Citrix NetScaler Load Balancer Configuration for Cisco Unified Intelligence Center (CUIC)

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Introduction

This document describes the configuration steps to use Citrix NetScalaer load bablander for CUIC.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- CUIC
- Citrix Netscaler

Components Used

The information in this document is based on these software and hardware versions:

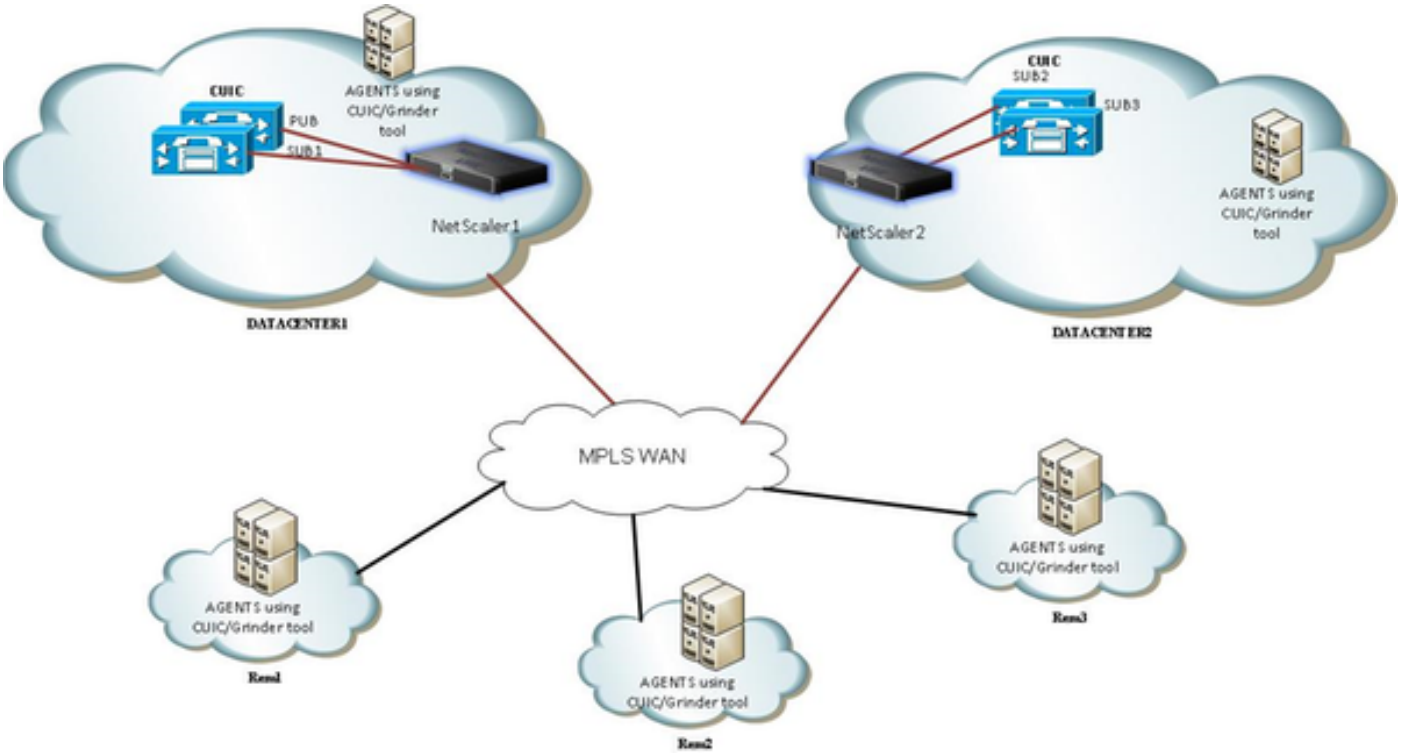
- CUIC 11.0(1)
- Citrix NS: appliance Edition: Citrix NetScaler 1000v (10.1 Build 125.8)

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Background Information

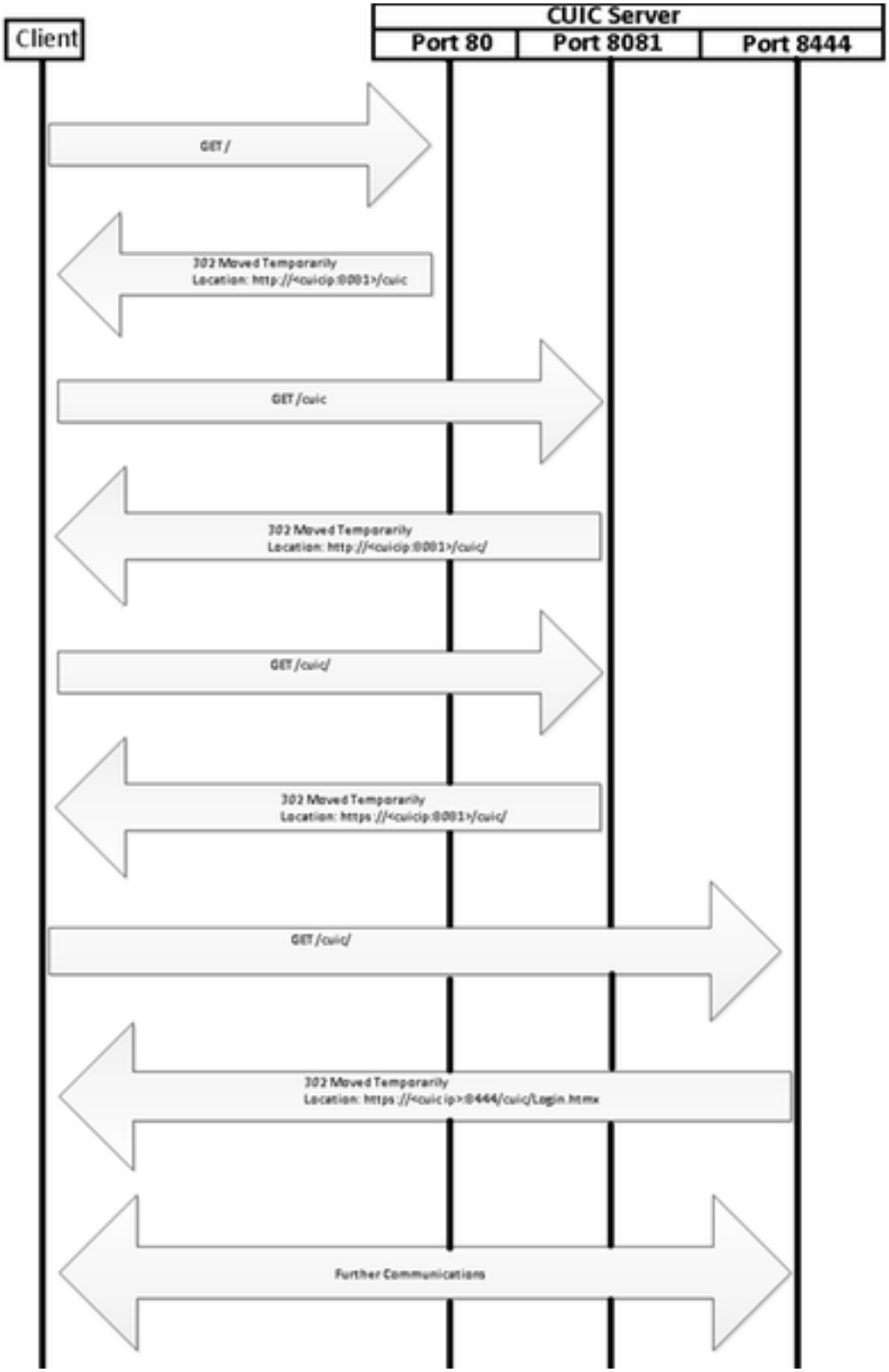
CUIC is a flexible and intuitive web-based reporting platform that provides you with reports on relevant business data. With CUIC, you can create a comprehensive information portal where contact center reports and dashboards are developed and shared throughout your organization. In large CUIC deployments, the Citrix NetScaler 1000v (Load Balancer) is used to load balance CUIC Hypertext Transfer Protocol (HTTP) and Hypertext Transfer Protocol Secure (HTTPS) traffic.

Network Diagram



Access Unified Intelligence Center Report with HTTP/HTTPS

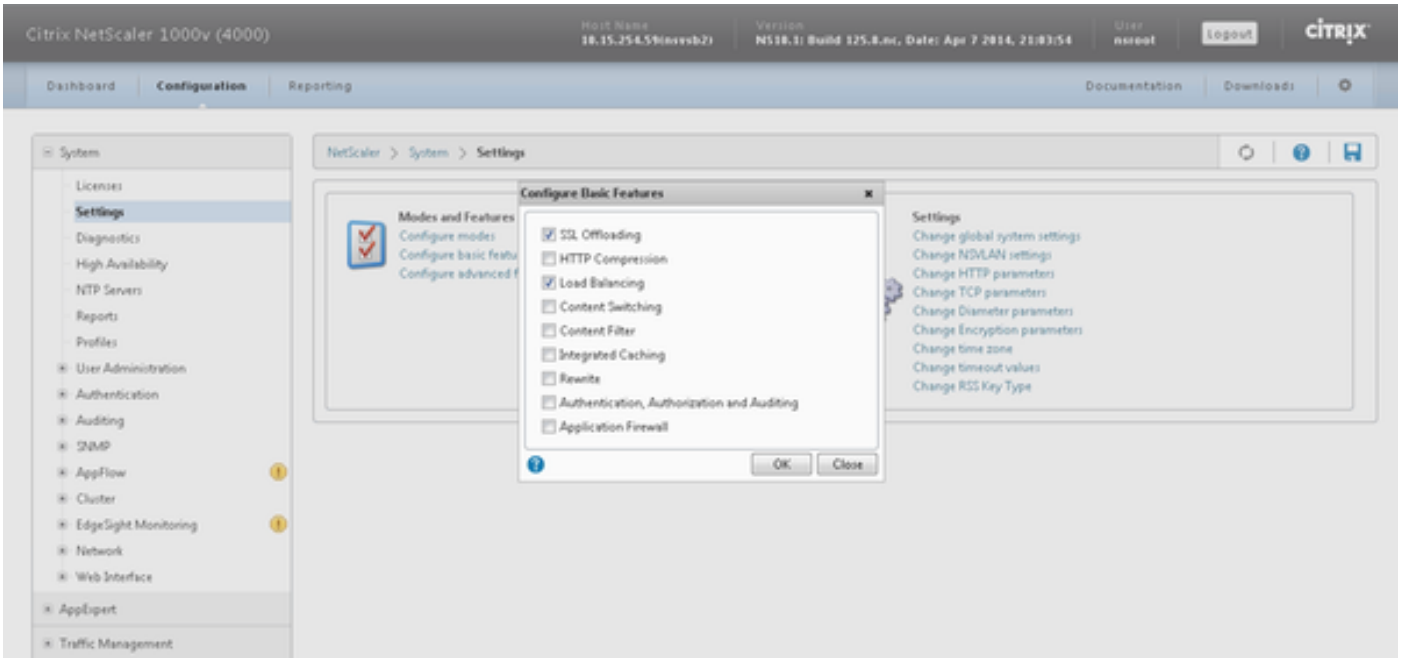
When HTTP is disabled in CUIC server, this is the HTTP flow to different ports.



Configuration

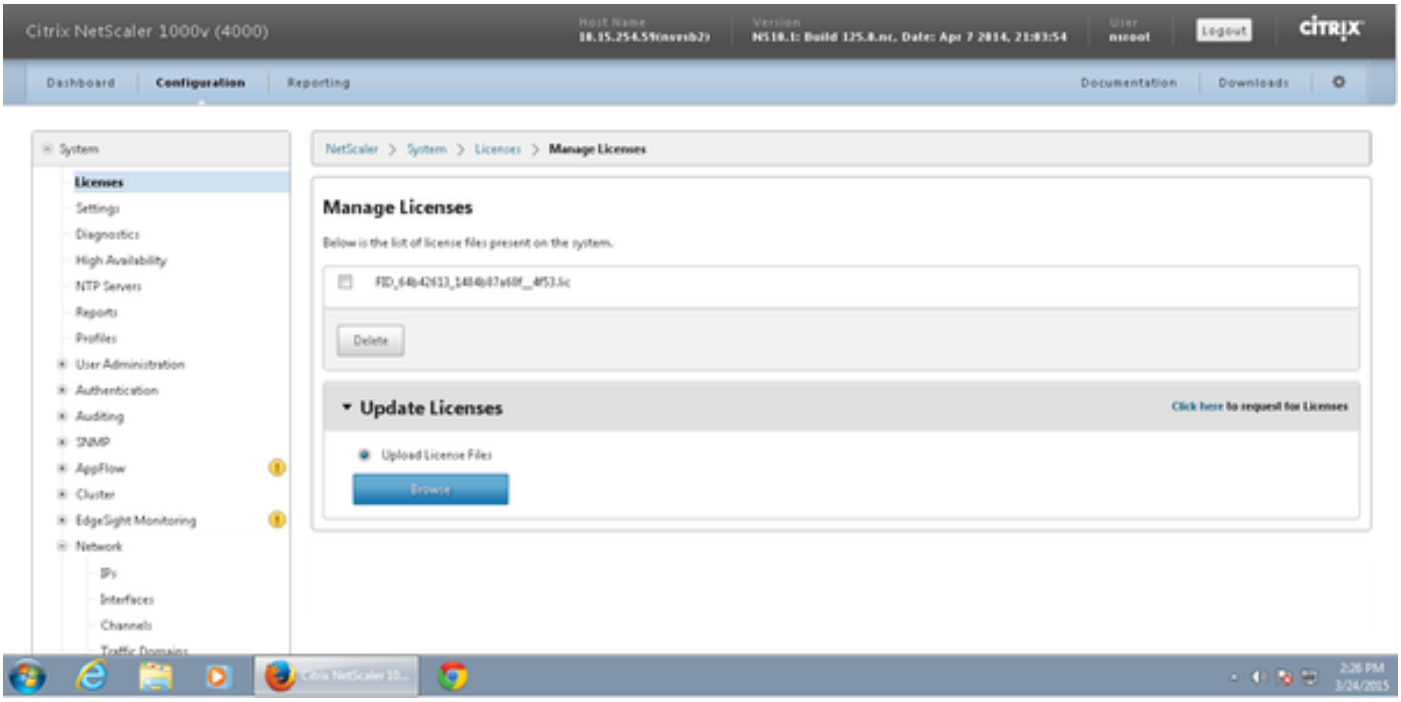
System Settings

Configuration > Settings > Configure Basic Features



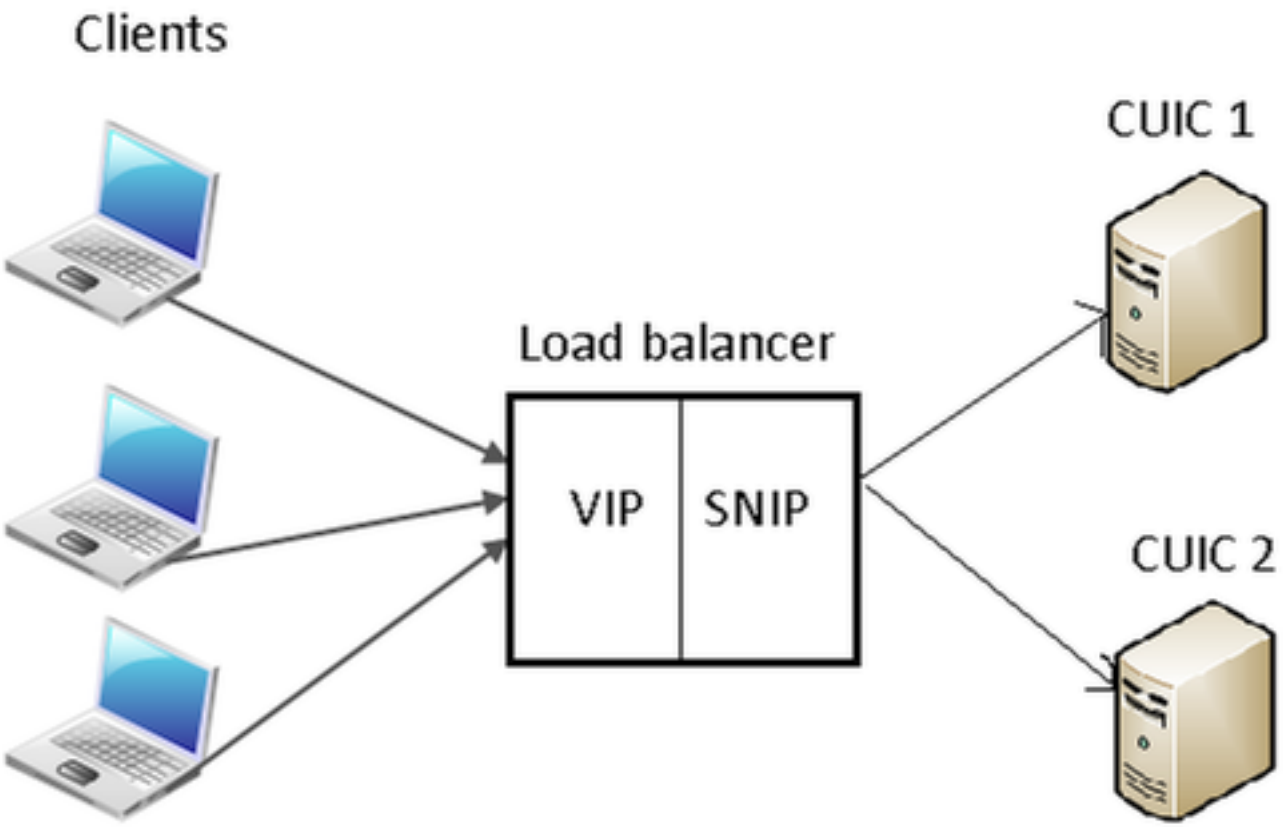
Upload License

Without License SSL might not work.
Navigate to **System > Licenses > Manage Licenses > Update License**

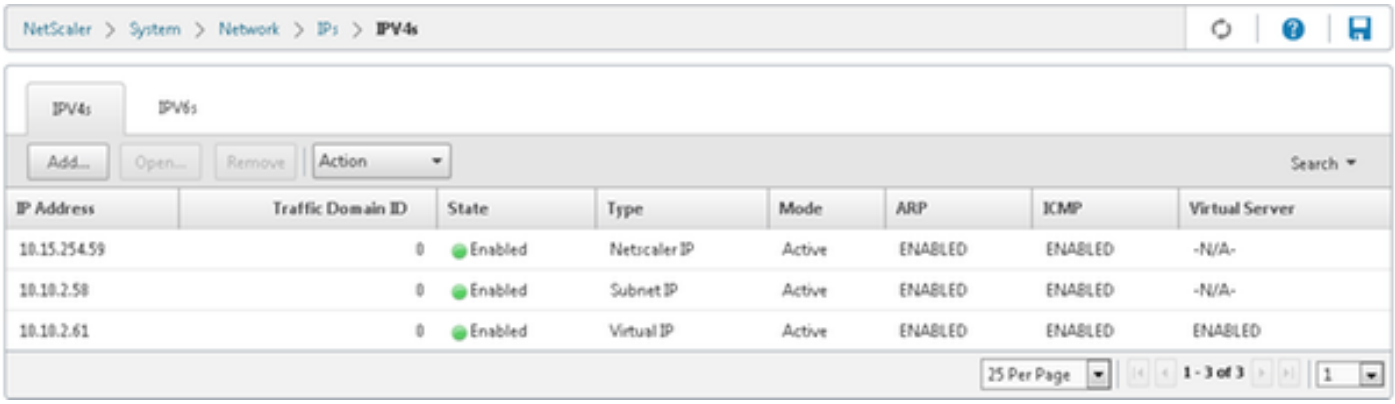


Network Configuration

Clients talk to Load balancer through Virtual IP (VIP) and Load balancer talks to CUIC through its Subnet IP (SNIP).

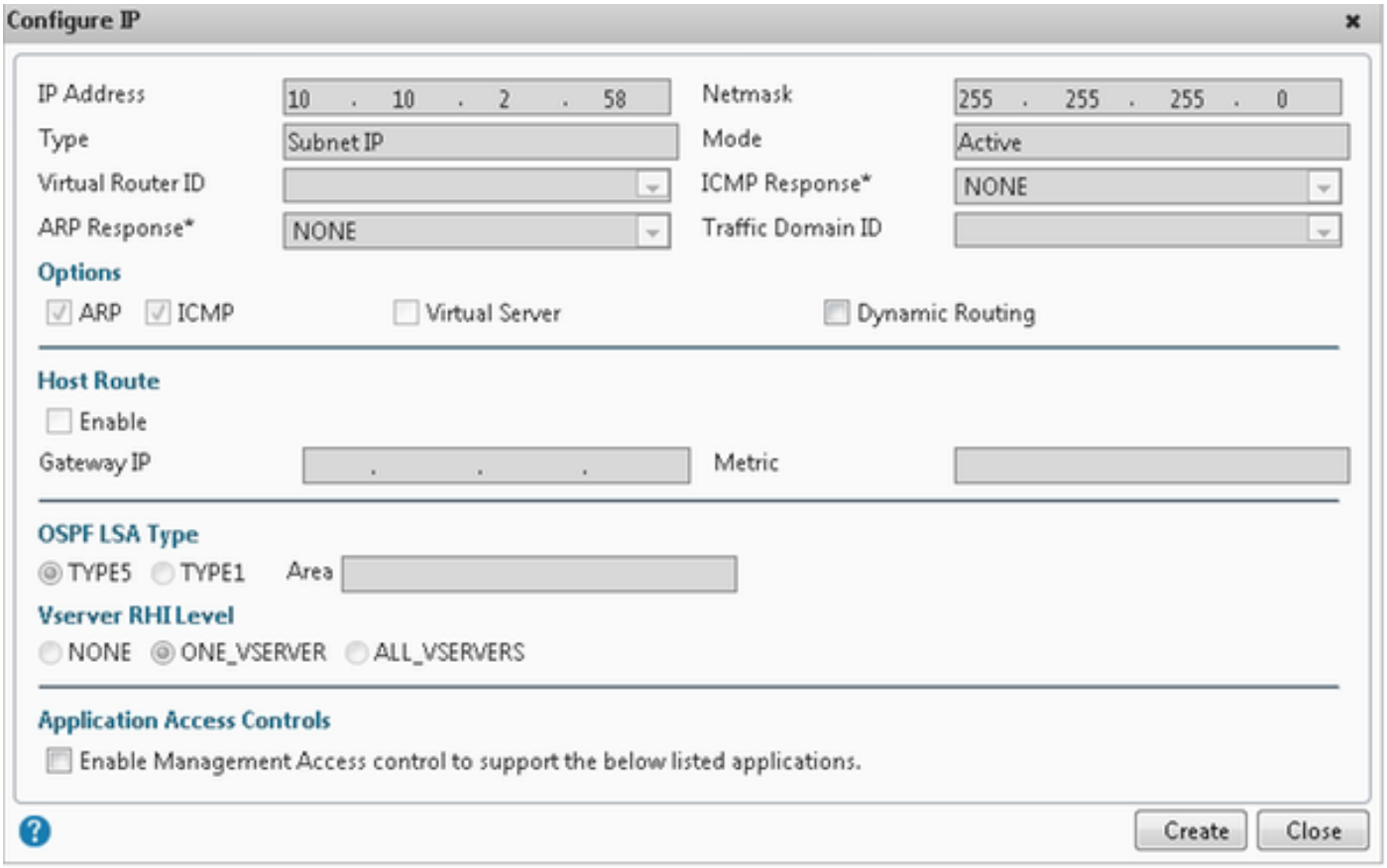


Click **System > Network > IPs > IPv4s**



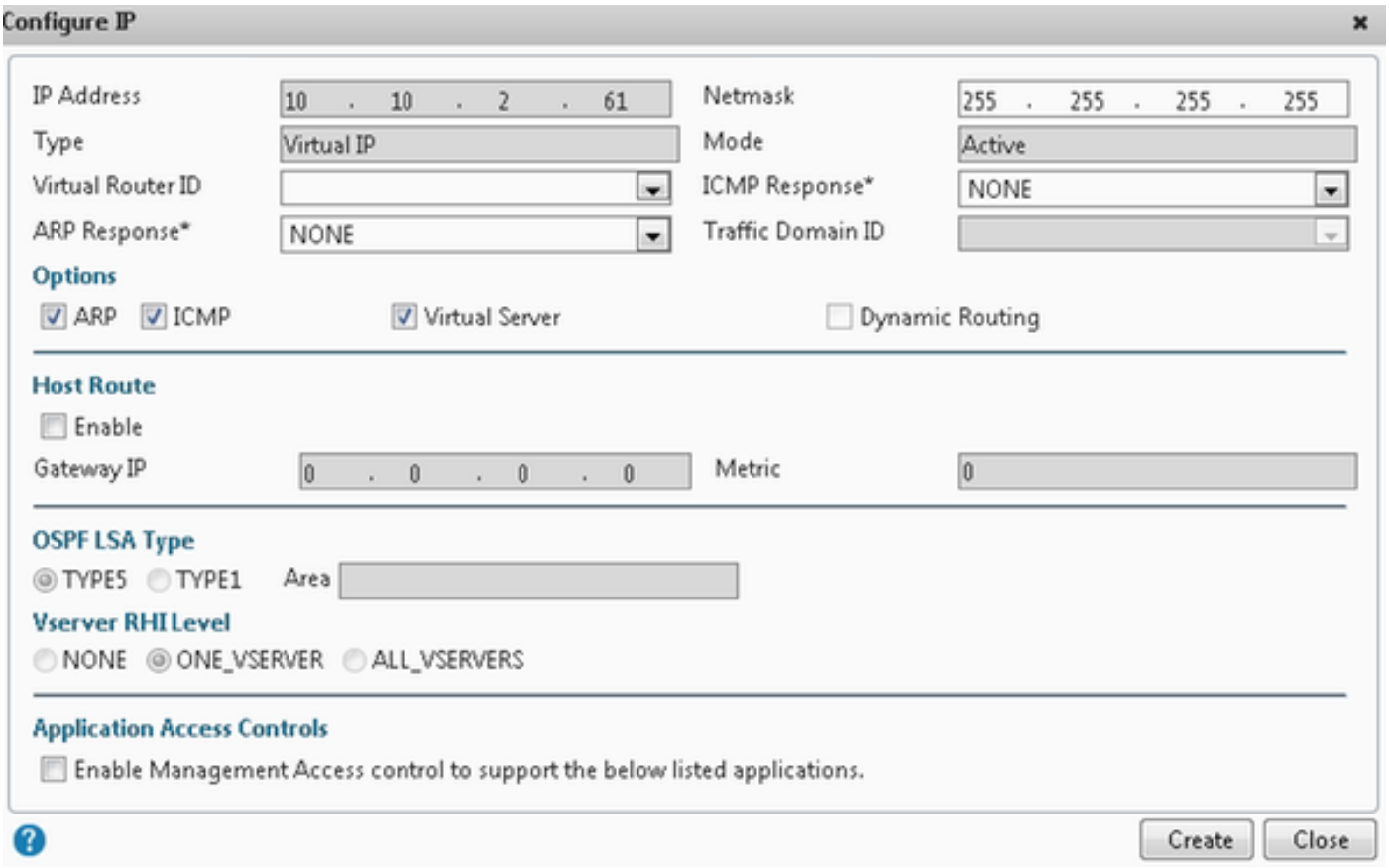
Create Subnet IP

Step 1. Click on **Add** to add **IP Address**, select **Type** as **Subnet IP**.
Step 2. Click **Create** to create desired IP address.



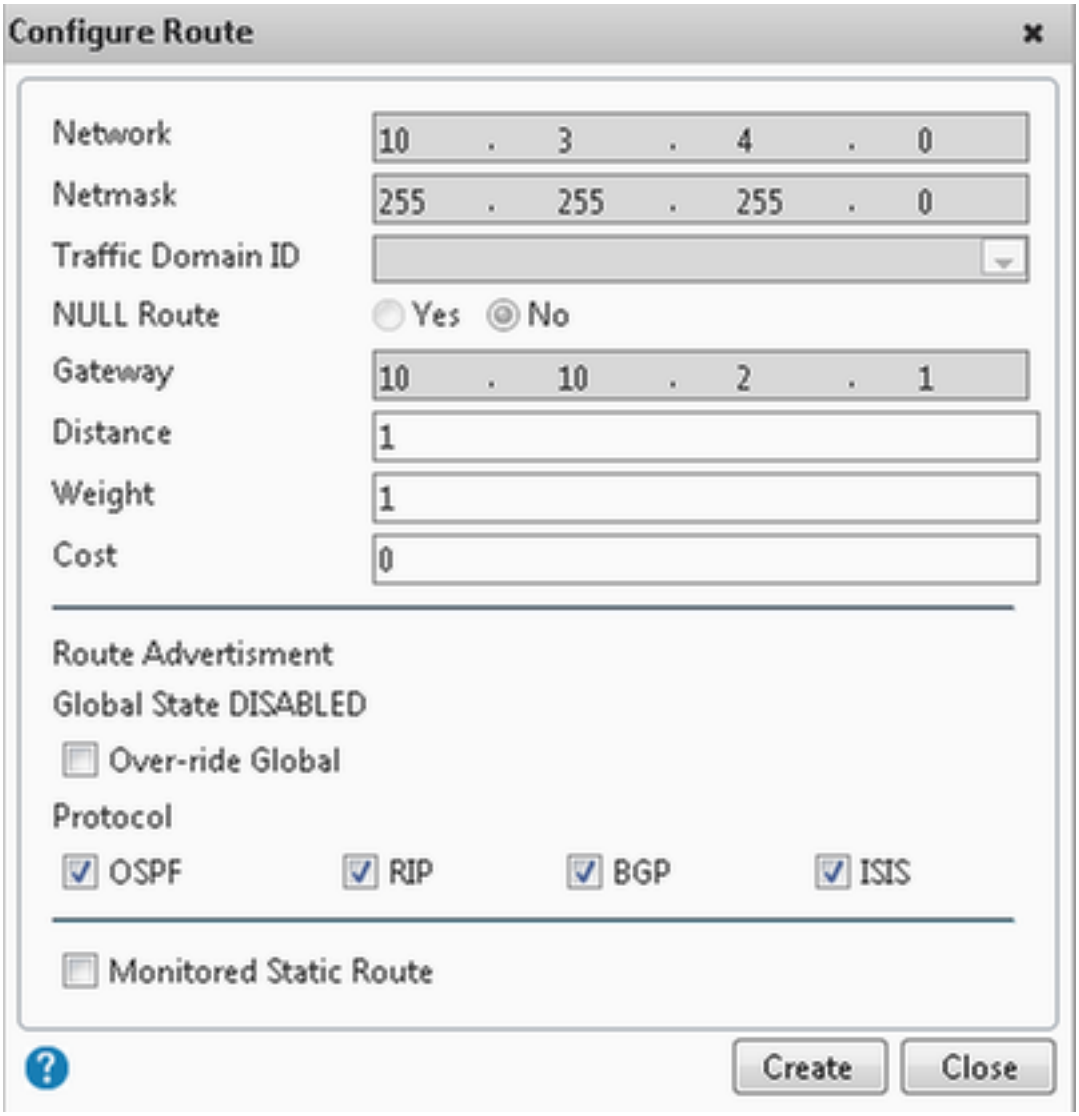
Create VIP

Step 1. Click **Add** to add **IP Address**, select **Type** as **Virtual IP**.
Step 2. Click **Create** to create desired IP address.



Create Routes

If needed, create routes to the network from where HTTP/HTTPS requests come to Load Balancer.



Click **Create** to create desired route.

HTTPS Load Balancing Configuration

To create Virtual Server entries, one for each port in CUIC, three ports need to be monitored (HTTP ports 80. 8081 and HTTPS port 8444). Each virtual server entry is the IP and port combination which receives the HTTP traffic from client (accessing CUIC report).

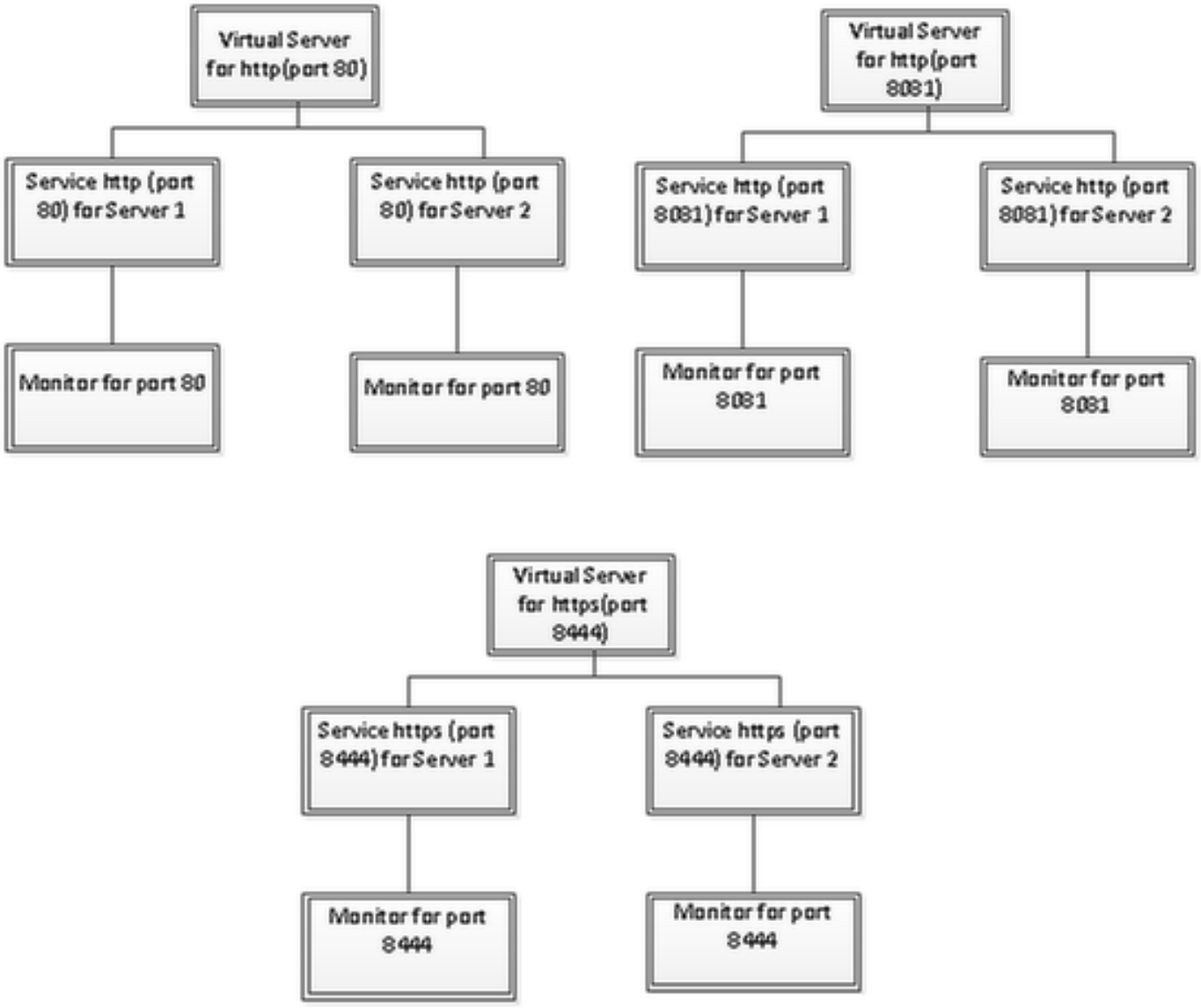
Virtual servers are required to be linked with servers, to send the load traffic them. To check the health status of the server's monitors, they need to be assigned to each server. Using the monitors, load detects the server (CUIC) failure and re-distributes the incoming traffic to servers which are in good health to serve the requests.

So the association is Virtual Server->Service and Server->Monitor.

Summary of Configurations:

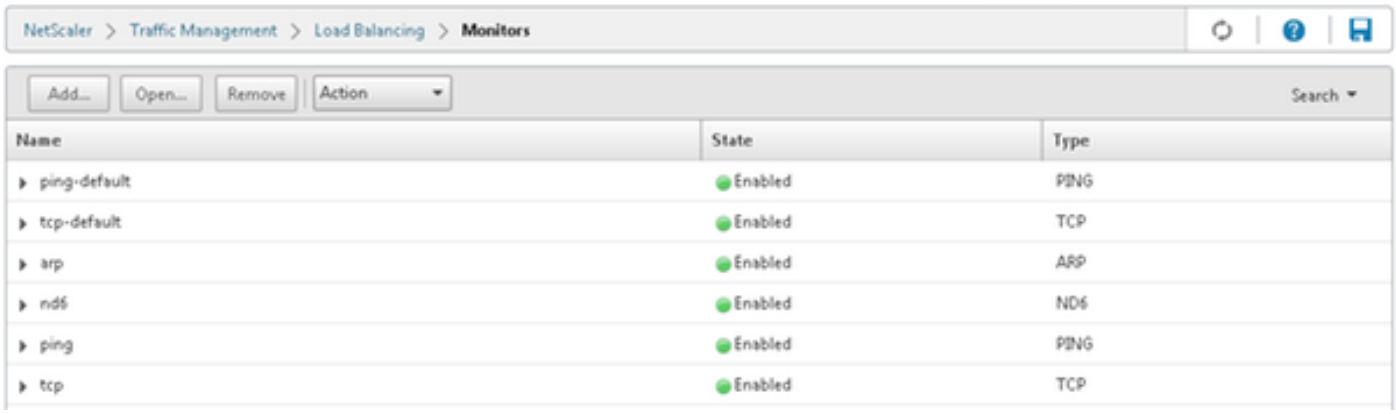
- Create monitors
- Create Servers
- Create Services with Server association
- Link each service to corresponding monitors
- Create Virtual servers
- Link corresponding Services with Virtual Servers
- Create Persistency Group and add Virtual Servers

ThIs image depicts three Virtual server entries and its association.



Create Monitors

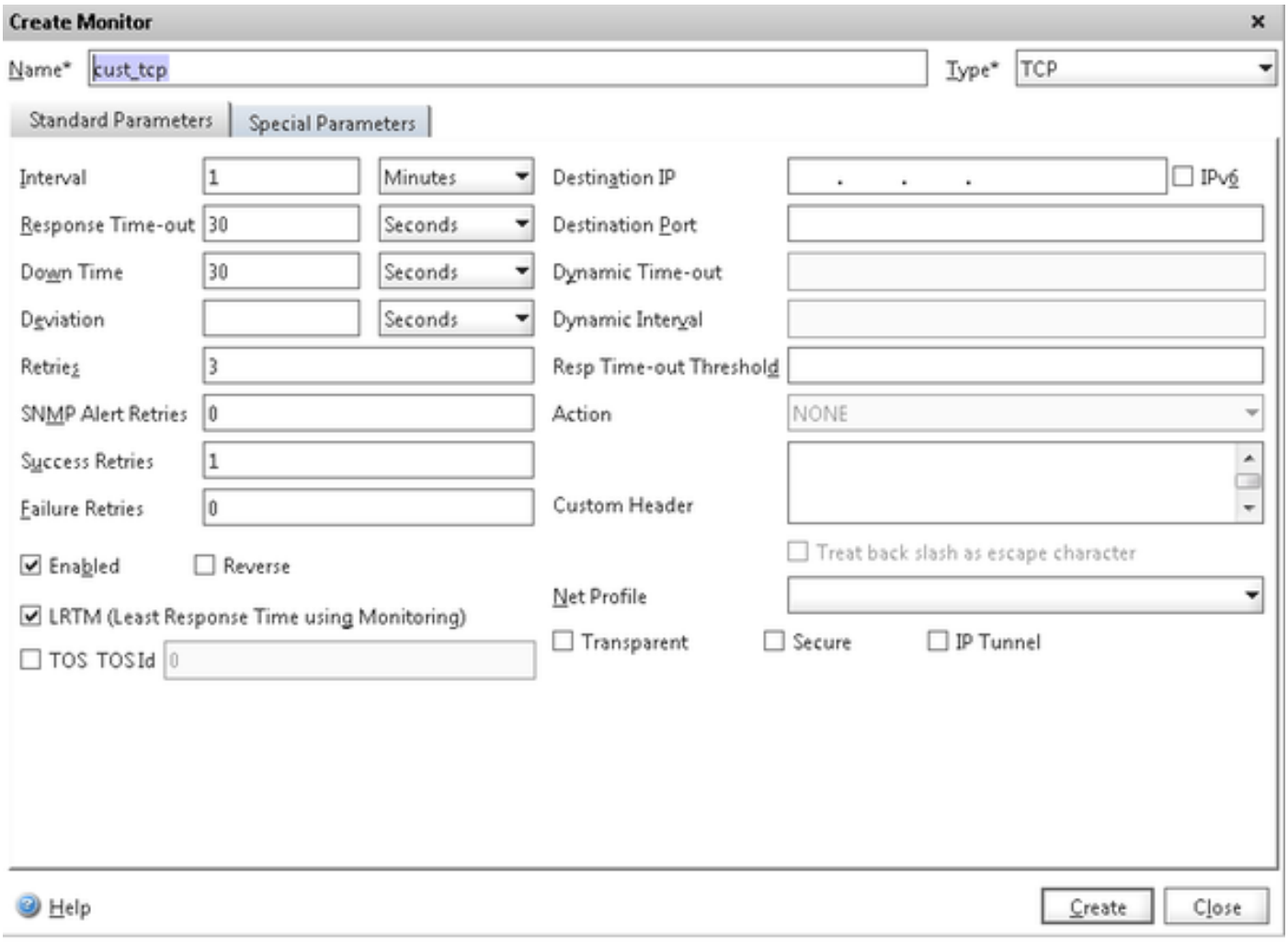
Navigate to **Traffic Management > Load Balancing > Monitors**

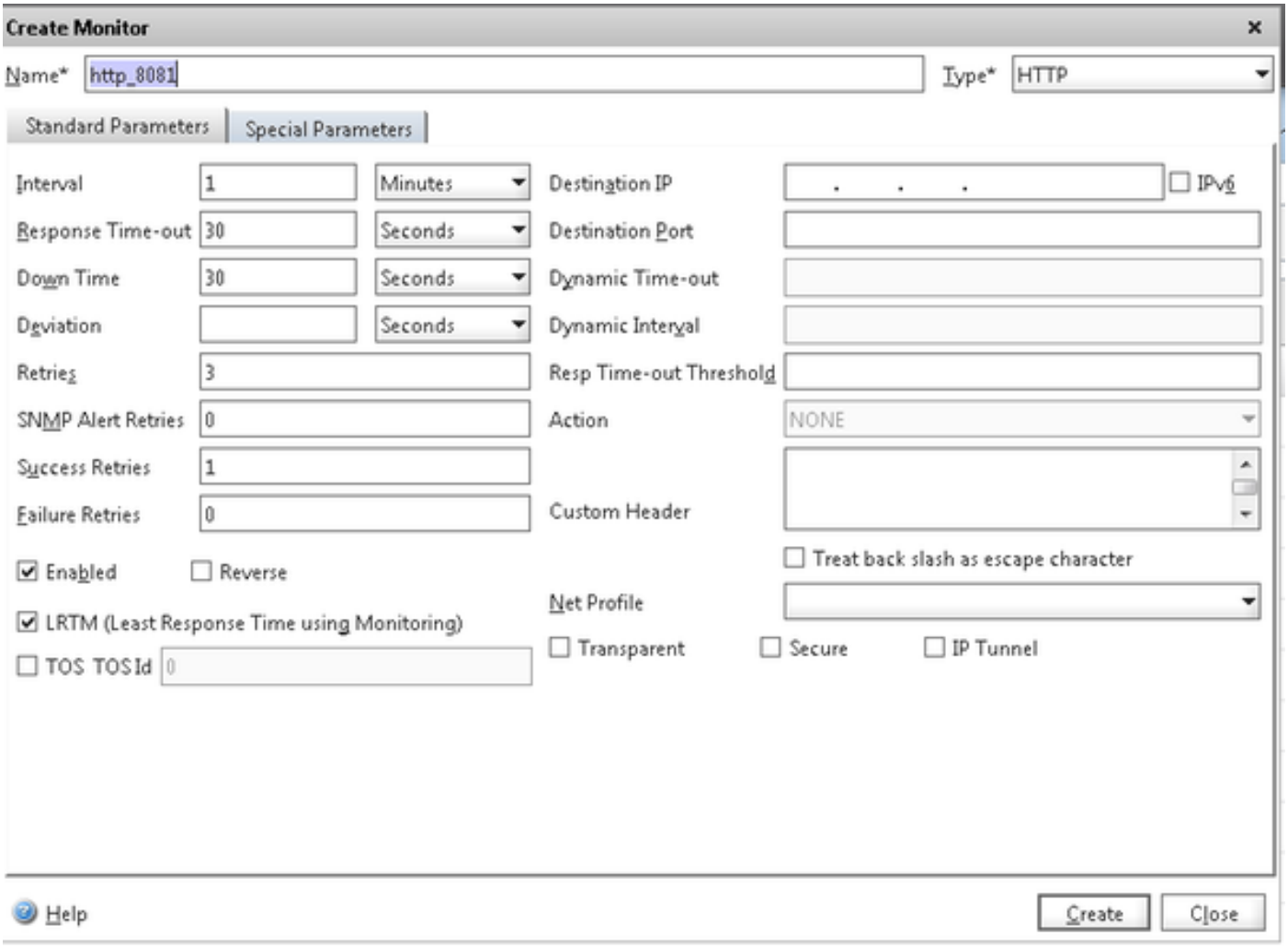


To Create monitor, navigate to **Traffic Management > Load Balancing > Monitors**, click on **Add** button.
Three types of monitors are created, for port 80, 8081and 8444.

Create monitor for http port 80

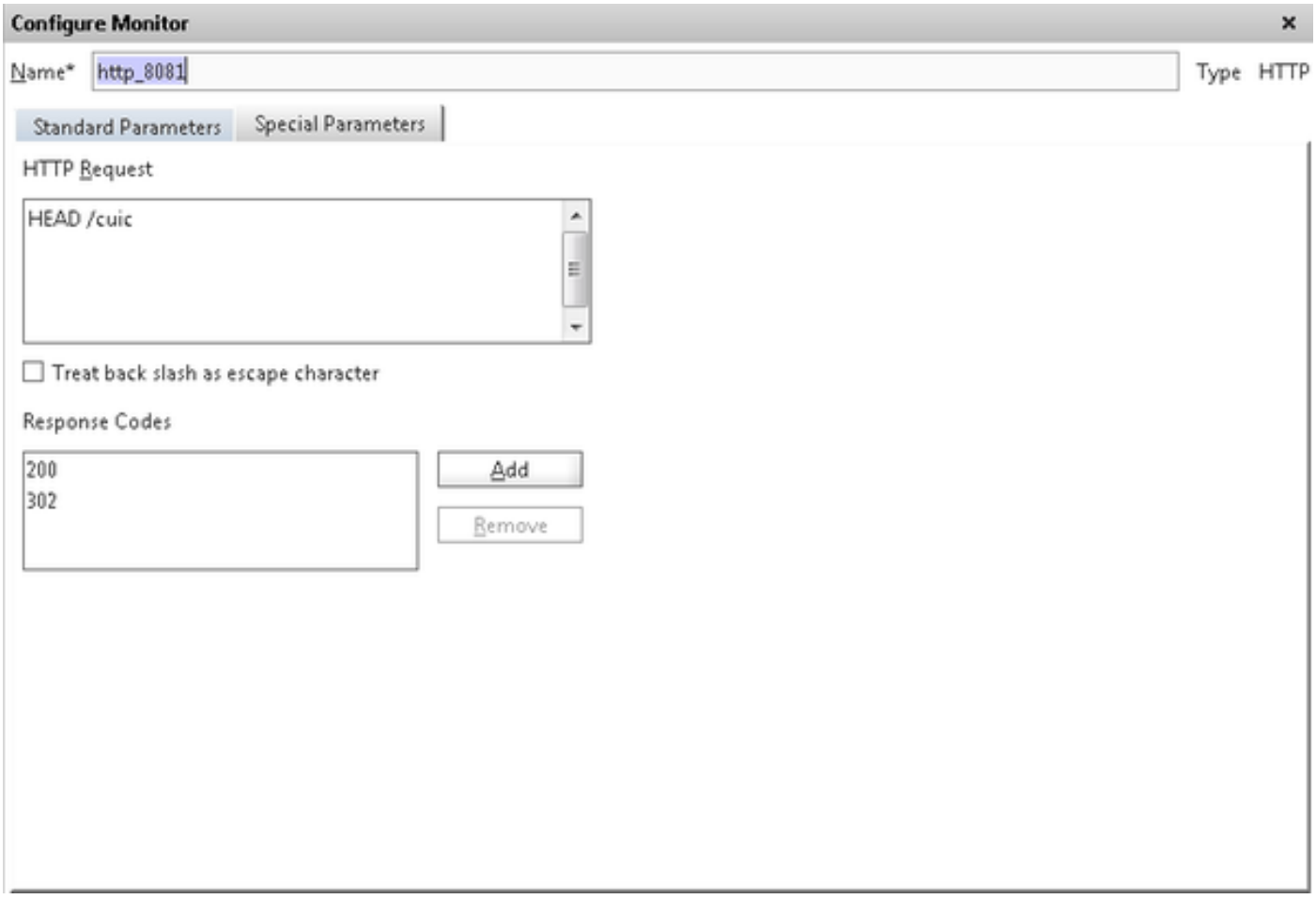
Select **Type** as **TCP** and specify **Interval**, **Response Time-out**, **Down Time**, **Retries** etc. accordingly.
Click **Create** to create the monitor. For HTTPS, two monitors needs to be created (one per server).

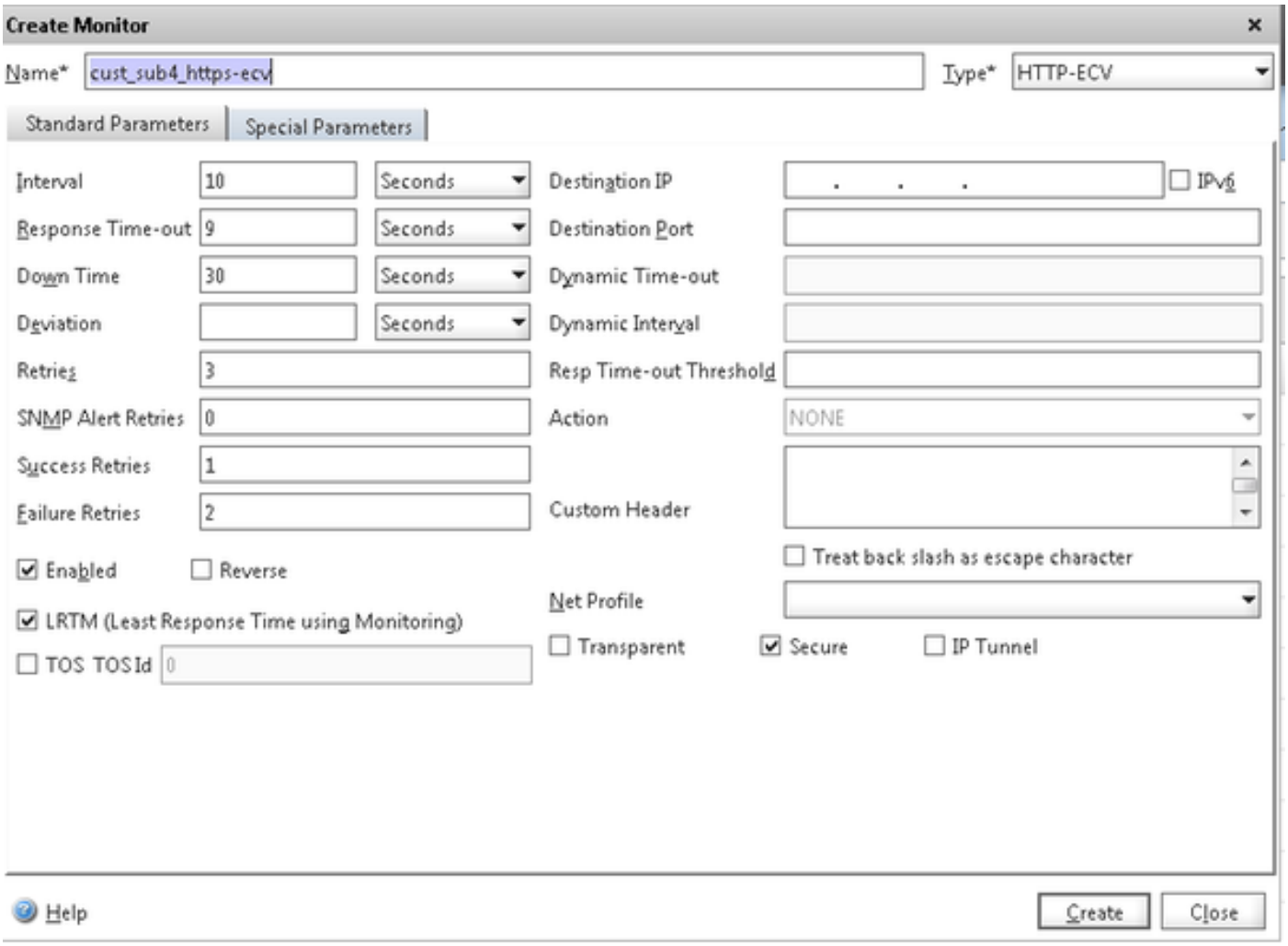




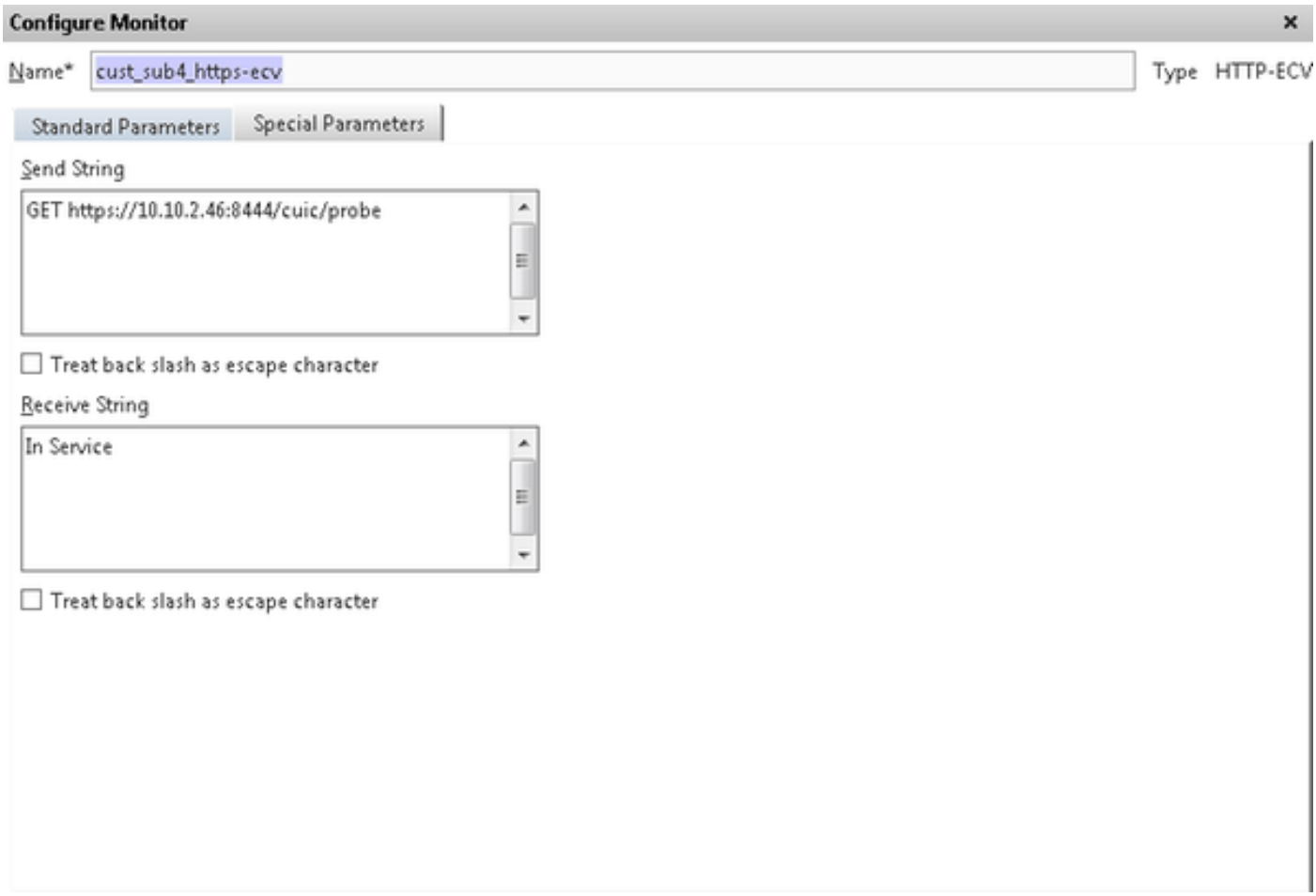
For HTTPS type monitor, configure special parameter section. This monitor reports success if the response to the HTTP request is either 200 or 302.

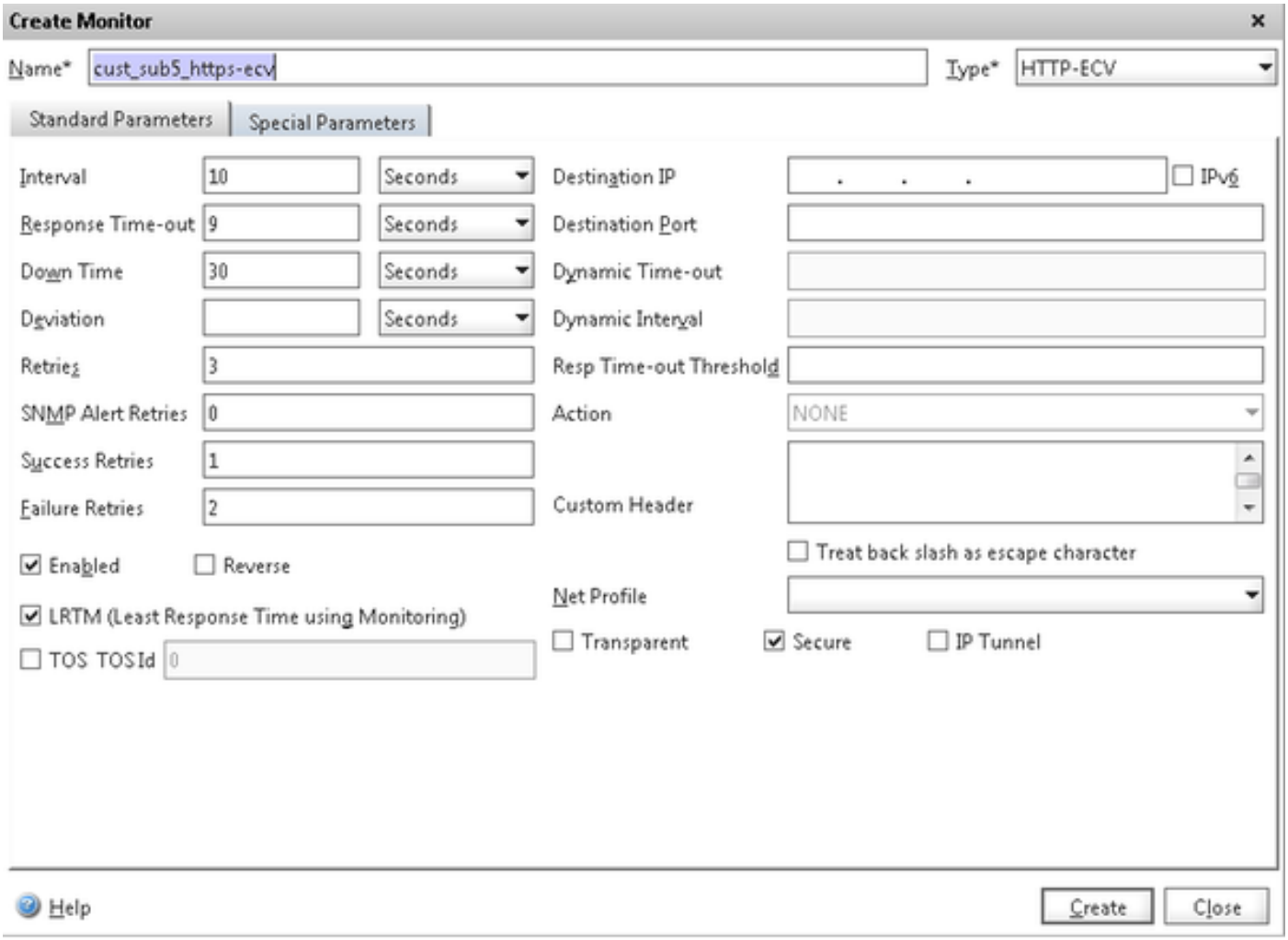
When HTTP is disabled in CUIC, 302 is expected otherwise 200. To deal with both the situations 200 and 302 are included.

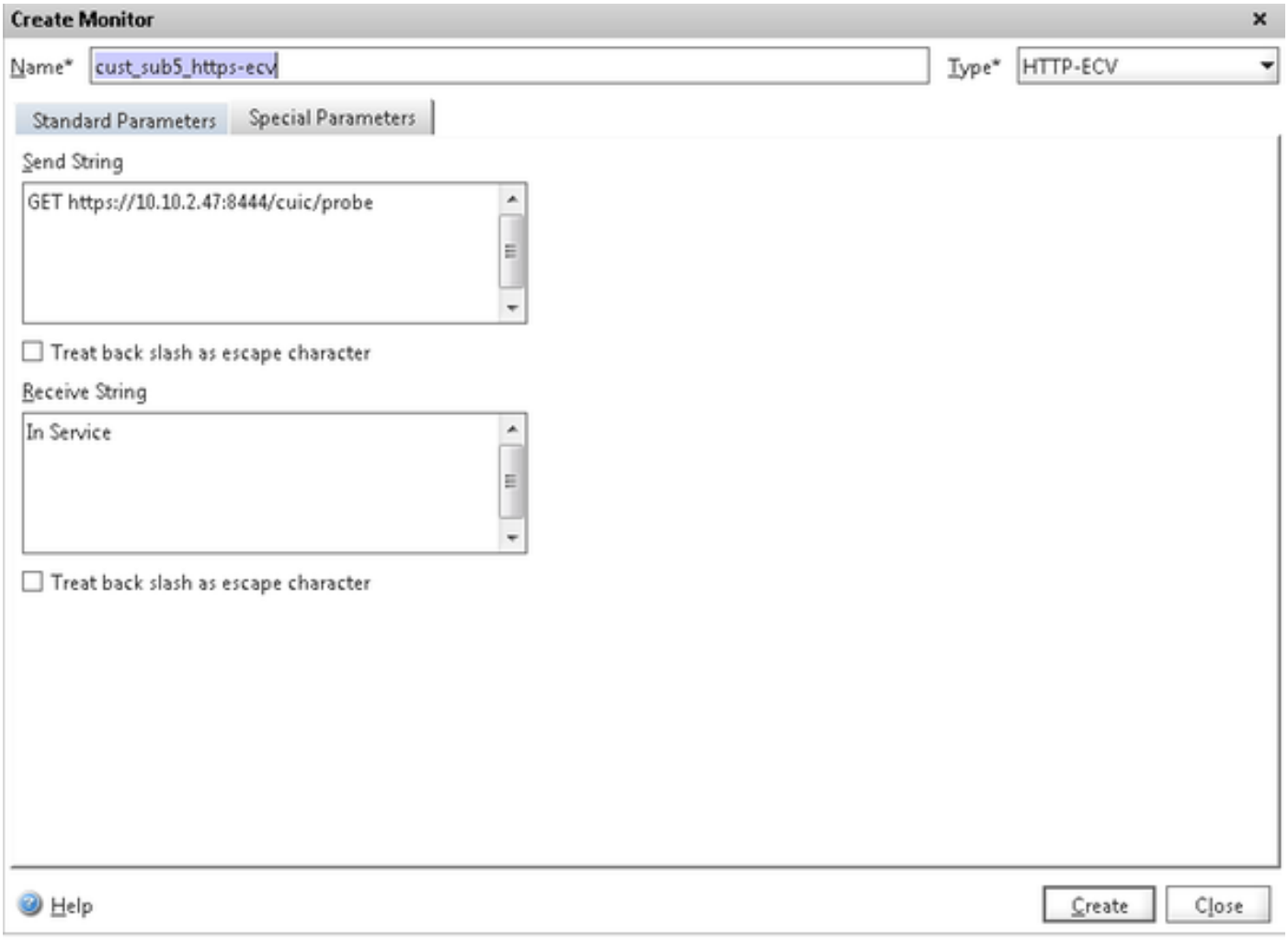

Configure Monitor
Name* http_8081
Type HTTP
Standard Parameters
Special Parameters
HTTP Request
HEAD /cuic
Treat back slash as escape character
Response Codes
200
302
Add
Remove


Create Monitor
Name* cust_sub4_https-ecv
Type* HTTP-ECV
Standard Parameters
Special Parameters
Interval 10 Seconds
Response Time-out 9 Seconds
Down Time 30 Seconds
Deviation Seconds
Retries 3
SNMP Alert Retries 0
Success Retries 1
Failure Retries 2
Enabled
Reverse
LRTM (Least Response Time using Monitoring)
TOS TOS Id 0
Destination IP
IPv6
Destination Port
Dynamic Time-out
Dynamic Interval
Resp Time-out Threshold
Action NONE
Custom Header
Treat back slash as escape character
Net Profile
Transparent
Secure
IP Tunnel
Help
Create
Close

For HTTPS type monitor, configure special parameter section. This monitor reports success only if the response contains a string **In Service**.

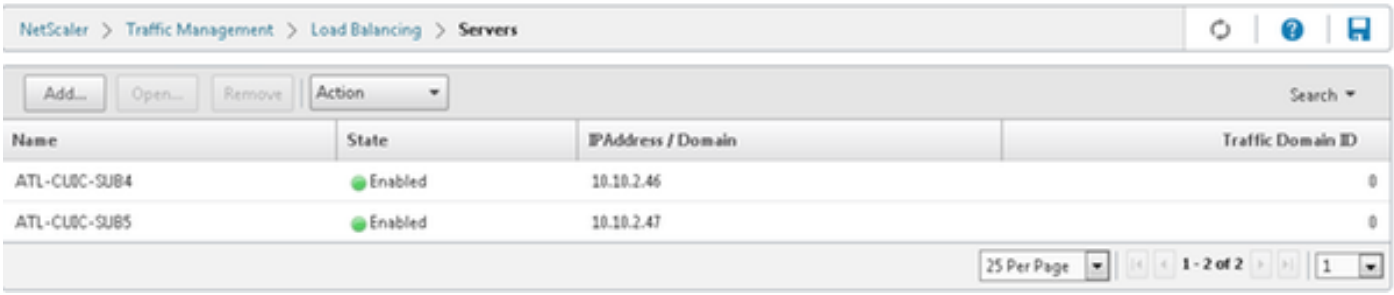



Create Monitor
Name* cust_sub5_https-ecv
Type* HTTP-ECV
Standard Parameters
Special Parameters
Interval 10 Seconds
Response Time-out 9 Seconds
Down Time 30 Seconds
Deviation Seconds
Retries 3
SNMP Alert Retries 0
Success Retries 1
Failure Retries 2
Enabled
Reverse
LRTM (Least Response Time using Monitoring)
TOS TOS Id 0
Destination IP . . .
IPv6
Destination Port
Dynamic Time-out
Dynamic Interval
Resp Time-out Threshold
Action NONE
Custom Header
Treat back slash as escape character
Net Profile
Transparent
Secure
IP Tunnel
Help
Create
Close

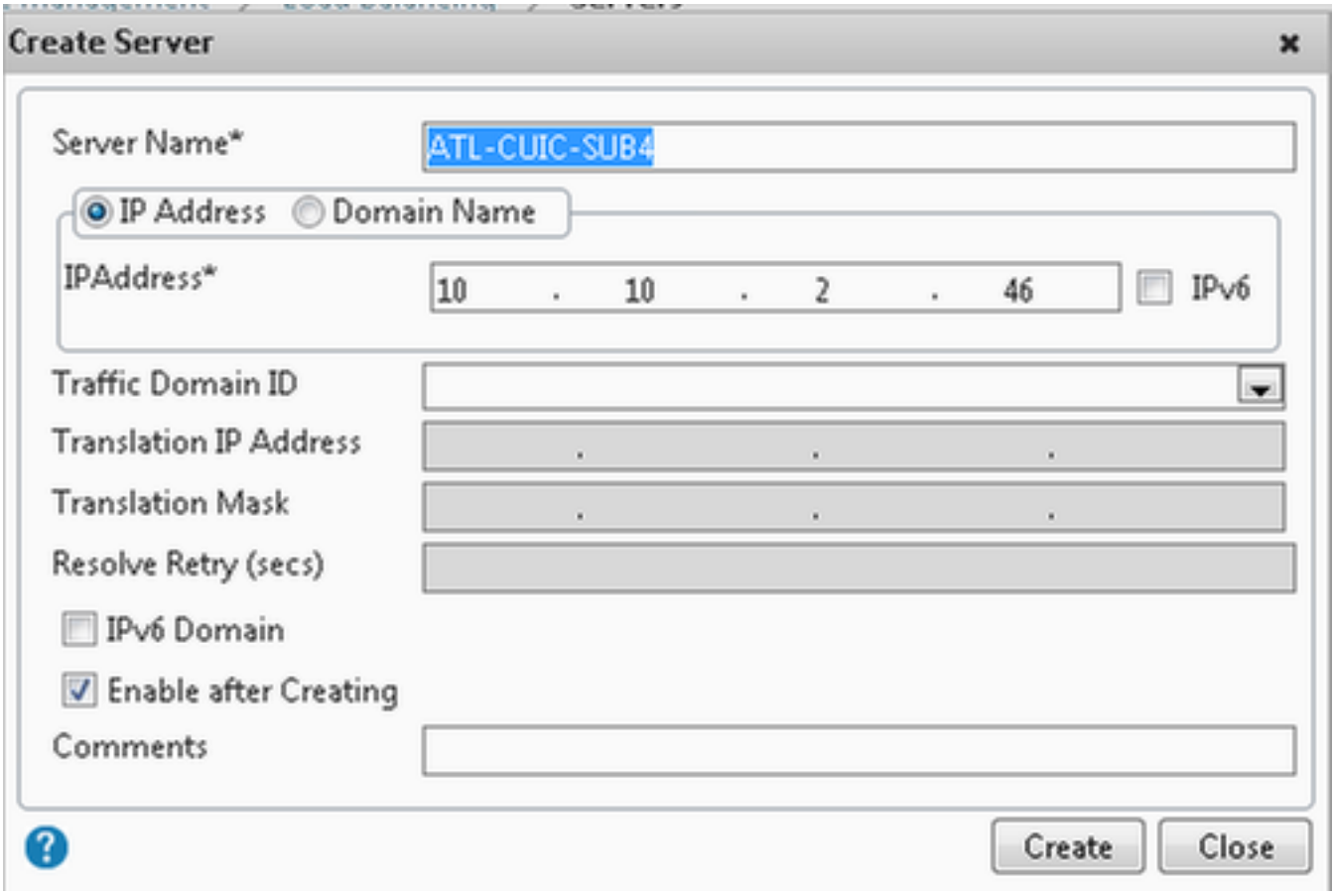


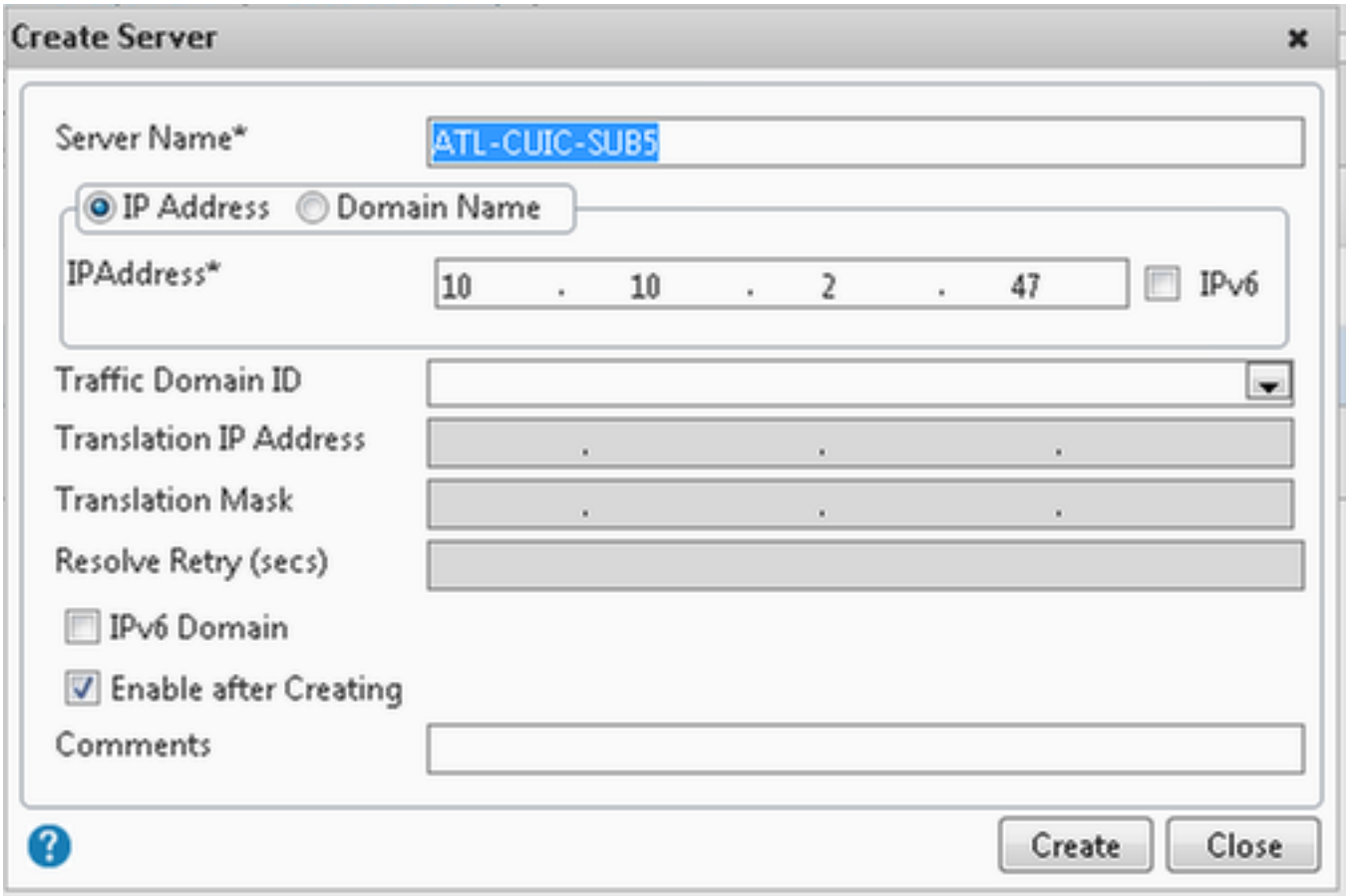
Create Servers

Server represents a CUIC node. For each CUIC node served by the load balancer a server entry is required.



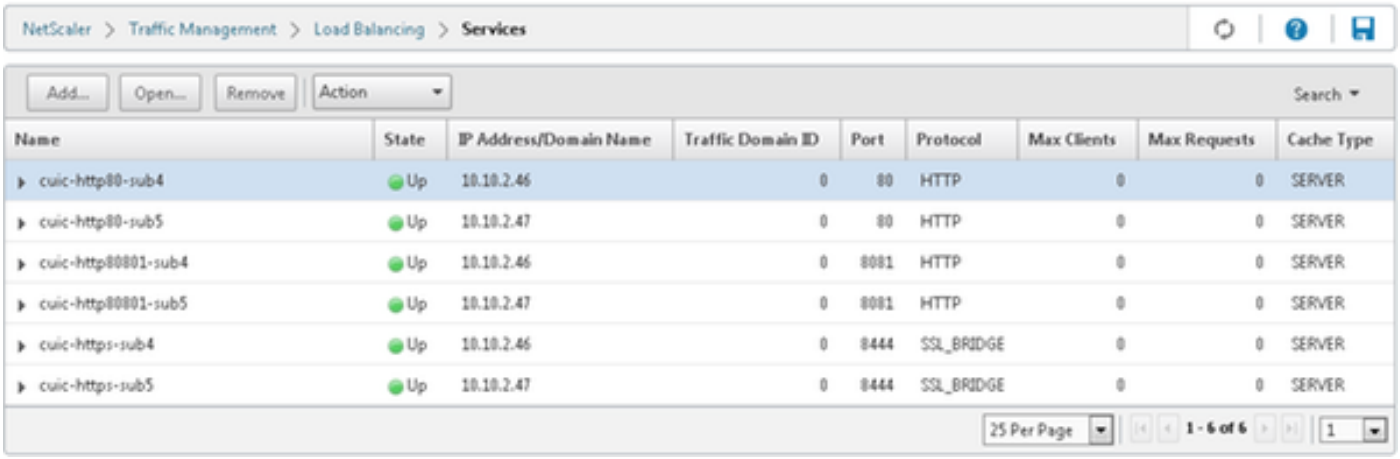
To create server, navigate to **Traffic Management > Load Balancing > Servers**, Click on **Add** button.



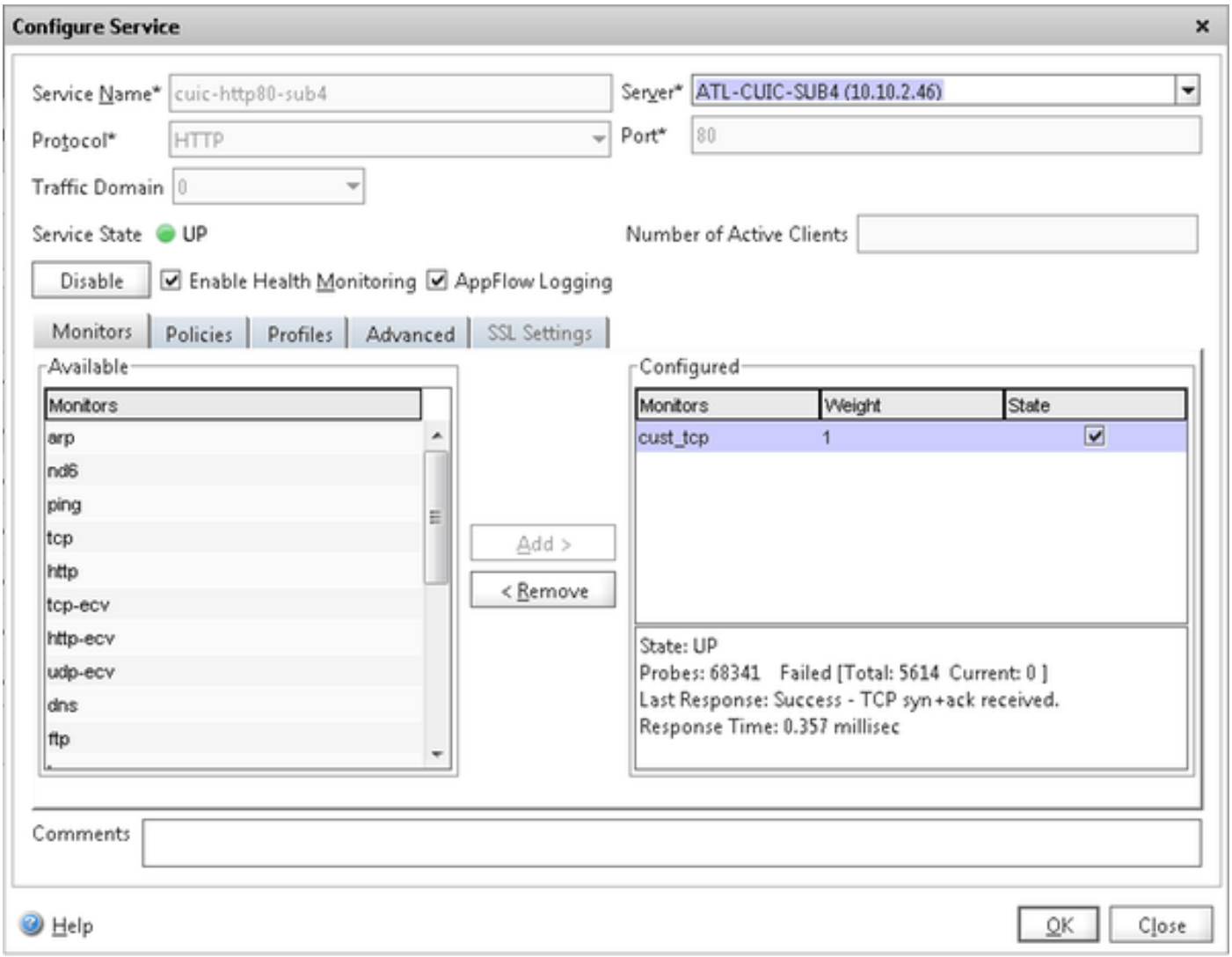


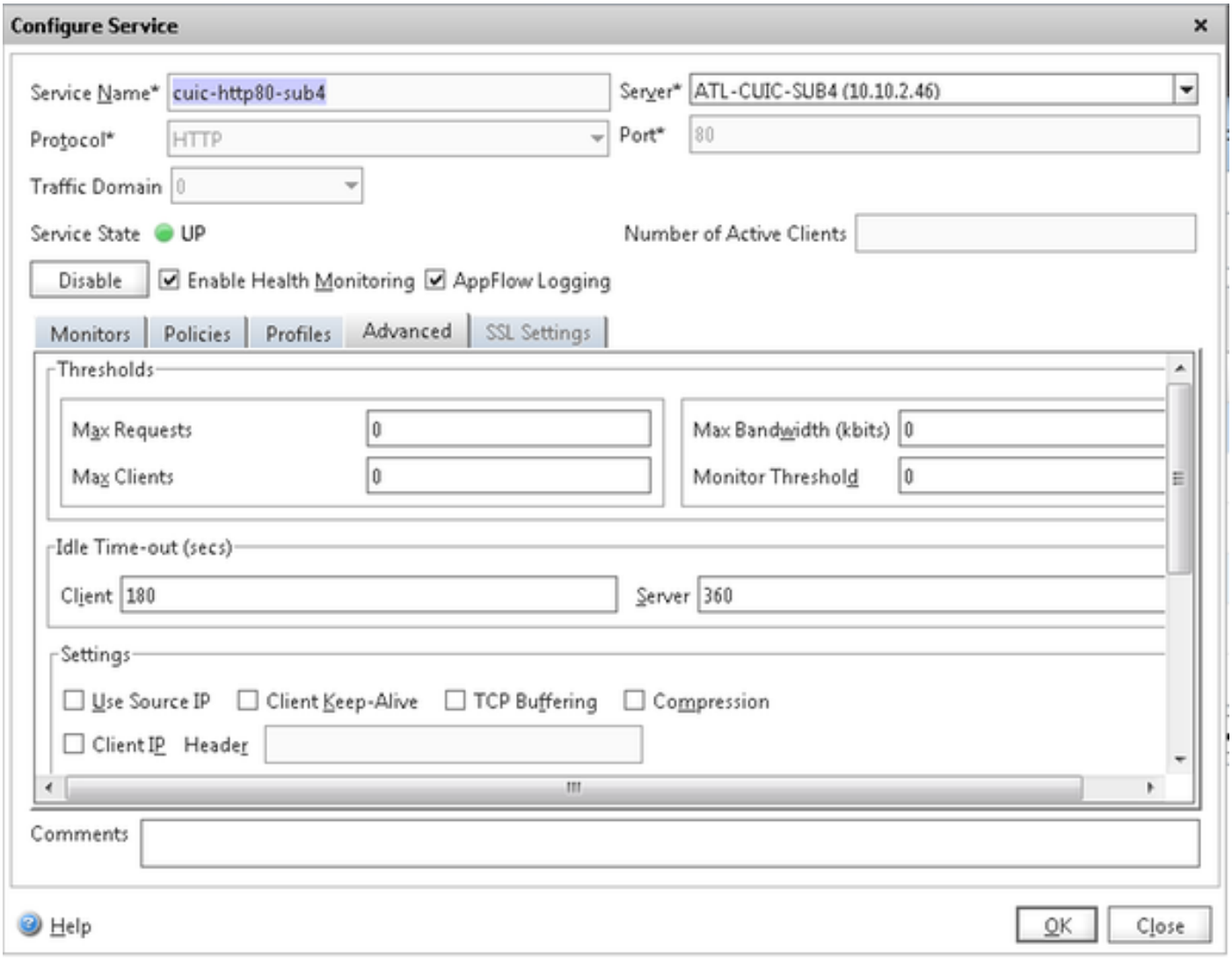
Create Services

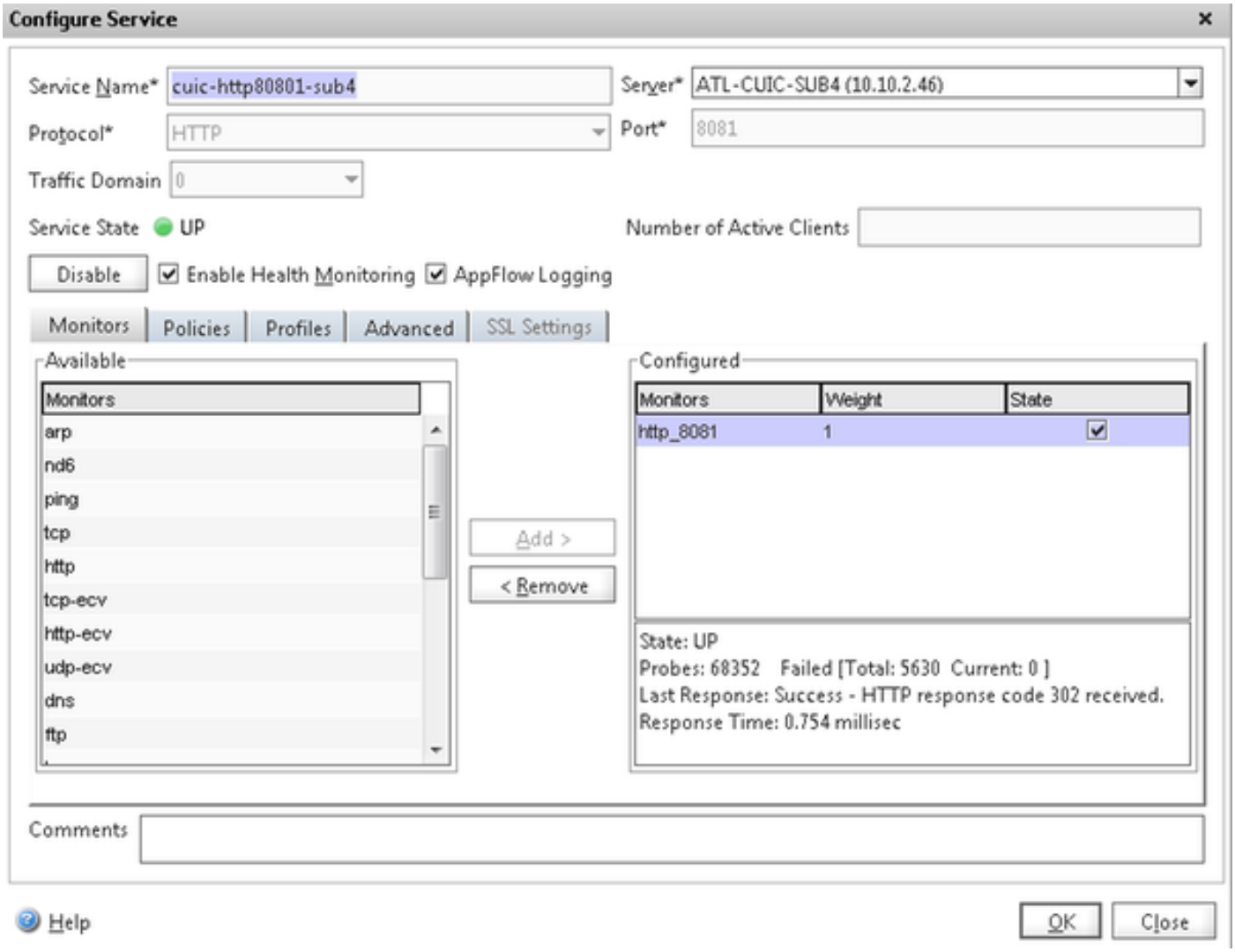
To create monitor, navigate to **Traffic Management > Load Balancing > Services**, Click on **Add**.

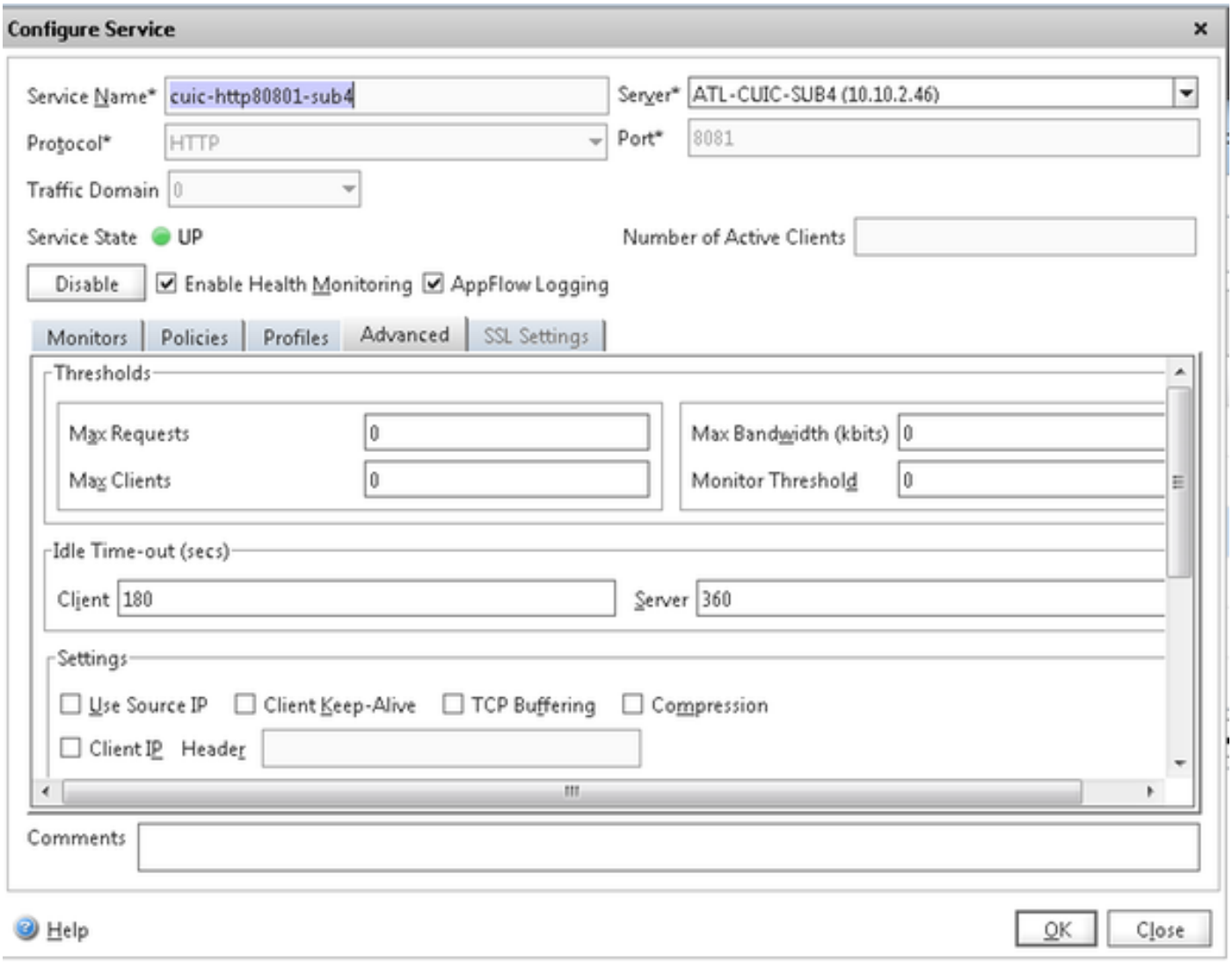


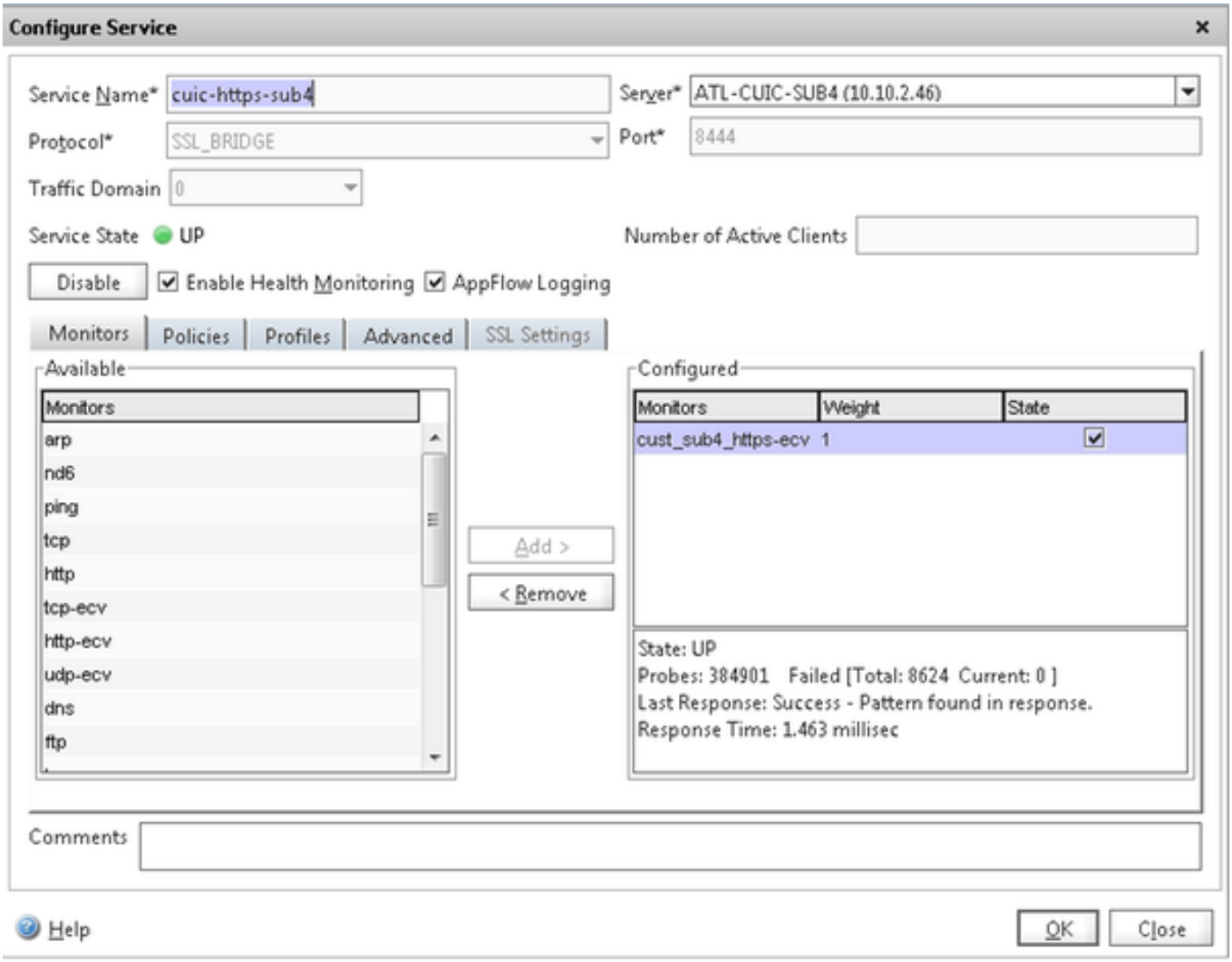
When there are no monitors associated, a default monitor might be displayed in configured box. Without removing that, select the correct monitor from available monitors from the available list (in this image it is **cust_tcp**) and click **Add** to move it to Configured list. Click **OK**. Next time when this page is opened, it shows only the selected monitor. Default monitor disappears. This happens because; always a service needs to be associated with a monitored. If nothing is configured, load balancer provides a default one, but when user selects a monitored then load balancer takes out the default monitor.

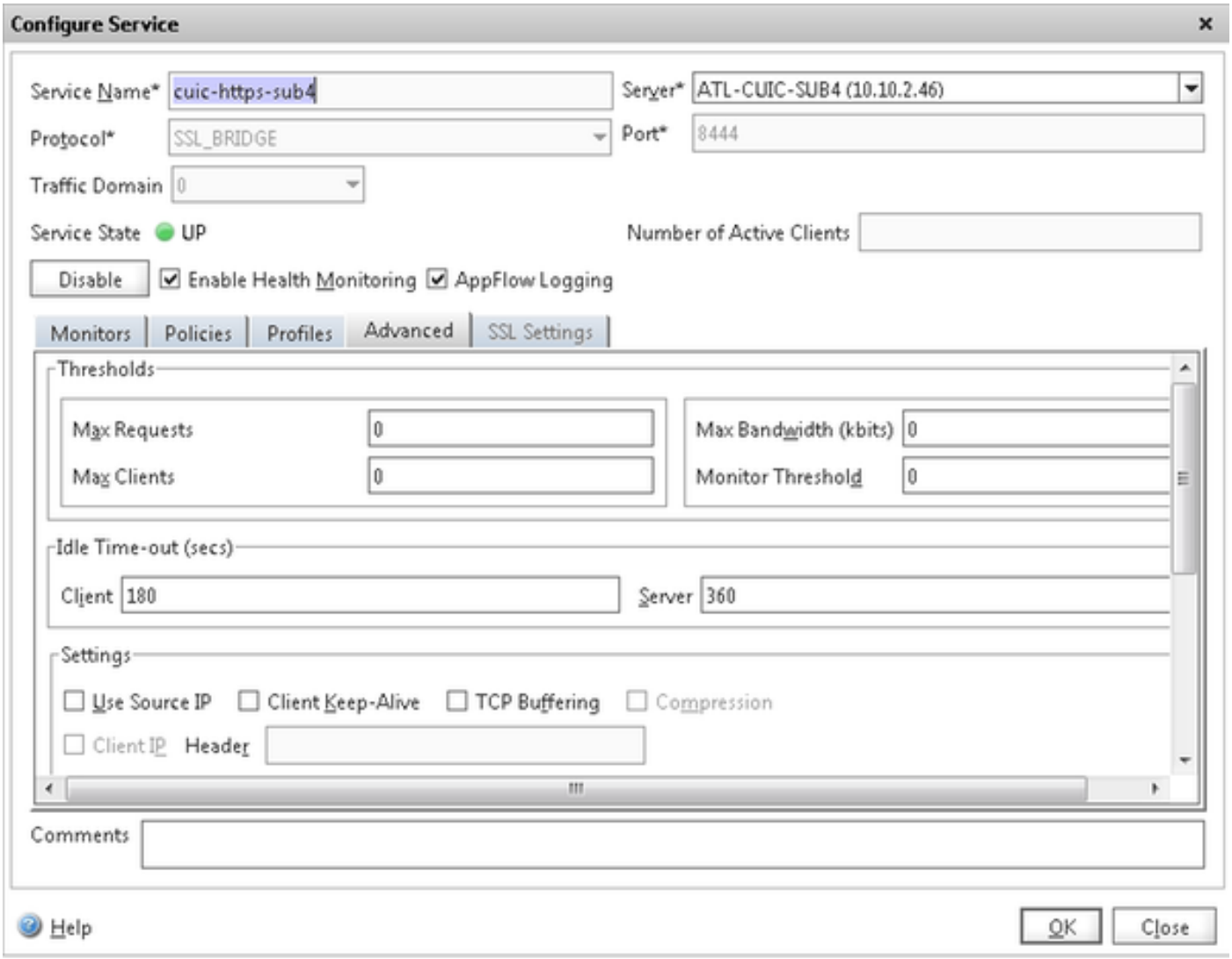



Configure Service
Service Name* cuic-http80-sub4
Server* ATL-CUIC-SUB4 (10.10.2.46)
Protocol* HTTP
Port* 80
Traffic Domain 0
Service State UP
Number of Active Clients
Disable
Enable Health Monitoring
AppFlow Logging
Monitors
Policies
Profiles
Advanced
SSL Settings
Thresholds
Max Requests 0
Max Clients 0
Max Bandwidth (kbits) 0
Monitor Threshold 0
Idle Time-out (secs)
Client 180
Server 360
Settings
Use Source IP
Client Keep-Alive
TCP Buffering
Compression
Client IP Header
Comments
Help
OK
Close


Configure Service
Service Name* cuic-http80801-sub4
Server* ATL-CUIC-SUB4 (10.10.2.46)
Protocol* HTTP
Port* 8081
Traffic Domain 0
Service State UP
Number of Active Clients
Disable
Enable Health Monitoring
AppFlow Logging
Monitors
Policies
Profiles
Advanced
SSL Settings
Available
Monitors
arp
nd6
ping
tcp
http
tcp-ecv
http-ecv
udp-ecv
dns
ftp
Add >
< Remove
Configured
Monitors
Weight
State
http_8081
1
State: UP
Probes: 68352 Failed [Total: 5630 Current: 0]
Last Response: Success - HTTP response code 302 received.
Response Time: 0.754 millisec
Comments
Help
OK
Close


Configure Service
Service Name* cuic-http80801-sub4
Server* ATL-CUIC-SUB4 (10.10.2.46)
Protocol* HTTP
Port* 8081
Traffic Domain 0
Service State UP
Number of Active Clients
Disable
Enable Health Monitoring
AppFlow Logging
Monitors
Policies
Profiles
Advanced
SSL Settings
Thresholds
Max Requests 0
Max Clients 0
Max Bandwidth (kbits) 0
Monitor Threshold 0
Idle Time-out (secs)
Client 180
Server 360
Settings
Use Source IP
Client Keep-Alive
TCP Buffering
Compression
Client IP Header
Comments
Help
OK
Close

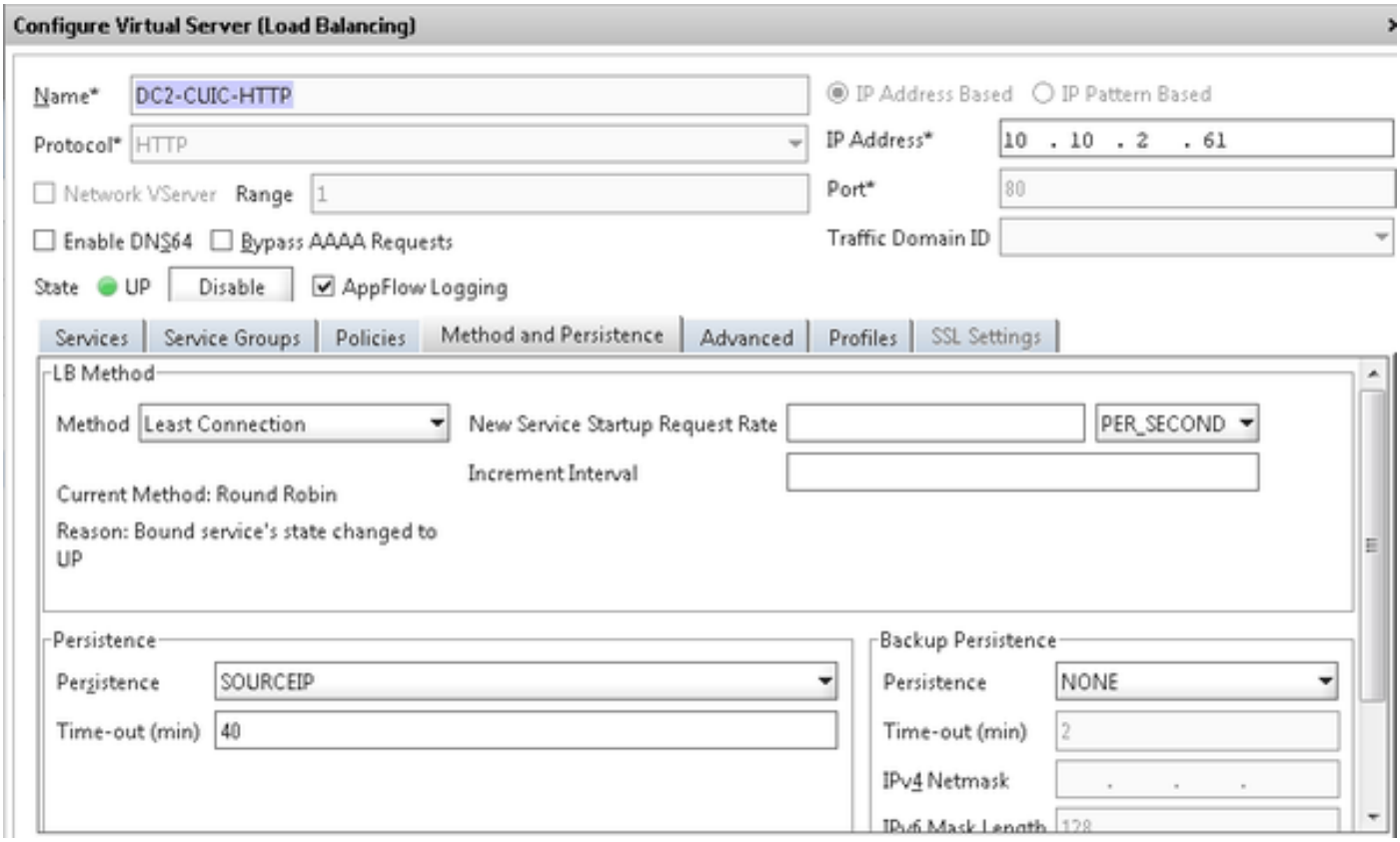

Configure Service
Service Name* cuic-https-sub4
Server* ATL-CUIC-SUB4 (10.10.2.46)
Protocol* SSL_BRIDGE
Port* 8444
Traffic Domain 0
Service State UP
Number of Active Clients
Disable
Enable Health Monitoring
AppFlow Logging
Monitors
Policies
Profiles
Advanced
SSL Settings
Available
Monitors
arp
nd6
ping
tcp
http
tcp-ecv
http-ecv
udp-ecv
dns
ftp
Add >
< Remove
Configured
Monitors
Weight
State
cust_sub4_https-ecv 1
State: UP
Probes: 384901 Failed [Total: 8624 Current: 0]
Last Response: Success - Pattern found in response.
Response Time: 1.463 millisec
Comments
Help
OK
Close

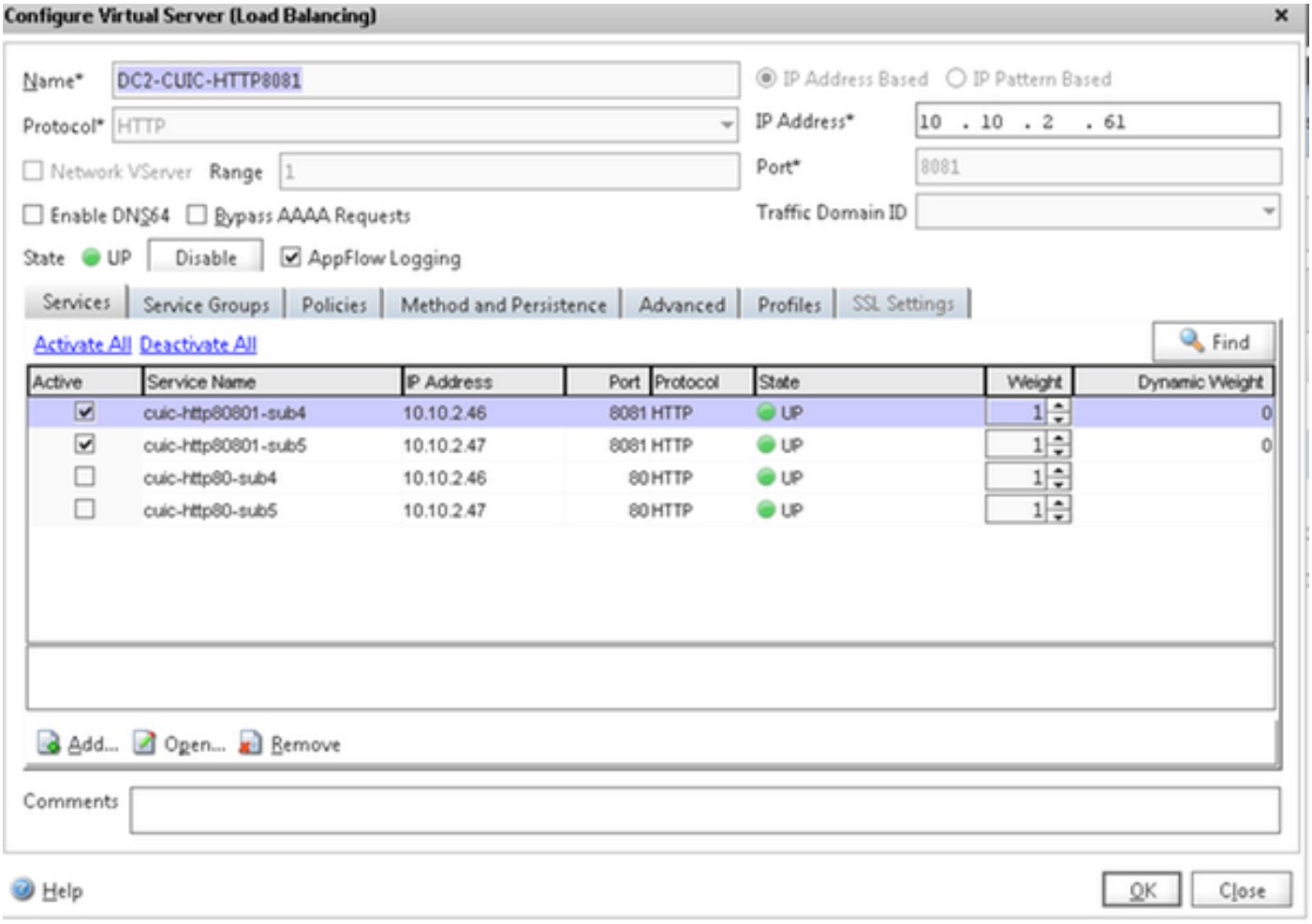


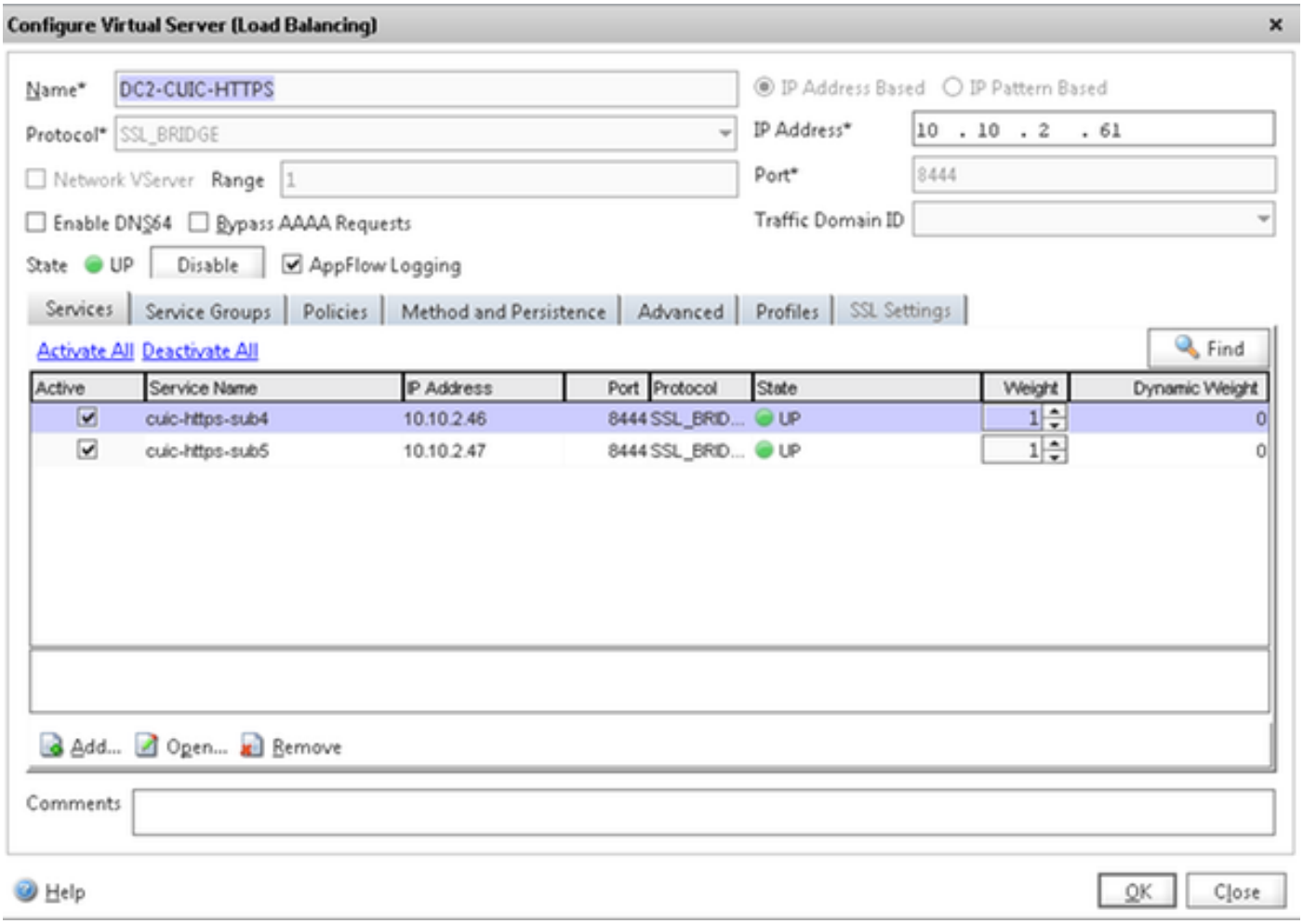
Create Virtual Server

To create a virtual server, navigate to **Traffic Management > Load Balancing > Virtual Servers**, and click **Add**.
Check the services that needs to be associated with this virtual service.

In the **Method and Persistence** tab, select **Method** as **Least Connection**, **Persistence** as **SOURCEIP** and **Time-out** as **40** minutes. This is because the default historical reporting refresh rate is set to 30 minutes; you need to configure some value greater than the refresh rate. If you are configuring different refresh rate for historical report, then change this value as well.


Configure Virtual Server (Load Balancing)
Name* DC2-CUIC-HTTP
Protocol* HTTP
Network VServer Range 1
Enable DNS64 Bypass AAAA Requests
State UP Disable AppFlow Logging
IP Address Based IP Pattern Based
IP Address* 10 . 10 . 2 . 61
Port* 80
Traffic Domain ID
Services Service Groups Policies Method and Persistence Advanced Profiles SSL Settings
LB Method
Method Least Connection
New Service Startup Request Rate PER_SECOND
Increment Interval
Current Method: Round Robin
Reason: Bound service's state changed to UP
Persistence
Persistence SOURCEIP
Time-out (min) 40
Backup Persistence
Persistence NONE
Time-out (min) 2
IPv4 Netmask
IPv6 Mask Length 128


Configure Virtual Server (Load Balancing)
Name* DC2-CUIC-HTTP8081
Protocol* HTTP
Network VServer Range 1
Enable DNS64 Bypass AAAA Requests
State UP Disable AppFlow Logging
IP Address Based IP Pattern Based
IP Address* 10 . 10 . 2 . 61
Port* 8081
Traffic Domain ID
Services Service Groups Policies Method and Persistence Advanced Profiles SSL Settings
Activate All Deactivate All
Find
Active Service Name IP Address Port Protocol State Weight Dynamic Weight
cuic-http80801-sub4 10.10.2.46 8081 HTTP UP 1 0
cuic-http80801-sub5 10.10.2.47 8081 HTTP UP 1 0
cuic-http80-sub4 10.10.2.46 80 HTTP UP 1
cuic-http80-sub5 10.10.2.47 80 HTTP UP 1
Add... Open... Remove
Comments
Help
OK
Close

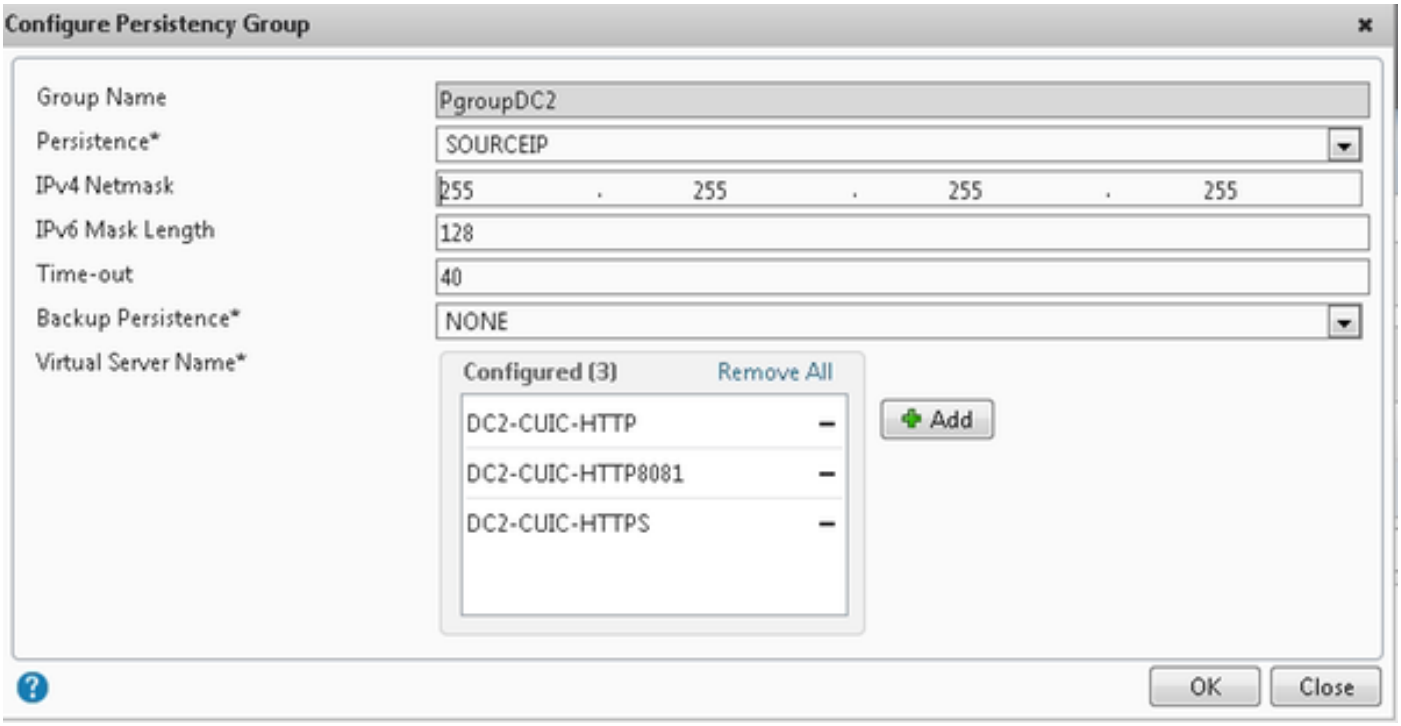


Create Persistency Groups

To create Persistency group, navigate to **Traffic Management > Load Balancing > Persistency Groups**, click **Add**.

Select **Method** as **Least Connection**, **Persistence** as **SOURCEIP** and **Time-out** as **40** minutes. This is because the default historical reporting refresh rate is set to 30 minutes; you need to configure some value greater than the refresh rate. If you are configuring different refresh rate for historical report, then change this value as well.

Since each CUIC server listens on three ports, you need to include all three virtual servers here. If a client requests to HTTP 80 port which is already sent to a particular CUIC server, all requests from that client targeting to port 8081, 8444 is routed to the same CUIC.



Reference

1. http://support.citrix.com/proddocs/topic/netscaler/ns-gen-netscaler-wrapper-con.html