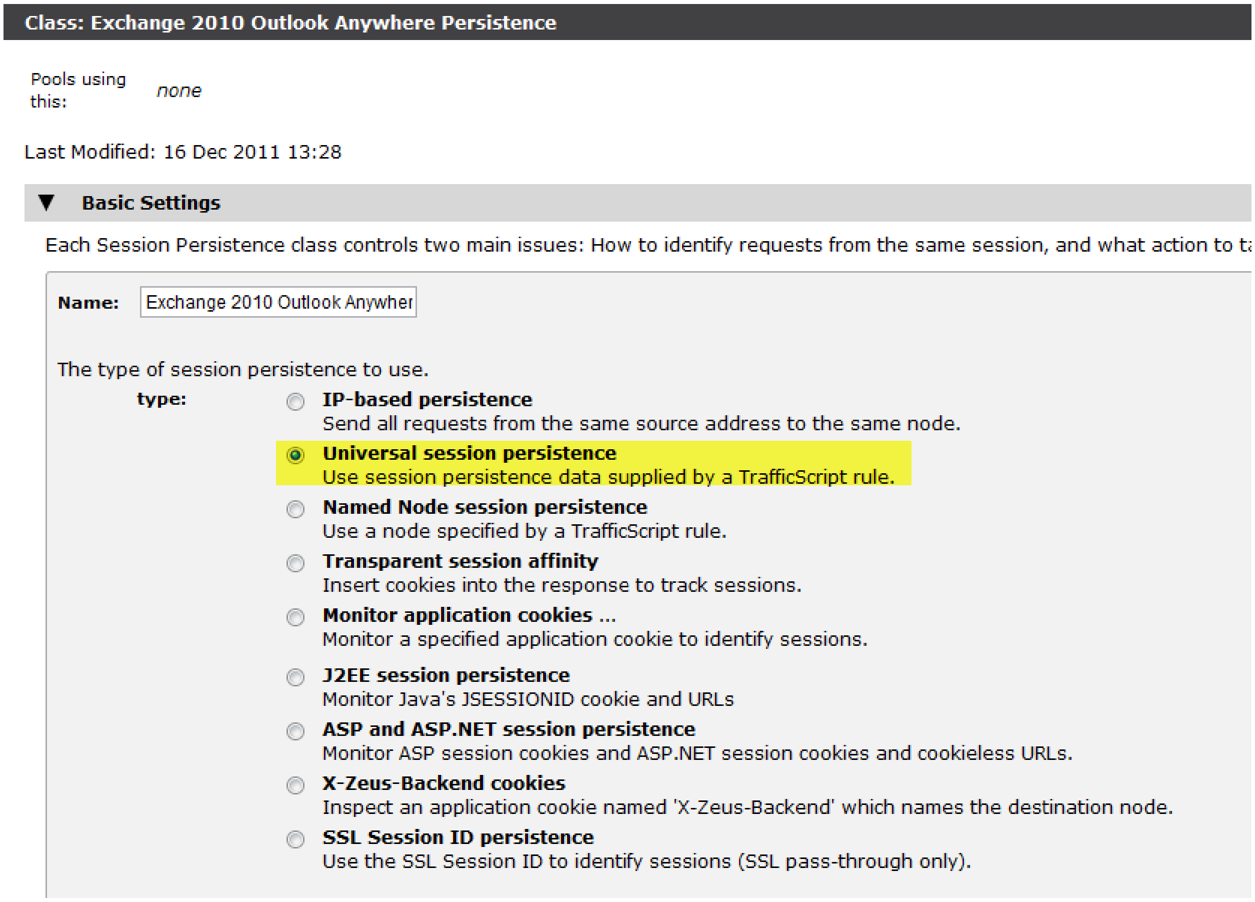
Important

Persistence configuration steps highlighted in this document is for BASIC AUTH authentication method and not NTLM



Create new Session Persistence class

Name: Exchange 2010 Outlook



Class: Exchange 2010 Outlook Anywhere Persistence

Pools using this: *none*

Last Modified: 16 Dec 2011 13:28

▼ Basic Settings

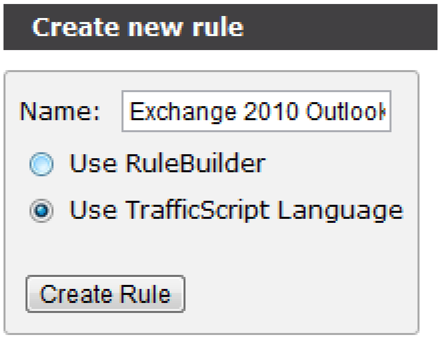
Each Session Persistence class controls two main issues: How to identify requests from the same session, and what action to ta

Name: Exchange 2010 Outlook Anywher

The type of session persistence to use.

type:

- ○ **IP-based persistence**
  Send all requests from the same source address to the same node.
- ● **Universal session persistence**
  Use session persistence data supplied by a TrafficScript rule.
- ○ **Named Node session persistence**
  Use a node specified by a TrafficScript rule.
- ○ **Transparent session affinity**
  Insert cookies into the response to track sessions.
- ○ **Monitor application cookies ...**
  Monitor a specified application cookie to identify sessions.
- ○ **J2EE session persistence**
  Monitor Java's JSESSIONID cookie and URLs
- ○ **ASP and ASP.NET session persistence**
  Monitor ASP session cookies and ASP.NET session cookies and cookieless URLs.
- ○ **X-Zeus-Backend cookies**
  Inspect an application cookie named 'X-Zeus-Backend' which names the destination node.
- ○ **SSL Session ID persistence**
  Use the SSL Session ID to identify sessions (SSL pass-through only).

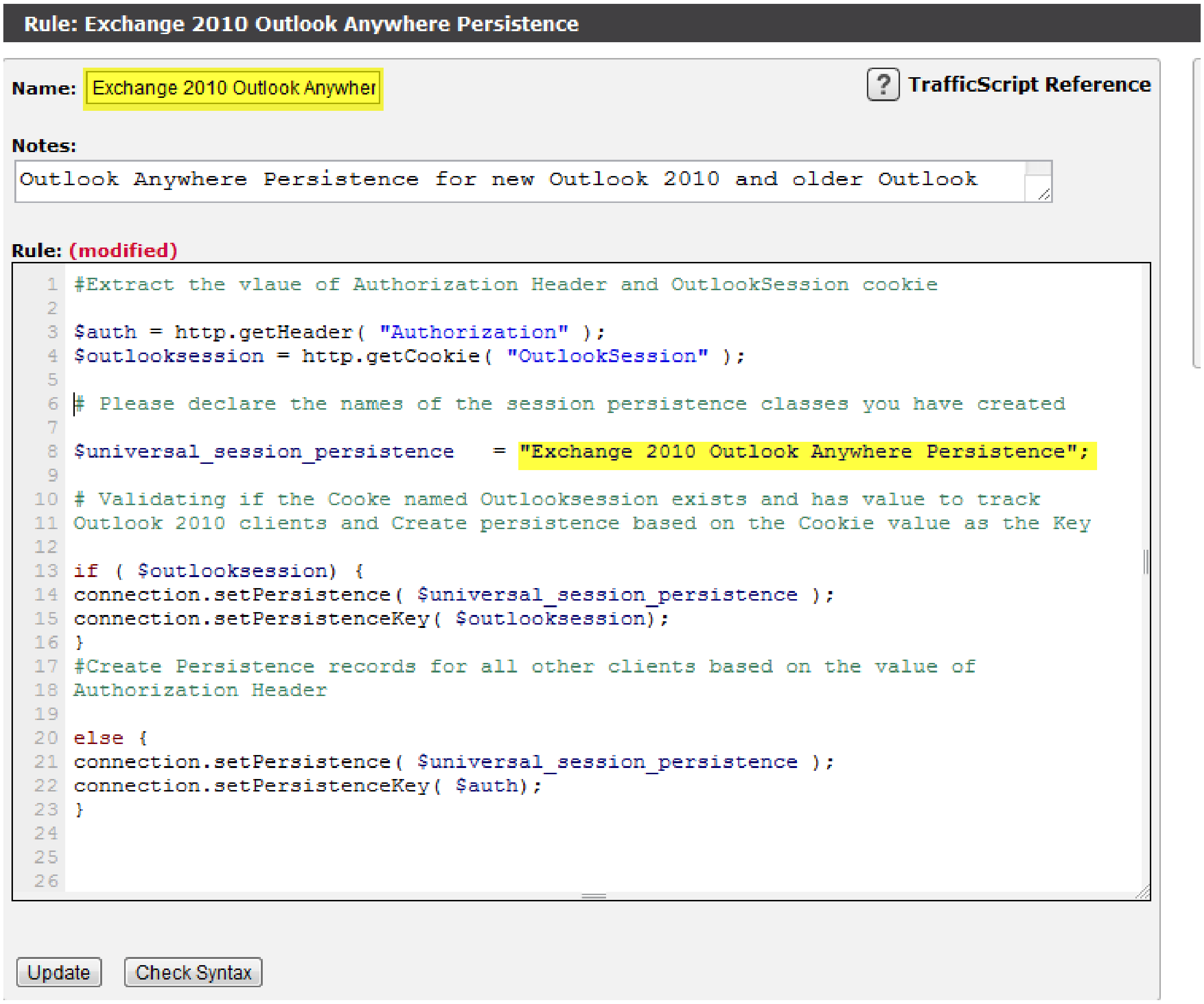


Create new rule

Name: Exchange 2010 Outlook

○ Use RuleBuilder

● Use TrafficScript Language



Rule: Exchange 2010 Outlook Anywhere Persistence

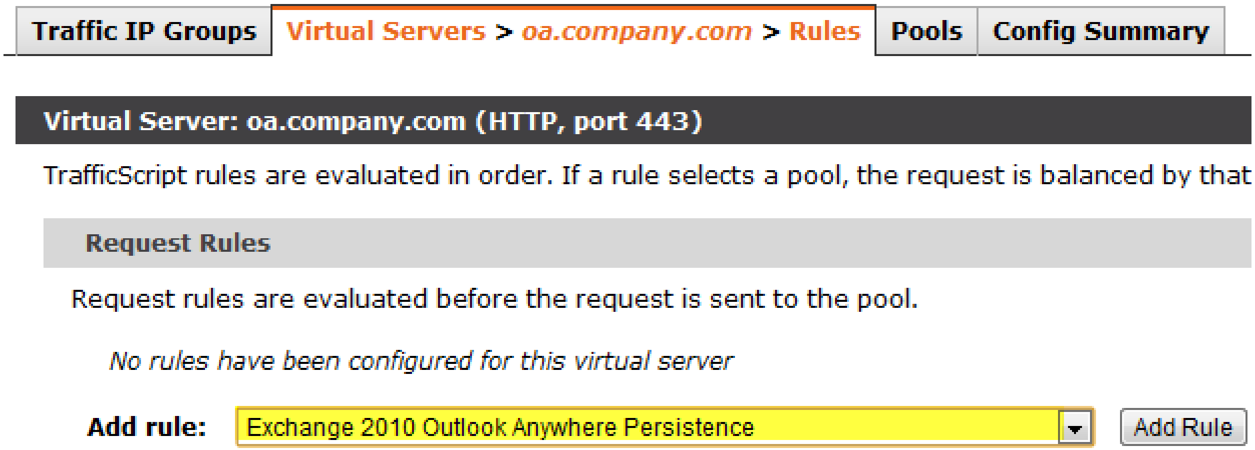
Name: Exchange 2010 Outlook Anywher

Notes: Outlook Anywhere Persistence for new Outlook 2010 and older Outlook

Rule: (modified)

```
#Extract the vlaue of Authorization Header and OutlookSession cookie

$auth = http.getHeader( "Authorization" );
$outlooksession = http.getCookie( "OutlookSession" );

# Please declare the names of the session persistence classes you have created

$universal_session_persistence   = "Exchange 2010 Outlook Anywhere Persistence";

# Validating if the Cooke named Outlooksession exists and has value to track
Outlook 2010 clients and Create persistence based on the Cookie value as the Key

if ( $outlooksession) {
connection.setPersistence( $universal_session_persistence );
connection.setPersistenceKey( $outlooksession);
}
#Create Persistence records for all other clients based on the value of
Authorization Header

else {
connection.setPersistence( $universal_session_persistence );
connection.setPersistenceKey( $auth);
}
```

8. **Associate the Traffic Script created in Step 5 with the Outlook anywhere Virtual Server**
   Select the rule created in step5 from the drop down menu for **Add Rule :** under the Request Rules section and click add rule button.



Virtual Server: oa.company.com (HTTP, port 443)

TrafficScript rules are evaluated in order. If a rule selects a pool, the request is balanced by that

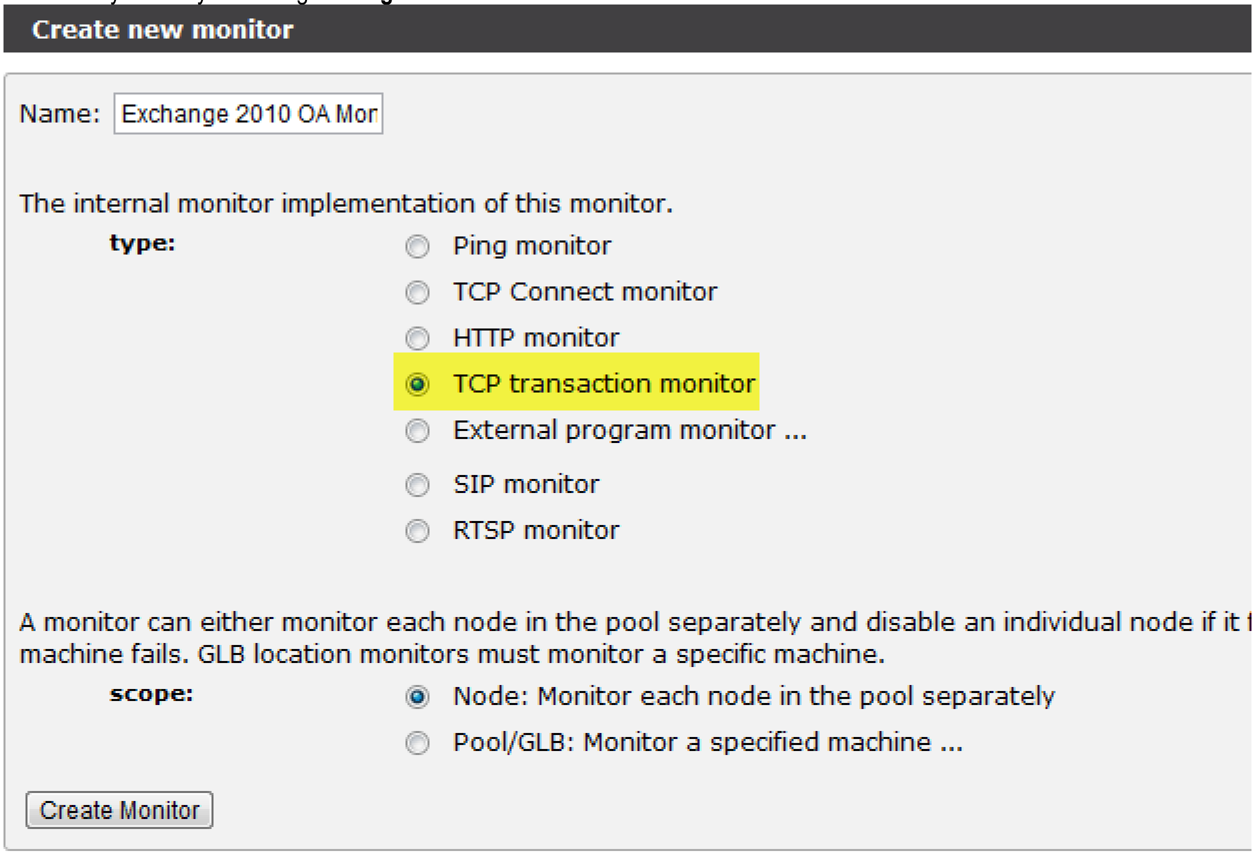
Request Rules

Request rules are evaluated before the request is sent to the pool.

No rules have been configured for this virtual server

Add rule: Exchange 2010 Outlook Anywhere Persistence

10. **Create Health Monitor for Outlook Anywhere**
As it is recommended to have separate pool for each Client Access HTTP service, create a specific Health Monitor for Outlook Anywhere by accessing **Catalogs → Monitors**



Create new monitor

Name: Exchange 2010 OA Mor

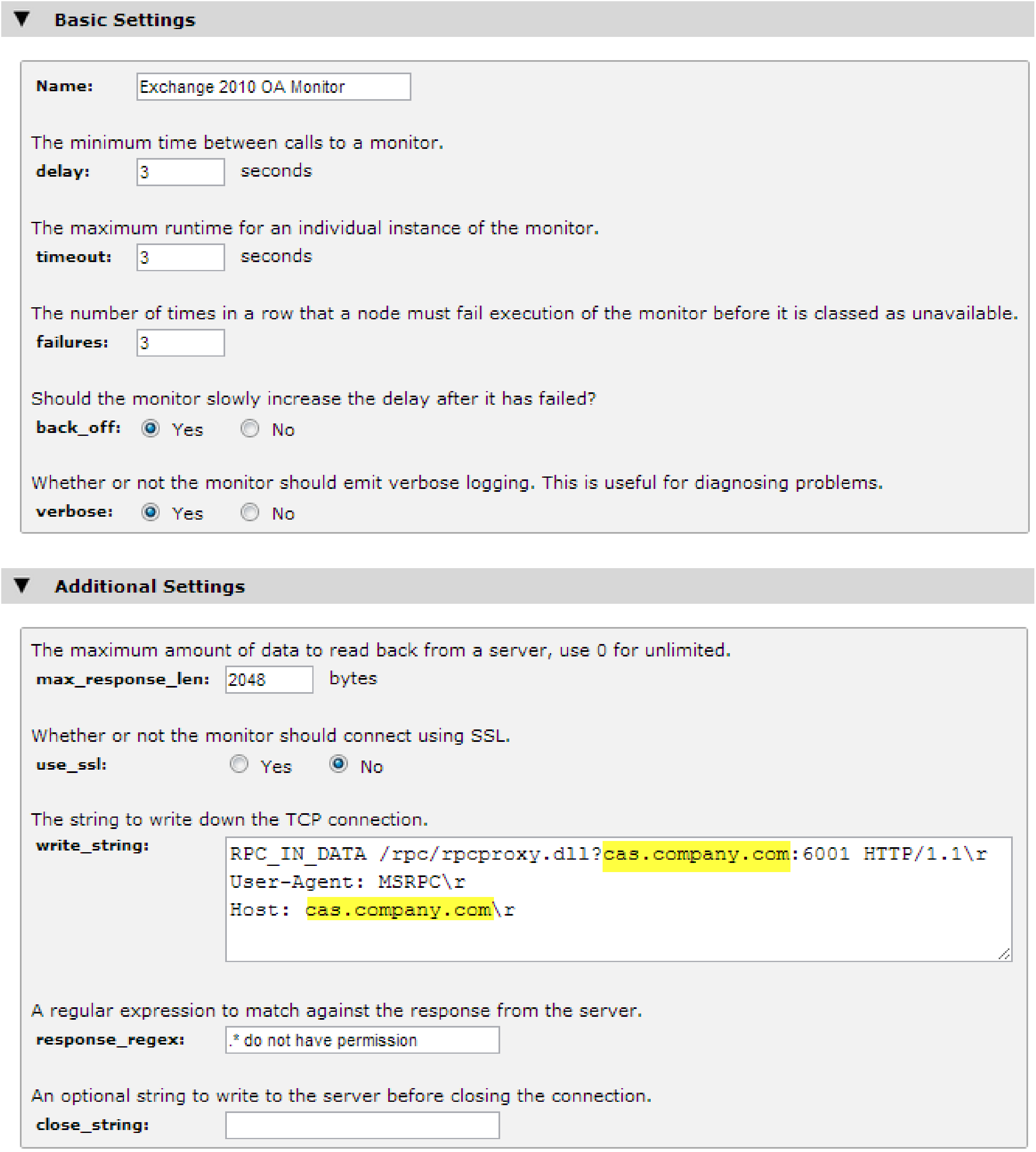
The internal monitor implementation of this monitor.

type:
○ Ping monitor
○ TCP Connect monitor
○ HTTP monitor
● TCP transaction monitor
○ External program monitor ...
○ SIP monitor
○ RTSP monitor

A monitor can either monitor each node in the pool separately and disable an individual node if it t
machine fails. GLB location monitors must monitor a specific machine.

scope:
● Node: Monitor each node in the pool separately
○ Pool/GLB: Monitor a specified machine ...

Use of the TCP transaction monitor enables Stingray to send a customer URL string. Since there are no authentication headers in the request sent to the server, the expected response is to get a page which states "You do not have permission to access this page" . Also external Perl scripts can be written and associated with this monitor. At miminum you can set the monitor to TCP connect monitor if just Layer4 TCP monitor if need be.



▼ Basic Settings

Name: Exchange 2010 OA Monitor

The minimum time between calls to a monitor.
delay: 3 seconds

The maximum runtime for an individual instance of the monitor.
timeout: 3 seconds

The number of times in a row that a node must fail execution of the monitor before it is classed as unavailable.
failures: 3

Should the monitor slowly increase the delay after it has failed?
back_off: ● Yes ○ No

Whether or not the monitor should emit verbose logging. This is useful for diagnosing problems.
verbose: ● Yes ○ No

▼ Additional Settings

The maximum amount of data to read back from a server, use 0 for unlimited.
max_response_len: 2048 bytes

Whether or not the monitor should connect using SSL.
use_ssl: ○ Yes ● No

The string to write down the TCP connection.
write_string:

```
RPC_IN_DATA /rpc/rpcproxy.dll?cas.company.com:6001 HTTP/1.1\r
User-Agent: MSRPC\r
Host: cas.company.com\r
```

A regular expression to match against the response from the server.
response_regex: .* do not have permission

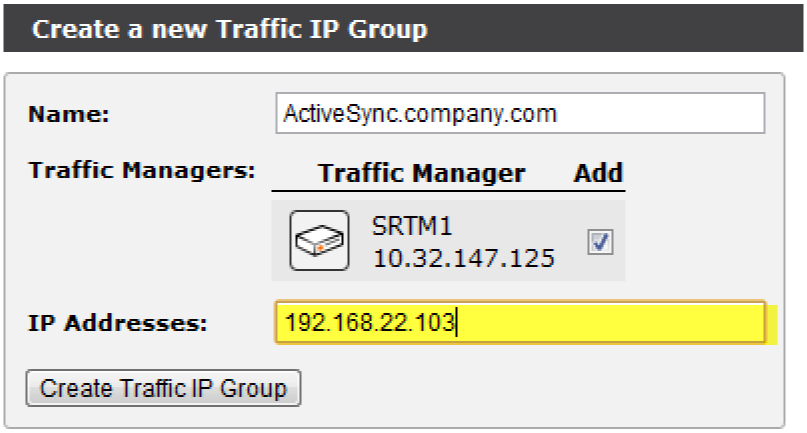
An optional string to write to the server before closing the connection.
close_string:

This completes the configuration of Outlook Anywhere Service on Traffic Manager.

4.5 Configuring Stingray Traffic Manager for ActiveSync

Exchange ActiveSync is a synchronization protocol based on HTTP and XML that is designed to work over a cellular, wireless Internet or other similar low-bandwidth, high-latency connections. Exchange ActiveSync can synchronize e-mail messages, contacts, calendar, and task data.

1. Create Traffic IP Group for ActiveSync Service



Create a new Traffic IP Group

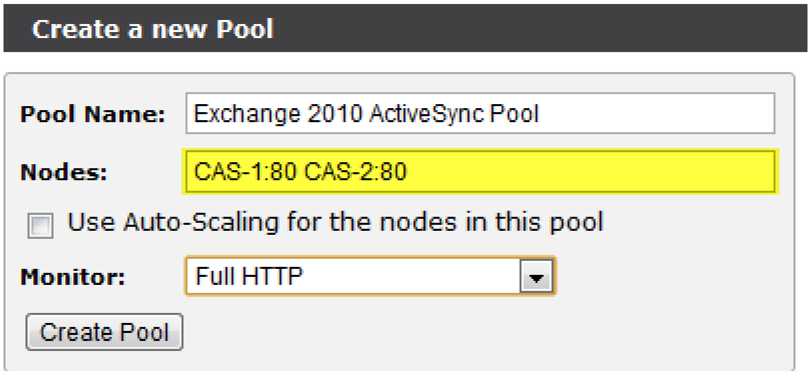
Name: ActiveSync.company.com

Traffic Managers:

Traffic Manager	Add
SRTM1 10.32.147.125	☑

IP Addresses: 192.168.22.103

2. Create Pool for ActiveSync



Create a new Pool

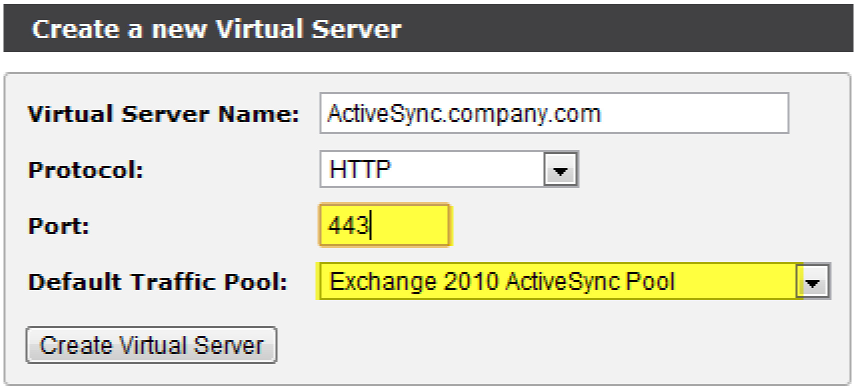
Pool Name: Exchange 2010 ActiveSync Pool

Nodes: CAS-1:80 CAS-2:80

□ Use Auto-Scaling for the nodes in this pool

Monitor: Full HTTP

3. Create Virtual Server for ActiveSync



Create a new Virtual Server

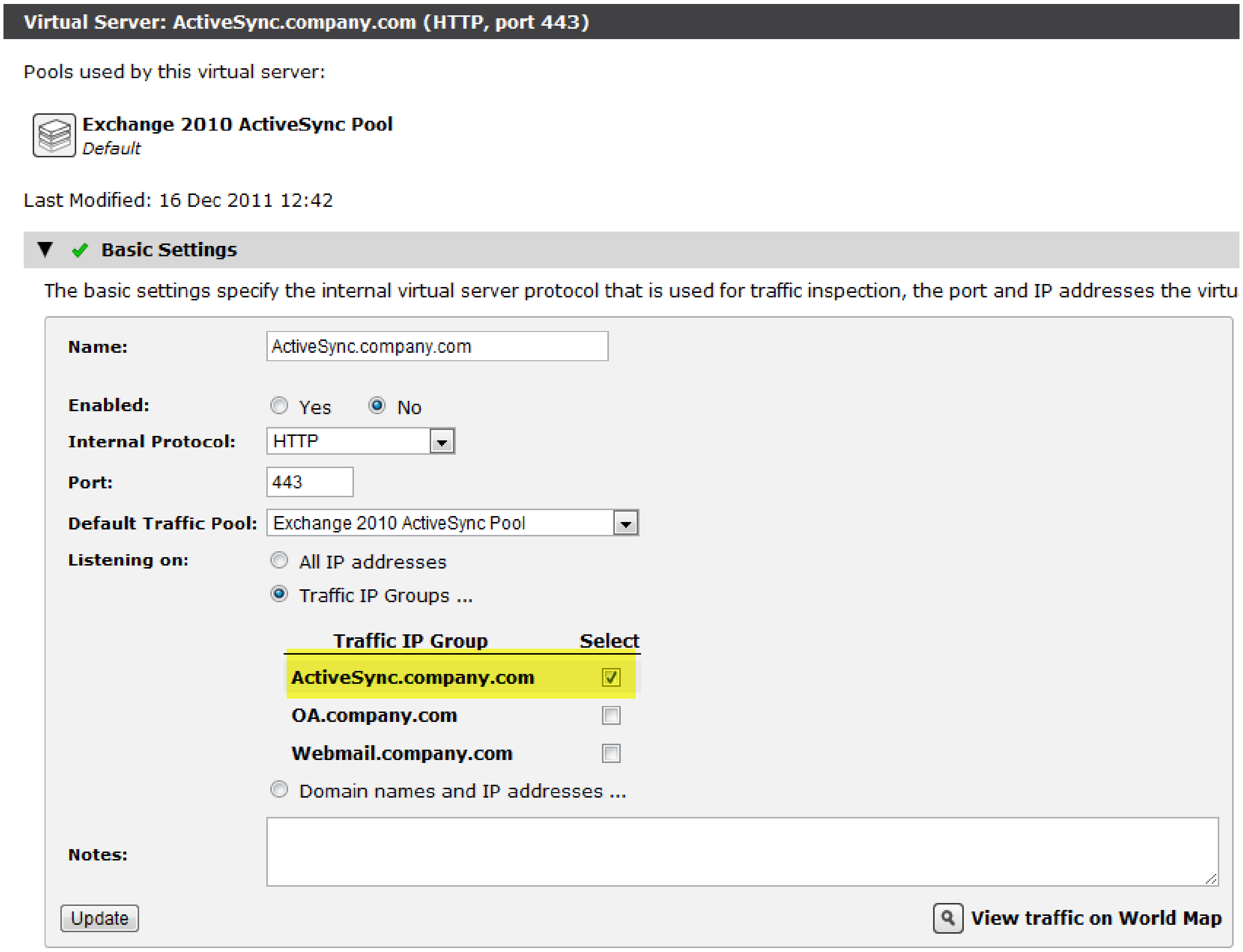
Virtual Server Name: ActiveSync.company.com

Protocol: HTTP

Port: 443

Default Traffic Pool: Exchange 2010 ActiveSync Pool

4. Associate the Traffic IP group created in Step 1 with Virtual Server created in Step 3



Virtual Server: ActiveSync.company.com (HTTP, port 443)

Pools used by this virtual server:

Exchange 2010 ActiveSync Pool
Default

Last Modified: 16 Dec 2011 12:42

▼ ✓ Basic Settings

The basic settings specify the internal virtual server protocol that is used for traffic inspection, the port and IP addresses the virtu

Name:	ActiveSync.company.com
Enabled:	○ Yes ● No
Internal Protocol:	HTTP
Port:	443
Default Traffic Pool:	Exchange 2010 ActiveSync Pool
Listening on:	○ All IP addresses ● Traffic IP Groups ...

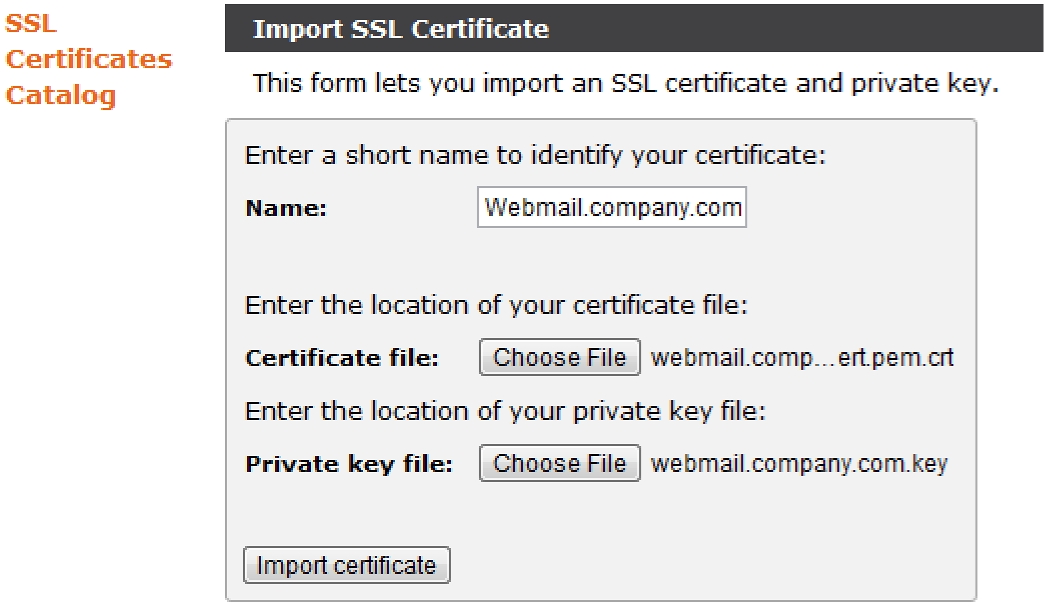
Traffic IP Group	Select
ActiveSync.company.com	☑
OA.company.com	□
Webmail.company.com	□

○ Domain names and IP addresses ...

Notes:

5. SSL Key and Certificate upload for ActiveSync

Since the Traffic Manager is offloading SSL from CAS servers, SSL Keys and Certs need to be imported to Traffic Manager. Even though Traffic Manager does have the ability to create a self-signed Certificate it is recommended to use the certificate signed by Certificate Authority. As Traffic Manager will be offloading SSL for many of Client Access HTTP services, Microsoft recommends leveraging Subject Alternate Name certificate extensions. Some examples of using SAN certificates with Exchange 2010 are shown in this TechNet Article. When you request a SAN certificate from a certification authority, you must define all desired FQDNs in the Subject Alternative Name field; clients will ignore the Common Name in the certificate Subject. Although the Traffic Manager GUI cannot create SAN certificates, and will not display the Subject Alternative Name values of imported certificates, use of SAN certificates is otherwise supported. In order to import the certificate access the **Catalogs → SSL → SSL Certificates catalog** and click on import button to upload the certificate and key file.



Import SSL Certificate

This form lets you import an SSL certificate and private key.

Enter a short name to identify your certificate:

Name: Webmail.company.com

Enter the location of your certificate file:

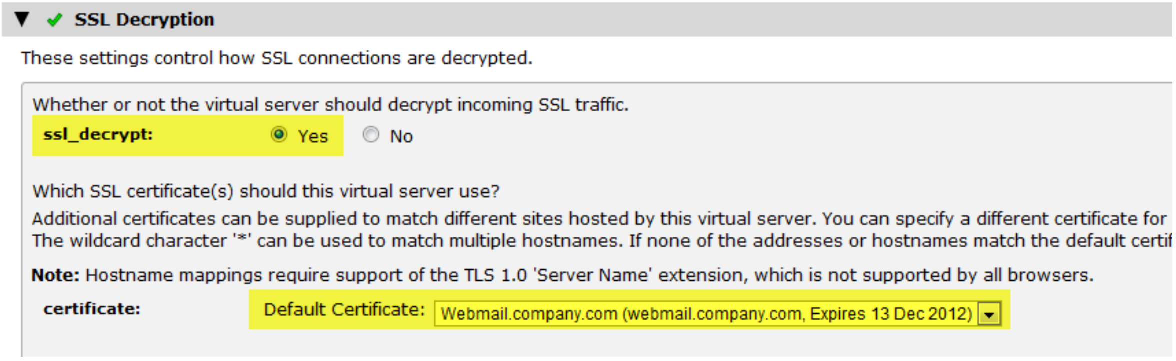
Certificate file: Choose File webmail.comp…ert.pem.crt

Enter the location of your private key file:

Private key file: Choose File webmail.company.com.key

Import certificate

6. **Enable SSL decrypt and associate SSL Certificate to Virtual Server**
   Next step once the SSL Key and Certs are uploaded, associate it to the virtual server and enable SSL decrypt on the virtual server. This is done by accessing the appropriate virtual server under **Services → Virtual Servers.** Click SSL Decryption section under the virtual server and select the appropriate certificate that was uploaded. Check the **ssl_decrypt** setting to **Yes** and click update button at the bottom of the page. Now the Virtual Server is enabled for SSL Decryption.



▼ ✓ **SSL Decryption**

These settings control how SSL connections are decrypted.

Whether or not the virtual server should decrypt incoming SSL traffic.

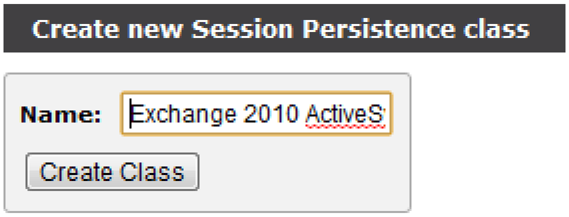
ssl_decrypt: ● Yes ○ No

Which SSL certificate(s) should this virtual server use?
Additional certificates can be supplied to match different sites hosted by this virtual server. You can specify a different certificate for
The wildcard character '*' can be used to match multiple hostnames. If none of the addresses or hostnames match the default certif

Note: Hostname mappings require support of the TLS 1.0 'Server Name' extension, which is not supported by all browsers.

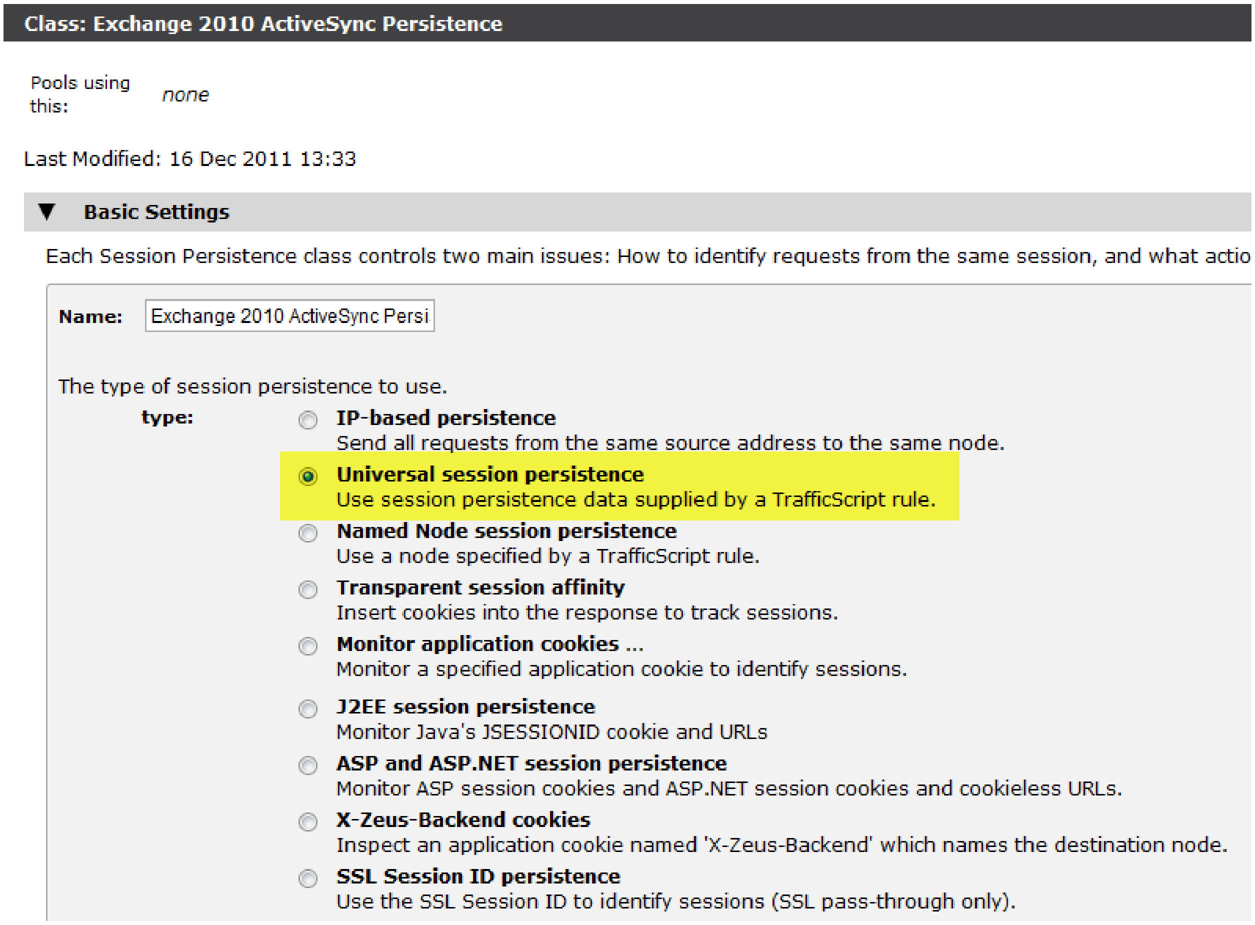
certificate: Default Certificate: Webmail.company.com (webmail.company.com, Expires 13 Dec 2012)

7. **Create Persistence class of type universal persistence and traffic script for persistence creation**
   Steps of creating the persistence class and traffic script are shown below. Appendix will contain the code for this traffic script for copying and modification.



Create new Session Persistence class

Name: Exchange 2010 ActiveS



Class: Exchange 2010 ActiveSync Persistence

Pools using this: *none*

Last Modified: 16 Dec 2011 13:33

▼ Basic Settings

Each Session Persistence class controls two main issues: How to identify requests from the same session, and what actio

Name: Exchange 2010 ActiveSync Persi

The type of session persistence to use.

type:

○ **IP-based persistence**
Send all requests from the same source address to the same node.

● **Universal session persistence**
Use session persistence data supplied by a TrafficScript rule.

○ **Named Node session persistence**
Use a node specified by a TrafficScript rule.

○ **Transparent session affinity**
Insert cookies into the response to track sessions.

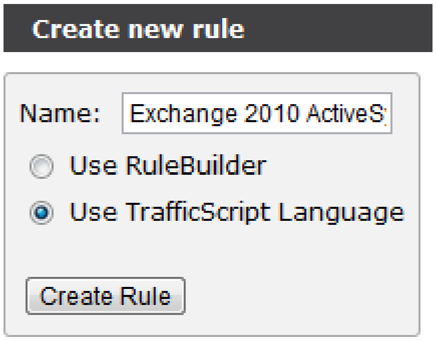
○ **Monitor application cookies ...**
Monitor a specified application cookie to identify sessions.

○ **J2EE session persistence**
Monitor Java's JSESSIONID cookie and URLs

○ **ASP and ASP.NET session persistence**
Monitor ASP session cookies and ASP.NET session cookies and cookieless URLs.

○ **X-Zeus-Backend cookies**
Inspect an application cookie named 'X-Zeus-Backend' which names the destination node.

○ **SSL Session ID persistence**
Use the SSL Session ID to identify sessions (SSL pass-through only).

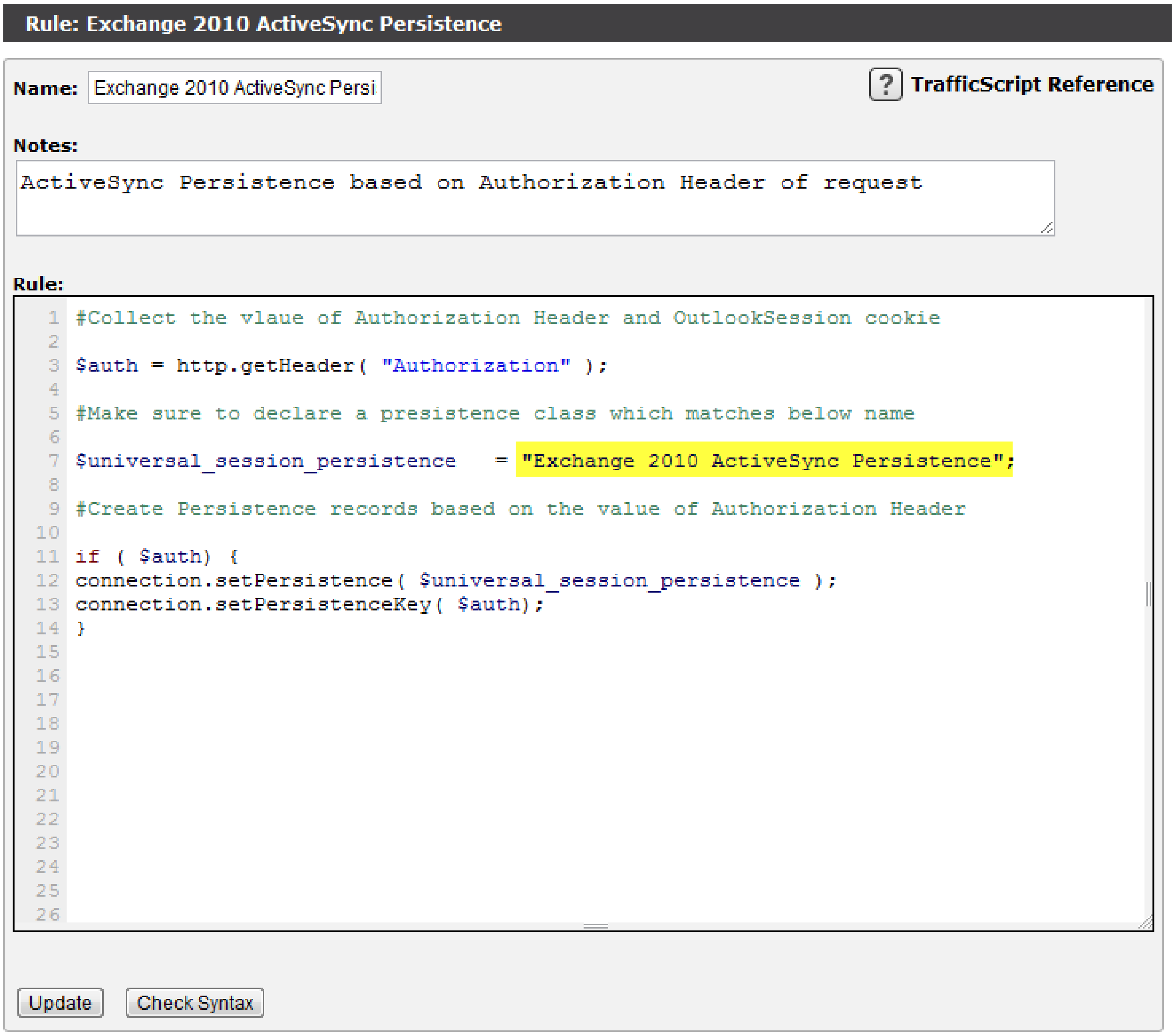


Create new rule

Name: Exchange 2010 ActiveS

○ Use RuleBuilder

● Use TrafficScript Language



Name: Exchange 2010 ActiveSync Persi

Notes:

ActiveSync Persistence based on Authorization Header of request

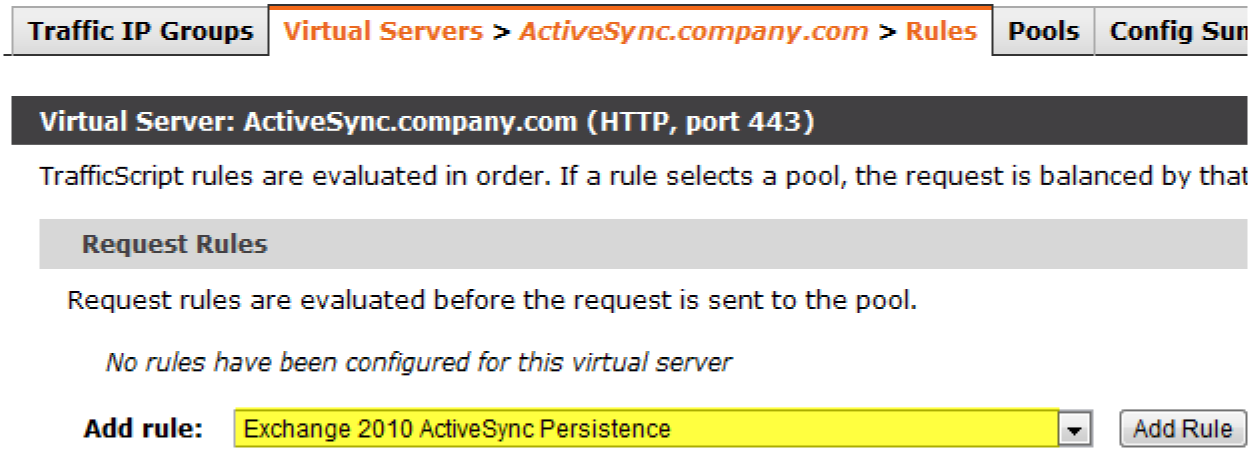
Rule:

```
#Collect the vlaue of Authorization Header and OutlookSession cookie

$auth = http.getHeader( "Authorization" );

#Make sure to declare a presistence class which matches below name

$universal_session_persistence   = "Exchange 2010 ActiveSync Persistence";

#Create Persistence records based on the value of Authorization Header

if ( $auth) {
connection.setPersistence( $universal_session_persistence );
connection.setPersistenceKey( $auth);
}
```

Important

Persistence configuration steps highlighted above in this document is not applicable when SSL Client Certificate Authentication is enabled

8. **Associate the rule created in step 5 to ActiveSync Virtual Server**



Virtual Server: ActiveSync.company.com (HTTP, port 443)

TrafficScript rules are evaluated in order. If a rule selects a pool, the request is balanced by that

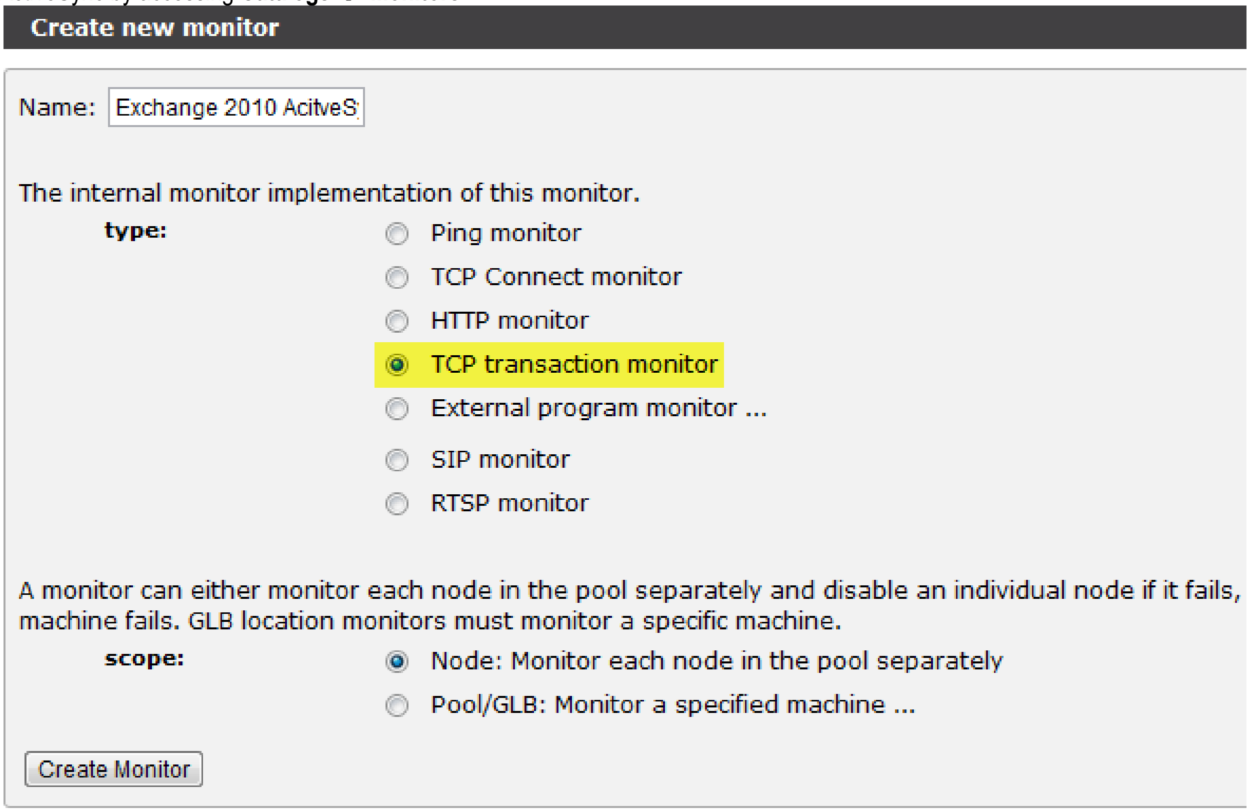
Request Rules

Request rules are evaluated before the request is sent to the pool.

No rules have been configured for this virtual server

Add rule: Exchange 2010 ActiveSync Persistence

9. **Creating Health Monitor for ActiveSync**
   As it is recommended to have separate pool for each Client Access HTTP service, create a specific Health Monitor for ActiveSync by accessing **Catalogs → Monitors**


Create new monitor

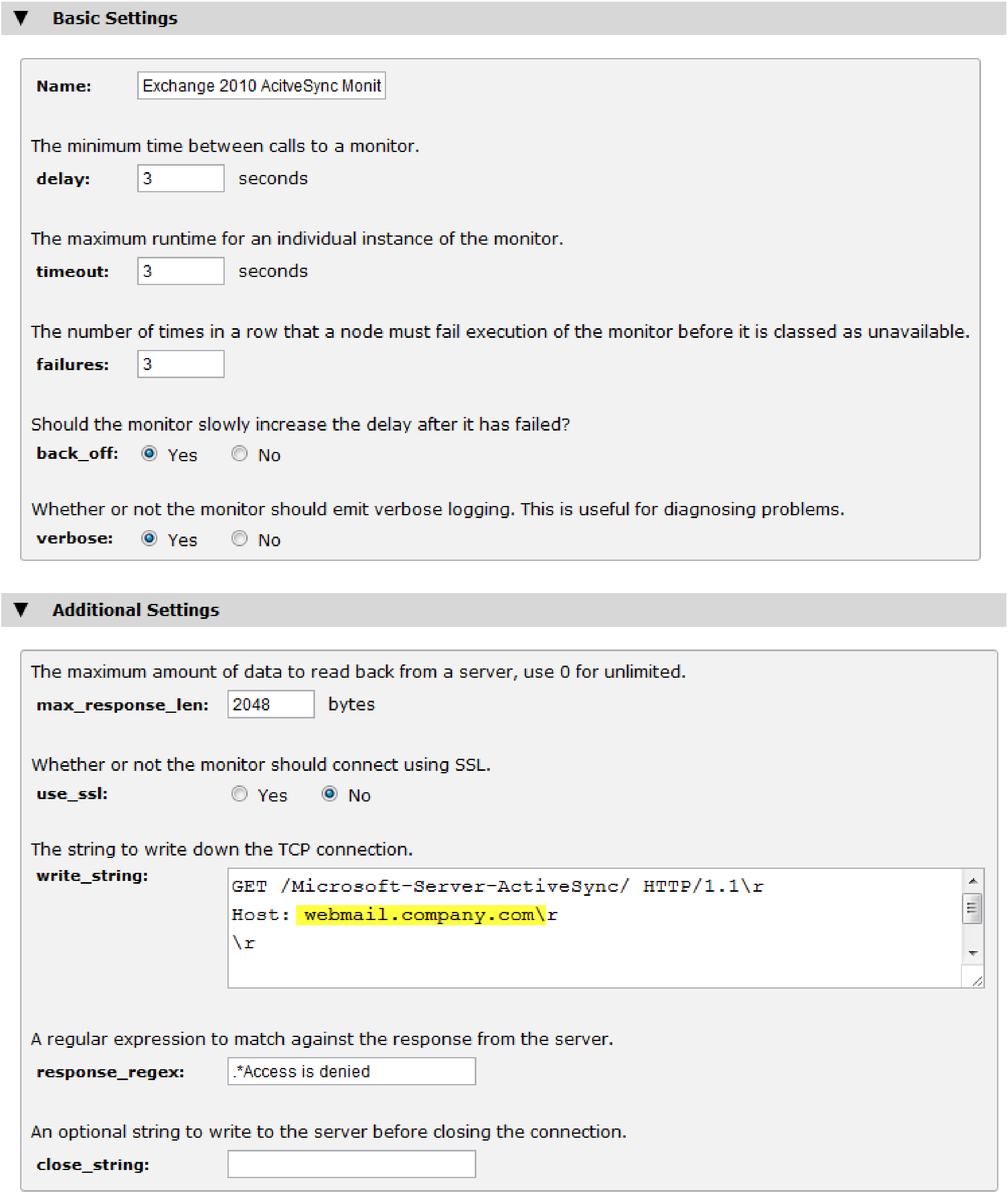
Name: Exchange 2010 AcitveS

The internal monitor implementation of this monitor.

type:
- ○ Ping monitor
- ○ TCP Connect monitor
- ○ HTTP monitor
- ● TCP transaction monitor
- ○ External program monitor ...
- ○ SIP monitor
- ○ RTSP monitor

A monitor can either monitor each node in the pool separately and disable an individual node if it fails, machine fails. GLB location monitors must monitor a specific machine.

scope:
- ● Node: Monitor each node in the pool separately
- ○ Pool/GLB: Monitor a specified machine ...



▼ **Basic Settings**

Name: Exchange 2010 AcitveSync Monit

The minimum time between calls to a monitor.

delay: 3 seconds

The maximum runtime for an individual instance of the monitor.

timeout: 3 seconds

The number of times in a row that a node must fail execution of the monitor before it is classed as unavailable.

failures: 3

Should the monitor slowly increase the delay after it has failed?

back_off: ● Yes ○ No

Whether or not the monitor should emit verbose logging. This is useful for diagnosing problems.

verbose: ● Yes ○ No

▼ **Additional Settings**

The maximum amount of data to read back from a server, use 0 for unlimited.

max_response_len: 2048 bytes

Whether or not the monitor should connect using SSL.

use_ssl: ○ Yes ● No

The string to write down the TCP connection.

write_string:

```
GET /Microsoft-Server-ActiveSync/ HTTP/1.1\r
Host: webmail.company.com\r
\r
```

A regular expression to match against the response from the server.

response_regex: .*Access is denied

An optional string to write to the server before closing the connection.

close_string:

Fill in the FQDN of ActiveSync service and since the request is not sending any authentication credintials the expected response is “Access is denied” page which is what thhe response_regex is catching to mark the health of the server. Advanced external monitors can be written in any language of choice and be assoicated with the pool.

This completes the creation of ActiveSync Virtual Server on Traffic Manager

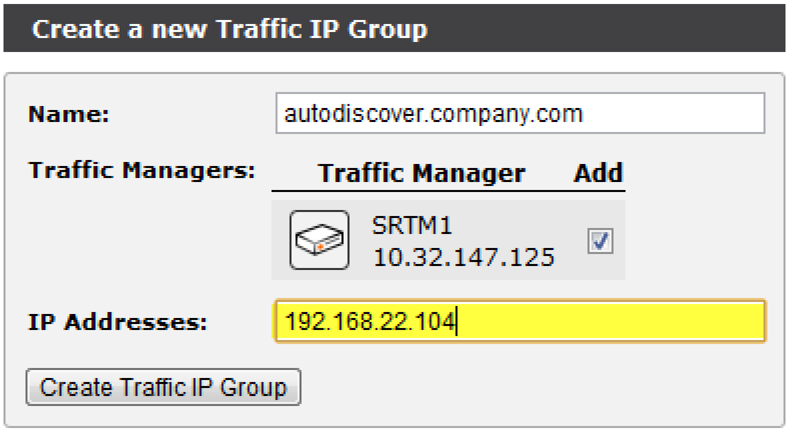
4.6 Configuring Stingray Traffic Manager for Auto Discover

The Autodiscover service provides automatic configuration information to recent versions of Outlook and some mobile clients. Autodiscover service doesn't need any kind of persistence.

Important

Autodiscover will not work unless you follow the guidelines found at *http://technet.microsoft.com/en-us/library/bb124251.aspx*.

1. **Create Traffic IP Group for Auto Discover Service**



Create a new Traffic IP Group

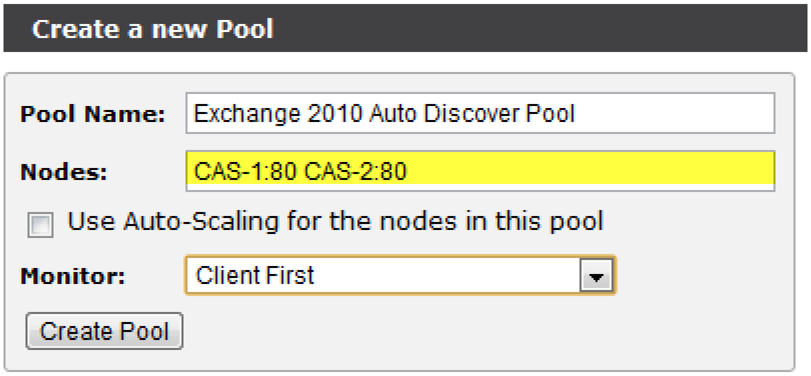
Name: autodiscover.company.com

Traffic Managers:

Traffic Manager	Add
SRTM1 10.32.147.125	☑

IP Addresses: 192.168.22.104

2. **Create Pool for Active Discover**



Create a new Pool

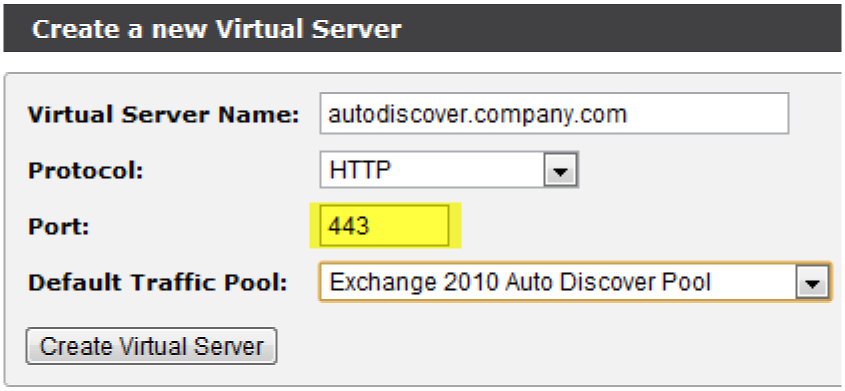
Pool Name: Exchange 2010 Auto Discover Pool

Nodes: CAS-1:80 CAS-2:80

☐ Use Auto-Scaling for the nodes in this pool

Monitor: Client First

3. **Create Virtual Server for Auto Discover**
   Virtual server will be offloading SSL and will use the same certificate that was used for OWA service which has SAN DNS name resolving to autodiscover traffic ip group. As per this deployment guide it will be the IP address configured in step 1.



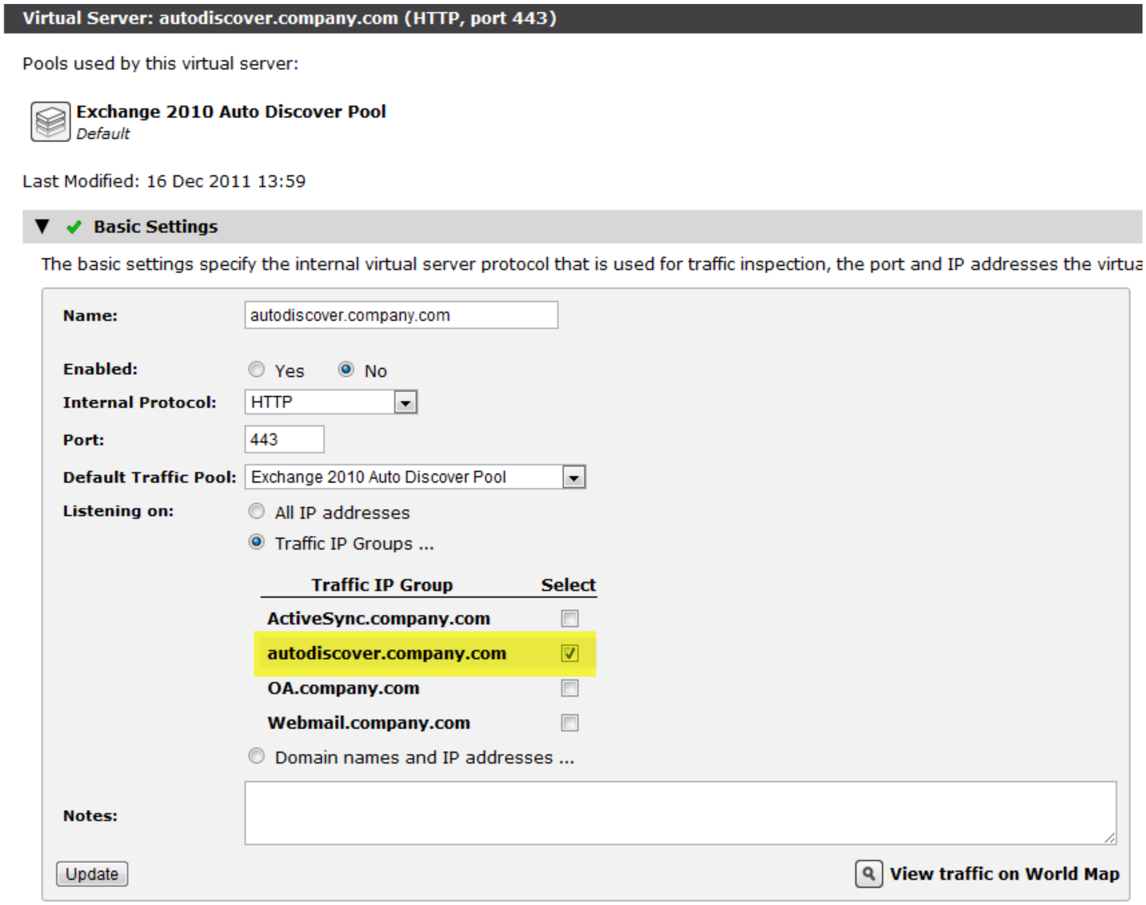
Create a new Virtual Server

Virtual Server Name: autodiscover.company.com

Protocol: HTTP

Port: 443

Default Traffic Pool: Exchange 2010 Auto Discover Pool



Virtual Server: autodiscover.company.com (HTTP, port 443)

Pools used by this virtual server:

Exchange 2010 Auto Discover Pool
Default

Last Modified: 16 Dec 2011 13:59

▼ ✓ Basic Settings

The basic settings specify the internal virtual server protocol that is used for traffic inspection, the port and IP addresses the virtua

Name: autodiscover.company.com

Enabled: ○ Yes ● No

Internal Protocol: HTTP

Port: 443

Default Traffic Pool: Exchange 2010 Auto Discover Pool

Listening on: ○ All IP addresses

● Traffic IP Groups ...

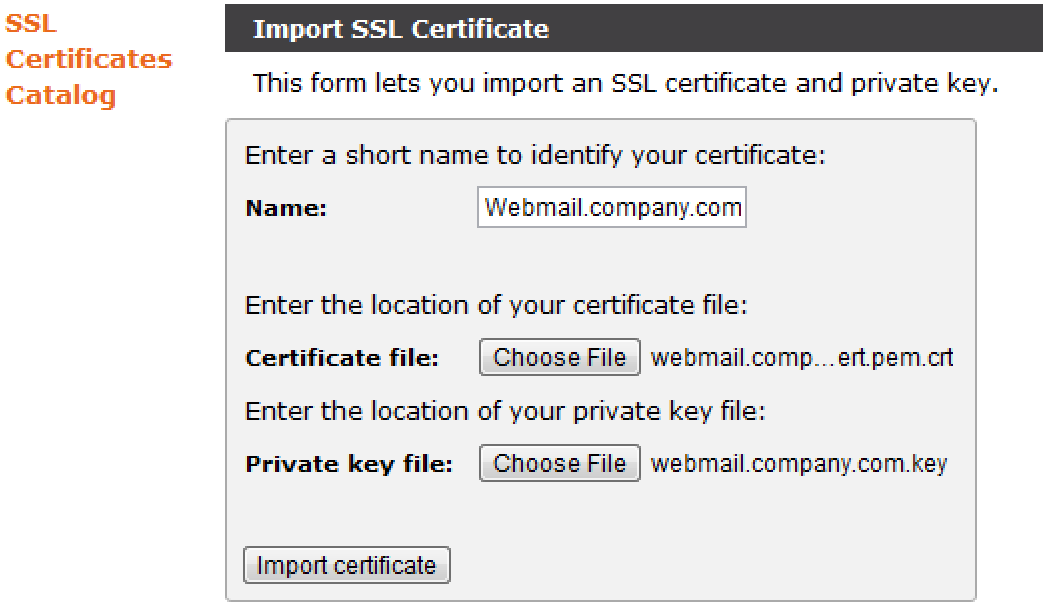
Traffic IP Group	Select
ActiveSync.company.com	□
autodiscover.company.com	☑
OA.company.com	□
Webmail.company.com	□

○ Domain names and IP addresses ...

Notes:

4. SSL Key and Certificate upload for Auto Discover

Since the Traffic Manager is offloading SSL from CAS servers, SSL Keys and Certs need to be imported to Traffic Manager. Even though Traffic Manager does have the ability to create a self-signed Certificate it is recommended to use the certificate signed by Certificate Authority. As Traffic Manager will be offloading SSL for many of Client Access HTTP services, Microsoft recommends leveraging Subject Alternate Name certificate extensions. Some examples of using SAN certificates with Exchange 2010 are shown in this TechNet Article. When you request a SAN certificate from a certification authority, you must define all desired FQDNs in the Subject Alternative Name field; clients will ignore the Common Name in the certificate Subject. Although the Traffic Manager GUI cannot create SAN certificates, and will not display the Subject Alternative Name values of imported certificates, use of SAN certificates is otherwise supported. In order to import the certificate access the **Catalogs → SSL → SSL Certificates catalog** and click on import button to upload the certificate and key file.



SSL Certificates Catalog

Import SSL Certificate

This form lets you import an SSL certificate and private key.

Enter a short name to identify your certificate:

Name: Webmail.company.com

Enter the location of your certificate file:

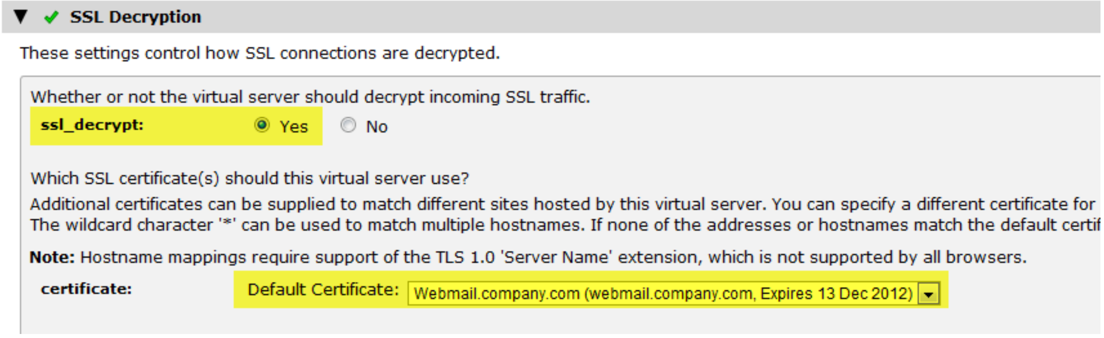
Certificate file: Choose File webmail.comp...ert.pem.crt

Enter the location of your private key file:

Private key file: Choose File webmail.company.com.key

Import certificate

5. **Enable SSL decrypt and associate SSL Certificate to Virtual Server**
   Next step once the SSL Key and Certs are uploaded, associate it to the virtual server and enable SSL decrypt on the virtual server. This is done by accessing the appropriate virtual server under **Services → Virtual Servers.** Click SSL Decryption section under the virtual server and select the appropriate certificate that was uploaded. Check the **ssl_decrypt** setting to **Yes** and click update button at the bottom of the page. Now the Virtual Server is enabled for SSL Decryption.



▼ ✓ **SSL Decryption**

These settings control how SSL connections are decrypted.

Whether or not the virtual server should decrypt incoming SSL traffic.

ssl_decrypt: ● Yes ○ No

Which SSL certificate(s) should this virtual server use?

Additional certificates can be supplied to match different sites hosted by this virtual server. You can specify a different certificate for

The wildcard character '*' can be used to match multiple hostnames. If none of the addresses or hostnames match the default certif

Note: Hostname mappings require support of the TLS 1.0 'Server Name' extension, which is not supported by all browsers.

certificate: Default Certificate: Webmail.company.com (webmail.company.com, Expires 13 Dec 2012)

6. **Create Health Monitor for Auto Discover and Associate it to the Auto Discover Pool**
   As it is recommended to have separate pool for each Client Access HTTP service, create a specific Health Monitor for Auto Discover by accessing **Catalogs → Monitors.** You can use the default Full HTTP monitor on a default page or can write more complex monitor using Perl or any other customer script. This script can then be associated to the pool via external program monitor option.

This completes the Auto Discover configuration.

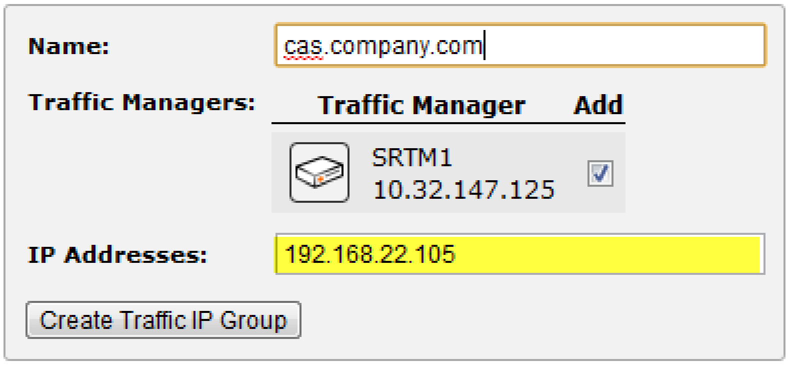
4.7 Configuring Stingray Traffic Manager for MAPI RPC Client Access

Outlook Clients which use native MAPI, access the service via CAS servers in Exchange 2010 which is an architectural change from earlier versions of Exchange. Stingray Traffic Manager can load balance the native MAPI access to CAS Servers. MAPI RPC client access connects over large range of dynamically negotiated ports. Since Traffic Manager doesn't natively support virtual servers to listen on range of ports this section of MAPI configuration is based on static mapping of Mailbox and Address Book ports on CAS Servers as mentioned in the perquisites section for configuration of Microsoft Exchange 2010 CAS servers. There will be three virtual servers configured

a. Virtual Server for MAPI End Point Mapper service on TCP port 135
b. Virtual Server for Mailbox Access service on TCP port 55001 (randomly chosen based on Microsoft's recommendation)
c. Virtual Server for Address Book service on TCP port 55003 (randomly chosen based on Microsoft's recommendation)

All the Virtual Servers will be associated with same Traffic IP group and same persistence class of type IP persistence

1. **Create Traffic IP Group for RPC Client Access**



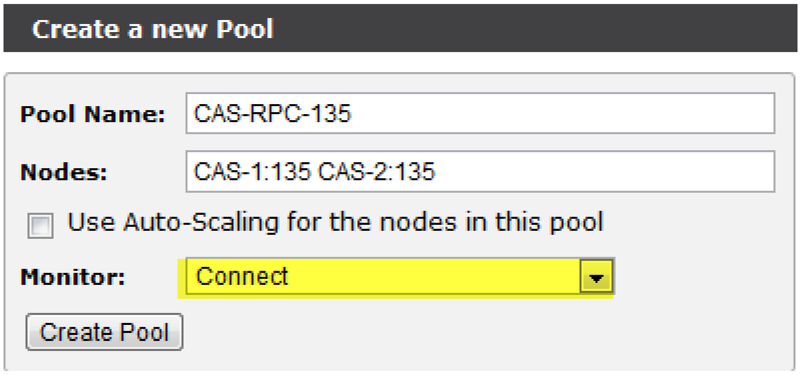
Name: cas.company.com

Traffic Managers:

Traffic Manager	Add
SRTM1 10.32.147.125	☑

IP Addresses: 192.168.22.105

2. **Create Pool for MAPI End Point Mapper Service with Monitor type connect**



Create a new Pool

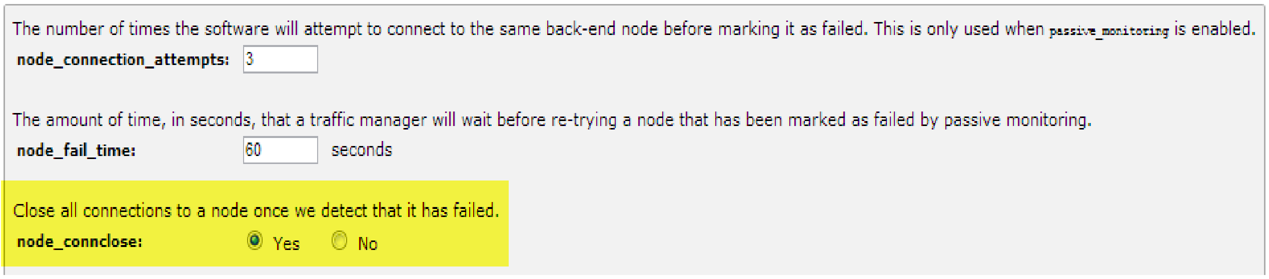
Pool Name: CAS-RPC-135

Nodes: CAS-1:135 CAS-2:135

☐ Use Auto-Scaling for the nodes in this pool

Monitor: Connect

3. **Set Pool connection management settings to handle Node failure conditions**



The number of times the software will attempt to connect to the same back-end node before marking it as failed. This is only used when passive_monitoring is enabled.

node_connection_attempts: 3

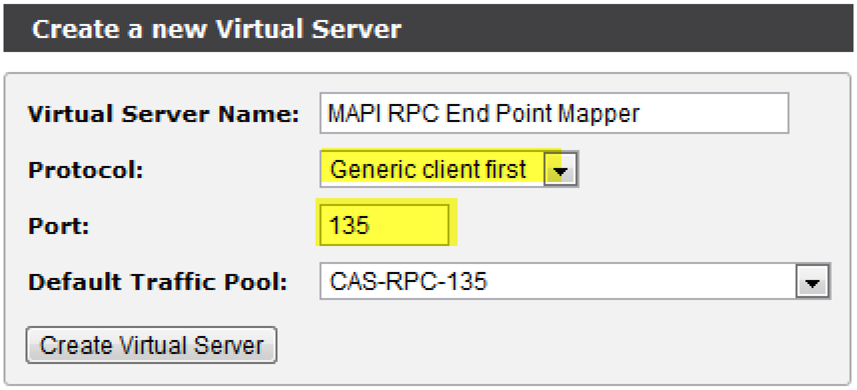
The amount of time, in seconds, that a traffic manager will wait before re-trying a node that has been marked as failed by passive monitoring.

node_fail_time: 60 seconds

Close all connections to a node once we detect that it has failed.

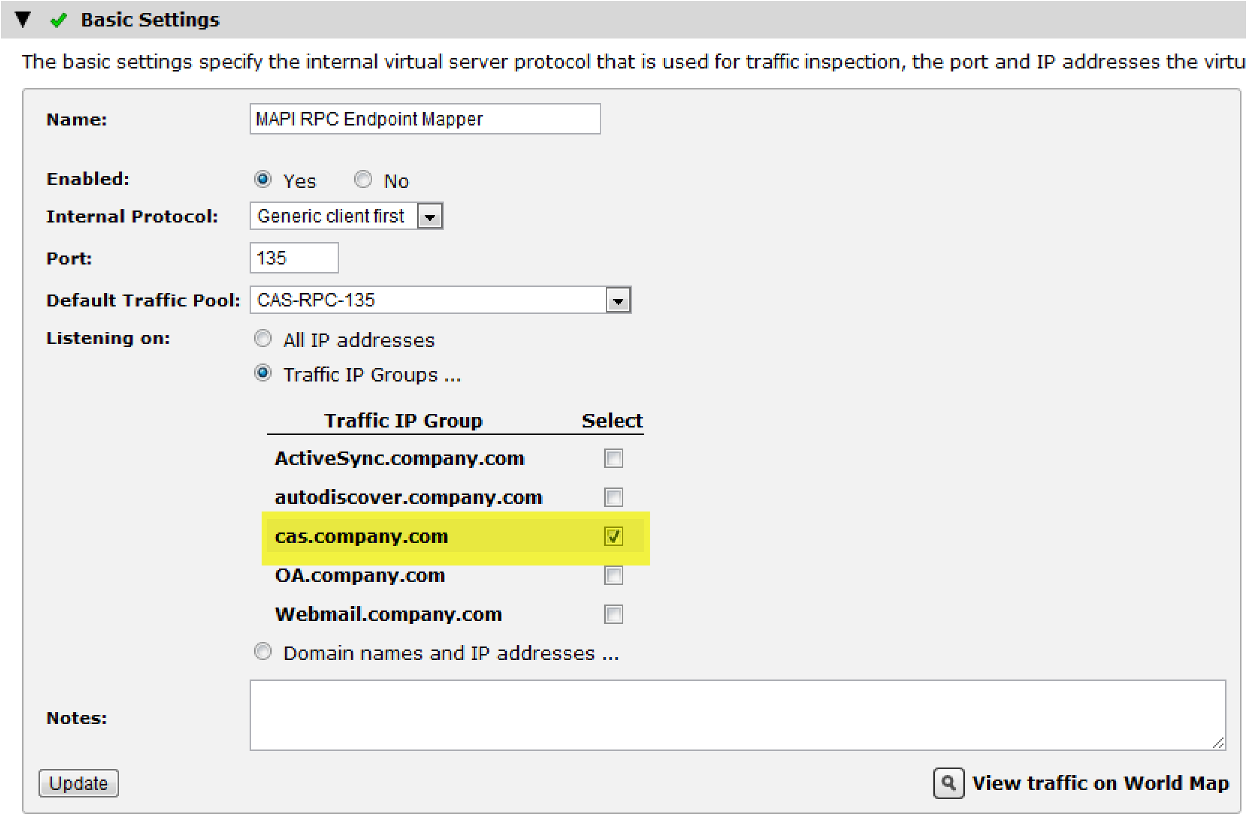
node_connclose: ● Yes ○ No

4. **Create Virtual Server for MAPI End Point Mapper Service with Generic Client first protocol and associate the with Traffic IP group created in step 1**



Create a new Virtual Server

Virtual Server Name:	MAPI RPC End Point Mapper
Protocol:	Generic client first
Port:	135
Default Traffic Pool:	CAS-RPC-135



Basic Settings

The basic settings specify the internal virtual server protocol that is used for traffic inspection, the port and IP addresses the virtu

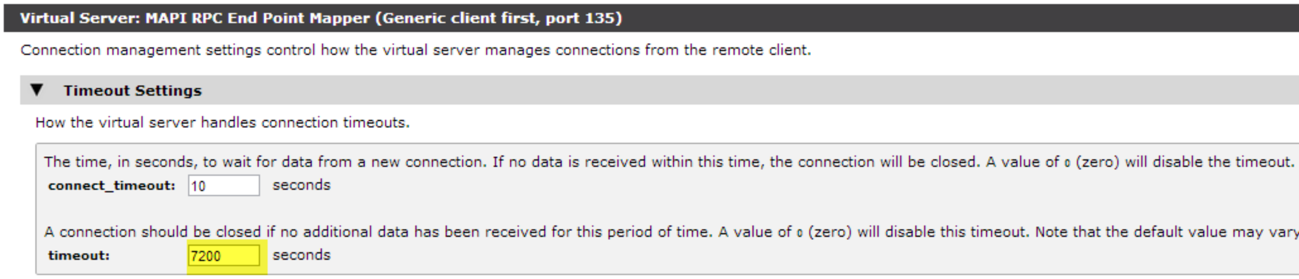
Name:	MAPI RPC Endpoint Mapper
Enabled:	● Yes ○ No
Internal Protocol:	Generic client first
Port:	135
Default Traffic Pool:	CAS-RPC-135
Listening on:	○ All IP addresses ● Traffic IP Groups ...

Traffic IP Group	Select
ActiveSync.company.com	□
autodiscover.company.com	□
cas.company.com	☑
OA.company.com	□
Webmail.company.com	□

○ Domain names and IP addresses ...

Notes:

5. **Set Timeout settings**
   As per Microsoft KB article http://support.microsoft.com/kb/2535656, set the connection timeout settings under connection management to 7200 seconds.



Virtual Server: MAPI RPC End Point Mapper (Generic client first, port 135)

Connection management settings control how the virtual server manages connections from the remote client.

Timeout Settings

How the virtual server handles connection timeouts.

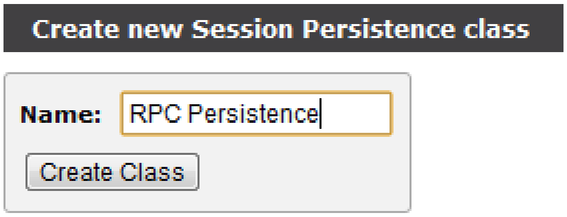
The time, in seconds, to wait for data from a new connection. If no data is received within this time, the connection will be closed. A value of 0 (zero) will disable the timeout.

connect_timeout: 10 seconds

A connection should be closed if no additional data has been received for this period of time. A value of 0 (zero) will disable this timeout. Note that the default value may vary

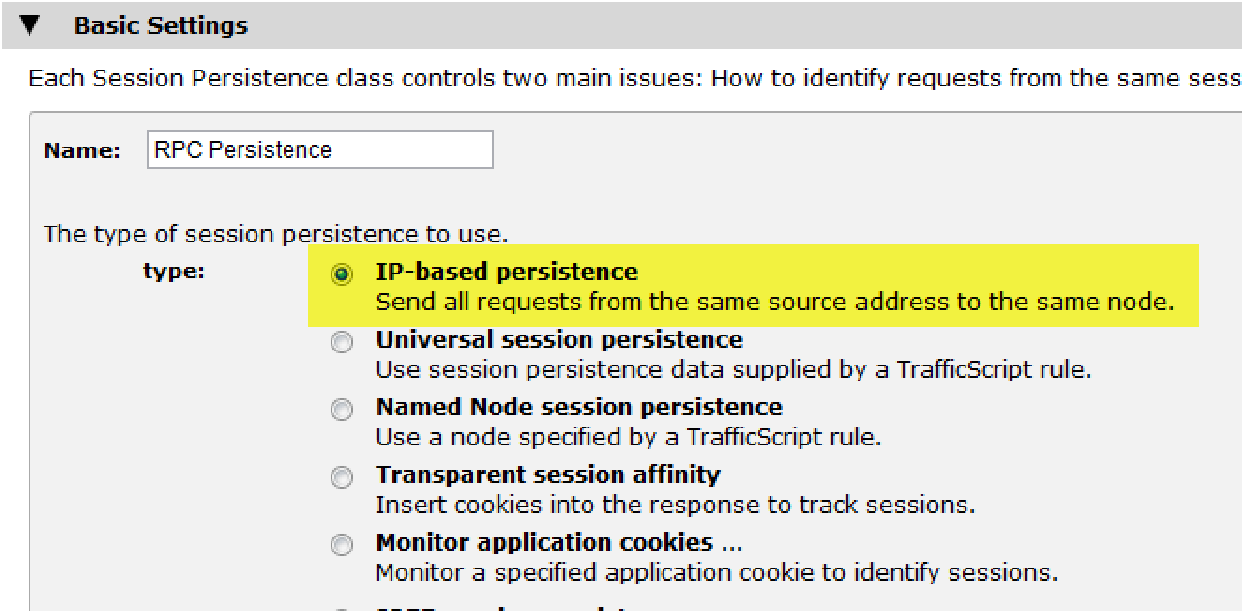
timeout: 7200 seconds

6. **Create persistence class of type IP persistence**



Create new Session Persistence class

Name: RPC Persistence



▼ **Basic Settings**

Each Session Persistence class controls two main issues: How to identify requests from the same sess

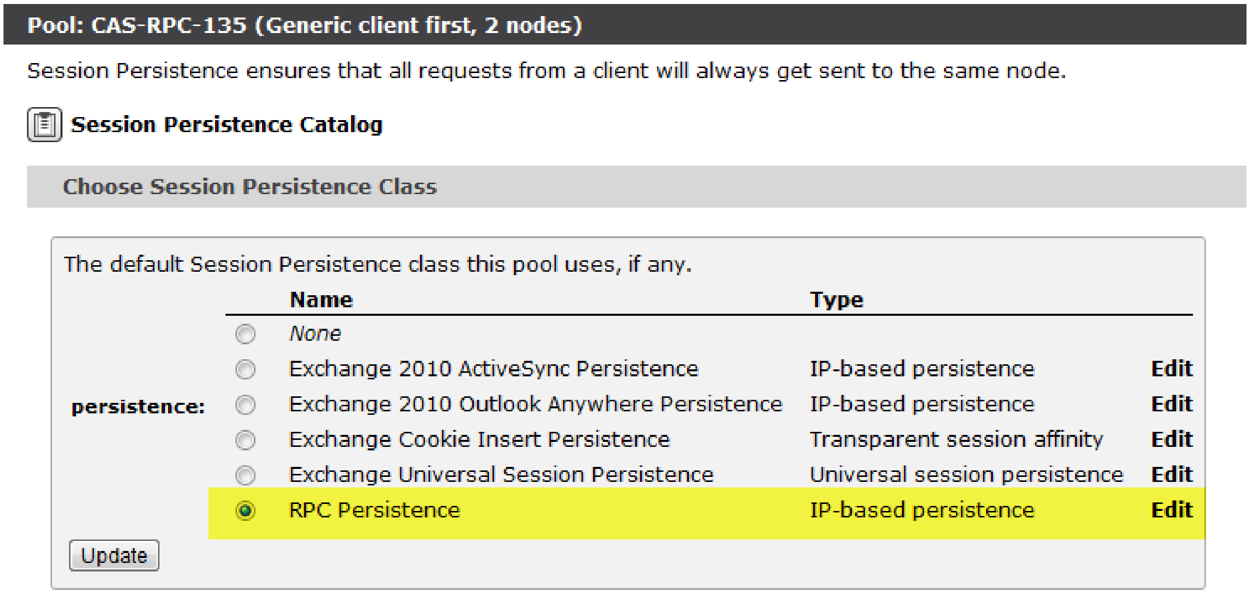
Name: RPC Persistence

The type of session persistence to use.

type:

- ● **IP-based persistence**
  Send all requests from the same source address to the same node.
- ○ **Universal session persistence**
  Use session persistence data supplied by a TrafficScript rule.
- ○ **Named Node session persistence**
  Use a node specified by a TrafficScript rule.
- ○ **Transparent session affinity**
  Insert cookies into the response to track sessions.
- ○ **Monitor application cookies ...**
  Monitor a specified application cookie to identify sessions.

7. **Associate the persistence class created in step 4 to MAPI End Point Mapper Service Pool**



Pool: CAS-RPC-135 (Generic client first, 2 nodes)

Session Persistence ensures that all requests from a client will always get sent to the same node.

Session Persistence Catalog

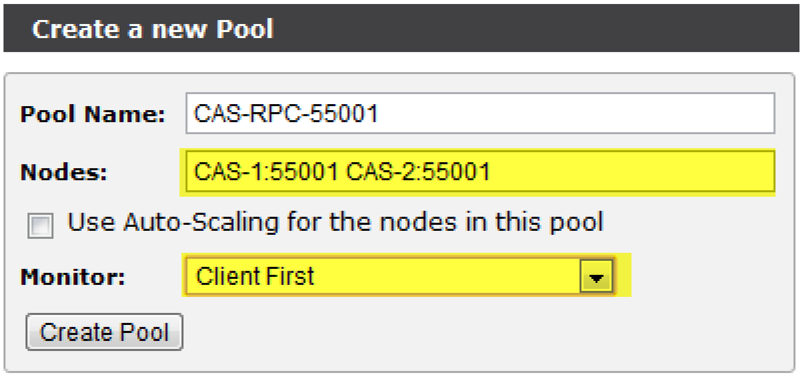
Choose Session Persistence Class

The default Session Persistence class this pool uses, if any.

persistence:

	Name	Type	
○	*None*		
○	Exchange 2010 ActiveSync Persistence	IP-based persistence	Edit
○	Exchange 2010 Outlook Anywhere Persistence	IP-based persistence	Edit
○	Exchange Cookie Insert Persistence	Transparent session affinity	Edit
○	Exchange Universal Session Persistence	Universal session persistence	Edit
●	RPC Persistence	IP-based persistence	Edit

8. **Create Pool for MAPI Mailbox Service with Monitor type connect**



Create a new Pool

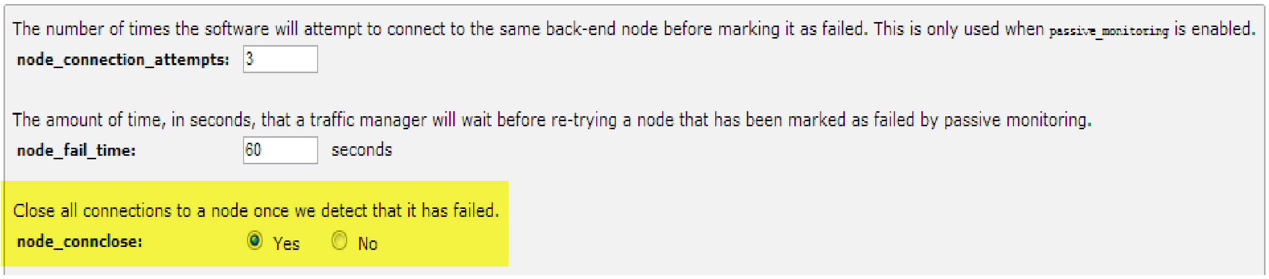
Pool Name: CAS-RPC-55001

Nodes: CAS-1:55001 CAS-2:55001

□ Use Auto-Scaling for the nodes in this pool

Monitor: Client First

9. **Set Pool connection management settings to handle Node failure conditions**



The number of times the software will attempt to connect to the same back-end node before marking it as failed. This is only used when passive_monitoring is enabled.

node_connection_attempts: 3

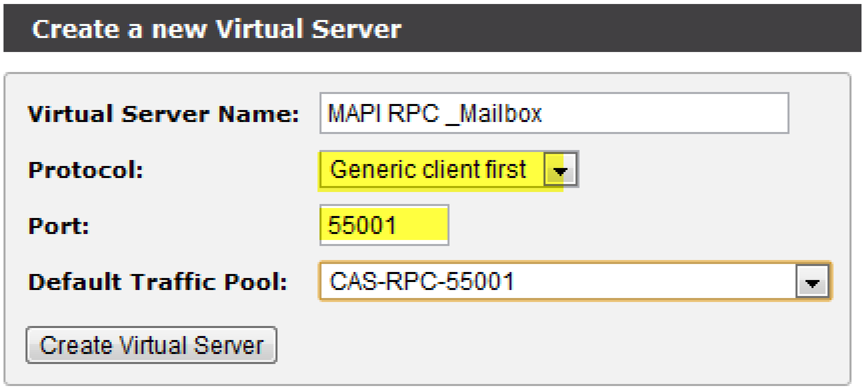
The amount of time, in seconds, that a traffic manager will wait before re-trying a node that has been marked as failed by passive monitoring.

node_fail_time: 60 seconds

Close all connections to a node once we detect that it has failed.

node_connclose: ● Yes ○ No

10. **Create Virtual Server for MAPI Mailbox Service with Generic Client first protocol. And Associate the traffic ip group created step 1**



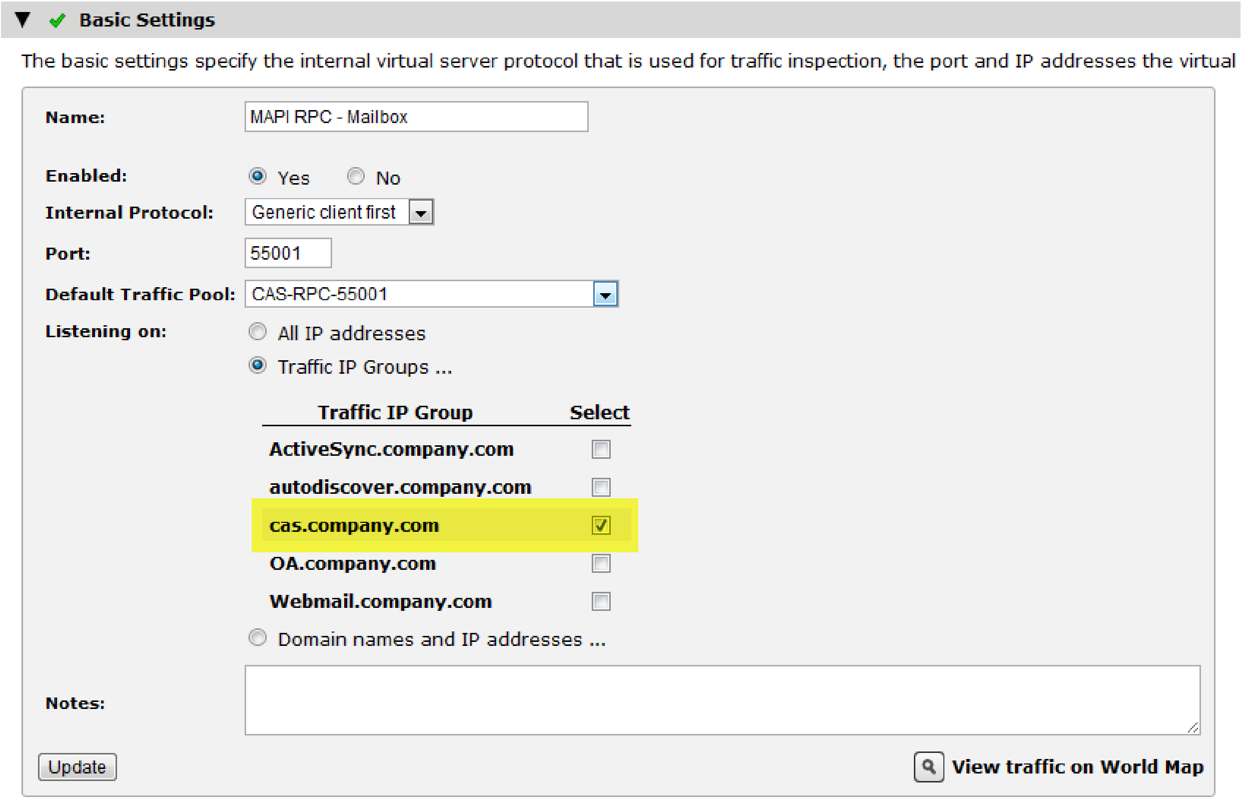
Create a new Virtual Server

Virtual Server Name: MAPI RPC _Mailbox

Protocol: Generic client first

Port: 55001

Default Traffic Pool: CAS-RPC-55001



▼ ✓ **Basic Settings**

The basic settings specify the internal virtual server protocol that is used for traffic inspection, the port and IP addresses the virtual

Name: MAPI RPC - Mailbox

Enabled: ● Yes ○ No

Internal Protocol: Generic client first

Port: 55001

Default Traffic Pool: CAS-RPC-55001

Listening on: ○ All IP addresses

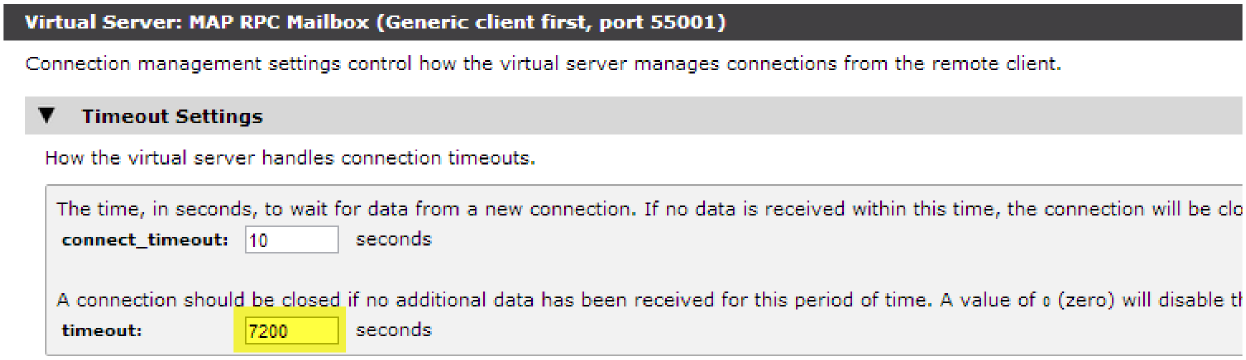
● Traffic IP Groups ...

Traffic IP Group	Select
ActiveSync.company.com	□
autodiscover.company.com	□
cas.company.com	☑
OA.company.com	□
Webmail.company.com	□

○ Domain names and IP addresses ...

Notes:

11. **Set Timeout settings**
As per Microsoft KB article http://support.microsoft.com/kb/2535656, set the connection timeout settings under connection management to 7200 seconds.



Virtual Server: MAP RPC Mailbox (Generic client first, port 55001)

Connection management settings control how the virtual server manages connections from the remote client.

▼ **Timeout Settings**

How the virtual server handles connection timeouts.

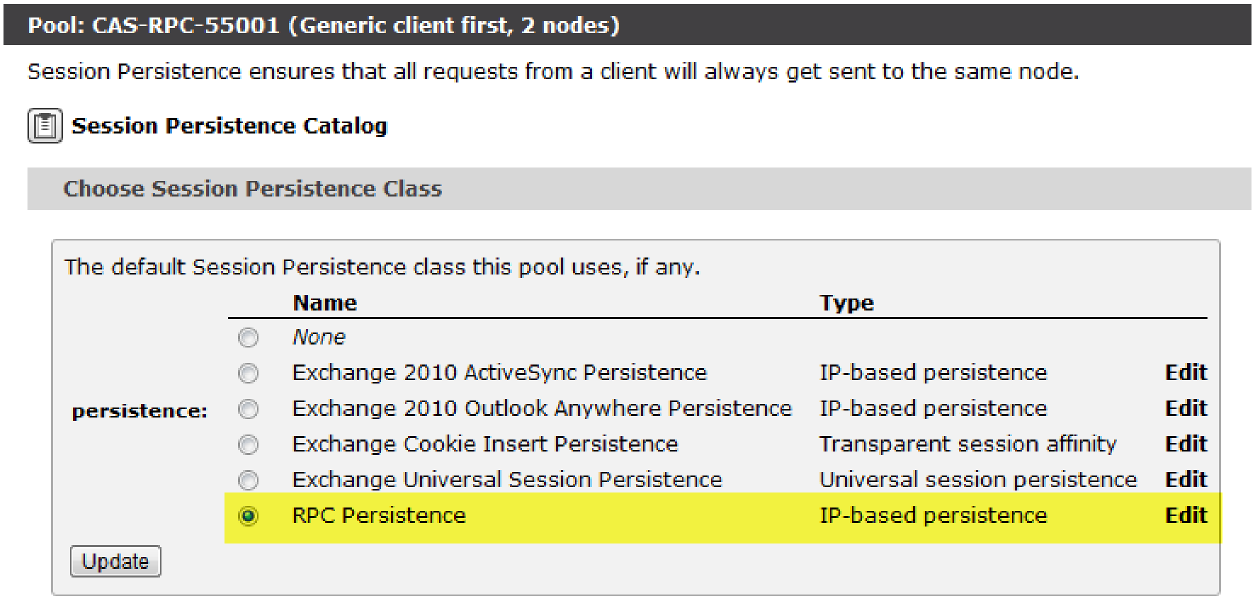
The time, in seconds, to wait for data from a new connection. If no data is received within this time, the connection will be clo

connect_timeout: 10 seconds

A connection should be closed if no additional data has been received for this period of time. A value of 0 (zero) will disable tl

timeout: 7200 seconds

12. **Associate the persistence class created in step 5 to MAPI End Point Mapper Service Pool**



Pool: CAS-RPC-55001 (Generic client first, 2 nodes)

Session Persistence ensures that all requests from a client will always get sent to the same node.

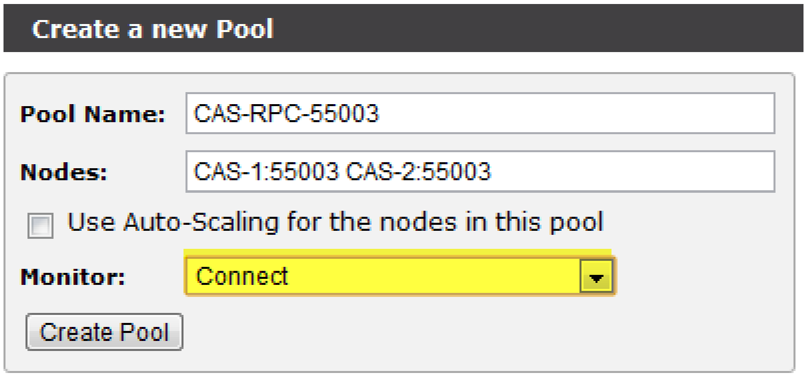
Session Persistence Catalog

Choose Session Persistence Class

The default Session Persistence class this pool uses, if any.

		Name	Type	
	○	*None*		
	○	Exchange 2010 ActiveSync Persistence	IP-based persistence	Edit
persistence:	○	Exchange 2010 Outlook Anywhere Persistence	IP-based persistence	Edit
	○	Exchange Cookie Insert Persistence	Transparent session affinity	Edit
	○	Exchange Universal Session Persistence	Universal session persistence	Edit
	●	RPC Persistence	IP-based persistence	Edit

13. **Create Pool for MAPI Address Book Service with Monitor type connect**



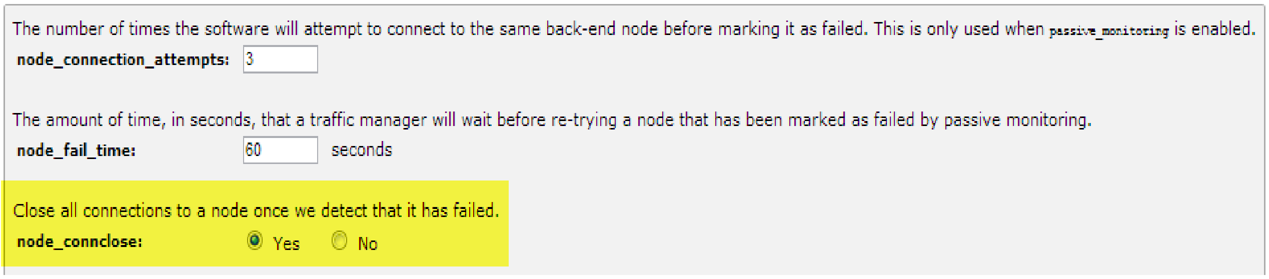
Create a new Pool

Pool Name:	CAS-RPC-55003
Nodes:	CAS-1:55003 CAS-2:55003

□ Use Auto-Scaling for the nodes in this pool

Monitor: Connect

14. **Set Pool connection management settings to handle Node failure conditions**



The number of times the software will attempt to connect to the same back-end node before marking it as failed. This is only used when passive_monitoring is enabled.

node_connection_attempts: 3

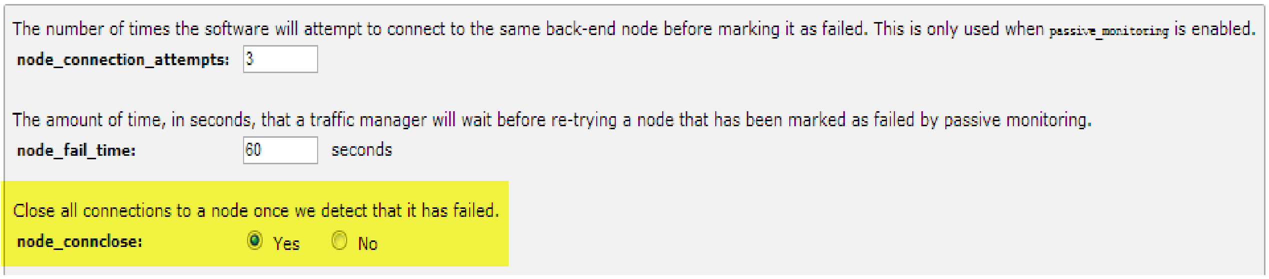
The amount of time, in seconds, that a traffic manager will wait before re-trying a node that has been marked as failed by passive monitoring.

node_fail_time: 60 seconds

Close all connections to a node once we detect that it has failed.

node_connclose: ● Yes ○ No

15. **Set Pool connection management settings to handle Node failure conditions**



The number of times the software will attempt to connect to the same back-end node before marking it as failed. This is only used when passive_monitoring is enabled.

node_connection_attempts: 3

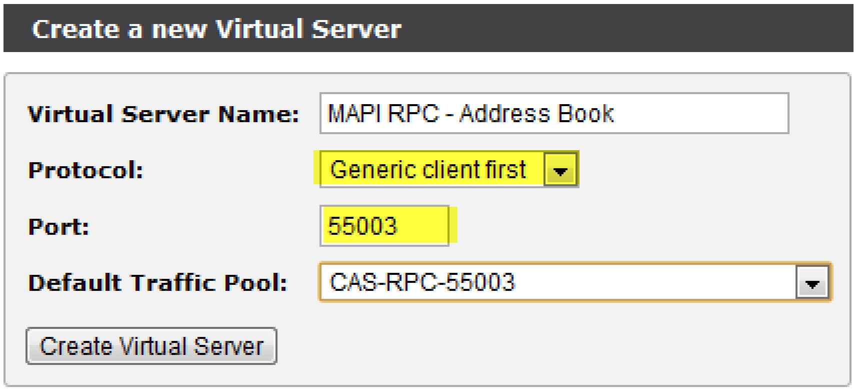
The amount of time, in seconds, that a traffic manager will wait before re-trying a node that has been marked as failed by passive monitoring.

node_fail_time: 60 seconds

Close all connections to a node once we detect that it has failed.

node_connclose: ● Yes ○ No

16. **Create Virtual Server for MAPI Address Book Service with Generic Client first protocol. And Associate the traffic ip group created step 1**



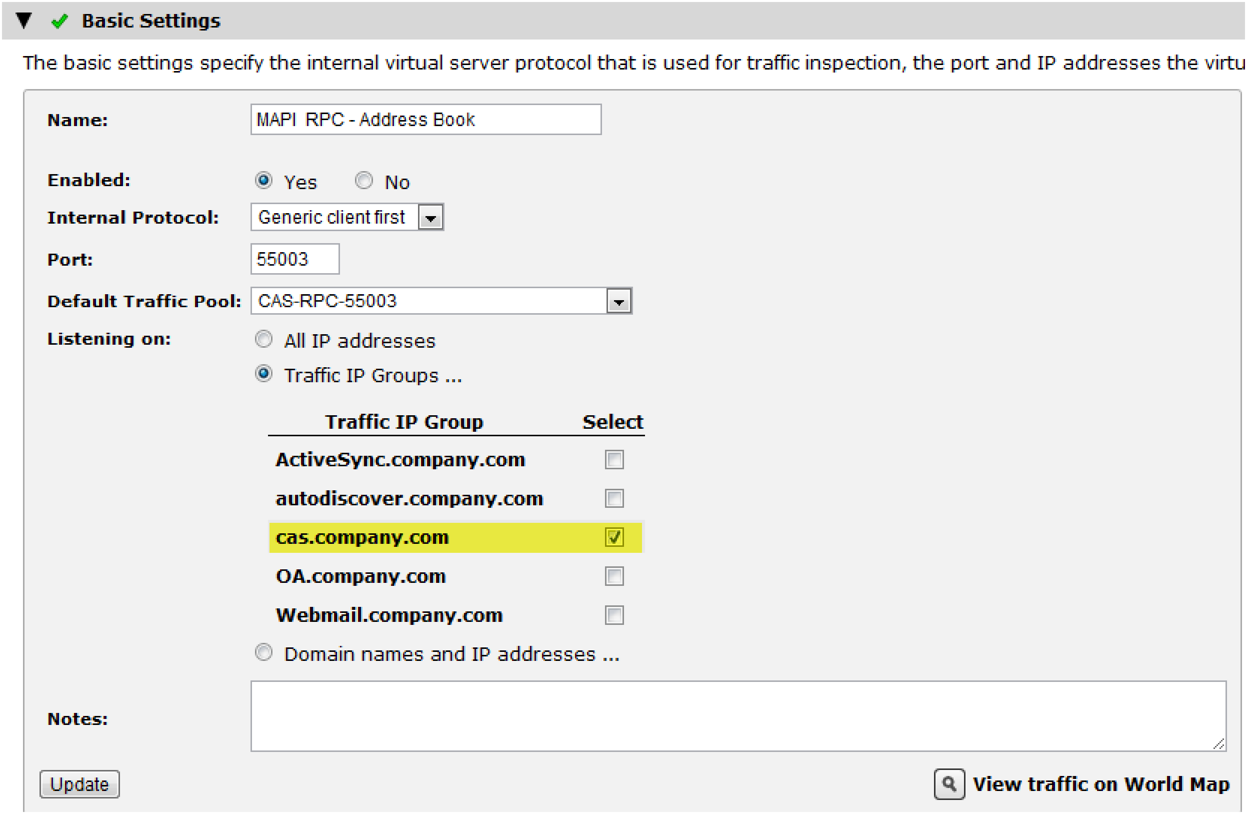
Create a new Virtual Server

Virtual Server Name: MAPI RPC - Address Book

Protocol: Generic client first

Port: 55003

Default Traffic Pool: CAS-RPC-55003



Basic Settings

The basic settings specify the internal virtual server protocol that is used for traffic inspection, the port and IP addresses the virtu

Name: MAPI RPC - Address Book

Enabled: ● Yes ○ No

Internal Protocol: Generic client first

Port: 55003

Default Traffic Pool: CAS-RPC-55003

Listening on: ○ All IP addresses ● Traffic IP Groups ...

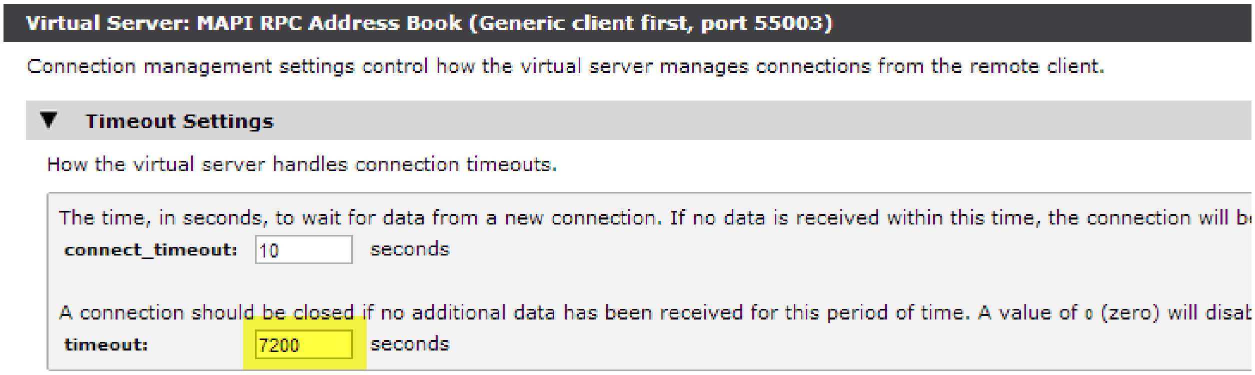
Traffic IP Group	Select
ActiveSync.company.com	□
autodiscover.company.com	□
cas.company.com	☑
OA.company.com	□
Webmail.company.com	□

○ Domain names and IP addresses ...

Notes:

17. **Set Timeout settings**
As per Microsoft KB article http://support.microsoft.com/kb/2535656, set the connection timeout settings under

connection management to 7200 seconds.



Virtual Server: MAPI RPC Address Book (Generic client first, port 55003)

Connection management settings control how the virtual server manages connections from the remote client.

▼ **Timeout Settings**

How the virtual server handles connection timeouts.

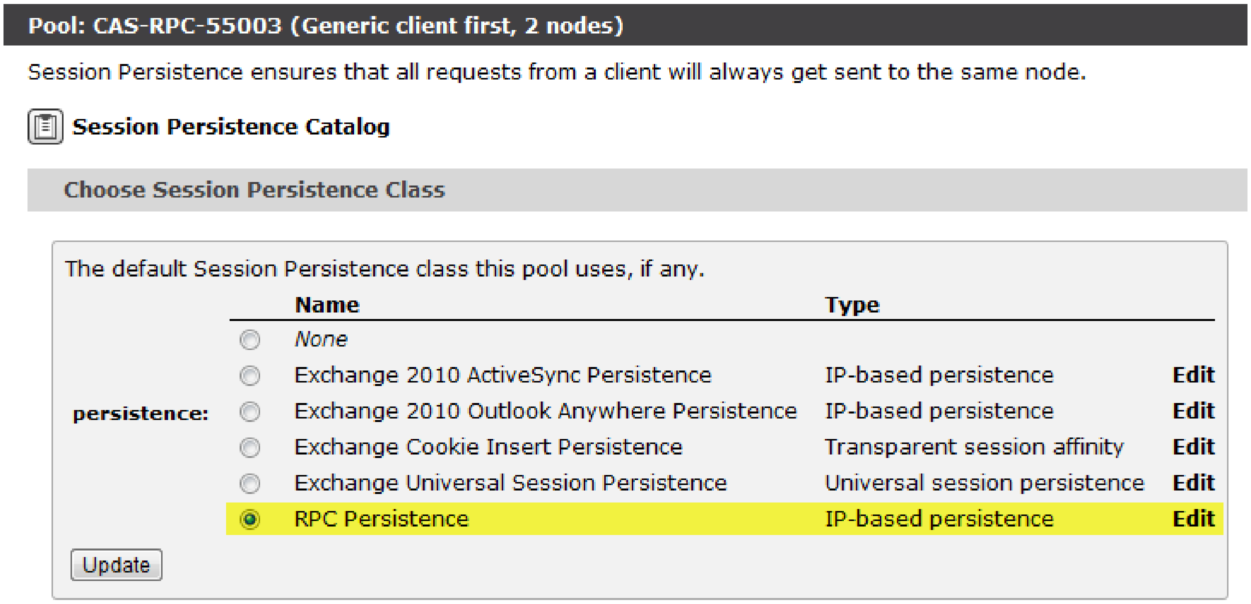
The time, in seconds, to wait for data from a new connection. If no data is received within this time, the connection will b

connect_timeout: 10 seconds

A connection should be closed if no additional data has been received for this period of time. A value of 0 (zero) will disab

timeout: 7200 seconds

18. **Associate the persistence class created in step 5 to MAPI Address Book Service Pool**



Pool: CAS-RPC-55003 (Generic client first, 2 nodes)

Session Persistence ensures that all requests from a client will always get sent to the same node.

Session Persistence Catalog

Choose Session Persistence Class

The default Session Persistence class this pool uses, if any.

		Name	Type	
persistence:	○	*None*		
	○	Exchange 2010 ActiveSync Persistence	IP-based persistence	**Edit**
	○	Exchange 2010 Outlook Anywhere Persistence	IP-based persistence	**Edit**
	○	Exchange Cookie Insert Persistence	Transparent session affinity	**Edit**
	○	Exchange Universal Session Persistence	Universal session persistence	**Edit**
	●	RPC Persistence	IP-based persistence	**Edit**

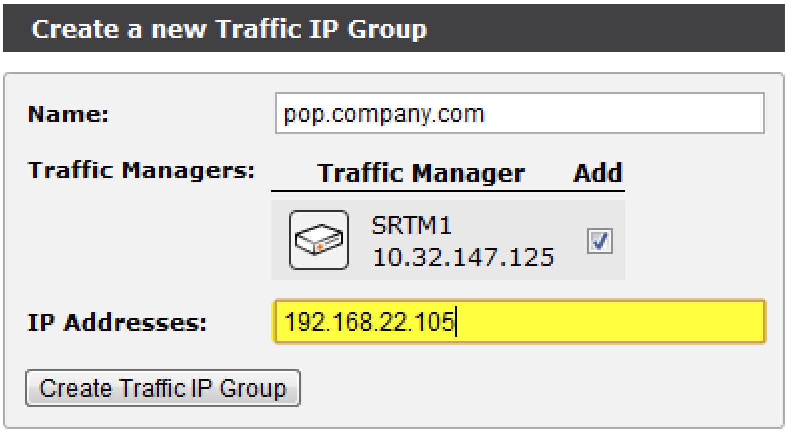
This completes the configuration of MAPI RPC client access service.

4.8 Configuring Stingray Traffic Manager for POP3

POP3 Service on Exchange CAS servers enables mail clients which support POP3 protocol to access Exchange CAS servers running POP3 service. There are variety of clients including Outlook, Outlook Express, Eudora and other 3rd party clients. Instructions in this guide details the configuration steps on Traffic Manager to service POP3S, and process all the secure traffic and forward unencrypted traffic to exchange servers running POP3 service.

For more information about how to manage POP3 in Exchange 2010, see *Understanding POP3 and IMAP4 on Microsoft TechNet* at *http://technet.microsoft.com/en-us/library/bb124107%28EXCHG.140%29.aspx*

1. **Create Traffic IP Group for POP3 Service**



Create a new Traffic IP Group

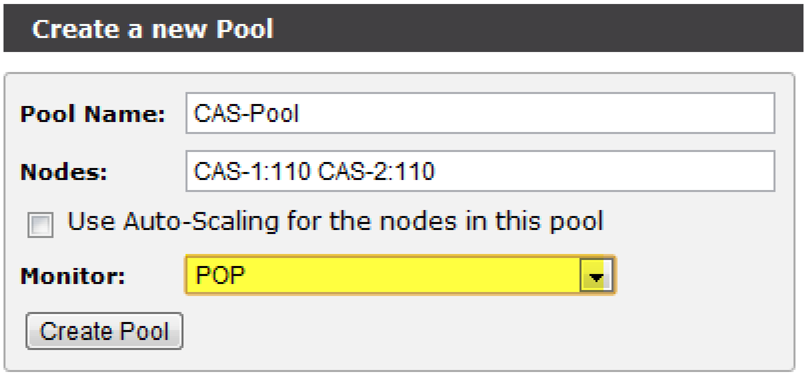
Name: pop.company.com

Traffic Managers:

Traffic Manager	Add
SRTM1 10.32.147.125	☑

IP Addresses: 192.168.22.105

2. Create Pool for POP3 and associate Monitor type POP



Create a new Pool

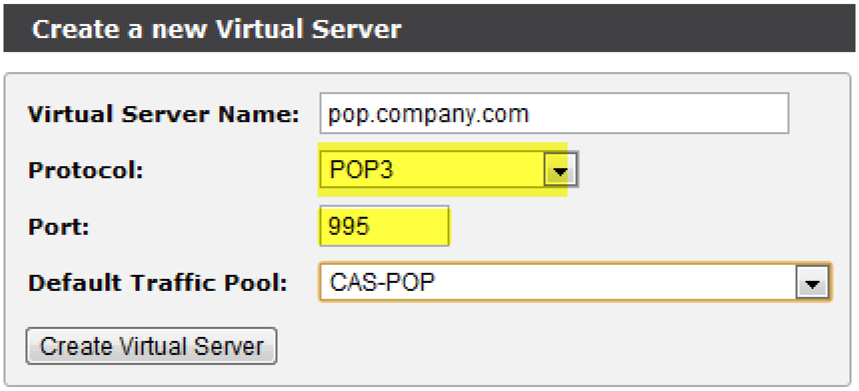
Pool Name: CAS-Pool

Nodes: CAS-1:110 CAS-2:110

□ Use Auto-Scaling for the nodes in this pool

Monitor: POP

3. Create Virtual Server for POP3 to listen on port 995 with protocol set to POP3 and associate to Traffic IP group created in step 1



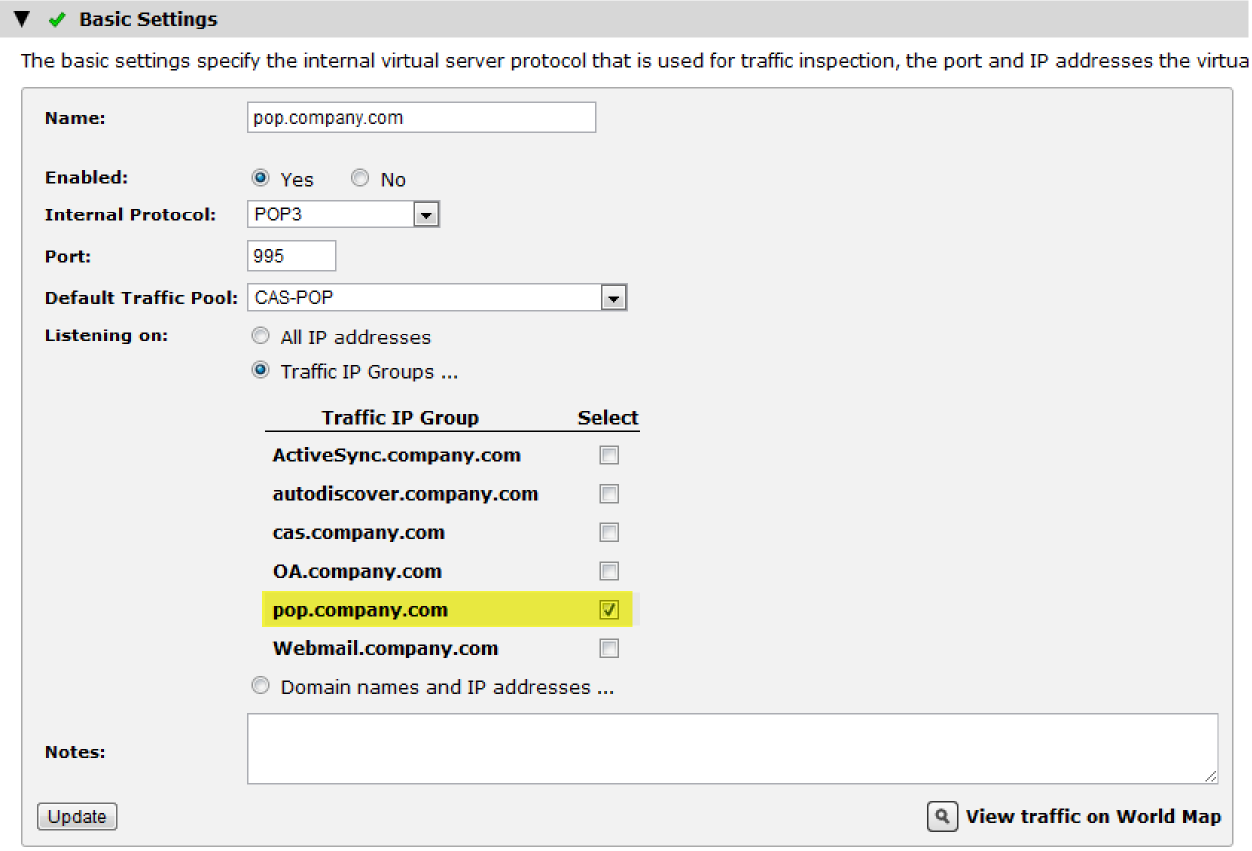
Create a new Virtual Server

Virtual Server Name: pop.company.com

Protocol: POP3

Port: 995

Default Traffic Pool: CAS-POP



▼ ✓ **Basic Settings**

The basic settings specify the internal virtual server protocol that is used for traffic inspection, the port and IP addresses the virtua

Name: pop.company.com

Enabled: ● Yes ○ No

Internal Protocol: POP3

Port: 995

Default Traffic Pool: CAS-POP

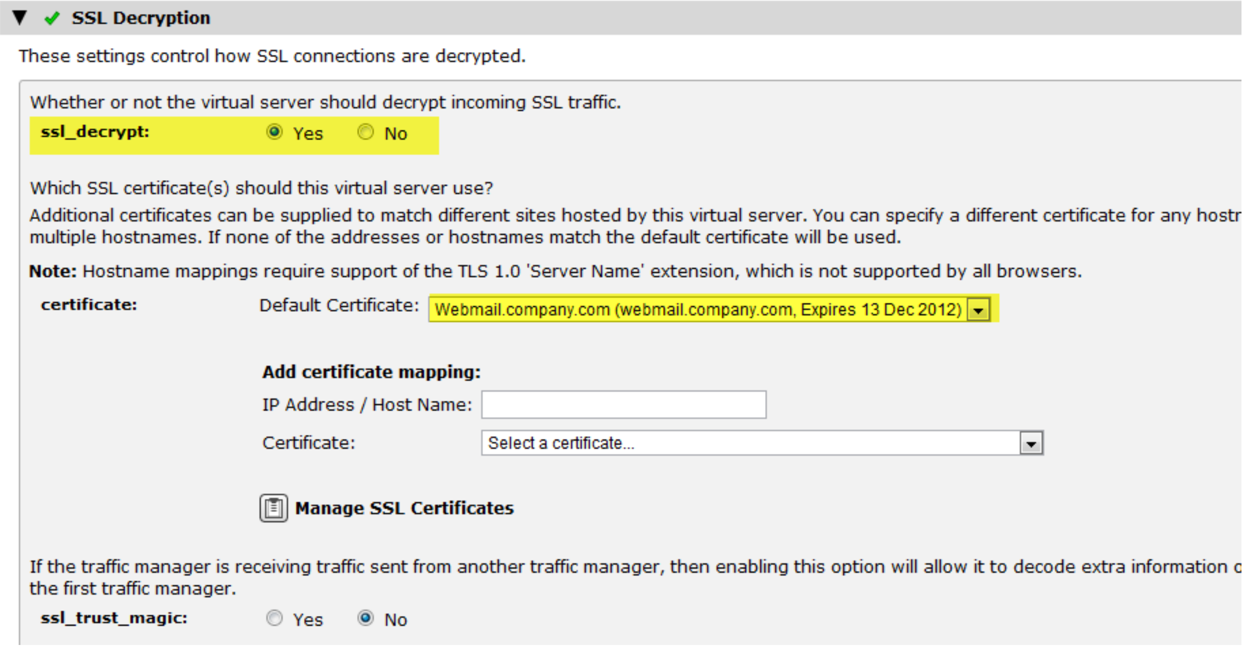
Listening on:
○ All IP addresses
● Traffic IP Groups ...

Traffic IP Group	Select
ActiveSync.company.com	□
autodiscover.company.com	□
cas.company.com	□
OA.company.com	□
pop.company.com	☑
Webmail.company.com	□

○ Domain names and IP addresses ...

Notes:

4. Enable SSL Decryption using the same certificate/key pair used for OWA as it support SAN DNS Name for POP3 service. If there is a dedicated cert/key pair for POP3 service then follow the normal procedure of importing the Key and Certificate and use the same procedure as shown below to enable ssl decryption.



▼ ✓ **SSL Decryption**

These settings control how SSL connections are decrypted.

Whether or not the virtual server should decrypt incoming SSL traffic.

ssl_decrypt: ● Yes ○ No

Which SSL certificate(s) should this virtual server use?

Additional certificates can be supplied to match different sites hosted by this virtual server. You can specify a different certificate for any hostr multiple hostnames. If none of the addresses or hostnames match the default certificate will be used.

Note: Hostname mappings require support of the TLS 1.0 'Server Name' extension, which is not supported by all browsers.

certificate: Default Certificate: Webmail.company.com (webmail.company.com, Expires 13 Dec 2012)

Add certificate mapping:

IP Address / Host Name:

Certificate: Select a certificate...

If the traffic manager is receiving traffic sent from another traffic manager, then enabling this option will allow it to decode extra information c the first traffic manager.

ssl_trust_magic: ○ Yes ● No

This completes the configuration of POP3.

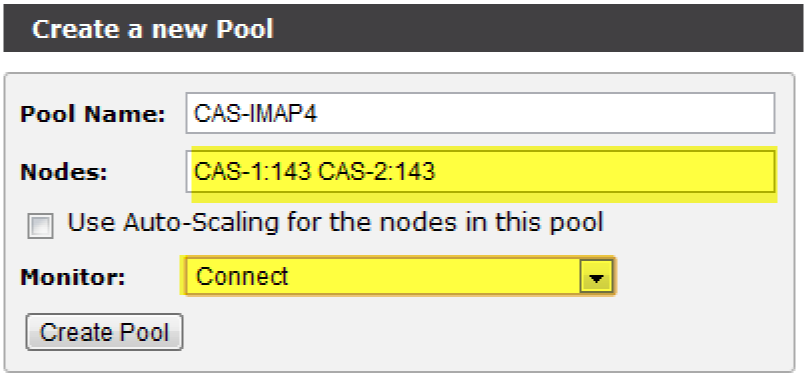
4.9 Configuring Stingray Traffic Manager for IMAP4

Same as POP3 Service, IMAP4 service enable mail clients which support IMAP4 protocol to access Exchange CAS servers running IMPA4 service. There are variety of clients including Outlook, Outlook Express, Eudora and other 3rd party clients. These instructions in this guide details the configuration steps on Traffic Manager to service IMAP4S, and process all the secure traffic and forward unencrypted traffic to exchange servers running IMAP4 service.

For more information about how to manage POP3 in Exchange 2010, see *Understanding POP3 and IMAP4 on Microsoft TechNet* at *http://technet.microsoft.com/en-us/library/bb124107%28EXCHG.140%29.aspx*

1. **Create Traffic IP Group for IMAP4 Service or you can use the same Traffic IP that was created for POP3 service if he FQDN for service resolves to same IP as POP3 Traffic Group IP address**
   This steps assumes that the POP3 and IMAP4 FQDN names resolves to same Traffic IP address

2. **Create Pool for IMAP4 and associate Monitor type Connect**



Create a new Pool

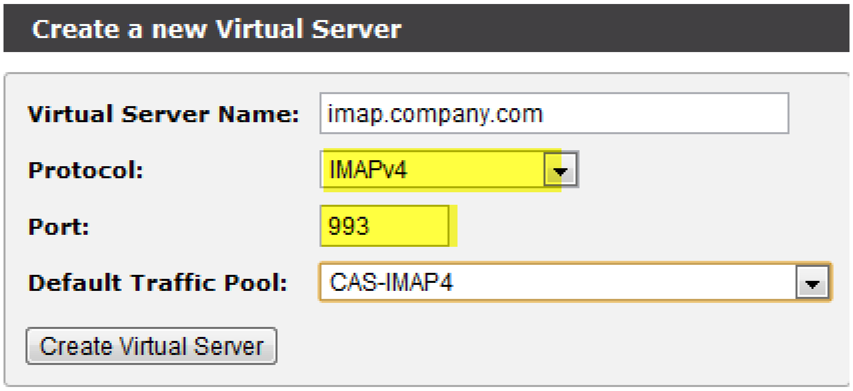
Pool Name: CAS-IMAP4

Nodes: CAS-1:143 CAS-2:143

☐ Use Auto-Scaling for the nodes in this pool

Monitor: Connect

3. **Create Virtual Server for IMAP4 to listen on port 993 with protocol set to IMAP4 and associate to Traffic IP group created in step 1**



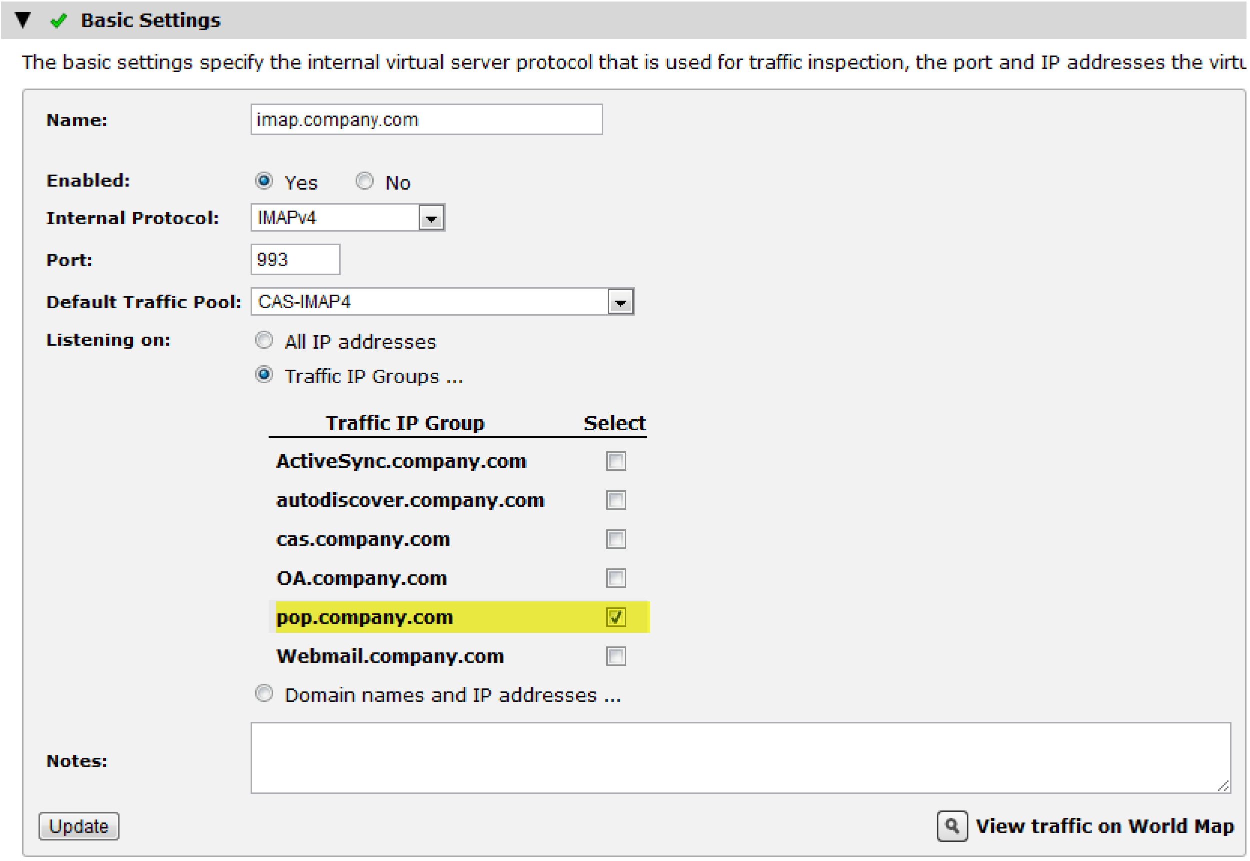
Create a new Virtual Server

Virtual Server Name: imap.company.com

Protocol: IMAPv4

Port: 993

Default Traffic Pool: CAS-IMAP4



▼ ✓ Basic Settings

The basic settings specify the internal virtual server protocol that is used for traffic inspection, the port and IP addresses the virtu

Name: imap.company.com

Enabled: ● Yes ○ No

Internal Protocol: IMAPv4

Port: 993

Default Traffic Pool: CAS-IMAP4

Listening on: ○ All IP addresses

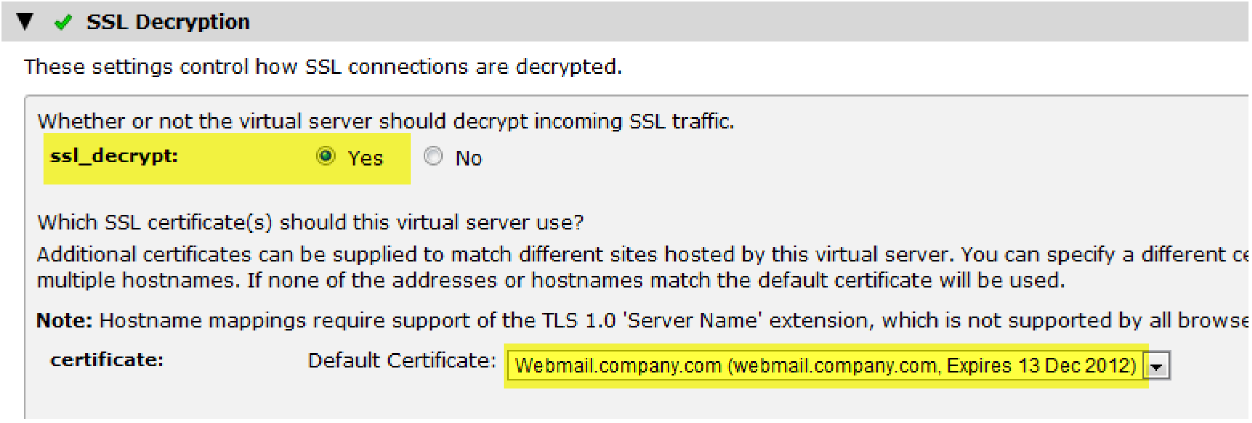
● Traffic IP Groups ...

Traffic IP Group	Select
ActiveSync.company.com	□
autodiscover.company.com	□
cas.company.com	□
OA.company.com	□
pop.company.com	☑
Webmail.company.com	□

○ Domain names and IP addresses ...

Notes:

4. **Enable SSL Decryption using the same certificate/key pair used for OWA as it support SAN DNS Name for IMAP4 service. If there is a dedicated cert/key pair for IMAP4 service then follow the normal procedure of importing the Key and Certificate and use the same procedure as shown below to enable ssl decryption.**



▼ ✓ SSL Decryption

These settings control how SSL connections are decrypted.

Whether or not the virtual server should decrypt incoming SSL traffic.

ssl_decrypt: ● Yes ○ No

Which SSL certificate(s) should this virtual server use?

Additional certificates can be supplied to match different sites hosted by this virtual server. You can specify a different ce multiple hostnames. If none of the addresses or hostnames match the default certificate will be used.

Note: Hostname mappings require support of the TLS 1.0 'Server Name' extension, which is not supported by all browse

certificate: Default Certificate: Webmail.company.com (webmail.company.com, Expires 13 Dec 2012)

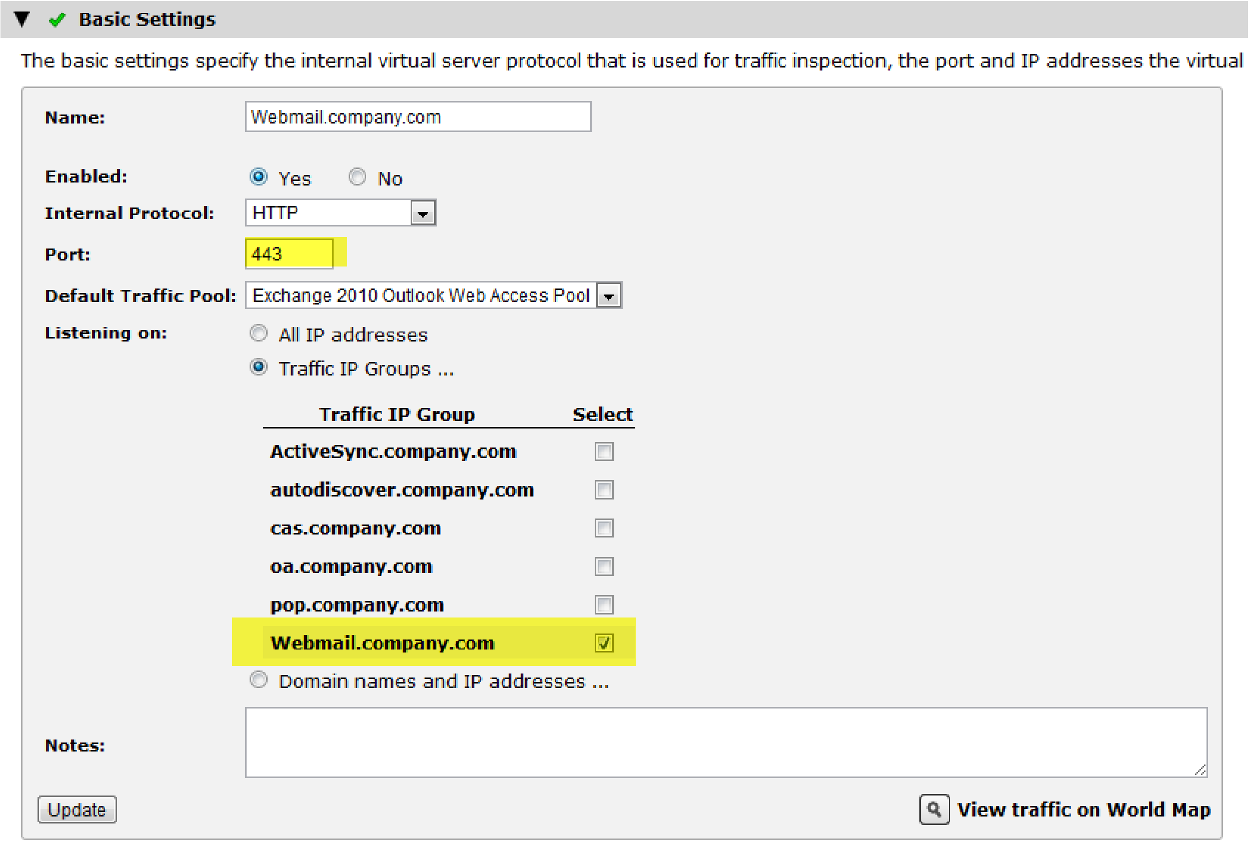
5.0 Stingray Traffic Manager Configuration: Single Virtual Server for OWA, OA, ECP, EWS, Active-Sync and Auto-Discover using Traffic Script

If you chose a single virtual server for all HTTP-based services, then following are the detailed configuration steps on Traffic Manager.

1. **Create Traffic IP Group that is mapped to FQDN of all the services.**
   In this document all the services will resolve to webmail.company.com traffic ip group which is 192.168.22.101. Now all

services, For example: activesync.company.com, oa.company.com, auotdiscover.company.com, Webmail.company.com all resolve to 192.168.22.101 Traffic IP address.

2. **Create the following Pools as detailed in previous sections of this document and do not configure any persistence for the Pools**
   a. Exchange 2010 Outlook Web Access Pool
   b. Exchange 2010 Outlook Anywhere Pool
   c. Exchange 2010 ActiveSync Pool
   d. Exchange 2010 Auto Discover Pool
3. **Create Virtual Server**
   Following step creates a Virtual server named webmail.company.com, associates the Exchange 2010 Outlook Web Access Pool to the virtual server and associates Traffic IP group created in step 1. This would be the default pool for this virtual server and traffic script will direct the traffic to appropriate pool based on the URLs.



▼ ✓ **Basic Settings**

The basic settings specify the internal virtual server protocol that is used for traffic inspection, the port and IP addresses the virtual

Name: Webmail.company.com

Enabled: ● Yes ○ No

Internal Protocol: HTTP

Port: 443

Default Traffic Pool: Exchange 2010 Outlook Web Access Pool

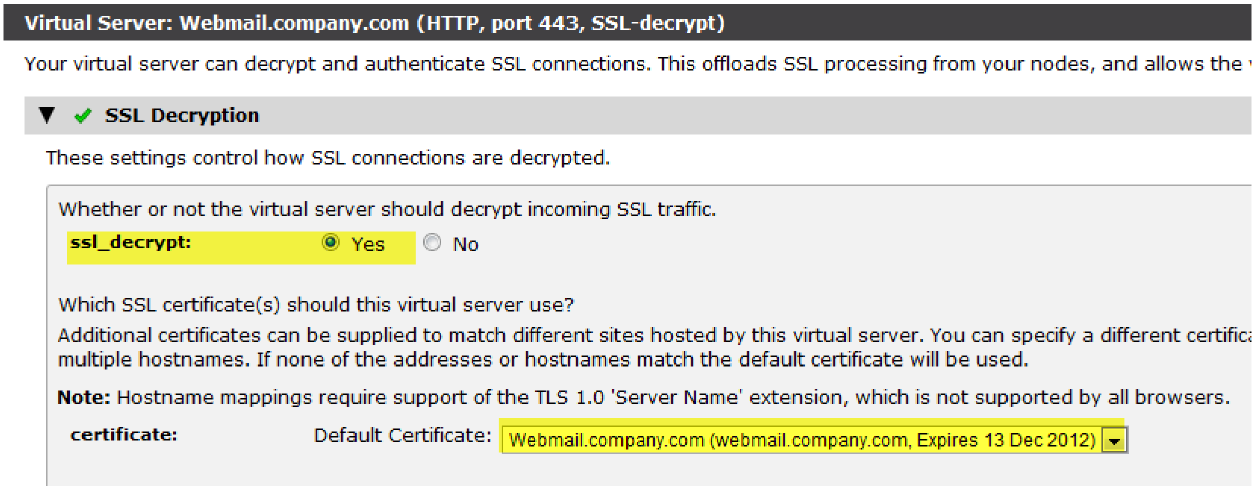
Listening on: ○ All IP addresses
● Traffic IP Groups ...

Traffic IP Group	Select
ActiveSync.company.com	□
autodiscover.company.com	□
cas.company.com	□
oa.company.com	□
pop.company.com	□
Webmail.company.com	☑

○ Domain names and IP addresses ...

Notes:

4. **Enable SSL Decryption on the Virtual Server and use the certificate which SAN DNS Names for all the Exchange Web applications.**



Virtual Server: Webmail.company.com (HTTP, port 443, SSL-decrypt)

Your virtual server can decrypt and authenticate SSL connections. This offloads SSL processing from your nodes, and allows the

▼ ✓ **SSL Decryption**

These settings control how SSL connections are decrypted.

Whether or not the virtual server should decrypt incoming SSL traffic.

ssl_decrypt: ● Yes ○ No

Which SSL certificate(s) should this virtual server use?

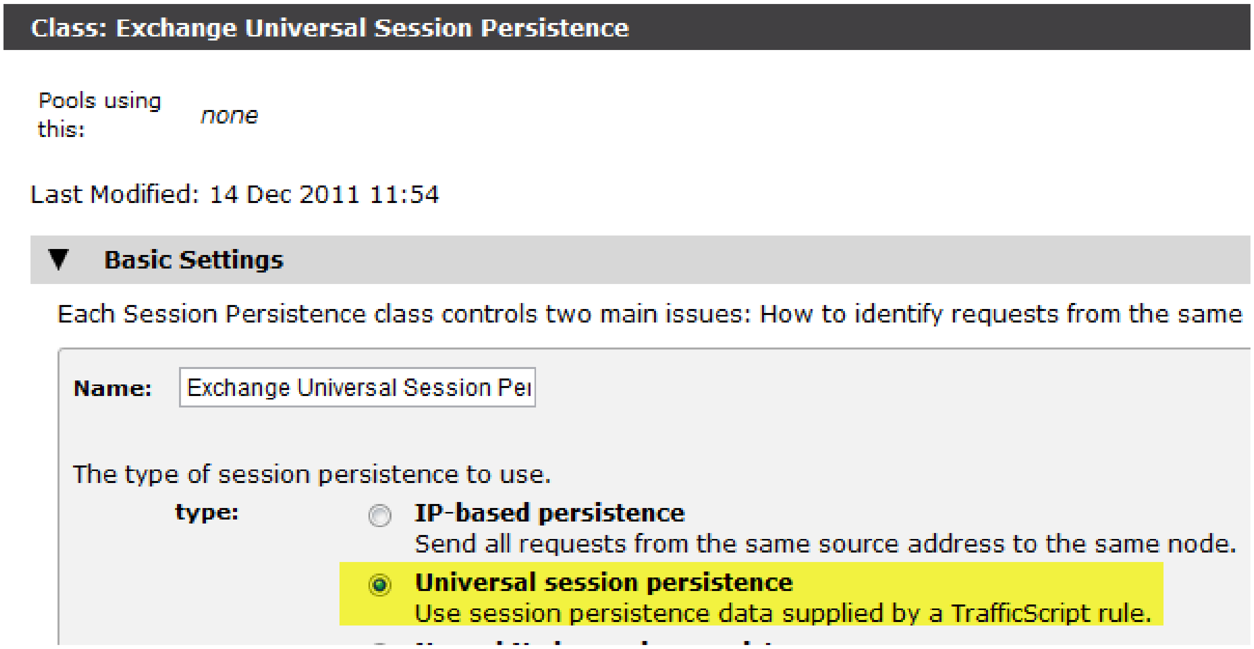
Additional certificates can be supplied to match different sites hosted by this virtual server. You can specify a different certific multiple hostnames. If none of the addresses or hostnames match the default certificate will be used.

Note: Hostname mappings require support of the TLS 1.0 'Server Name' extension, which is not supported by all browsers.

certificate: Default Certificate: Webmail.company.com (webmail.company.com, Expires 13 Dec 2012)

5. **Create Two Persistence classes**

   a. Persistence class of type Universal Session Persistence and in this document it is configured with name "Exchange Universal Session Persistence". This persistence class will hold all the records other than Outlook Web App persistence records.



Class: Exchange Universal Session Persistence

Pools using this: *none*

Last Modified: 14 Dec 2011 11:54

▼ **Basic Settings**

Each Session Persistence class controls two main issues: How to identify requests from the same

Name: Exchange Universal Session Pe

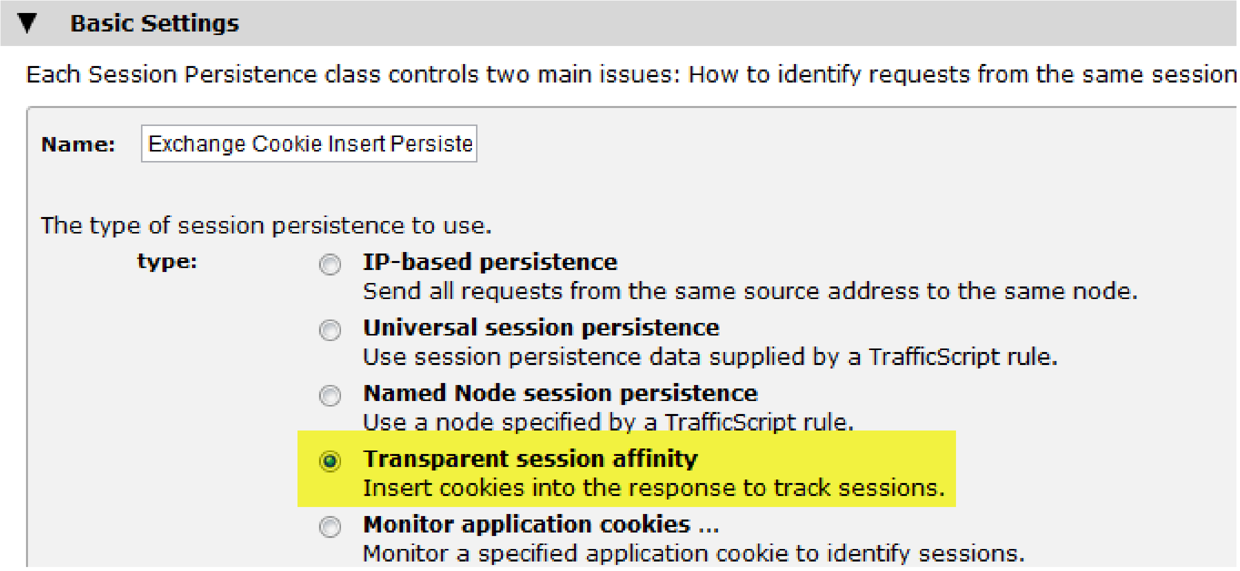
The type of session persistence to use.

type:

○ **IP-based persistence**
Send all requests from the same source address to the same node.

● **Universal session persistence**
Use session persistence data supplied by a TrafficScript rule.

   b. Persistence class of type "Transparent Session Affinity" and in this document it is configured with name "Exchange Cookie Insert Persistence".



▼ Basic Settings

Each Session Persistence class controls two main issues: How to identify requests from the same session

Name: Exchange Cookie Insert Persiste

The type of session persistence to use.

type:

○ **IP-based persistence**
Send all requests from the same source address to the same node.

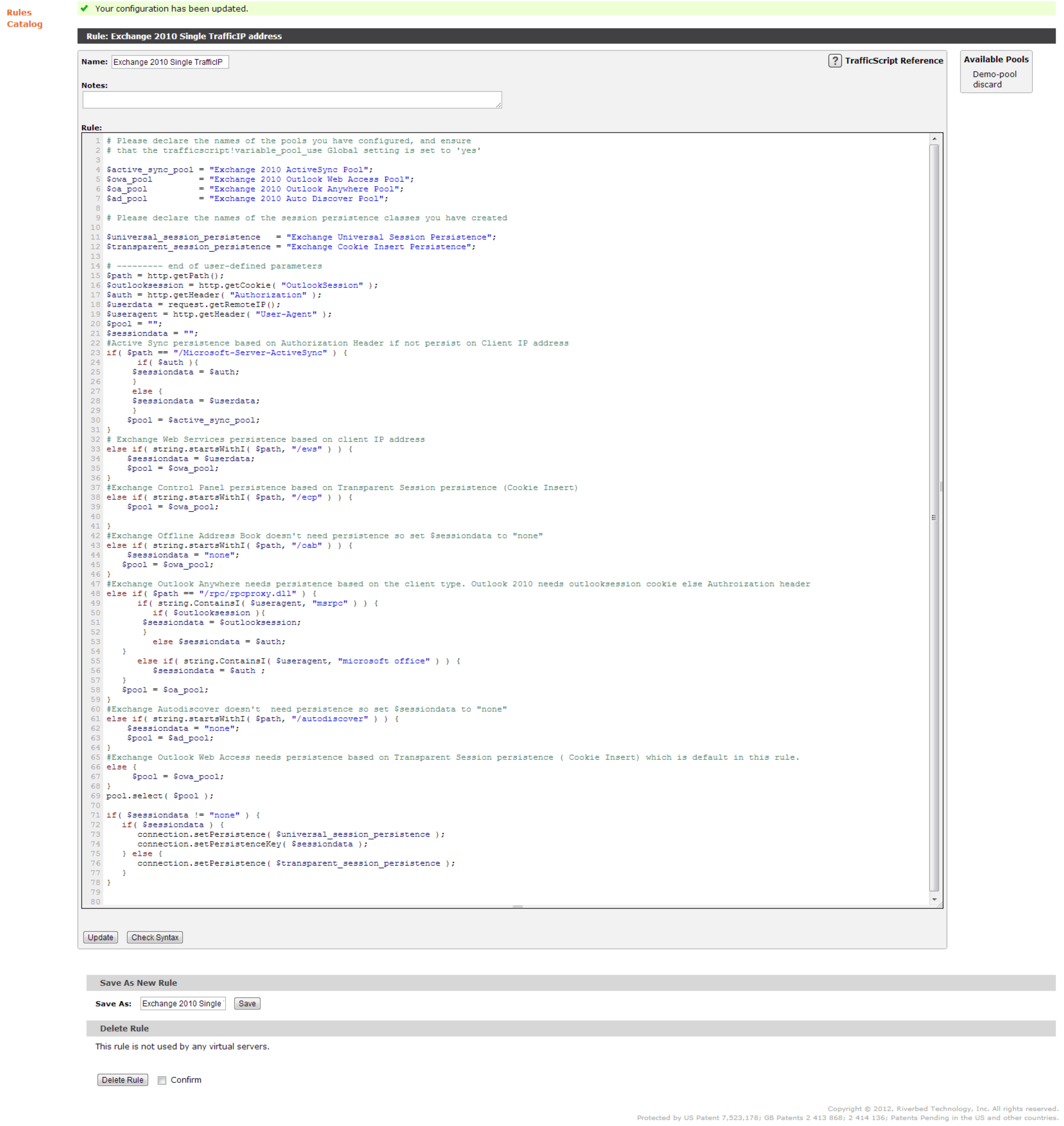
○ **Universal session persistence**
Use session persistence data supplied by a TrafficScript rule.

○ **Named Node session persistence**
Use a node specified by a TrafficScript rule.

● **Transparent session affinity**
Insert cookies into the response to track sessions.

○ **Monitor application cookies ...**
Monitor a specified application cookie to identify sessions.

6. **Create a Traffic Script that forwards the requests to appropriate pool and also creates appropriate persistence records.**
   In this document the Traffic Script rule is named "Exchange2010 Single TrafficIP and Virtual Server for All HTTP Applications". The code is available in the appendix section for copying and modification.



✓ Your configuration has been updated.

Rule: Exchange 2010 Single TrafficIP address

Name: Exchange 2010 Single TrafficIP

Notes:

Rule:

```
# Please declare the names of the pools you have configured, and ensure
# that the trafficscript!variable_pool_use Global setting is set to 'yes'

$active_sync_pool = "Exchange 2010 ActiveSync Pool";
$owa_pool          = "Exchange 2010 Outlook Web Access Pool";
$oa_pool           = "Exchange 2010 Outlook Anywhere Pool";
$ad_pool           = "Exchange 2010 Auto Discover Pool";

# Please declare the names of the session persistence classes you have created

$universal_session_persistence   = "Exchange Universal Session Persistence";
$transparent_session_persistence = "Exchange Cookie Insert Persistence";

# --------- end of user-defined parameters
$path = http.getPath();
$outlooksession = http.getCookie( "OutlookSession" );
$auth = http.getHeader( "Authorization" );
$userdata = request.getRemoteIP();
$useragent = http.getHeader( "User-Agent" );
$pool = "";
$sessiondata = "";
#Active Sync persistence based on Authorization Header if not persist on Client IP address
if( $path == "/Microsoft-Server-ActiveSync" ) {
      if( $auth ){
     $sessiondata = $auth;
     }
     else {
     $sessiondata = $userdata;
     }
    $pool = $active_sync_pool;
}
# Exchange Web Services persistence based on client IP address
else if( string.startsWithI( $path, "/ews" ) ) {
    $sessiondata = $userdata;
    $pool = $owa_pool;
}
#Exchange Control Panel persistence based on Transparent Session persistence (Cookie Insert)
else if( string.startsWithI( $path, "/ecp" ) ) {
    $pool = $owa_pool;

}
#Exchange Offline Address Book doesn't need persistence so set $sessiondata to "none"
else if( string.startsWithI( $path, "/oab" ) ) {
    $sessiondata = "none";
   $pool = $owa_pool;
}
#Exchange Outlook Anywhere needs persistence based on the client type. Outlook 2010 needs outlooksession cookie else Authroization header
else if( $path == "/rpc/rpcproxy.dll" ) {
      if( string.ContainsI( $useragent, "msrpc" ) ) {
         if( $outlooksession ){
       $sessiondata = $outlooksession;
       }
         else $sessiondata = $auth;
   }
      else if( string.ContainsI( $useragent, "microsoft office" ) ) {
         $sessiondata = $auth ;
   }
   $pool = $oa_pool;
}
#Exchange Autodiscover doesn't  need persistence so set $sessiondata to "none"
else if( string.startsWithI( $path, "/autodiscover" ) ) {
    $sessiondata = "none";
    $pool = $ad_pool;
}
#Exchange Outlook Web Access needs persistence based on Transparent Session persistence ( Cookie Insert) which is default in this rule.
else {
     $pool = $owa_pool;
}
pool.select( $pool );

if( $sessiondata != "none" ) {
   if( $sessiondata ) {
      connection.setPersistence( $universal_session_persistence );
      connection.setPersistenceKey( $sessiondata );
   } else {
      connection.setPersistence( $transparent_session_persistence );
   }
}


```

Save As New Rule

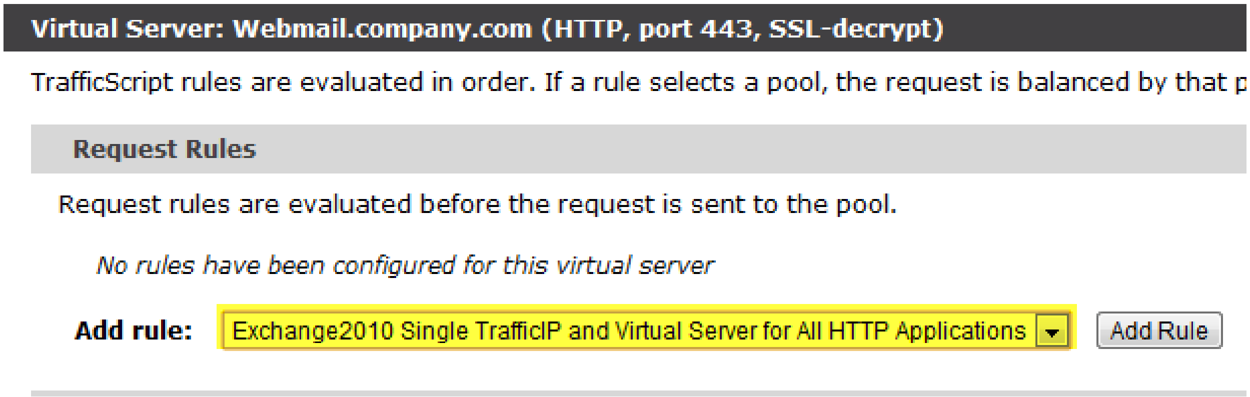
Save As: Exchange 2010 Single

Delete Rule

This rule is not used by any virtual servers.

□ Confirm

7. **Associate the Traffic Script rule with the virtual server created in Step 3.**



Virtual Server: Webmail.company.com (HTTP, port 443, SSL-decrypt)

TrafficScript rules are evaluated in order. If a rule selects a pool, the request is balanced by that p

Request Rules

Request rules are evaluated before the request is sent to the pool.

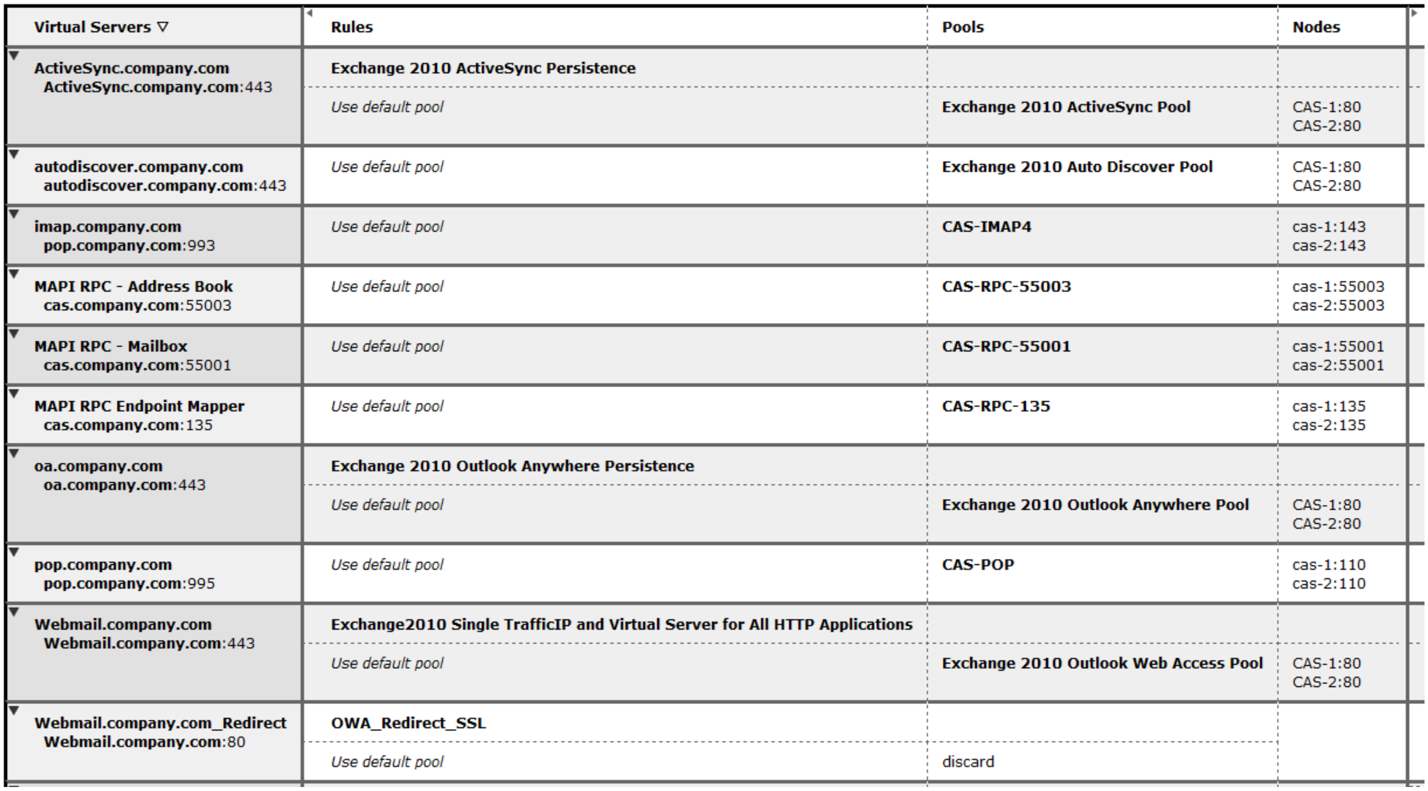
No rules have been configured for this virtual server

Add rule: Exchange2010 Single TrafficIP and Virtual Server for All HTTP Applications

This completes the configuration of single virtual server on Traffic Manager to handle all Exchange 2010 Client Access services.

6.0 Configuration Summary Of All Microsoft Exchange 2010 Services on Traffic Manager

By accessing the **Services → Config Summary** on the webGUI a complete snapshot of all the configured services is provided. This is very useful table to glance through to get a good understanding of how the services are configured.



Virtual Servers ▽	Rules	Pools	Nodes
ActiveSync.company.com ActiveSync.company.com:443	Exchange 2010 ActiveSync Persistence		
	Use default pool	Exchange 2010 ActiveSync Pool	CAS-1:80 CAS-2:80
autodiscover.company.com autodiscover.company.com:443	*Use default pool*	Exchange 2010 Auto Discover Pool	CAS-1:80 CAS-2:80
imap.company.com pop.company.com:993	*Use default pool*	CAS-IMAP4	cas-1:143 cas-2:143
MAPI RPC - Address Book cas.company.com:55003	*Use default pool*	CAS-RPC-55003	cas-1:55003 cas-2:55003
MAPI RPC - Mailbox cas.company.com:55001	*Use default pool*	CAS-RPC-55001	cas-1:55001 cas-2:55001
MAPI RPC Endpoint Mapper cas.company.com:135	*Use default pool*	CAS-RPC-135	cas-1:135 cas-2:135
oa.company.com oa.company.com:443	Exchange 2010 Outlook Anywhere Persistence		
	Use default pool	Exchange 2010 Outlook Anywhere Pool	CAS-1:80 CAS-2:80
pop.company.com pop.company.com:995	*Use default pool*	CAS-POP	cas-1:110 cas-2:110
Webmail.company.com Webmail.company.com:443	Exchange2010 Single TrafficIP and Virtual Server for All HTTP Applications		
	Use default pool	Exchange 2010 Outlook Web Access Pool	CAS-1:80 CAS-2:80
Webmail.company.com_Redirect Webmail.company.com:80	OWA_Redirect_SSL		
	Use default pool	discard	

7.0 Configuration Worksheet

Virtual Server Name: Port	Pool Nodes	SSL	Type of Persistence	TrafficScript for Persistence
Name of Virtual Server :	1	Key:	Transparent Session Affinity (Cookie Inser	Not Needed
Internet Protocol: HTTP	2	Cert:		
Port: 443 (if SSL offloaded)	3			
	4			
Name of Virtual Server :	1	Key:	Universal Session Persistence	Need for creating Universal Session Persistenc
Internet Protocol: HTTP	2	Cert:		
Port: 443 (if SSL offloaded)	3			
	4			
Name of Virtual Server :	1	Key:	Universal Session Persistence	Need for creating Universal Session Persistenc
Internet Protocol: HTTP	2	Cert:		
Port: 443 (if SSL offloaded)	3			
	4			
Name of Virtual Server :	1	Key:	Persistence not needed	
Internet Protocol: HTTP	2	Cert:		
Port: 443 (if SSL offloaded)	3			
	4			
RPC End Point Mapper Service	1		IP Based Persistence	
Name of Virtual Server :	2			
Internet Protocol: Generic Client First	3			
Port: 135	4			
Mailbox Service	1		IP Based Persistence	
Name of Virtual Server :	2			
Internet Protocol: Generic Client First	3			
Port: Statically configured Port for Mailbox on CAS Server	4			
Address Book Service	1		IP Based Persistence	
Name of Virtual Server :	2			
Internet Protocol: Generic Client First	3			
Port: Statically configured Port for Addressbook on CAS Serv	4			
Name of Virtual Server :	1	Key: (If POP3S)	Persistence not needed	
Internet Protocol: POP3	2	Cert: (If POP3S)		
Port: 995 (if POP3S else 110)	3			
	4			
Name of Virtual Server :	1	Key: (If IMAPv4S)	Persistence not needed	
Internet Protocol:IMAPv4	2	Cert: (If IMAPv4S)		
Port: 993 (if IMAPv4S else 143)	3			
	4			

8.0 Extra Optional Functionality

The Stingray Traffic Manager is much more than just a simple load balancer, therefore there are a number of other functions/features that you may wish to deploy with your Exchange 2010 CAS. These have been described in this separate section as they are not necessary, but could enhance the performance or manageability of your environment. Further descriptions of all these features can be found in the STM User Manual.

- Service Level Monitoring – this feature monitors the responses of your CAS and can send alerts should these fall below an expected threshold of performance
- Global Load Balancing – this enables clients to be distributed across multiple locations, either for DR purposes or based on their geographic proximity to a datacenter.

9.0 Implementation

9.1 Physical Network Deployment

As a Reverse Proxy, the deployment options for the Stingray Traffic Manager are extremely flexible. In most instances there are no changes required to the existing network infrastructure. The STM will simply be added to the network and traffic directed to it via DNS.

There is a whole chapter in the User Manual that addresses this aspect of the deployment, it is suggested that you reference this for a complete understanding.

9.2 Domain Name Service

As has been mentioned previously, traffic that would have been sent directly to the CAS before the deployment of the Traffic Managers now needs to terminate at the STM. This is quite easy to achieve, the zone files for the domain will need to be altered. The A Records that relate the name of the service to the IP address of the CAS now need to point to the Traffic IPs of the Traffic Manager.

These changes can take some time to become effective in every location (due to caching of previous results). Testing prior to the move of the IPs can be done by using static mappings in the clients host file, or by using the IP address of the Traffic Manager only.

10.0 Monitoring

The Stingray Traffic Manager has some great tools to assist in managing and monitoring your online application traffic. These can be accessed via the web UI of the device, via the Activity tab.

Real-time graphing can be used to show the traffic passing through the STM in a very granular way, you can change the data being monitored down to an individual node, or see all the traffic for the entire deployment.

There are also a map view, and connection list to aid further visibility of the traffic.

11.0 CONCLUSION

This document briefly discusses how to configure Stingray Traffic Manager to effectively load balance traffic to a farm of Microsoft Exchange 2010 Client Access Servers. Stingray Traffic Manager is able to manage traffic in a wide variety of ways, to improve the performance, security, reliability and integrity. Please refer to the product documentation on the Riverbed Community Forums (http://community.riverbed.com) for examples of how Stingray Traffic Manager can be deployed to meet a range of service hosting problems.

APPENDIX

1. Traffic Script Code for redirecting all HTTP requests to SSL referenced as “OWA_Redirect_SSL” in section 4.3

```
# Redirect to OWA url if user tries default website
$hostheader = http.getHostHeader();
 if( http.getPath() == "/" ) {
http.redirect( "https://".$hostheader."/owa" );
}
```

2. Traffic Script code for Outlook Anywhere Persistence referenced as ” Exchange 2010 Outlook Anywhere Persistence” in section 4.4

```
#Extract the value of Authorization Header and OutlookSession cookie
$auth = http.getHeader( "Authorization" );
$outlooksession = http.getCookie( "OutlookSession" );
# Please declare the names of the session persistence classes you have
created
$universal_session_persistence   = "Exchange 2010 Outlook Anywhere
Persistence";

# Validating if the Cookie named OutlookSession exists and has value to
track Outlook 2010 clients and Create persistence based on the Cookie
value as the Key

if ( $outlooksession) {
connection.setPersistence( $universal_session_persistence );
connection.setPersistenceKey( $outlooksession);
}
#Create Persistence records for all other clients based on the value of
Authorization Header

else {
connection.setPersistence( $universal_session_persistence );
connection.setPersistenceKey( $auth);
}
```

3. Traffic Script code for ActiveSync Persistence referenced as “Exchange 2010 ActiveSync Persistence” in section 4.5

```
#Collect the value of Authorization Header and OutlookSession cookie

$auth = http.getHeader( "Authorization" );

#Make sure to declare a persistence class which matches below name

$universal_session_persistence   = "Exchange 2010 ActiveSync
Persistence";

#Create Persistence records based on the value of Authorization Header

if ( $auth) {
connection.setPersistence( $universal_session_persistence );
connection.setPersistenceKey( $auth);
}
```

4. Traffic Script code for Single Virtual Server for all Microsoft Exchange 2010 Client Access Services and referenced as “Exchange2010 Single TrafficIP and Virtual Server for All HTTP Applications” section 5.0

```
   # Please declare the names of the pools you have configured, and
ensure
   # that the trafficscript!variable_pool_use Global setting is set to
'yes'

   $active_sync_pool = "Exchange 2010 ActiveSync Pool";
   $owa_pool         = "Exchange 2010 Outlook Web Access Pool";
   $oa_pool          = "Exchange 2010 Outlook Anywhere Pool";
   $ad_pool          = "Exchange 2010 Auto Discover Pool";

   # Please declare the names of the session persistence classes you
have created

   $universal_session_persistence   = "Exchange Universal Session
Persistence";
   $transparent_session_persistence = "Exchange Cookie Insert
Persistence";

   # --------- end of user-defined parameters
   $path = http.getPath();
   $outlooksession = http.getCookie( "OutlookSession" );
   $auth = http.getHeader( "Authorization" );
   $userdata = request.getRemoteIP();
   $useragent = http.getHeader( "User-Agent" );
   $pool = "";
   $sessiondata = "";
   #Active Sync persistence based on Authorization Header if not persist
on Client IP address
   if( $path == "/Microsoft-Server-ActiveSync" ) {
         if( $auth ){
        $sessiondata = $auth;
        }
        else {
        $sessiondata = $userdata;
        }
       $pool = $active_sync_pool;
   }
   # Exchange Web Services persistence based on client IP address
   else if( string.startsWithI( $path, "/ews" ) ) {
       $sessiondata = $userdata;
       $pool = $owa_pool;
   }
   #Exchange Control Panel persistence based on Transparent Session
persistence (Cookie Insert)
   else if( string.startsWithI( $path, "/ecp" ) ) {
       $pool = $owa_pool;

   }
   #Exchange Offline Address Book doesn't need persistence so set
$sessiondata to "none"
   else if( string.startsWithI( $path, "/oab" ) ) {
       $sessiondata = "none";
      $pool = $owa_pool;
   }
   #Exchange Outlook Anywhere needs persistence based on the client
type. Outlook 2010 needs outlooksession cookie else Authroization header
   else if( $path == "/rpc/rpcproxy.dll" ) {
         if( string.ContainsI( $useragent, "msrpc" ) ) {
            if( $outlooksession ){
          $sessiondata = $outlooksession;
          }
            else $sessiondata = $auth;
      }
         else if( string.ContainsI( $useragent, "microsoft office" ) ) {
            $sessiondata = $auth ;
      }
      $pool = $oa_pool;
   }
   #Exchange Autodiscover doesn't  need persistence so set $sessiondata
to "none"
   else if( string.startsWithI( $path, "/autodiscover" ) ) {
       $sessiondata = "none"
       $pool = $ad_pool;
   }
   #Exchange Outlook Web Access needs persistence based on Transparent
Session persistence ( Cookie Insert) which is default in this rule.
   else {
        $pool = $owa_pool;
   }
   pool.select( $pool );

   if( $sessiondata != "none" ) {
      if( $sessiondata ) {
         connection.setPersistence( $universal_session_persistence );
         connection.setPersistenceKey( $sessiondata );
      } else {
         connection.setPersistence( $transparent_session_persistence );
      }
   }
```

Changes in Current Solution Guide

Number	Description	Date
1	Removed the TrafficScript screen shot for Single virtual server for all Exchange Services	N/A
2	Updated the TrafficScript for Single Virtual Server for all Exchange services with persistence configuration removed for OAB and AutoDiscover	N/A

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Riverbed delivers performance for the globally connected enterprise. With Riverbed, enterprises can successfully and intelligently implement strategic initiatives such as virtualization, consolidation, cloud computing, and disaster recovery without fear of compromising performance. By giving enterprises the platform they need to understand, optimize and consolidate their IT, Riverbed helps enterprises to build a fast, fluid and dynamic IT architecture that aligns with the business needs of the organization. Additional information about Riverbed (NASDAQ: RVBD) is available at www.riverbed.com.

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