Radware's AppDirector and Oracle Siebel Customer Relationship Management (CRM) 8.0 Implementation Guide

Products:

Radware AppDirector

Software: AppDirector version 2.00.01

Platform: On-Demand Switch II XL

Oracle Siebel 8

Table of Contents

Solution Overview

The Radware and Siebel's joint solution ensures Siebel Business Applications version 8.0 customers solution resilience, efficiency and scale. Radware's AppDirector guarantees Siebel applications maximum availability, scalability, performance and security, managing traffic for both the web server content and application business logic level. AppDirector works in conjunction with Siebel Business applications to offload resource intensive processing, provide advanced health monitoring avoiding system down time and advanced Layer 7 traffic management to deliver a best of breed subsystem. With a pay as you grow platform licensing model, AppDirector ensures long term investment protection facilitating incremental growth demanded by today's Business. Diagram 1.0 is a logical depiction of the intended deployment model.

Siebel 8 Application Overview

Oracle Siebel 8.0 uses a multi-tiered application framework. The Siebel environment consists of client, application, and database tiers. The client tier comprises devices that access the application via the Web. The application tier can be broken down to two different functions, services that terminate client connections and application object managers (AOM) that perform business logic. Multiple application components can reside in the application tier providing different business functions.

Client Tier

There are multiple client types available on the Siebel platform. The major client types are Web client, mobile client, and dedicated Web client. Wireless and handheld clients are used in specialized applications such as retail and manufacturing.

•Siebel Web client—Siebel Web client uses a Web browser on the local PC. It connects to the Siebel Web server via http (port 80) or https (port 443). No additional software is required. The Web client is easy to maintain since it does not require any software upgrades. Since no Siebel software resides on the local PC, it is not affected by software upgrades and updates on the server.

•Siebel mobile client and dedicated client—The mobile client and dedicated client require additional software installed on the PC. The additional software provides faster throughput with less data transfers for a given transaction by sending only changed data between the client and the server. For remote users, the dedicated client allows disconnected mode and synchronizes with the database when network connectivity is restored.

•Siebel wireless client/Siebel handheld client—These two clients are specialized clients for vertical applications. The wireless client has a translator for Hypertext Transfer Protocol (HTTP) to Wireless Application Protocol (WAP), which is suitable for mobile phones. The handheld client can accommodate information on smaller screens.

Application Tier

The application tier contains two functional areas, services that terminate client connections and business logic.
The former component is called the Siebel Web Server Extension (SWSE). It is an add-on to Microsoft Internet Information Server (IIS). SWSE is responsible for handling Web requests from users. It forwards user requests to the Application Object Managers (AOM) via Siebel Internet Session API (SISNAPI) protocol. Siebel provides native server load balancing for highly-available Web servers. Third party load balancers are supported as well.
There are numerous Siebel application servers that provide different business applications. Each Siebel application component can be run on a single or multiple physical servers. Application components can be load balanced at the component level across different physical server pools. Load balancing can be configured with native Siebel load balancer or a third-party load balancer.

Database Tier

The database tier provides a repository to Siebel application data. It consists of a RDBMS and separate file system store.
•File system — The Siebel File System (SFS) is a server with a shared directory that provides CIFS access to other Siebel servers. The SFS is a shared storage area for images, reports, documents, and other data. A pointer in the database record locates the file in the SFS.
•Database Server — The database server is the main data store for the Siebel application. The Siebel application servers connect directly the database server. Oracle 10g is the database used in this deployment.

Gateway Name Server

Gateway name server is a repository for configuration information for each Siebel server. It has configuration information about the Siebel Enterprise.

Radware AppDirector Overview

Radware's AppDirector is an intelligent application delivery controller (ADC) that provides scalability and application-level security for service infrastructure optimization, fault tolerance and redundancy. Radware combined its next-generation, OnDemand Switch multi-gigabit hardware platform with the powerful capabilities of the company's APSolute™ operating system "classifier" and "flow management" engine. The result – AppDirector – enables accelerated application performance; local and global server availability; and application security and infrastructure scalability for fast, reliable and secure delivery of applications over IP networks.

AppDirector is powered by the innovative OnDemand Switch platform. OnDemand Switch, which has established a new price/performance standard in the industry, delivers breakthrough performance and superior scalability to meet evolving network and business requirements. Based on its on demand, "pay-as-you-grow" approach, no forklift upgrade is required even when new business requirements

arise. This helps companies guarantee short-term and long-term savings on CAPEX and OPEX for full investment protection. Radware's OnDemand Switch enables customers to pay for the exact capacity currently required, while allowing them to scale their ADC throughput capacity and add advanced application-aware services or application acceleration services on demand to meet new or changing application and infrastructure needs. And it does it without compromising on performance.

AppDirector lets you get the most out of your service investments by maximizing the utilization of service infrastructure resources and enabling seamless consolidation and high scalability. AppDirector's throughput licensing options allows pay as you grow investment protection. Make your network adaptive and more responsive to your dynamic services and business needs with AppDirector's fully integrated traffic classification and flow management, health monitoring and failure bypassing, traffic redirection, bandwidth management, intrusion prevention and DoS protection.

For more information, please visit: http://www.radware.com/

Deployment Notes

SIEBEL 8 Load Balancing Application Notes

With Siebel 8.0, you can choose between 2 deployment options for load balancing with AppDirector:

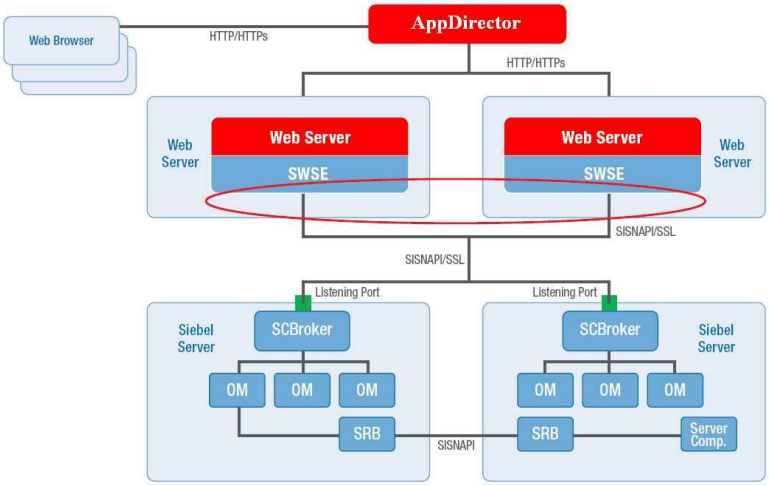
Option 1

• AppDirector receives requests from client browsers and load balances them across Siebel Web servers. Load balancing Siebel web servers does not require any specific configuration changes on the web server. The AppDirector appliance can be placed in front of the Web servers and can load balance requests.

• Siebel Load balancing for Application servers; In this case, each Web server is directly tied to an application server.

Note: Siebel Server Load Balancing for Application servers is typically done after the Siebel Servers and Database Server have been installed, but can be done before the Web servers are installed. The Siebel Load Balancing instance resides in the Siebel Web Server Extension (SWSE) on the Web Servers. It allows each instance of SWSE to distribute connection requests to multiple application servers in a round-robin fashion. Typically, the Siebel administrator will generate the load balancing configuration file by logging into the Server Manager and type "generate lbconfig". This generates a load balancing configuration file in the SIEBEL_INSTALLATION_ROOT/Admin directory.

Logical Architecture for Option 1



Option 2 – Chosen for Radware Validation Testing

• AppDirector receives requests from client browsers and load balances across Siebel Web servers.

• AppDirector receives application server requests from all Siebel Web servers and load balances to multiple Siebel Application servers.

Note: To implement a hardware based load balancer for Siebel Application servers, a couple of configuration changes on the Siebel Web servers are required.

1. First, update the eapps.cfg file to disable Siebel Load Balancing by changing the setting below as follows:

   EnableVirtualHosts = False

2. Next, modify the Object Manager connect string so it points to the Virtual IP and Port. For the load balanced Object Manager, the connect string must have the format:

ConnectString = siebel.TCPIP.None.None://<VirtualIP>:<VirtualPort>/<Siebel Enterprise Name>/<Alias of the Object Manager>

Where:

<VirtualIP>

is the IP address of the Virtual IP (VIP) specified in AppDirector.

This VIP will be assigned to the Application Server Farm.

<VirtualPort>

is the Port Number, or Service defined in the Layer 4 policy VIP definition.

The default port is 2321.

<Siebel Enterprise Name>

is the name of the Siebel Enterprise in which the load balanced Siebel Servers reside.

<Alias of the Object Manager>

is the alias of the Load Balanced Object Manager.

Example eapps.cfg:

Before required changes

EnableVirtualHosts = true

[/callcenter_enu]

ConnectString = siebel.TCPIP.None.None://VirtualServer/SBA_80/SCCObjMgr_enu

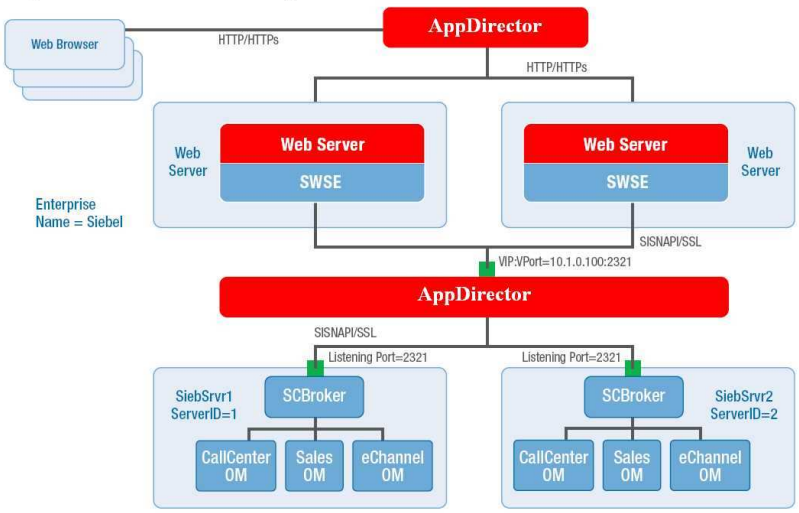
After required changes

EnableVirtualHosts = false

[/callcenter_enu]

ConnectString = siebel.TCPIP.None.None://10.10.10.55:2321/SBA_80/SCCObjMgr_enu

Logical Architecture for Option 2



Note: Each URL and OM connect string typically corresponds to one Siebel Application. It will not work to have the same application referencing multiple VIPs in the AppDirector. VIPs can be shared between applications but any one application should only reference one VIP.

Siebel 8 Application Server load balancing rules

Developing the load balancing rules for AppDirector to direct traffic to the Siebel Application Tier requires an understanding of the “lbconfig” file generated for Siebel local load balancing by the SWSE.

There are three rules that need to be defined:

1. The first time a request is established for a new connection.
2. When the server needs to reconnect back to the same server after a disconnect occurs
3. When the Siebel Broker detects that no AOM is available that the request should be Round Robin load balanced to the next broker to handle the request.

Here is a sample section of the “lbconfig” file

```
# This is the load balance configuration file generated by the Siebel srvrmgr "generate lbconfig" command.

# It contains two sections. Section one contains load balancing rules to be used by Siebel session manager.

# Section two is intended for 3rd party load balancers. Before modifying the content of this file please

# read the chapter on SWSE configuration in the Siebel Bookshelf.


#Section one -- Session Manager Rules:

VirtualServer=1:siebelrw:2321;5:siebelrw1:2321;

******************************

#Section two -- 3rd Party Load Balancer Rules

/SBA_80/SCCObjMgr_enu=siebelrw1:2321;siebelrw:2321;


#Server Rules:

*/!1.*=siebelrw:2321;

*/!5.*=siebelrw1:2321;


#Round Robin Rules:

/SBA_80/SCCObjMgr_enu/RR=siebelrw1:2321;siebelrw:2321;
```

Explanation of the “lbconfig” file

The first section identifies the Siebel application servers and the port the broker is listening on.

VirtualServer=1:siebelrw:2321;5:siebelrw1:2321;

The string “1:siebelrw:2321;5:siebelrw1:2321” has the following meaning:

- 1 is assigning to the server siebelrw and 5 is assigning to the server siebelrw1
- siebelrw is the host name and translates to IP 10.10.10.53 and siebelrw1 to IP 10.10.10.50
- 2321 is the port that the Broker is listening on.

When the AppDirector reads the URL sent from the SWSE to determine what action to take when directing traffic to the Siebel Server requires the setup of three server farms:

- One containing siebelrw:2321;siebelrw1:2321, this will be used to load balance The first time a request is established for a new connection and when a connecting is rejected by a Broker and the SWSE sends a request to the AppDirector to round robin the request to a new broker.

The next two farms are used when the server needs to reconnect back to the same server after a disconnection occurs, L7 URI persistence. This is a one to one mapping of the URI to a Farm containing a single server.

- one containing siebelrw:2321
- one containing siebelrw1:2321

The SWSE injects into the URI a “!1” or “!5” to identify the server that the request should be sent to.

/!1.=siebelrw:2321; IP 10.10.10.53

/!5.=siebelrw1:2321 IP 10.10.10.50

The SWSE injects into the URI a “RR” to identify that the request should be re-load balanced round robin to the next available broker.

/SBA_80/SCCObjMgr_enu/RR=siebelrw1:2321;siebelrw:2321

AppDirector and Siebel 8 Architecture

Key features implemented on the AppDirector to support this solution:

- Service health monitoring
- Layer 4 load balancing
- Layer 7 load balancing
- Cookie based Persistence
- Caching
- Compression
- Client NAT
- Server NAT
- VRRP

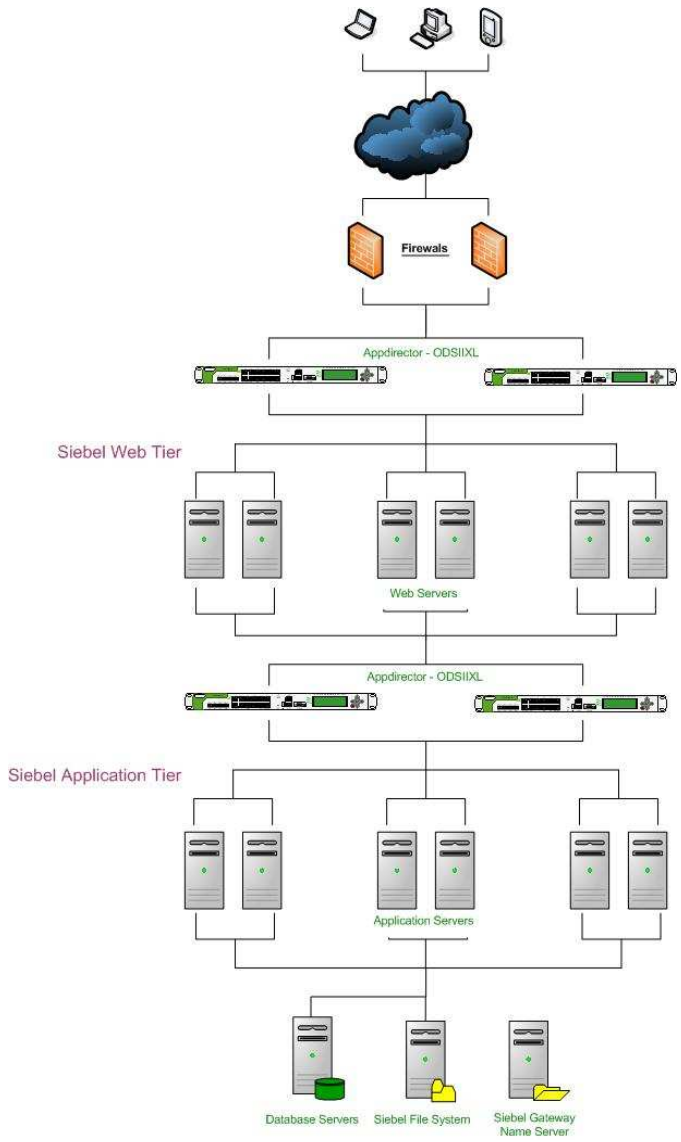


Diagram 1.0 – Siebel 8 and AppDirector Logical Topology

Tests Conducted for Solution Validation

The following tests were conducted to ensure the most appropriate solution was defined and validated. All tests were successfully completed using the AppDirector and Oracle Siebel 8 configurations following Table 1.0.

Test Case	Action	Expected Result	Actual Result	Status
Siebel Web Client Login Page	- Open Browser Window - Paste the following web URL "HTTP:// 76.197.19.55 /callcenter_enu	Siebel Login Page should Display	Siebel Login Page is displayed	**Pass**
Siebel Web Client Home Page	- Provide Login name as SADMIN, Password : SADMIN	Siebel Home Page should Display after successful Login	Siebel Home Page is displayed	**Pass**
Siebel Server Administration Screen	- Click on Site Map - Check for the Siebel server - Check for the running instances of all the Siebel components like Request Broker, Request Processor, Transaction Manager etc.,	Siebel should show the Running instance of Servers and Components	Siebel Administration Screen shows the Running instance of Servers and Components	**Pass**
Create an opportunity record	- Click on Site Map - Click on Opportunity - Select Opportunity List - Click on New Button (or use Applet Menu or Ctrl + N to create a new Record) - Provide Opportunity Name, Sales Stage (Write whatever the required fields are in Opportunity) - Open Applet Menu and Click on "Save Record" Or Press ^S	The Opportunity should be saved. And displayed in the UI	The Opportunity is created and saved. It is also displayed in the UI	**Pass**
Query an opportunity record	- Click on Site Map - Click on Opportunity - Select Opportunity List - Click on Query Button - Provide Opportunity Name and click Go button	The Opportunity should be displayed in the UI	The Opportunity is displayed in the UI	**Pass**
Delete an opportunity record	- Click on Site Map - Click on Opportunity - Select Opportunity List - Click on Query Button - Provide Opportunity Name and click Go button - Highlight the Opportunity record and click Delete button.	The Opportunity should be deleted.	The Opportunity is deleted and not displayed in the UI	**Pass**
Siebel Dedicated	- Open Siebel Application using the Siebel client shortcut key on the	Siebel Login Page should Display	Siebel Login Page is displayed	**Pass**

Client	programs list		properly	
Siebel Web Server Load Balance	- Open Browser Window - At least 6 users should log in to the Siebel web client - Provide Login name and password for the 6 different instances	Siebel Login Page should Display Siebel Home Page should Display after successful Login for all the six users	Siebel Home Pages are displayed after successful Login for all the six users Web Server 1 has 3 users connected and Web Server 2 has 3 users connected	**Pass**
Siebel App Server Load Balance	- Open Browser Window - At least 6 users should log in to the Siebel web client - Provide Login name and password for the 6 different instances	Siebel Login Page should Display Siebel Home Page should Display after successful Login for all the six users	Siebel Home Pages are displayed after successful Login for all the six users Siebel Server Manager shows Siebel App Server 1 has 3 user sessions and Siebel App Server 2 has 3 user sessions	**Pass**
Siebel Web Server Session Persistence	- Open Browser Window - At least 6 users should log in to the Siebel web client - Provide Login name and password for the 6 different instances	Siebel Login Page should Display Siebel Home Page should Display after successful Login for all the six users Siebel Web Server Sessions should be persistent	Siebel Web Server Sessions are persistent based on Radware Inserted HTTP session cookies Radware AD shows all requests within same session are routed to same Web Server.	**Pass**
Siebel App Server Retry	- Siebel App Server 1 has MaxTasks=3 - Siebel App Server 2 has MaxTasks=20 - Open Browser Window - At least 10 users should log in to the Siebel web client - Provide Login name and password for the 10 different instances	Siebel Login Page should Display Siebel Home Page should Display after successful Login for all the 10 users	Siebel Home Pages are displayed after successful Login for all the 10 users Siebel Server Manager shows Siebel App Server 1 has 3 user sessions and Siebel App Server 2 has 7 user sessions Web Server 1 has 5 users connected and Web Server 2 has 5 users connected Radware AD shows 2 matches of retry policy rule for App Server 1	**Pass**
Siebel App Server	- Open Browser Window - Provide Login name as	Siebel Login Page	Siebel Home Page is displayed after	**Pass**

Reconnect	SADMIN, Password: SADMIN	should Display Siebel Home Page should Display after successful Login	successful Login Radware AD shows 1 match of reconnect policy rule for App Server 1 (when switch from anonymous user session to actual user session)	
Health Check: Web Server Failure	- Shutdown IIS service on Web Server 1 - Open Browser Window - Provide Login name as SADMIN, Password: SADMIN	Siebel Web Server 1 should be taken out from Radware Web Server Farm Siebel Login Page should Display Siebel Home Page should Display after successful Login	Radware AD shows "Not in Service" for Web Server 1 Siebel Home Page is displayed after successful Login	**Pass**
Health Check: Siebel App Server Failure	- Stop Siebel App Server 1 - Open Browser Window - Provide Login name as SADMIN, Password: SADMIN	Siebel App Server 1 should be taken out from radware App Server Farm Siebel Login Page should Display Siebel Home Page should Display after successful Login	Radware AD shows "Not in Service" for App Server 1 Siebel Home Page is displayed after successful Login	**Pass**
Siebel Web Client Session Timeout	- Login to the web client with the appropriate user name and password - Leave the session open for 60 min	Siebel Home Page should Display after successful Login and should be open for the entire session 60 min	Siebel Home Page is displayed after successful Login The Siebel session is opened for 60 minutes and then timeout closed.	**Pass**

Table 1.0 - Test Conducted for Solution Validation

Radware's AppDirector Configuration for Siebel 8

Siebel Server Name	Service	Port	Network IP Address
siebelrw1	web	80	10.10.10.50
siebelrw1	web	80	10.10.10.53
siebelrw1	application broker/AOM	2321	10.10.10.50
siebelrw1	application broker/AOM	2321	10.10.10.53
VIP			
web virtual IP	web	80	76.197.19.55
Application Broker/AOM virtual IP	application broker/AOM	2321	10.10.10.55
one to one virtual IP -10.10.10.50			76.197.19.50
one to one virtual IP – 10.10.10.53			76.197.19.53
Primary AppDirector Routing table and interface IP's	interface	subnet	Network IP Address
Gateway	G-1	255.255.255.0	76.197.19.62
Subnet	G-11	255.255.255.0	10.10.10.0
Subnet	G-1	255.255.255.240	76.197.19.48
Management Interface	MNG-1	255.255.255.0	192.168.1.50
G-11 Interface	G-11	255.255.255.0	10.10.10.1
G-1 Interface	G-1	255.255.255.240	76.197.19.61

Backup AppDirector Routing table and interface IP's	interface	subnet	Network IP Address
Gateway	G-1	255.255.255.0	76.197.19.62
Subnet	G-11	255.255.255.0	10.10.10.0
Subnet	G-1	255.255.255.240	76.197.19.48
Management Interface	MNG-1	255.255.255.0	192.168.1.53
G-11 Interface	G-11	255.255.255.0	10.10.10.3
G-1 Interface	G-1	255.255.255.240	76.197.19.60

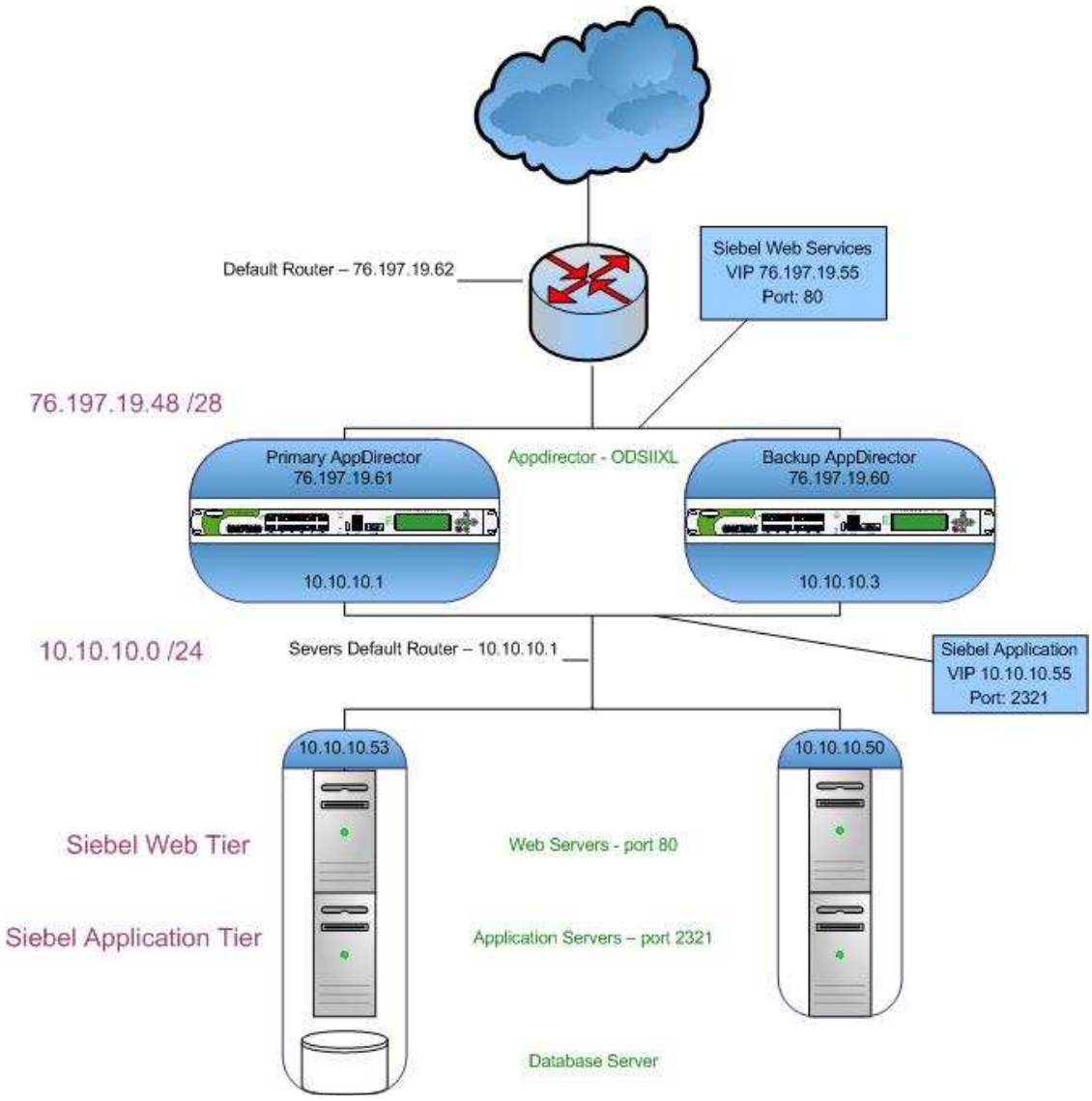


Diagram 2.0 – Siebel 8 and AppDirector Physical Topology

Primary AppDirector Configuration

Using a serial cable and a terminal emulation program, connect to the AppDirector.

The default console port settings are:

- Bits per Second: 19200
- Data Bits: 8
- Parity: None
- Stop Bits: 1
- Flow Control: None

1. Using the following Command line, assign management IP address 192.168.1.50 / 24 to interface 17 (Dedicated Management Interface) of the AppDirector:

   ```
   net ip-interface create 192.168.1.50 255.255.255.0 MNG-1
   ```

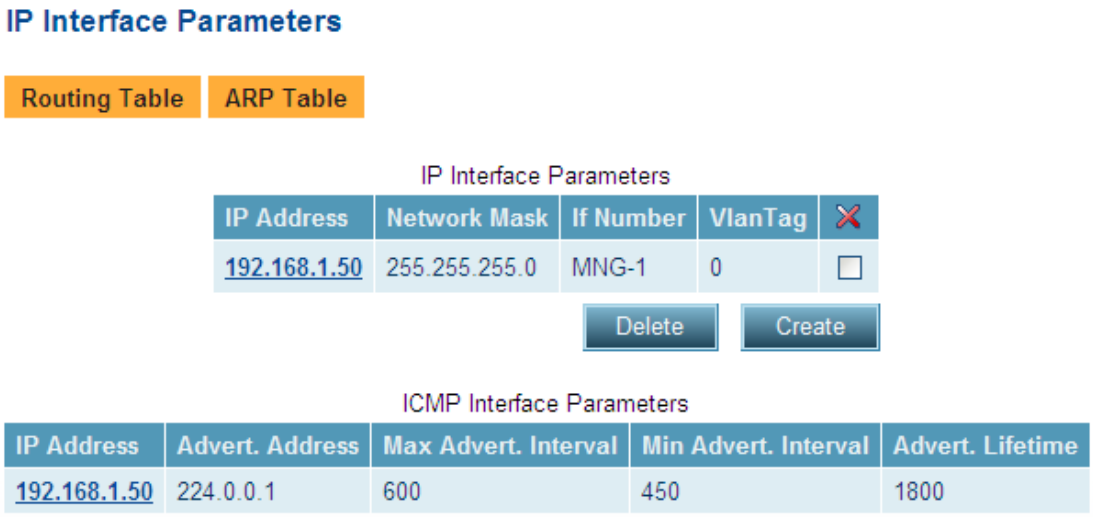
2. Using a browser, connect to the management IP Address of the AppDirector (192.168.1.50) via HTTP or HTTPS. The default username and password are “radware” and “radware”.

   Failure to establish a connection may be due to the following:

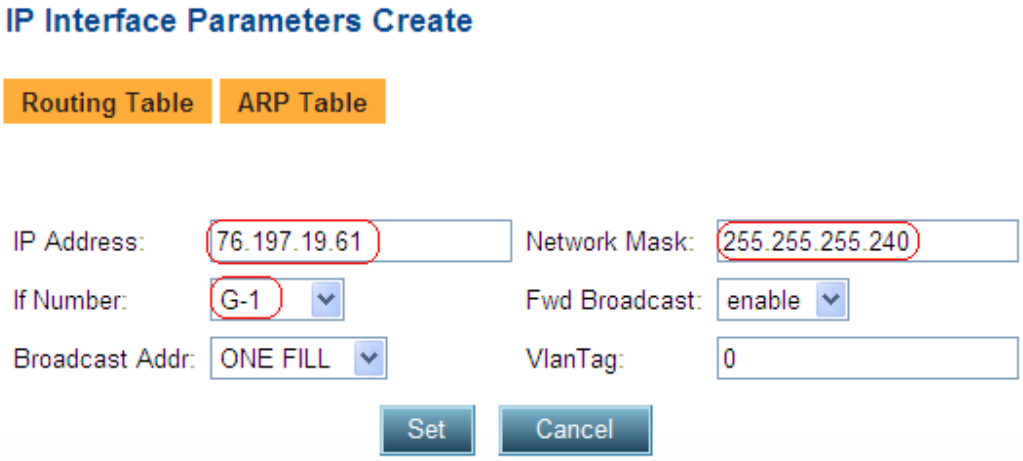
   - Incorrect IP Address in the browser
   - Incorrect IP Address or default route configuration in the AppDirector
   - Failure to enable Web Based Management or Secure Web Based Management in the AppDirector
   - If the AppDirector can be successfully pinged, attempt to connect to it via Telnet or SSH. If the pinging or the Telnet/SSH connection are unsuccessful, reconnect to the AppDirector via its console port. Once

IP Configuration

1. From the menu, select **Router ⇨ IP Router ⇨ Interface Parameters** to display the **IP Interface Parameters** page similar to the one shown below:

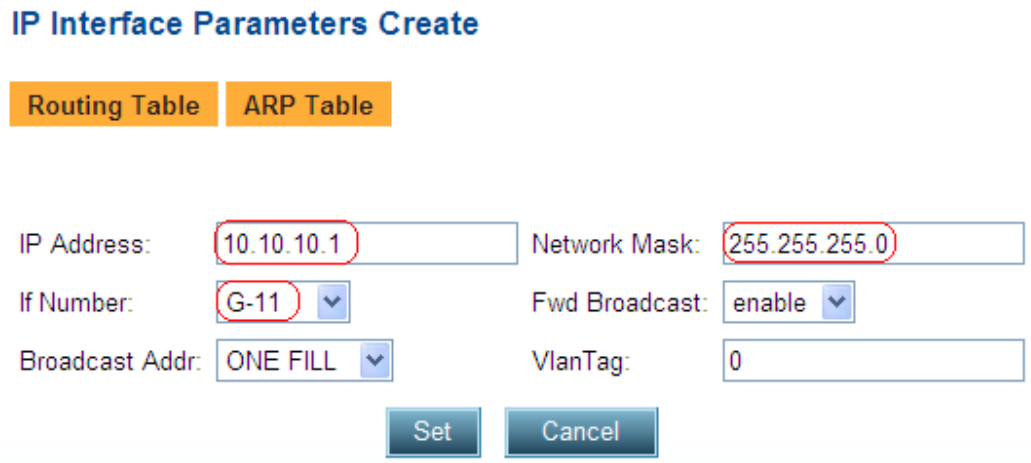


2. Click the **Create** button.
3. On the **IP Interface Parameters Create** page, enter the necessary parameters as shown below:[1]

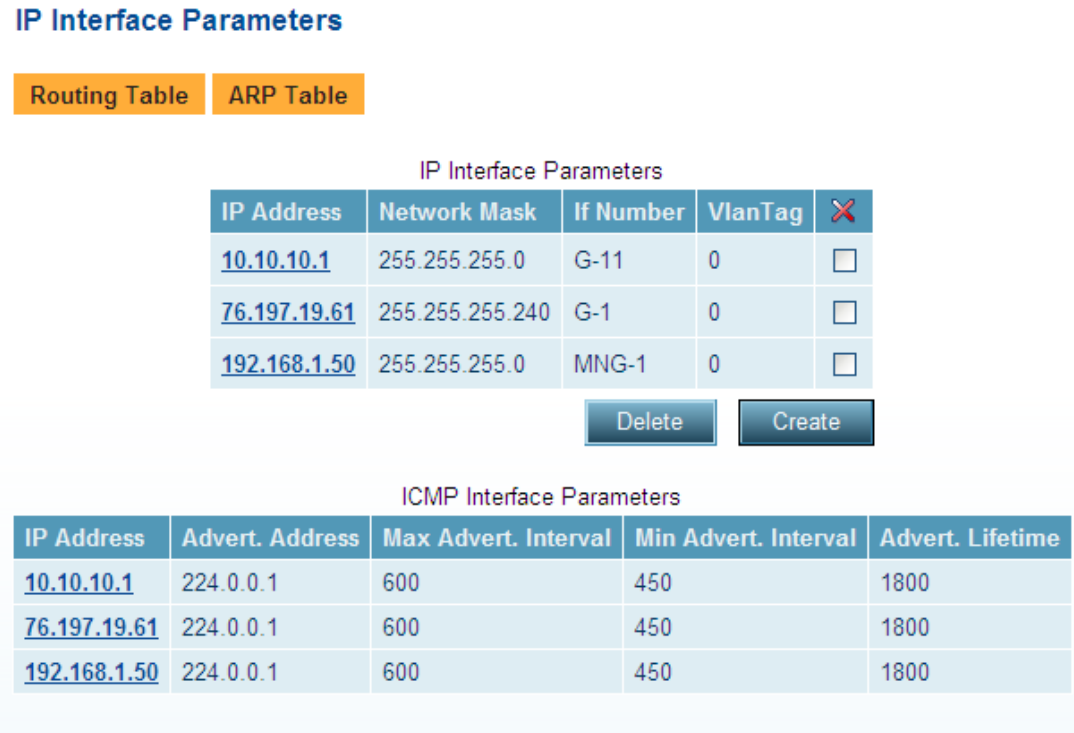


4. Click the **Set** button to save parameters.
5. On the **IP Interface Parameters** page, click the **Create** button to configure another interface. enter the necessary parameters as shown below:

[1] Items circled in red indicate settings that need to be entered or changed. Items not circled should be left to default settings.

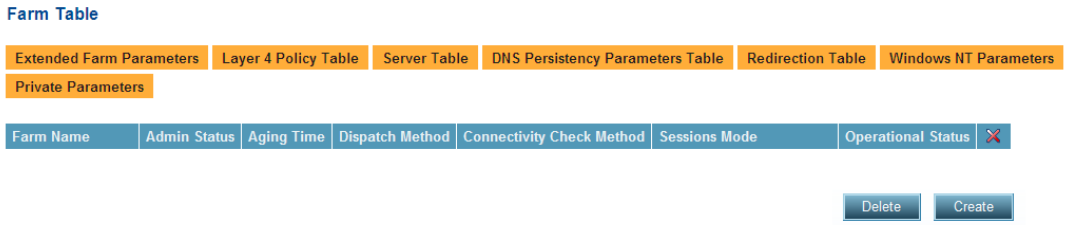


6. Click the **Set** button to save parameters.
7. Verify that the new entries were created on the **IP Interface Parameters** page:



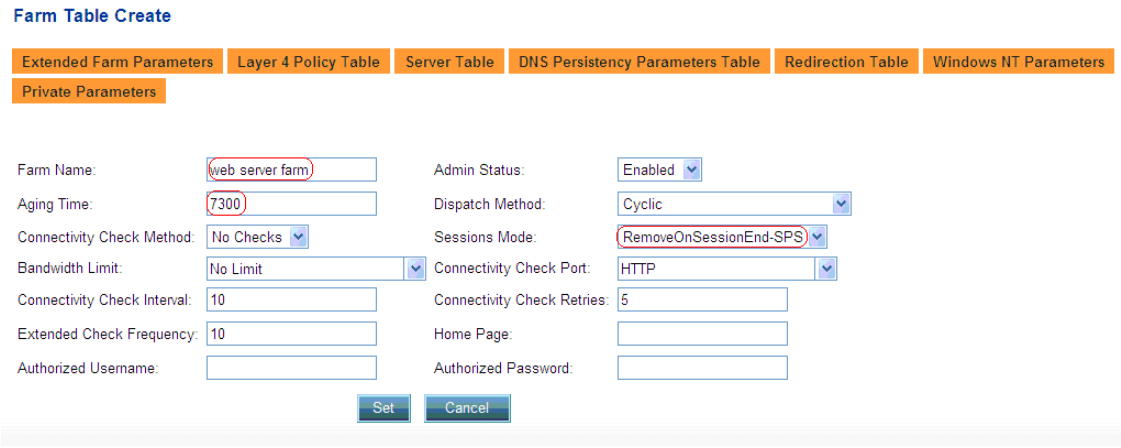
Farm Configuration

1. From the menu, select **AppDirector ⇨ Farms ⇨ Farm Table** to display the **Farm Table** page similar to the one shown below:



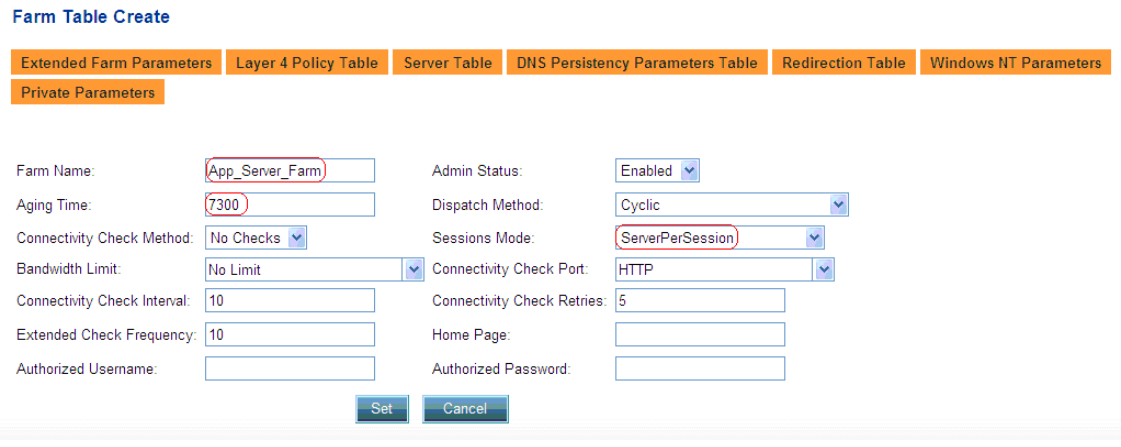
2. Click the **Create** button.

3. On the **Farm Table Create** page, enter the necessary parameters as shown below:



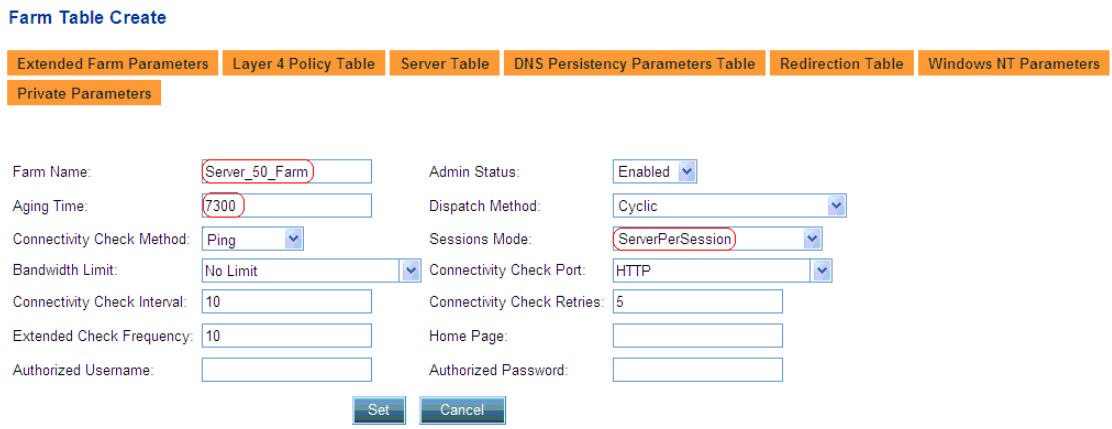
4. Click the **Set** button to save parameters.

5. On **Farm Table** page Click the **Create** button to configure another interface. enter the necessary parameters as shown below:



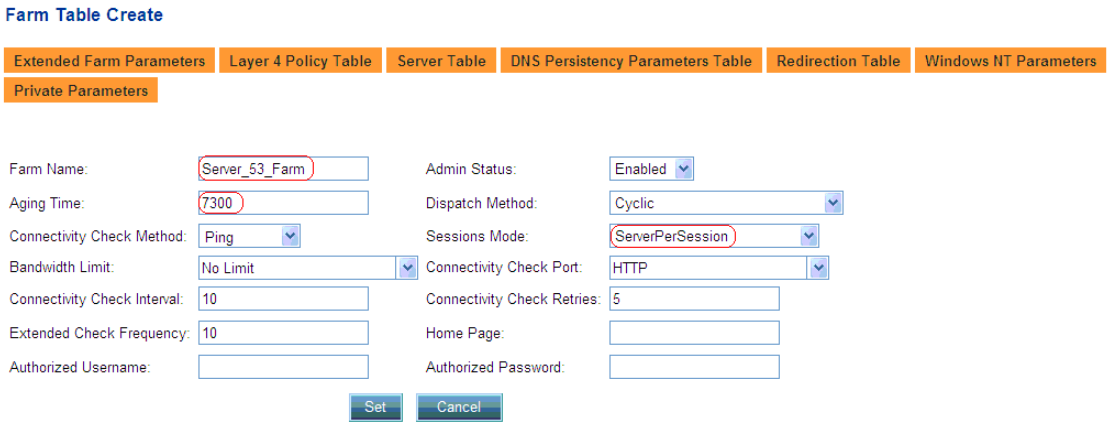
6. Click the **Set** button to save parameters.

7. On **Farm Table** page Click the **Create** button to configure another interface. enter the necessary parameters as shown below:

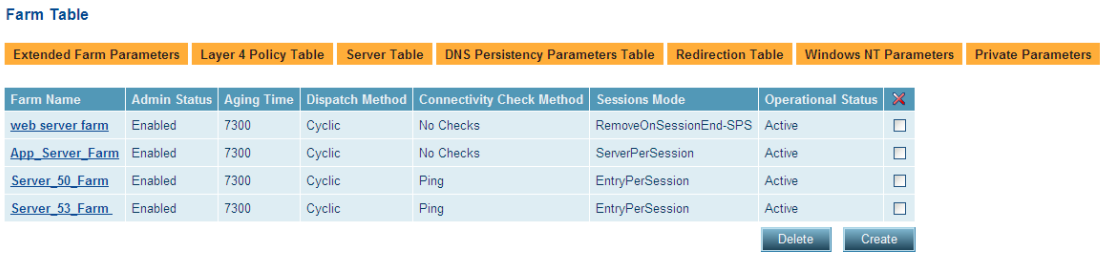


8. Click the **Set** button to save parameters.

9. On **Farm Table** page Click the **Create** button to configure another interface. enter the necessary parameters as shown below:



10. Verify that the new entries are created on the **Farm Table** page:



Create Layer 7 Policy

Note: AppDirector needs to be configured with L7 rules in order to load balance Seibel application layer.

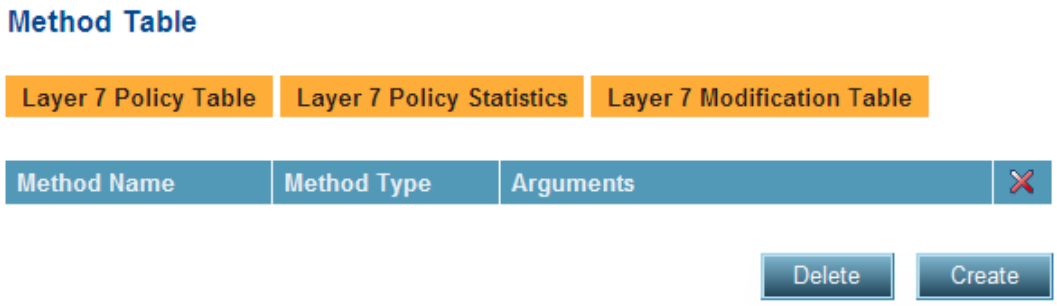
There are three rules that need to be defined:

1. The first time a request is established for a new connection.
2. When the server needs to reconnect back to the same server after a disconnect occurs
3. When the Siebel Broker detects that no AOM is available that the request should be Round Robin load balanced to the next broker to handle the request.

Methods Table

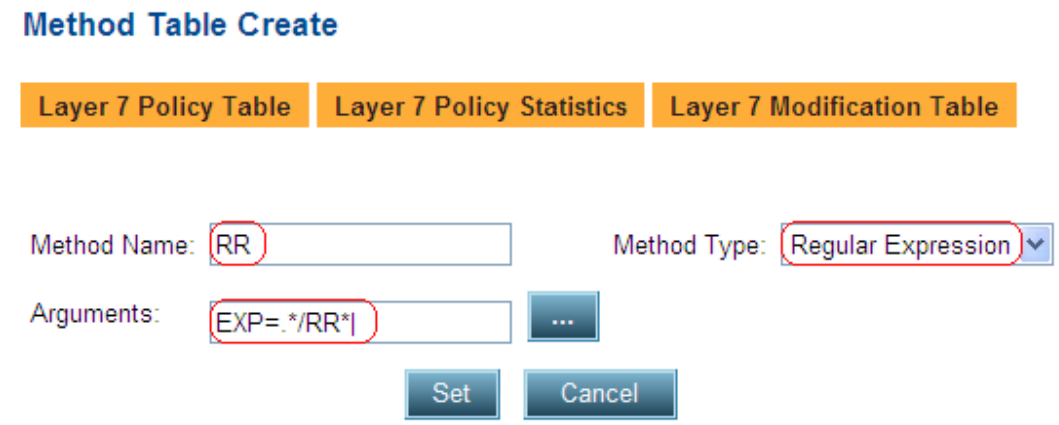
The Methods are created to map to the three rules described above.

1. From the menu, select **AppDirector ⇨ Layer 7 Farm Selection ⇨ Methods** to display the **Methods Table** page similar to the one shown below:

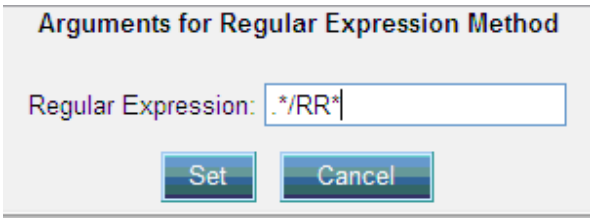


2. Click the **Create** button

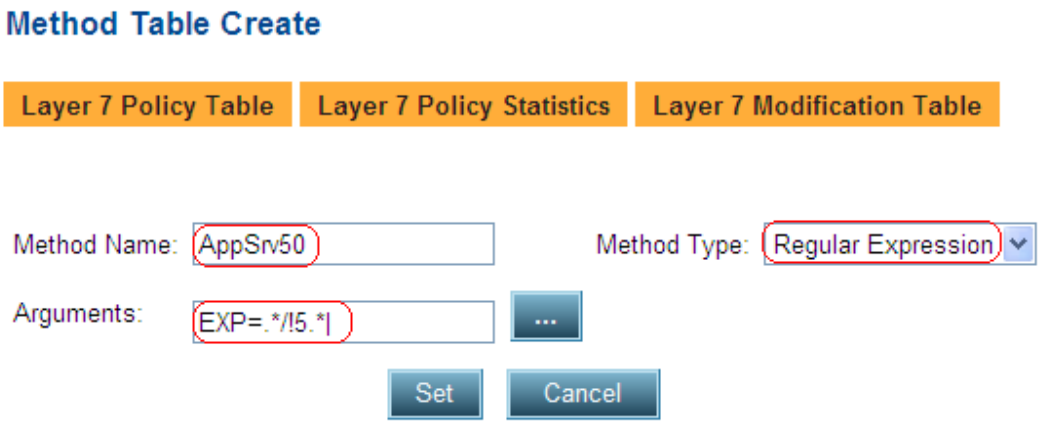
3. On the **Methods Table Create** page, enter the necessary parameters as shown below:



4. Select the ... to enter in the arguments below

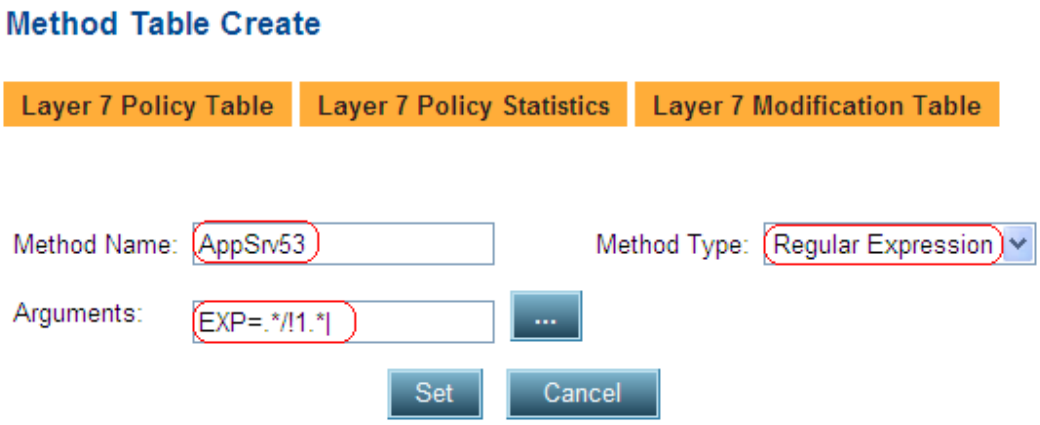


5. Click the **Set** button to save the parameters.
6. On **Methods Table** page Click the **Create** button to configure another method. Enter the necessary parameters as shown below



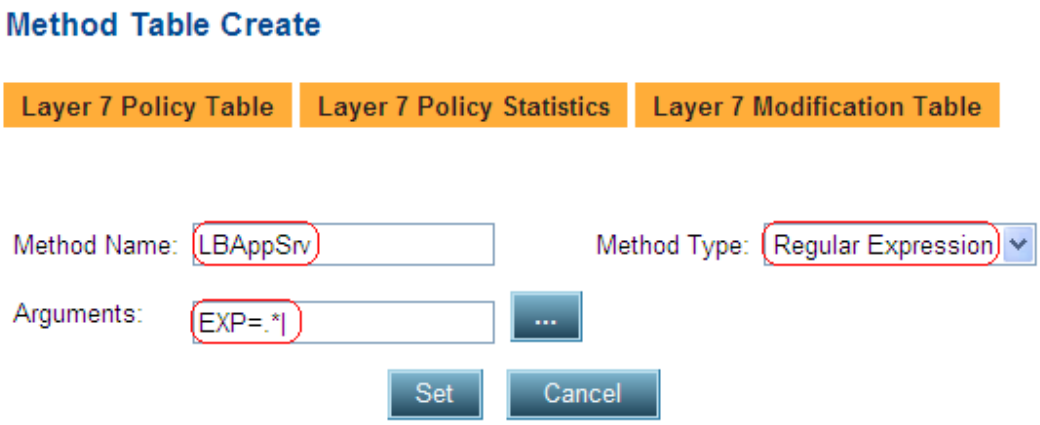
7. Select the ... to enter in the arguments below

8. Click the **Set** button to save the parameters.
9. On **Methods Table** page Click the **Create** button to configure another method. Enter the necessary parameters as shown below

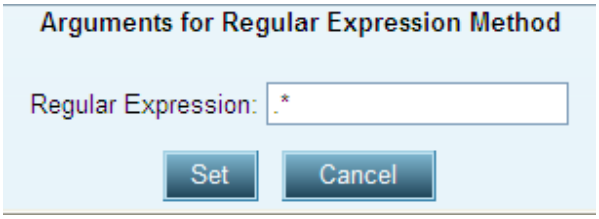


10. Select the  to enter in the arguments below

11. Click the **Set** button to save the parameters.
12. On **Methods Table** page Click the **Create** button to configure another method. Enter the necessary parameters as shown below

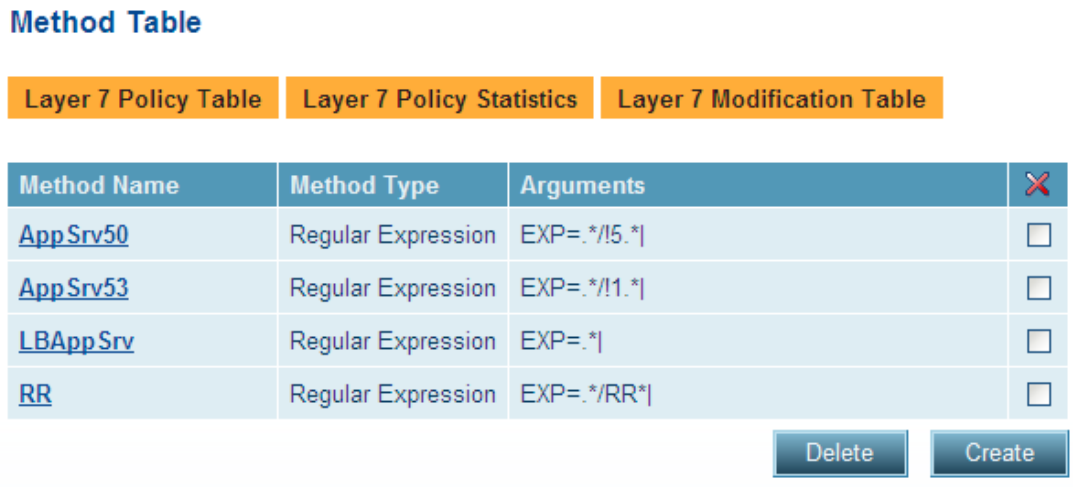


13. Select the ... to enter in the arguments below



14. Click the **Set** button to save the parameters.

15. Verify that the new entries were created on the **Methods Table** page:

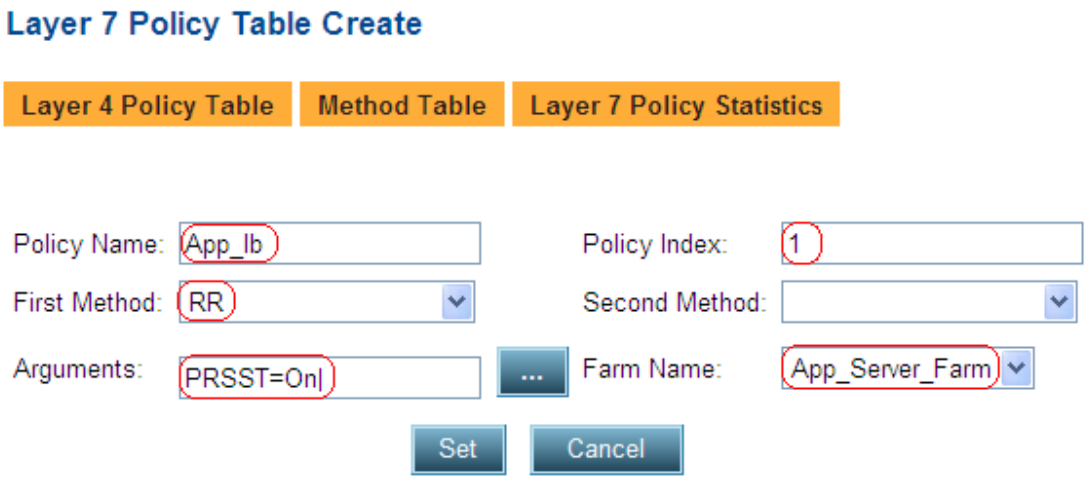


Note: The layer 7 policies define the order for which the rules will be evaluated and to what farm the request will be sent when matched.

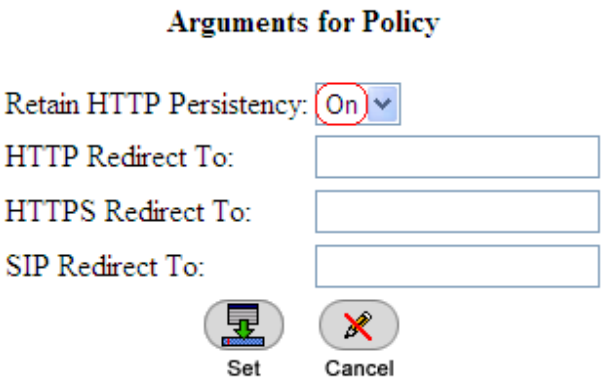
16. From the menu, select **AppDirector ⇨ Layer 7 Farm Selection ⇨ Policies** to display the **Layer 7 Policies Table** page similar to the one shown below:

17. Click the **Create** button

18. On the **Policy Table Create** page, enter the necessary parameters as shown below

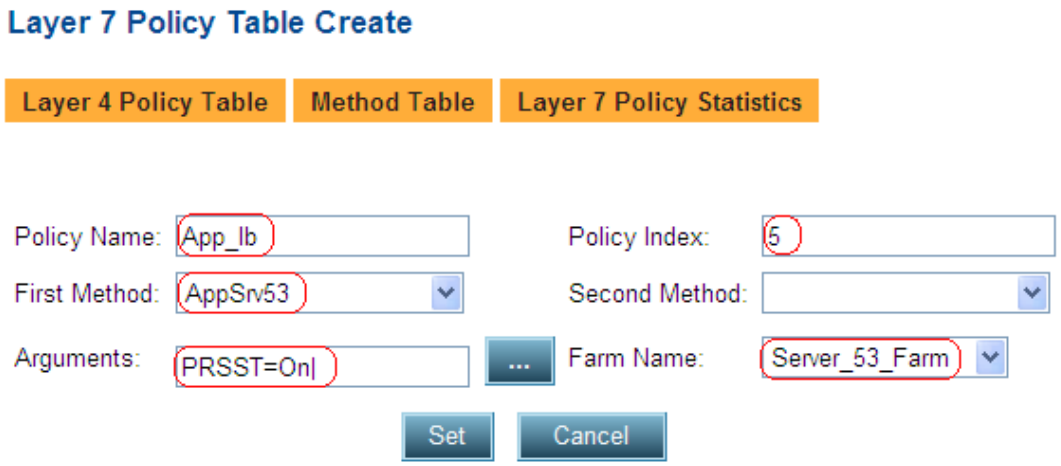


19. Select the  to enter in the arguments below

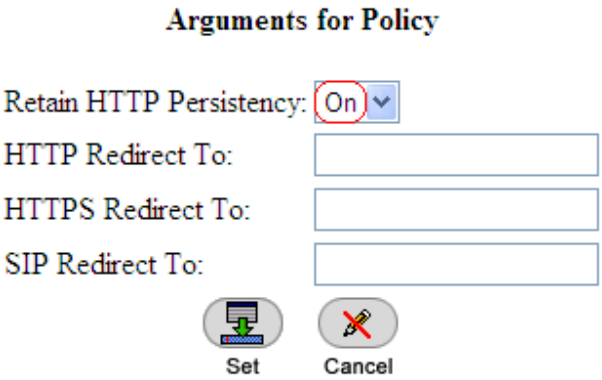


20. Click the **Set** button to save the parameters.

21. On **Layer 7 Policies Table** page Click the **Create** button to configure another policy. Enter the necessary parameters as shown below.

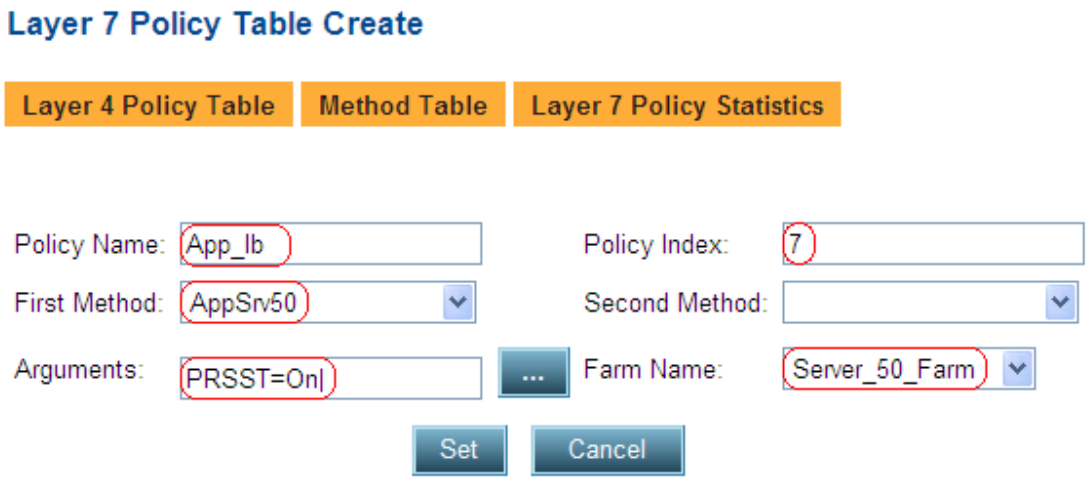


22. Select the  to enter in the arguments below

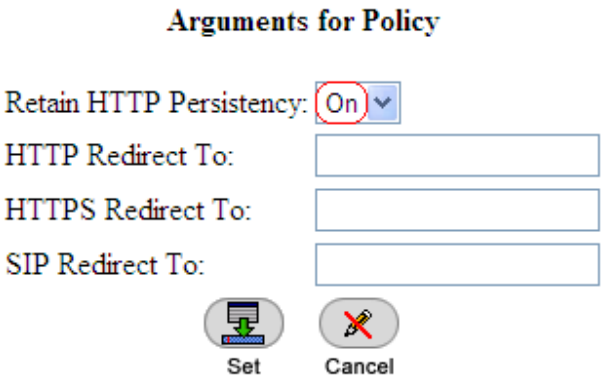


23. Click the **Set** button to save the parameters.

24. On **Layer 7 Policies Table** page Click the **Create** button to configure another policy. Enter the necessary parameters as shown below.

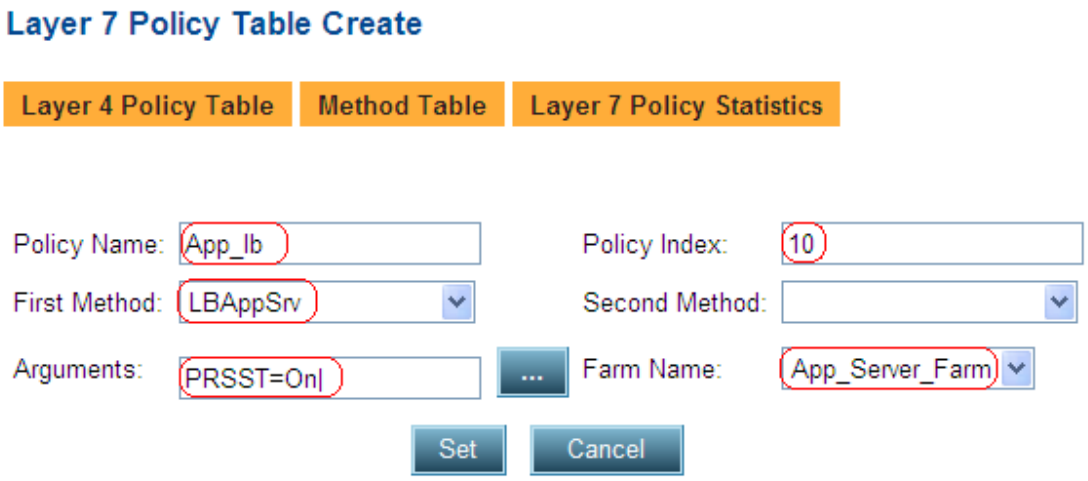


25. Select the ... to enter in the arguments below

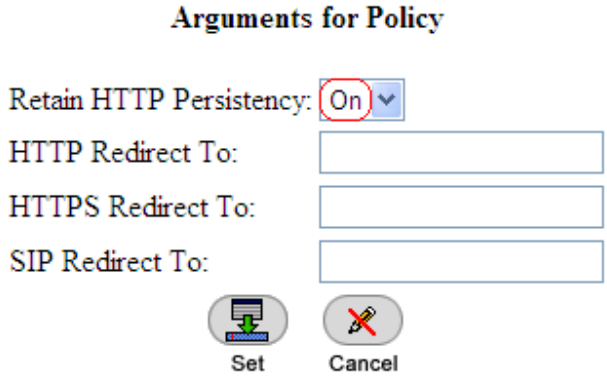


26. Click the **Set** button to save the parameters.

27. On **Layer 7 Policies Table** page Click the **Create** button to configure another policy. Enter the necessary parameters as shown below.

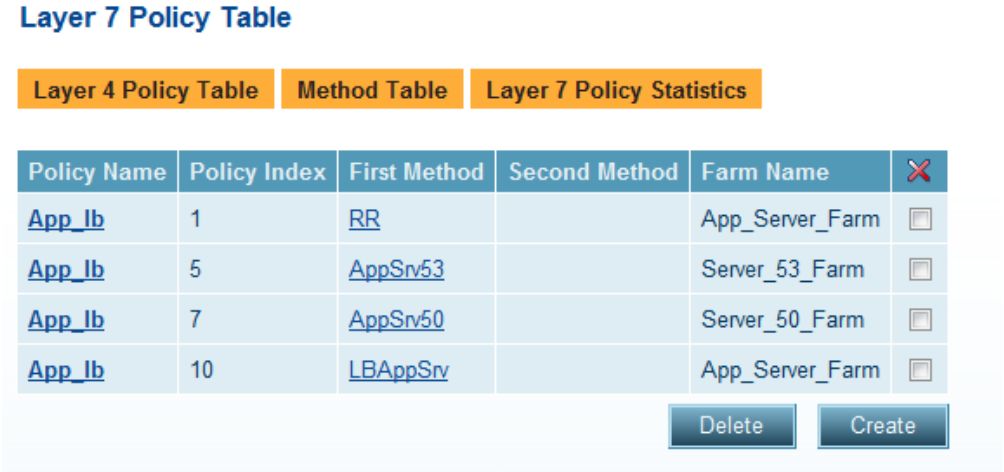


28. Select the ... to enter in the arguments below



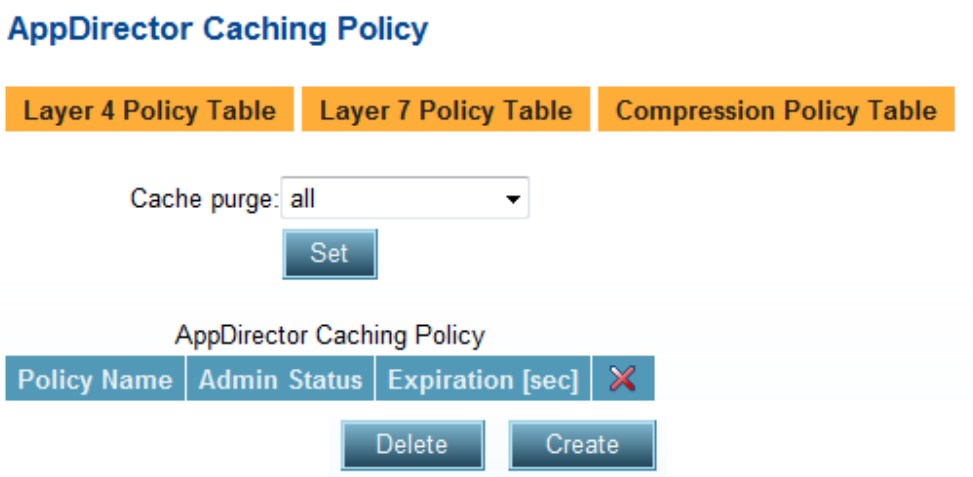
29. Click the **Set** button to save the parameters.

30. Verify that the new entries were created on the **Layer 7 Policies Table** page:

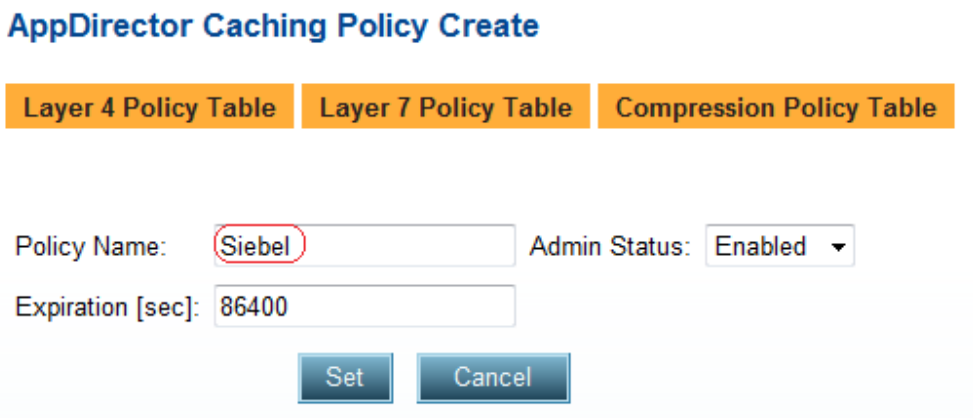


Create Cache Policy

1. From the menu, select **AppDirector ⇨ Layer 4 Traffic Redirection ⇨ Caching Policy** to display the **AppDirector Caching Policy** page similar to the one shown below:



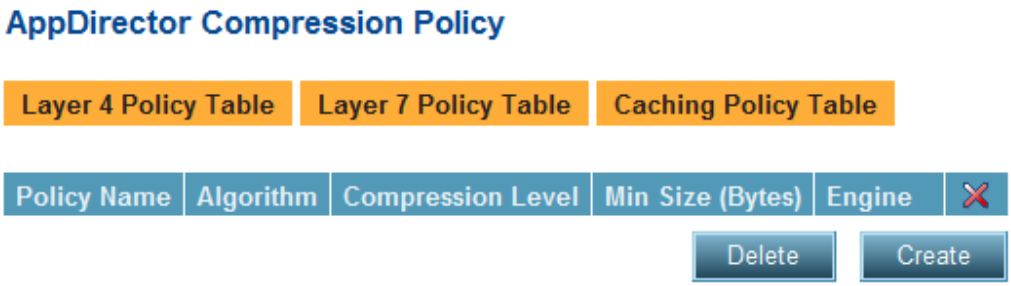
2. Click the **Create** button.
3. On the **AppDirector Caching Policy Create** page, enter the necessary parameters as shown below.



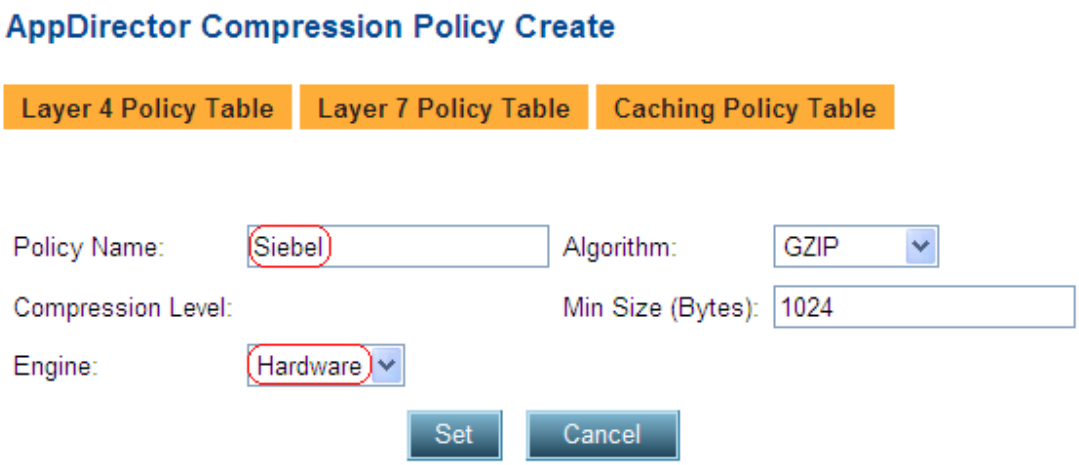
4. Click the **Set** button to save the parameters.

Create Compression Policy

1. From the menu, select **AppDirector ⇨ Layer 4 Traffic Redirection ⇨ Caching Policy** to display the **AppDirector Caching Policy** page similar to the one shown below:



2. Click the **Create** button.
3. On the **AppDirector Caching Policy Create** page, enter the necessary parameters as shown below.

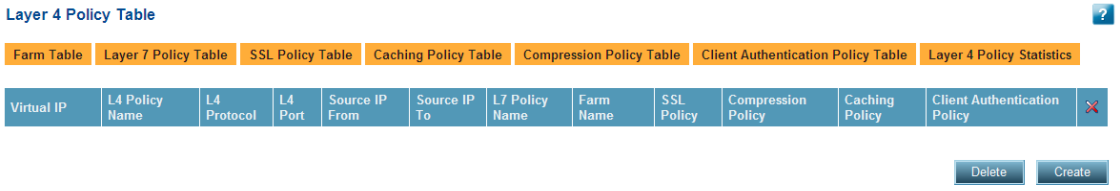


Note: this version of hardware support hardware compression.

4. Click the **Set** button to save the parameters.

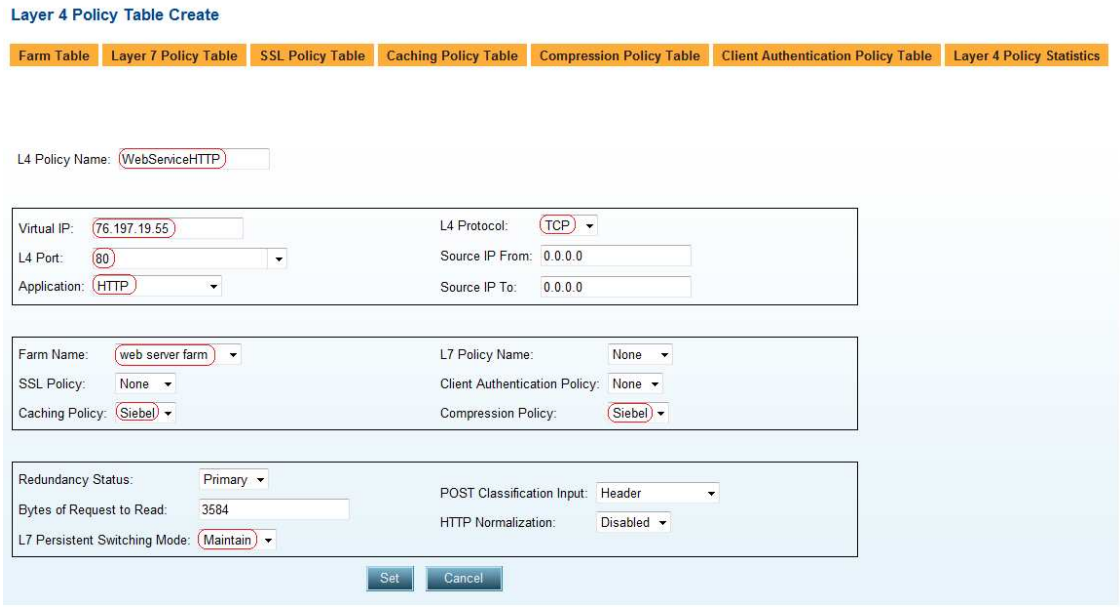
Create Layer 4 Policy

1. From the menu, select **AppDirector ⇨ Layer 4 Traffic Redirection ⇨ Layer 4 Policy Table** to display the **Layer 4 Policy Table** page similar to the one shown below:



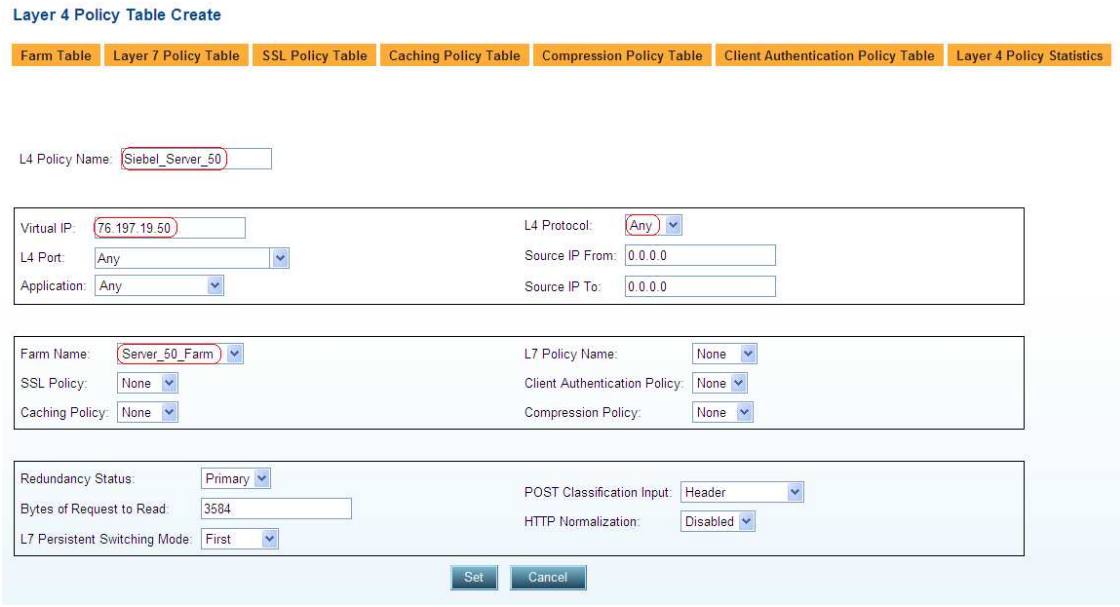
2. Click the **Create** button.

3. On the **Layer 4 Policy Table Create** page, enter the necessary parameters as shown below.



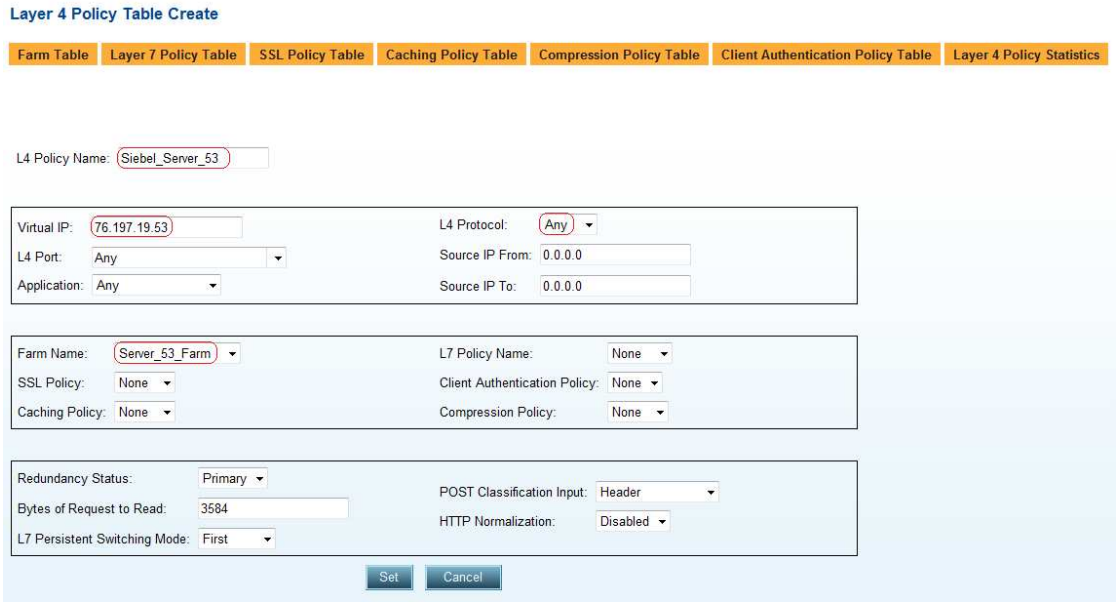
4. Click the **Set** button to save the parameters.

5. On **Layer 4 Policy Table** page Click the **Create** button to configure another L4 Policy. Enter the necessary parameters as shown below:

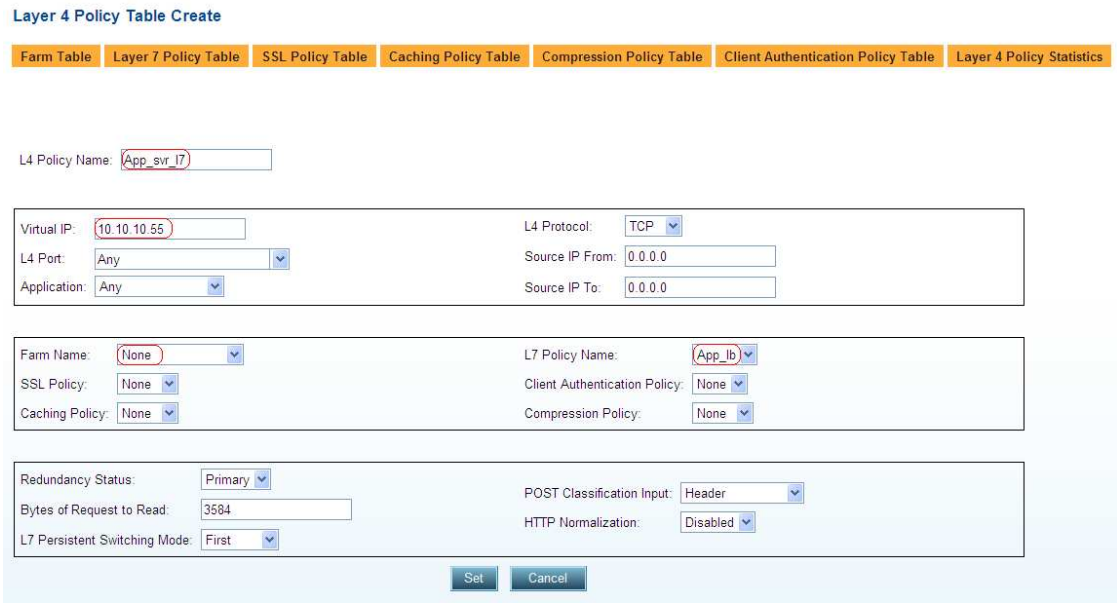


6. Click the **Set** button to save the parameters.

7. On **Layer 4 Policy Table** page Click the **Create** button to configure another L4 Policy. Enter the necessary parameters as shown below:

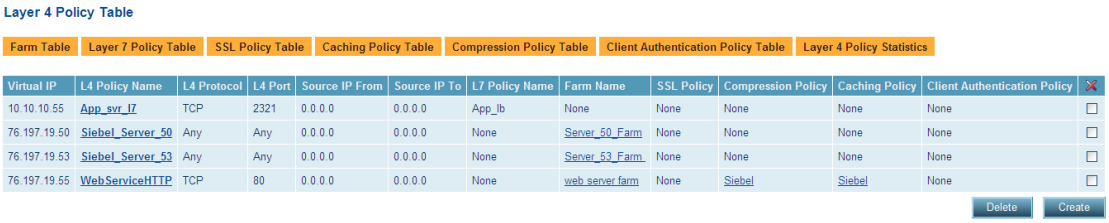


8. Click the **Set** button to save the parameters.
9. On **Layer 4 Policy Table** page Click the **Create** button to configure another L4 Policy. Enter the necessary parameters as shown below:



Note: The Layer 7 policy “App_lb” needs to be created first in order to select it in the **Layer 4 Policy Table**.

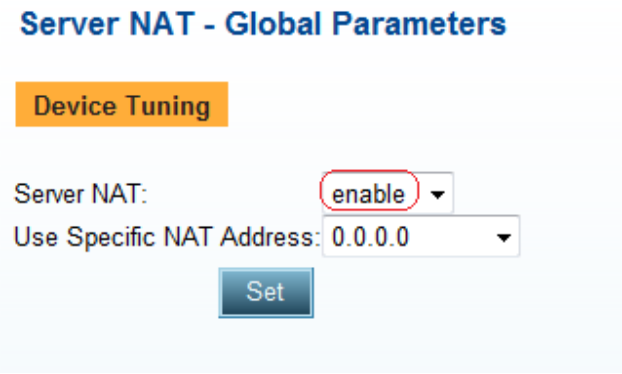
10. Verify that the new entries were created on the **Layer 4 Policy Table** page:



Configure NAT

Server NAT

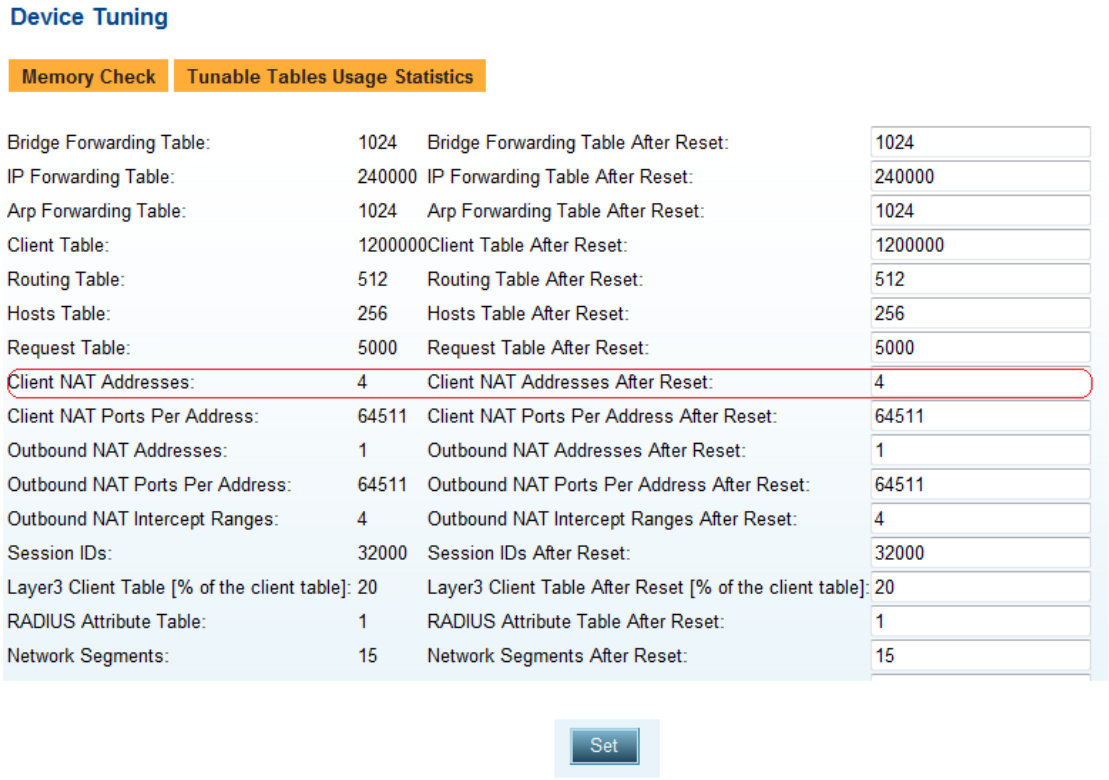
1. From the menu, select **AppDirector ⇨ NAT ⇨ Server NAT ⇨ Global Parameters** to display the **Server NAT - Global Parameters** page similar to the one shown.
2. Enable Server NAT and click the **Set** button to save parameters.



Client NAT

In addition to the configurations below, you must enable Client NAT in the **Extended Farms Table** and in the **Server Table** Configuration.

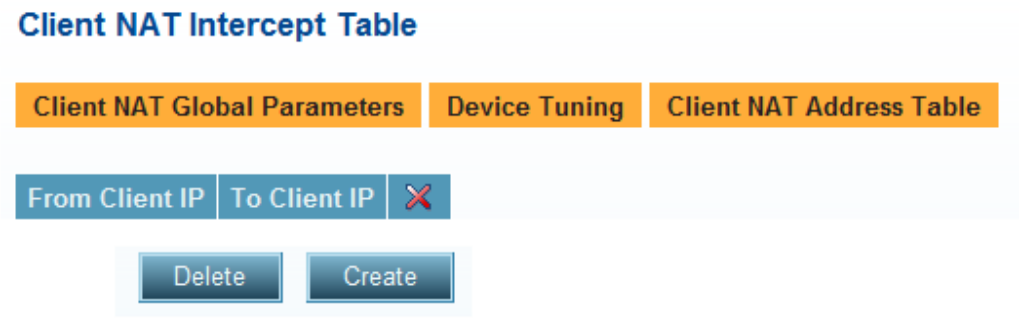
1. From the menu, select **Services ⇨ Tuning ⇨ Device** to display the **Device Tuning** page similar to the one shown.
2. Adjust the number of allowable Client NAT address to the desired amount, at least one and click the **Set** button to save parameters.



The AppDirector must be reset in order for the settings to take effect.

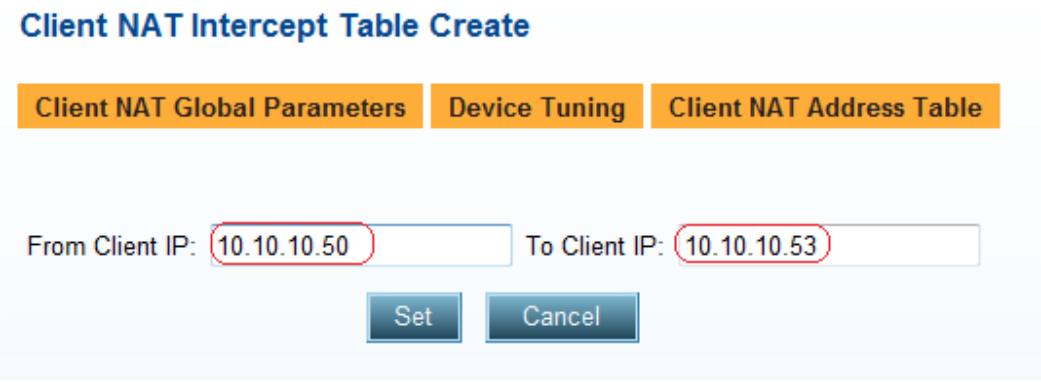
3. To reset the device, From the menu, select **Device ⇨ Reset Device**

4. From the menu, select **AppDirector ⇨ NAT ⇨ Client NAT ⇨ Intercept Address** to display the **Client NAT Intercept Table** page similar to the one shown.



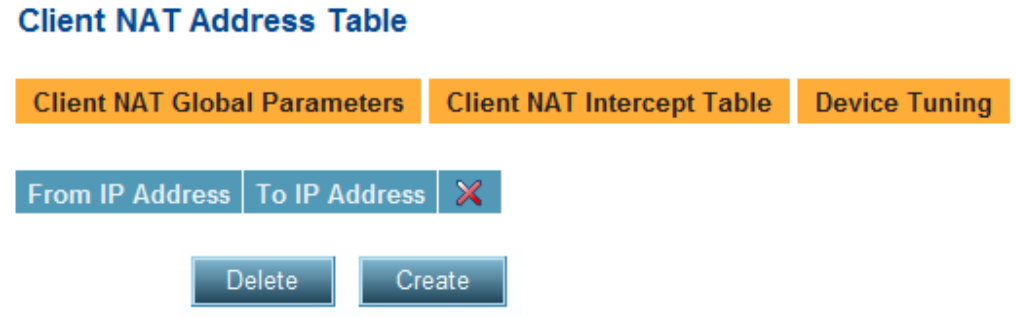
5. Click the **Create** button.

6. Create the intercept range. On the **Client NAT Intercept Table Create** page, enter the necessary parameters as shown below:



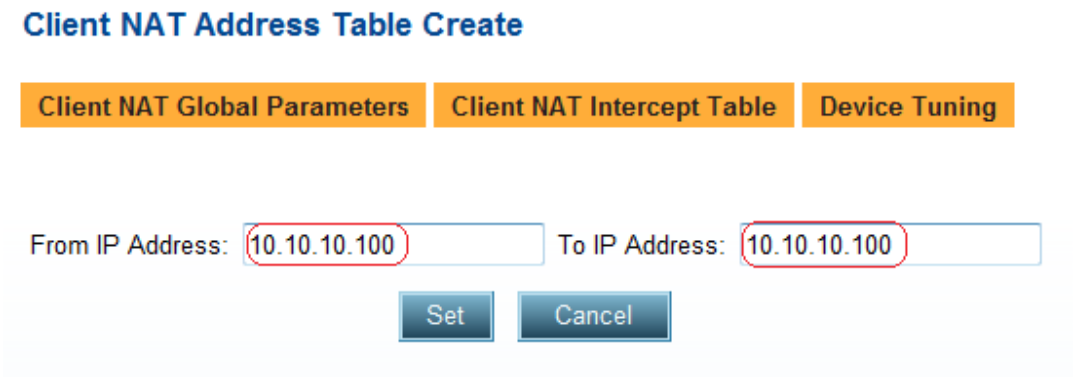
7. Click the **Set** button to save parameters.

8. From the menu, select **AppDirector ⇨ NAT ⇨ Client NAT ⇨ Intercept Address** to display the **Client NAT Address Table page** similar to the one shown.



9. Click the **Create** button.

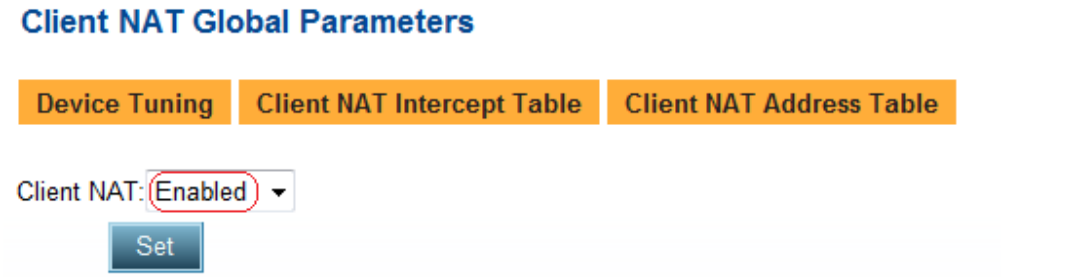
10. Create the NAT Address range. On the **Client NAT Address Table Create** page, enter the necessary parameters as shown below:



11. Click the **Set** button to save parameters.

12. From the menu, select **AppDirector ⇨ NAT ⇨ Client NAT ⇨ Global Parameters** to display the **Client NAT Global Parameters** page similar to the one shown.

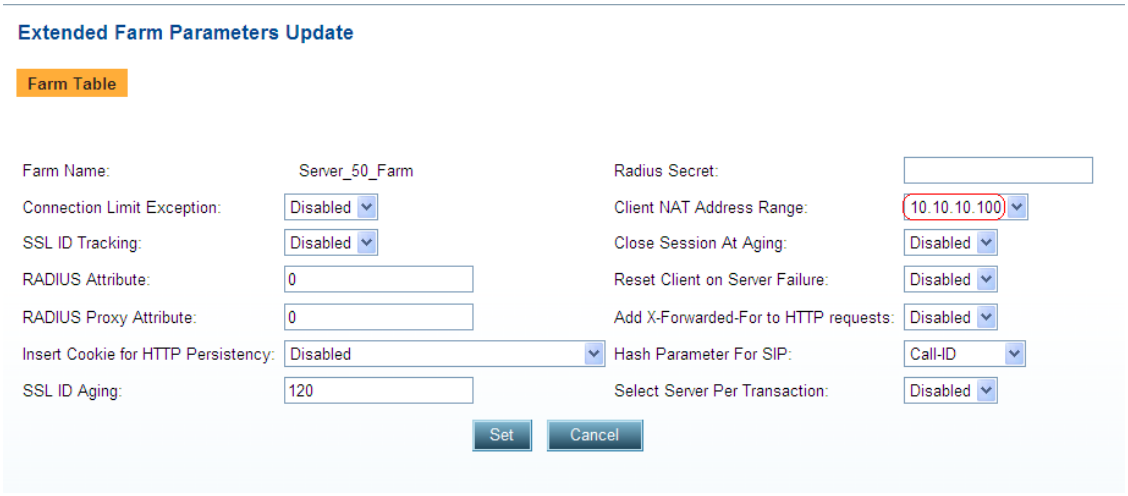
13. Enable Client NAT and click the **Set** button to save parameters.



Extended Farms

Configure Client NAT at the farm level

1. Click the **Extended Farm Parameters** URI at the top of the **Farm Table** page.
2. On the **Extended Farm Parameters Table** page, click on the Farm Name Server_50_Farm.
3. On the **Extended Farm Parameters Update** page, enter the necessary parameters as shown below:

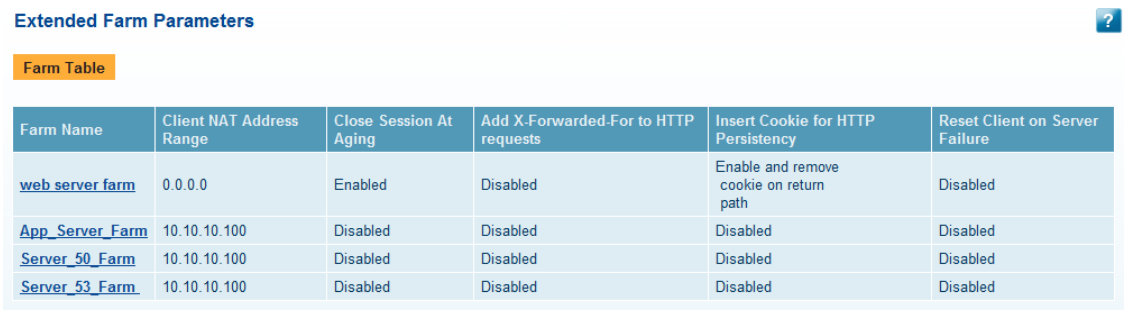


4. Click the **Set** button to save parameters.
5. Repeat step 11 – 14 for extended farms: Server_53_Farm and App_Server_Farm to add Client NAT Address Range.

Configure L7 Persistency for the web farm

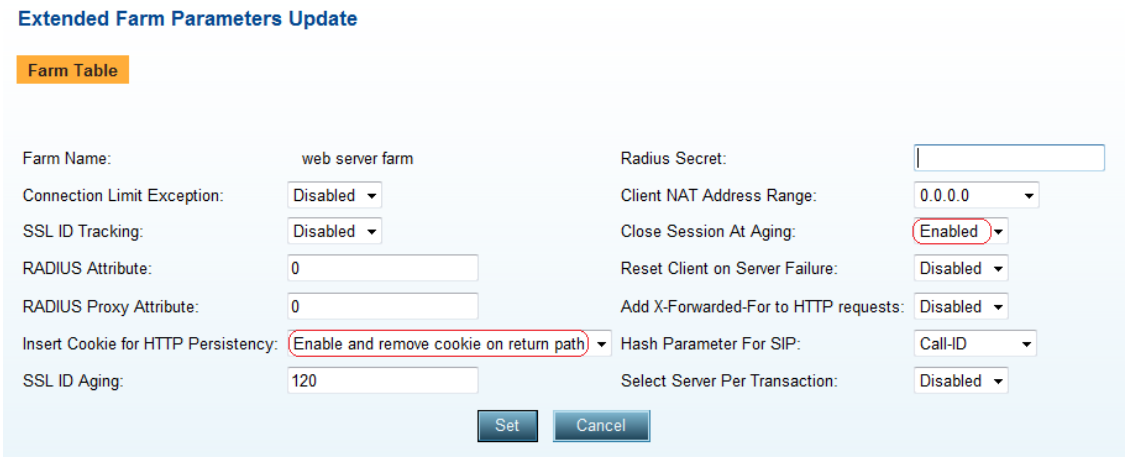
Persistence is handled differently for the web tier and the application tier. The application tier accomplishes this through the L7 rules defined earlier in the layer 7 policy tables. The web tier is configured with cookie insertion configured below.

1. From the menu, select **AppDirector ⇨ Farms ⇨ Extended Parameters** to display the **Extended Farm Parameters** page similar to the one shown.



Farm Name	Client NAT Address Range	Close Session At Aging	Add X-Forwarded-For to HTTP requests	Insert Cookie for HTTP Persistency	Reset Client on Server Failure
web server farm	0.0.0.0	Enabled	Disabled	Enable and remove cookie on return path	Disabled
App_Server_Farm	10.10.10.100	Disabled	Disabled	Disabled	Disabled
Server_50_Farm	10.10.10.100	Disabled	Disabled	Disabled	Disabled
Server_53_Farm	10.10.10.100	Disabled	Disabled	Disabled	Disabled

2. Select the "**web_server_farm"** under the **Farm Name** to display the **Extended Farm Parameters Update** page, enter the necessary parameters as shown below:



3. Click the **Set** button to save parameters.

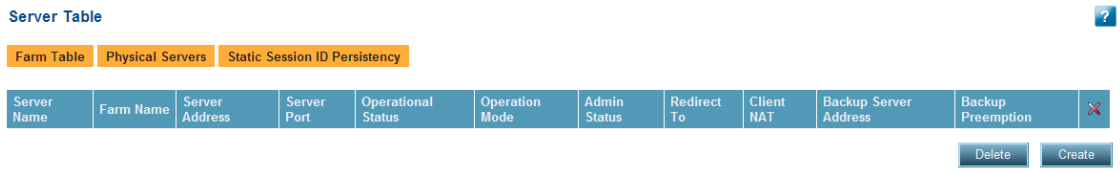
Note: Configuring Cookie Insertion for Web Service HTTP Persistence in the Extended Farm Parameters Update page generates all the L7 persistence logic automatically from the single drop down menu. See Appendix 3 to view and better understand the entries that auto generate to facilitate this function.

Layer 7 Persistency – Insert Cookie Settings

When the ***Insert Cookie for HTTP Persistency*** parameter is enabled in a farm, if the value of this parameter is set to **Enabled**, AppDirector automatically generates a Layer 7 modification rule that inserts a cookie on server replies that contain a server specific identifier. This identifier is used in subsequent requests for Session based persistency. If *Insert Cookie for HTTP Persistency* is set to "**Enable and remove on return path**" AppDirector automatically generates two Layer 7 modification rules, one that inserts a cookie that contains a server specific identifier and one that removes this identifier from subsequent requests before forwarding them to the server. The Layer 7 methods and modification rules that are automatically generated are read-only. If a user deactivates the capability in the farm configuration, the Layer 7 Modification rule and Layer 7 method automatically generated for this capability are removed.

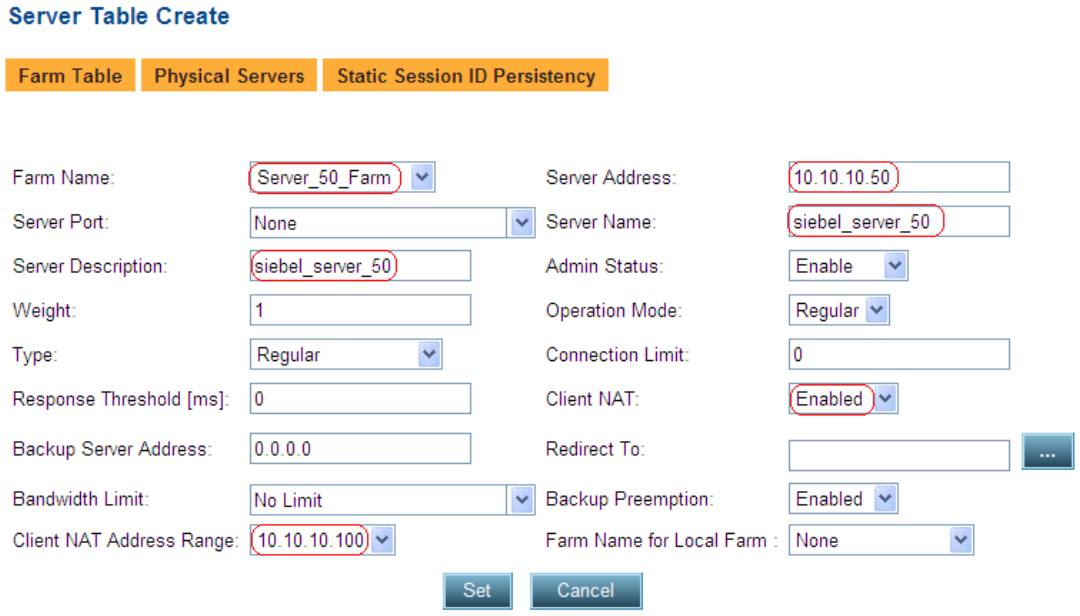
Adding Servers to the Farm

1. From the menu, select **AppDirector ⇨ Servers ⇨ Application Servers ⇨ Table** to display the **Server Table** page similar to the one shown below:

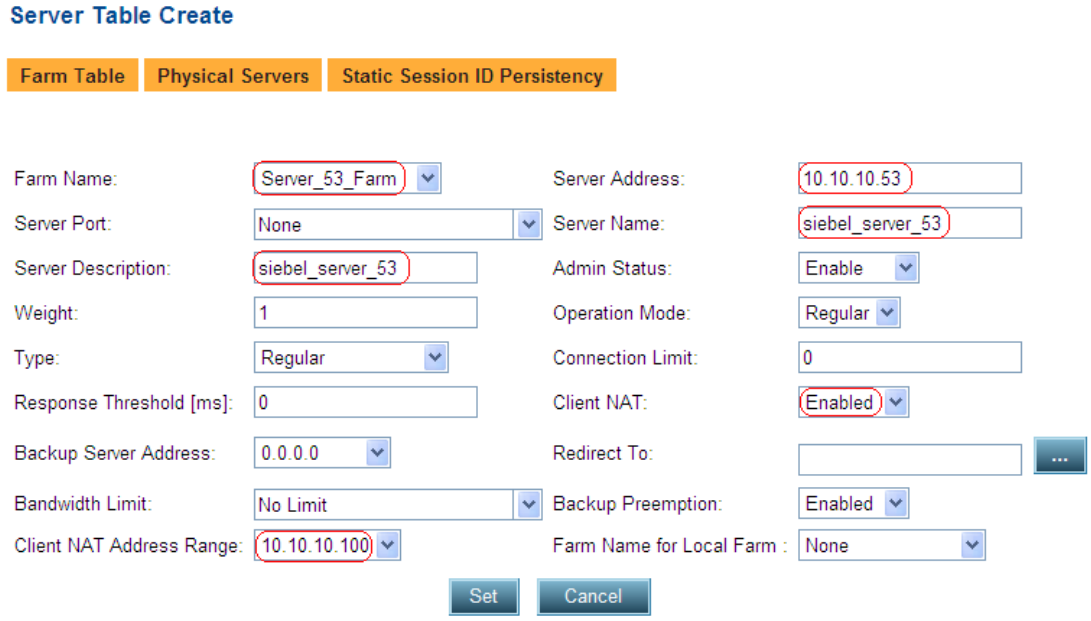


2. Click the **Create** button

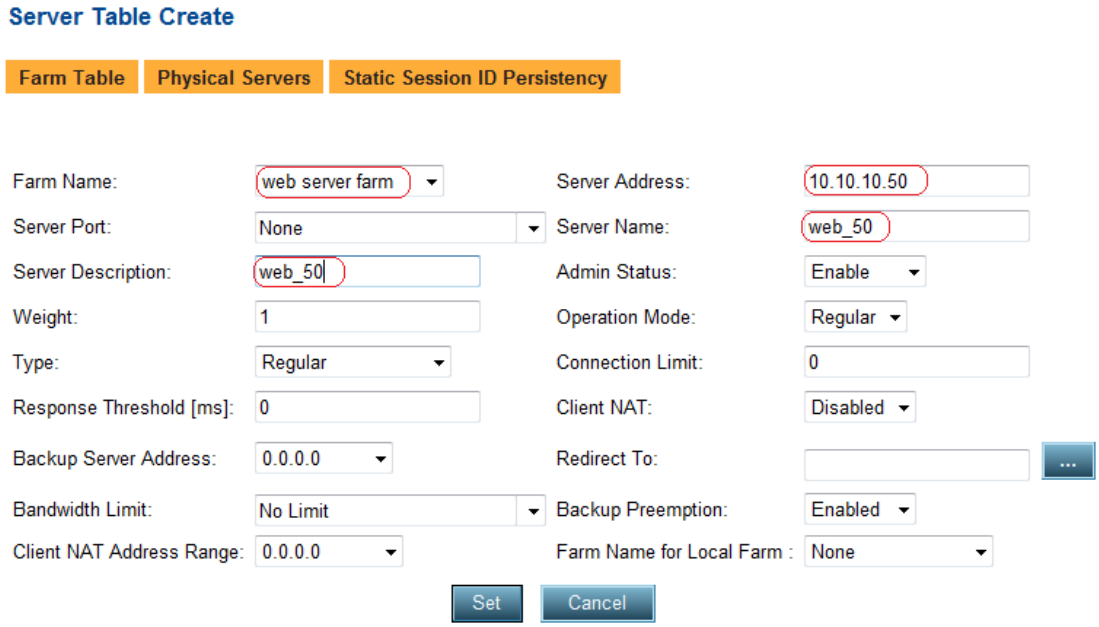
3. On the **Server Table Create** page, enter the necessary parameters as shown below:



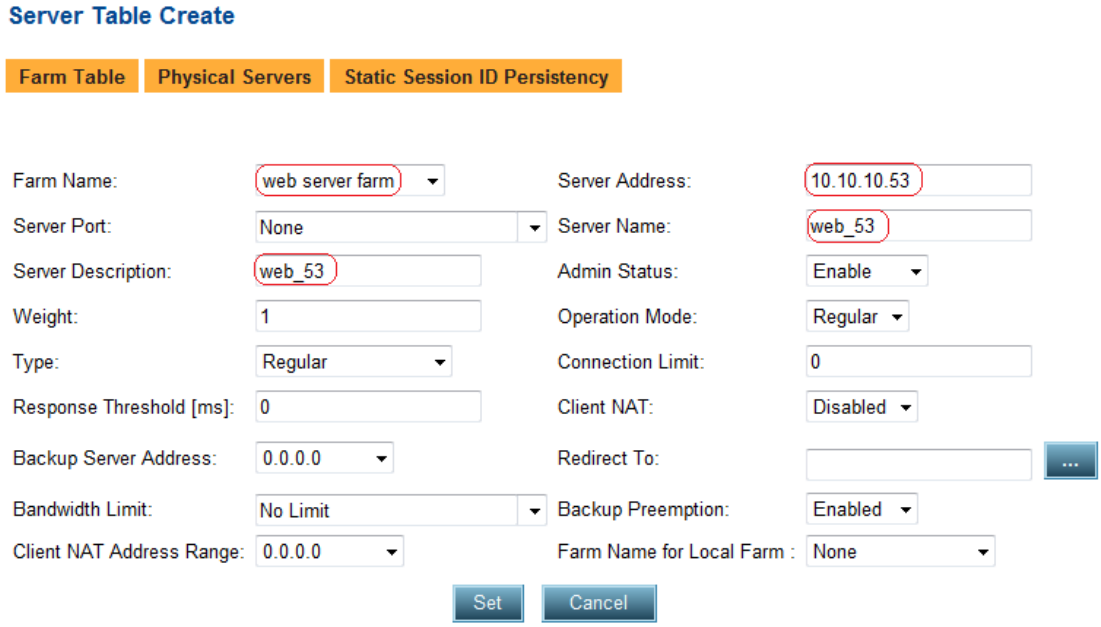
4. Click the **Set** button to save parameters.
5. On **Server Table** page Click the **Create** button to configure another server. enter the necessary parameters as shown below:



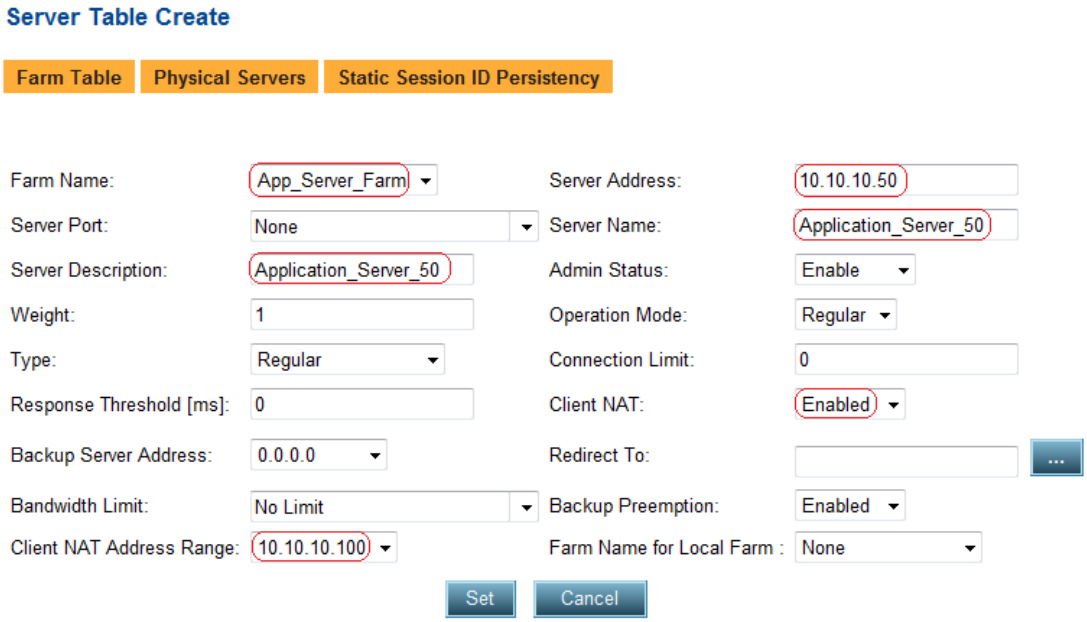
6. Click the **Set** button to save parameters.
7. On **Server Table** page Click the **Create** button to configure another server. enter the necessary parameters as shown below:



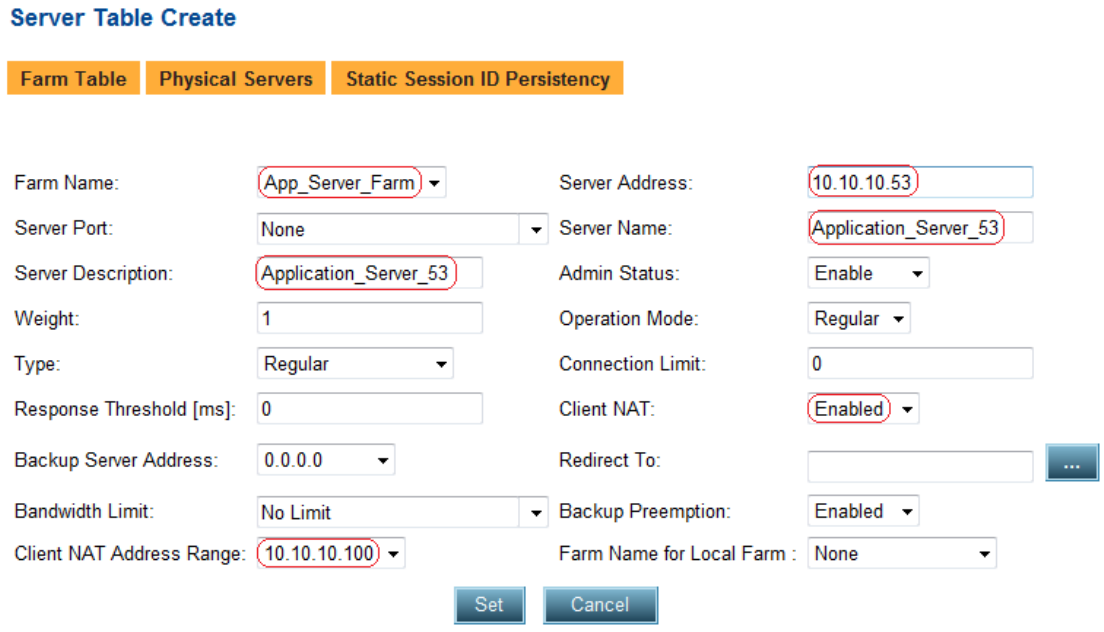
8. Click the **Set** button to save parameters.
9. On **Server Table** page Click the **Create** button to configure another server. enter the necessary parameters as shown below:



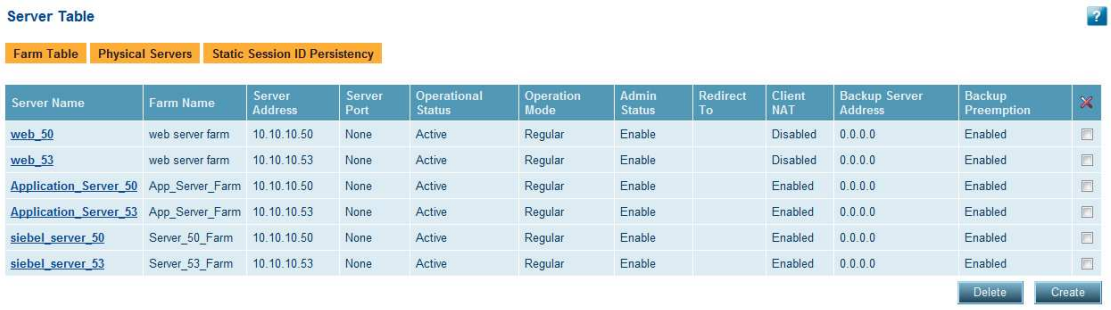
10. Click the **Set** button to save parameters.
11. On **Server Table** page Click the **Create** button to configure another server. enter the necessary parameters as shown below:



12. Click the **Set** button to save parameters.
13. On **Server Table** page Click the **Create** button to configure another server. enter the necessary parameters as shown below



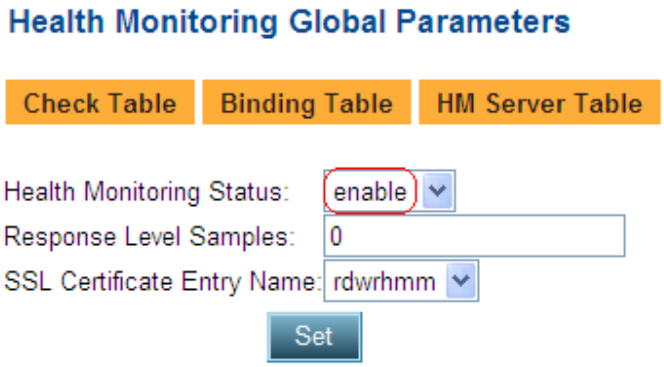
14. Verify that the new entries were created on the **Server Table** page:



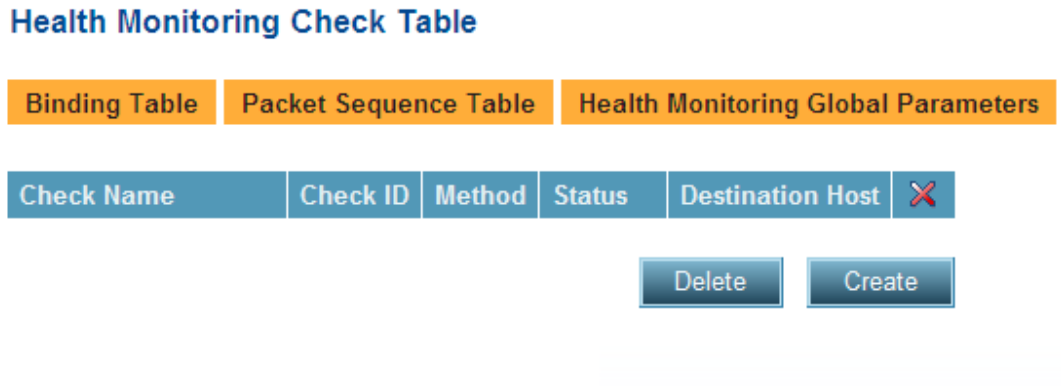
Health Monitoring

Create Health Checks

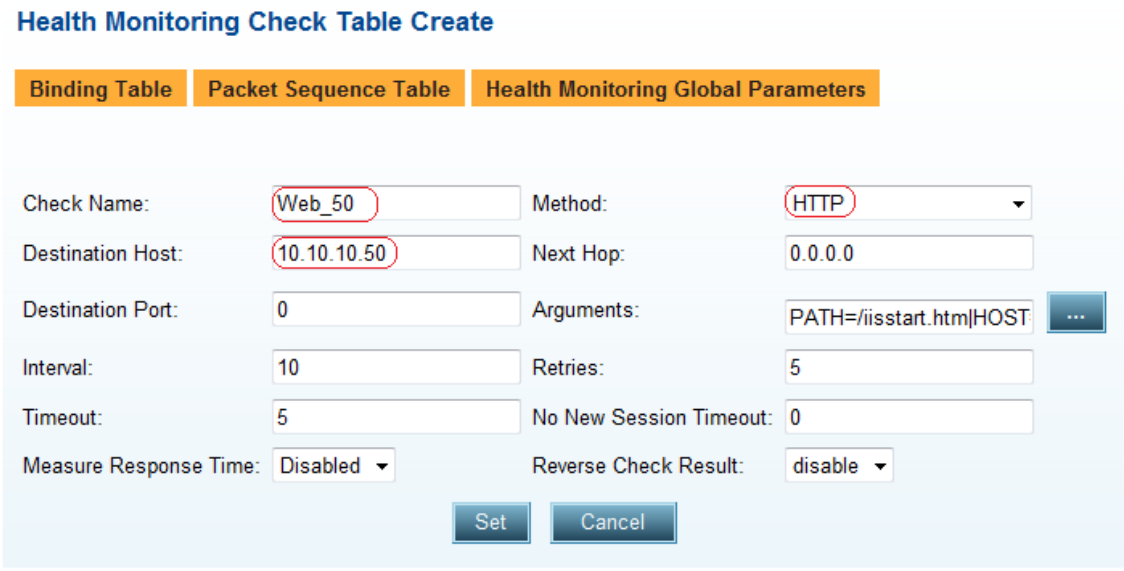
1. From the menu, select **Health Monitoring ⇨ Global Parameters** to display the **Health Monitoring Global Parameters** page.
2. On the **Health Monitoring Global Parameters** page, change the parameters as shown below:



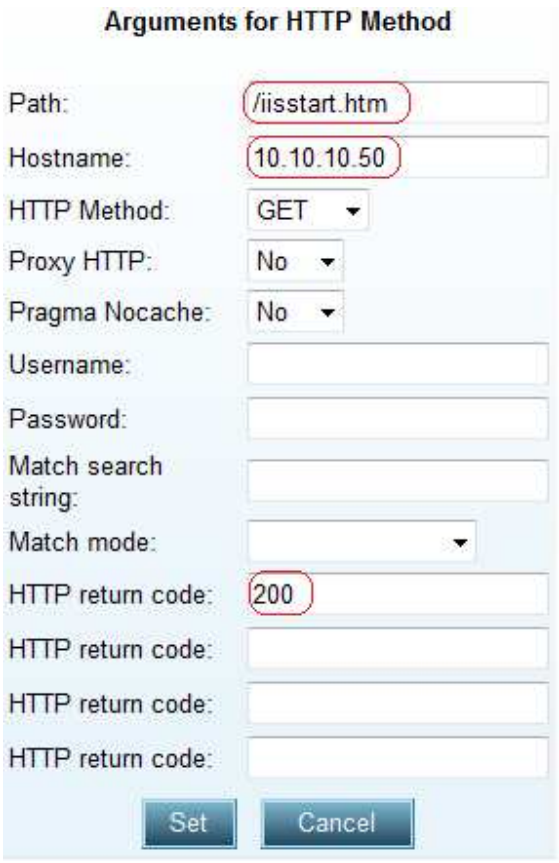
3. Click the **Set** button to save parameters.
4. Create the Health Monitoring Checks.
5. From the menu, select **Health Monitoring ⇨ Check Table** to display the **Health Monitoring Check Table** page similar to the one shown below:



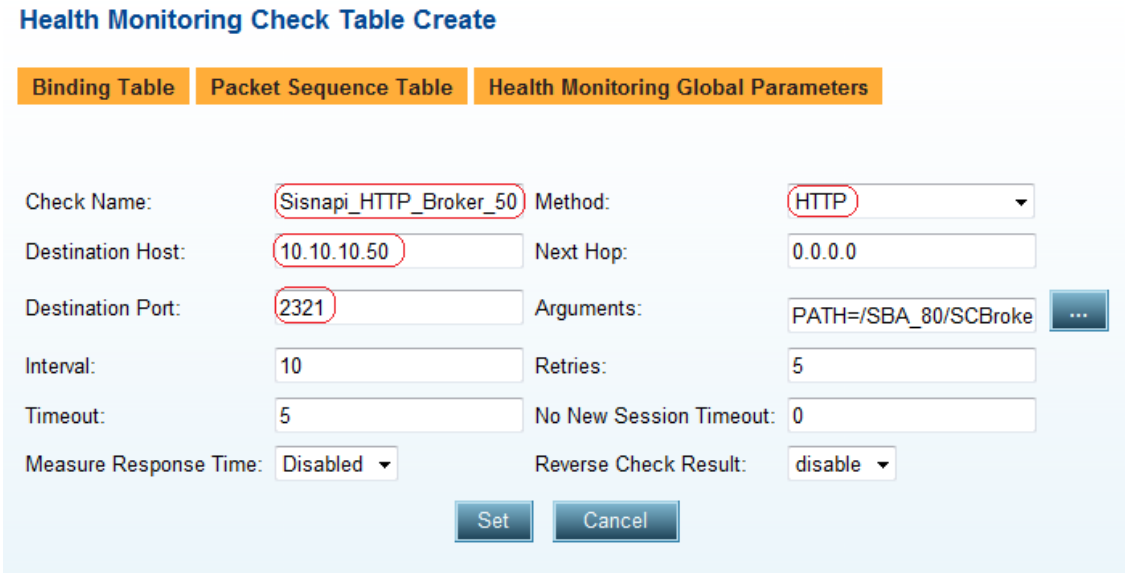
6. Click the **Create** button.
7. Create a set of health checks for the web servers. On the **Health Monitoring Check Table Create** page, enter the necessary parameters as shown below:



8. Before clicking the Set button, choose the button next to Arguments  to populate the specific settings for the rest of this check.
9. Enter the information below:

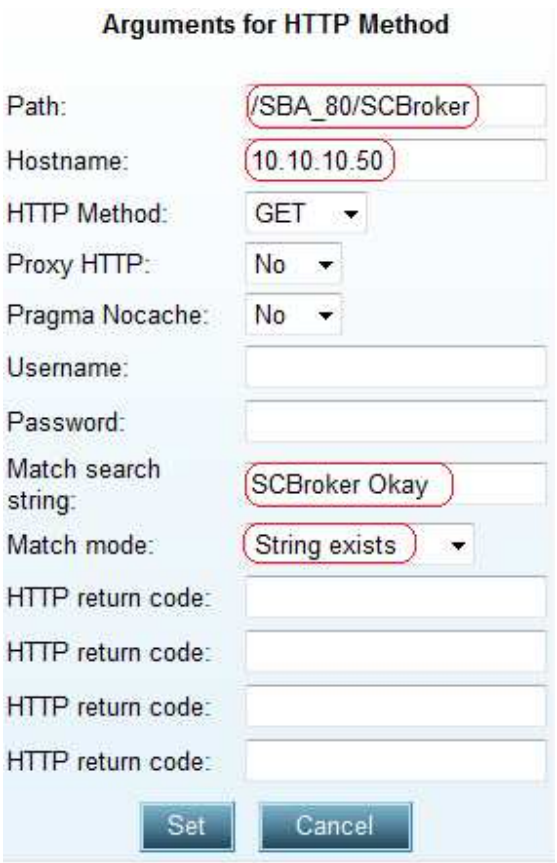


10. Click the **Set** button for the Method Arguments and click the **Set** button again in the **Health Monitoring Check Table Create** window.
11. Follow steps 5-10 to create the second server health check for web server web_53, host 10.10.10.53.
12. Create a second set of health checks for the application servers. On the **Health Monitoring Check Table Create** page, enter the necessary parameters as shown below:



13. Before clicking the Set button, choose the button next to Arguments ... to populate the specific settings for the rest of this check.

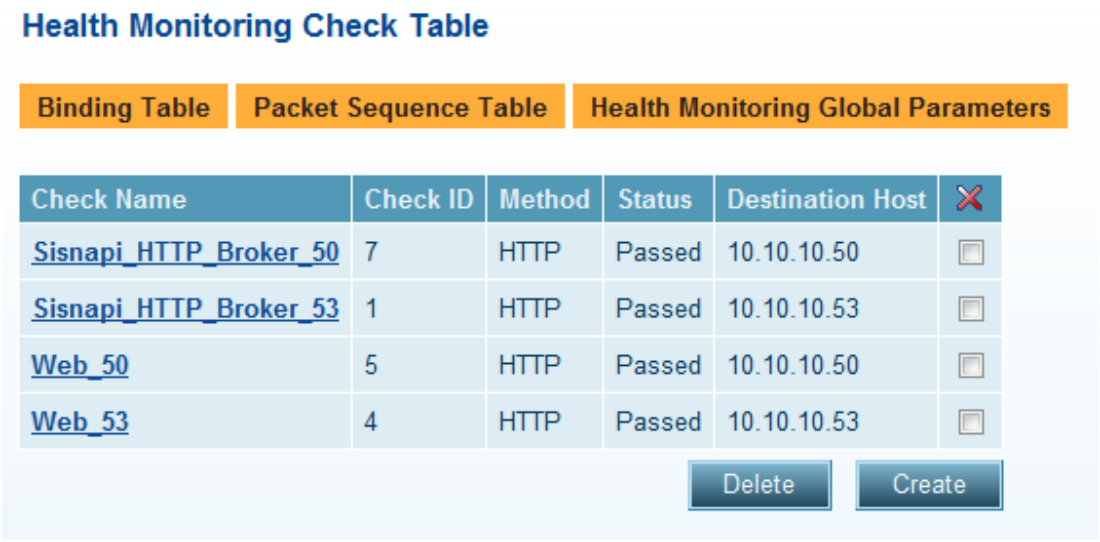
14. Enter the information below:



15. Click the **Set** button for the Method Arguments and click the **Set** button again in the **Health Monitoring Check Table Create** window.

16. Follow steps 12-15 to create the second server health check for Application server Application_Server_53, host 10.10.10.53.

17. Verify the new entries were created on the **Health Monitoring Check Table**



The status of this check may display “Unknown” until the server replies successfully to the AppDirector’s check.

Binding Health Checks to Servers

1. Create the Health Monitoring Binding for the Servers

2. From the menu, select **Health Monitoring ⇨ Binding Table** to display the **Health Monitoring Binding Table** page similar to the one shown below:

3. Click the **Create** button.

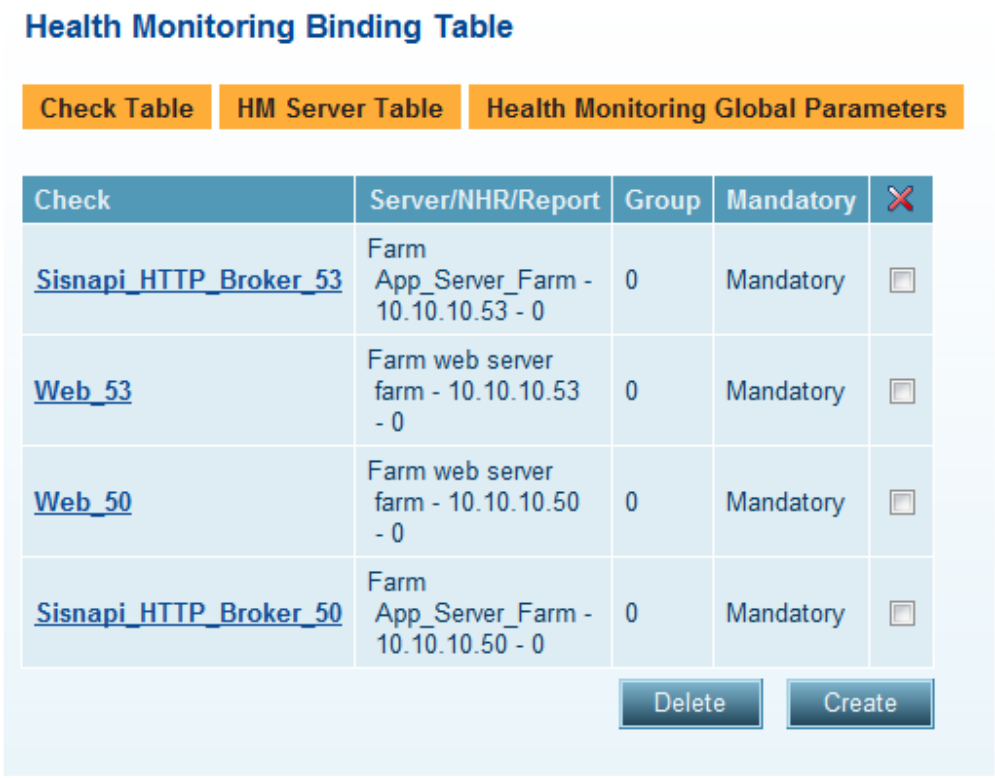
4. Create the health check binding for the web servers. On the **Health Monitoring Binding Table Create** page, enter the necessary parameters as shown below:

5. Click the **Set** button to save parameters.
6. Follow steps 2-5 to bind the second web server health check.
   Web_53: Farm web server farm - 10.10.10.53 – 0

7. Create the health check binding for the application servers. On the **Health Monitoring Binding Table Create** page, enter the necessary parameters as shown below:

8. Click the **Set** button to save parameters.
9. Follow steps 7-8 to bind the second application server health check.
   Sisnapi_HTTP_Broker_53: Farm web server farm - 10.10.10.53 – 0

10. Verify that the new entries were created on the **Health Monitoring Binding Table** page:



This completes the AppDirector Policy Configurations.

General Redundant Configuration Notes

For complete high-availability, Radware encourages implementing pairs of AppDirector units in an Active / Backup configuration. If your implementation of this architecture includes only a single AppDirector, then it is unnecessary to follow the steps in this section.

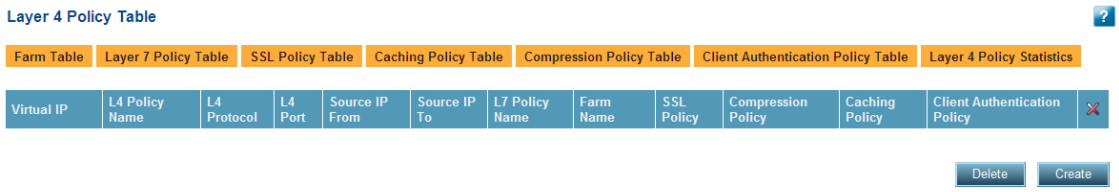
The overall configuration of a backup AppDirector is almost identical in many ways to that of the active device. There are, however, several important differences that are noted throughout these steps. Radware offers two means of redundancy and failover between pairs of devices – Proprietary and VRRP. Since VRRP is a more commonly used method within the industry, this section will cover the steps to configure both AppDirectors using that method.[2]

There are separate configuration steps to be taken on both the Active and Backup AppDirector devices, and this section is divided into two parts – one for the active device and one for the backup device.

[2] For a detailed discussion of VRRP, see RFC 3768.

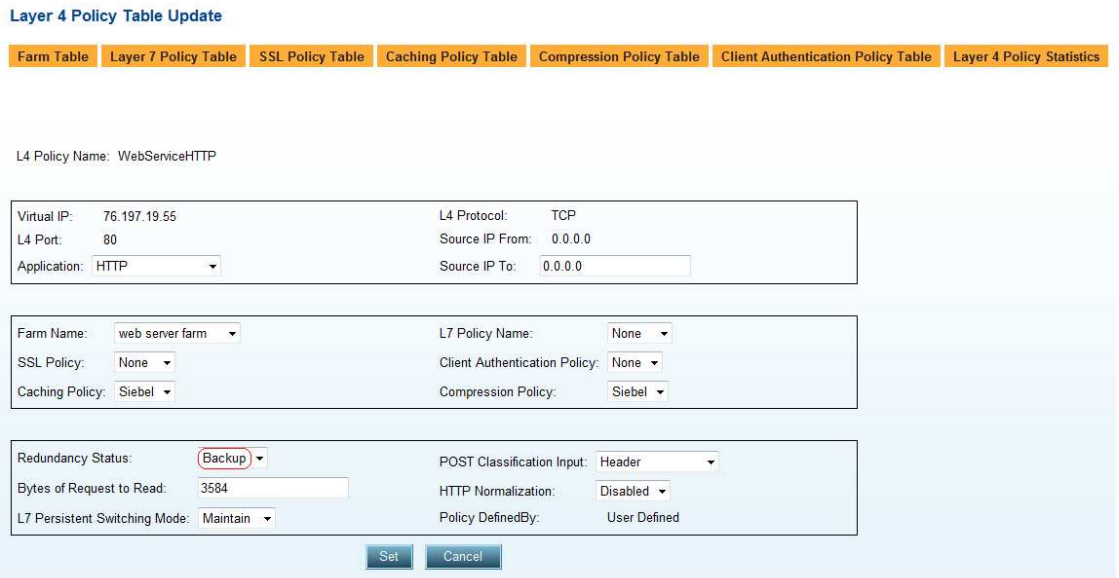
Follow the steps previously defined to create the Backup AppDirector configuration. The only difference between the primary and the backup device beyond what is yet to be defined specifically for VRRP is the **Redundancy Status** setting. In the Backup AppDirector configuration when configuring the **Layer 4 Policy Table Create** the **Redundancy Status** needs to be set to **Backup** on all farm definitions. The suggested change in configurations instructions is defined below.

1. From the menu, select **AppDirector ⇨ Layer 4 Farm Selection ⇨ Layer 4 Policy** Table to display the **Layer 4 Policy Table** page similar to the one shown below:



2. Click the **Create** button.

3. On the **Layer 4 Policy Table Create** page, enter the parameters as on the primary AppDirector with the exception to the Redundancy status, set the status to backup as shown below.



4. Click the **Set** button to save the parameters.

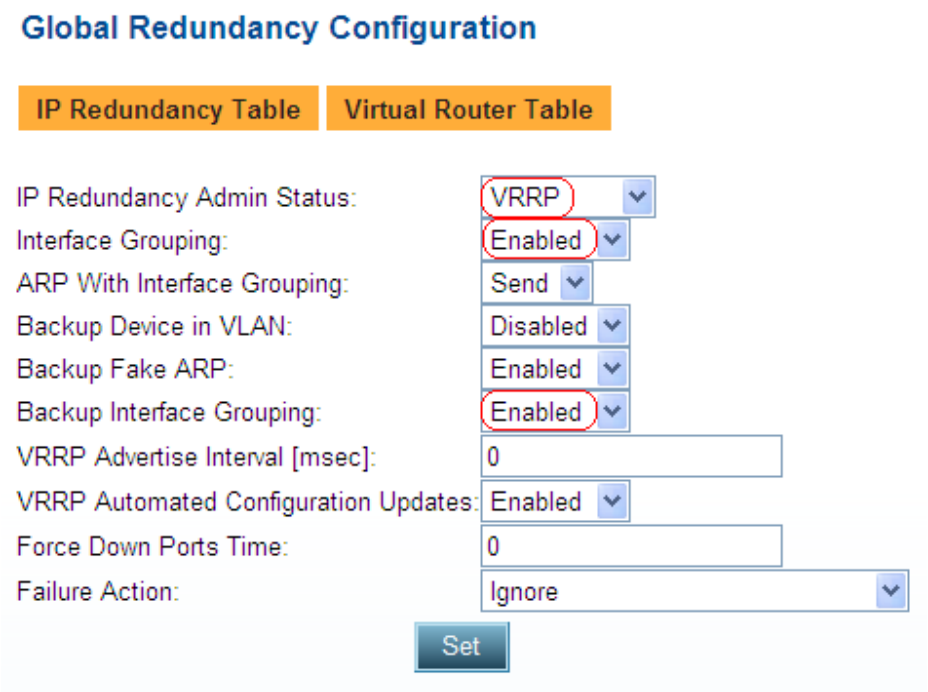
5. Repeat steps 1-4 for each Layer 4 policy.

Primary AppDirector VRRP Configuration

The Virtual Router Redundancy Protocol (VRRP) is designed to eliminate the single point of failure inherent in the static default routed environment. VRRP specifies an election protocol that dynamically assigns responsibility for a virtual router to one of the VRRP routers on a LAN. The VRRP router controlling the IP address(es) associated with a virtual router is called the Master, and forwards packets sent to these IP addresses. The election process provides dynamic fail-over in the forwarding responsibility should the Master become unavailable. Any of the virtual router's IP addresses on a LAN can then be used as the default first hops router by end-hosts.

Global Redundancy Configuration

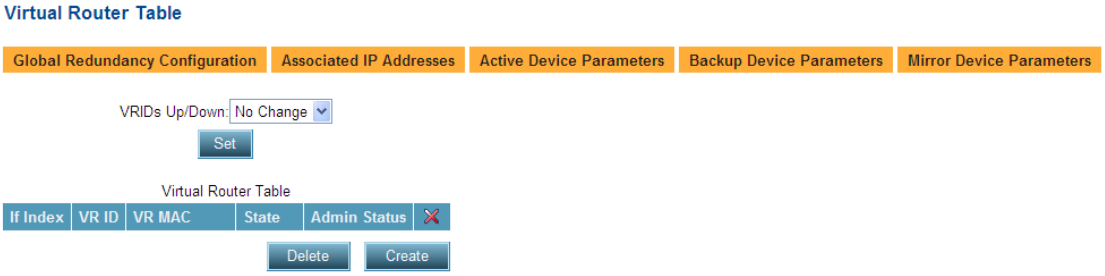
1. From the menu, select **AppDirector ⇨ Redundancy ⇨ Global Configuration** and set the parameters as noted below:



2. Click the **Set** button to save these changes.

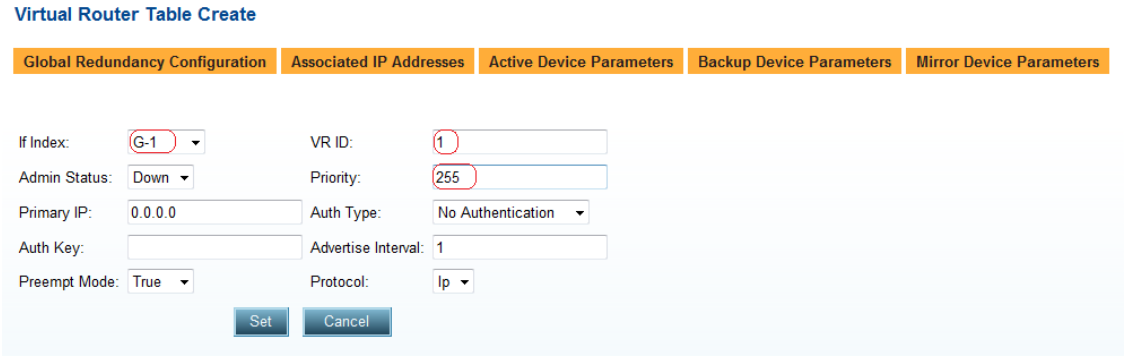
Primary Virtual Routers

1. From the menu, select **AppDirector ⇨ Redundancy ⇨ VRRP ⇨ Virtual Routers** to display the **Virtual Router Table** page similar to the one shown below.

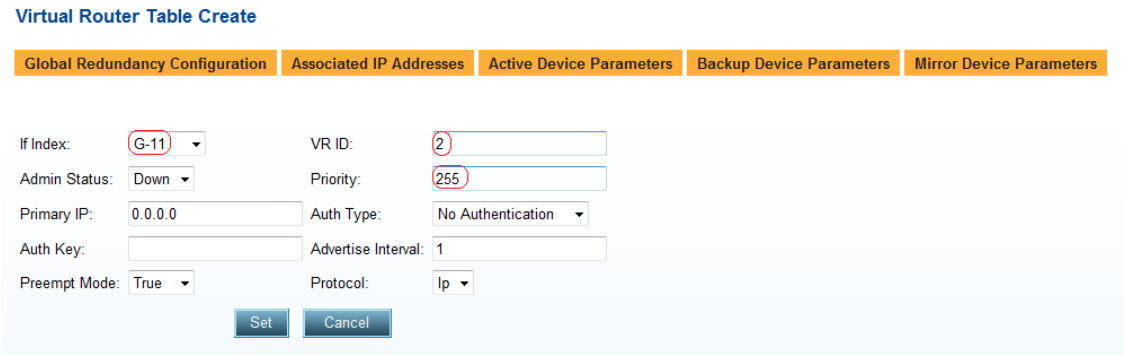


2. Click the **Create** button

3. On the **Virtual Router Table** page, enter the necessary parameters as shown below.



4. Click the **Set** button to save the parameters.
5. On the **Virtual Router Table Create** page, click the **Create** button to configure another interface. enter the necessary parameters as shown below:

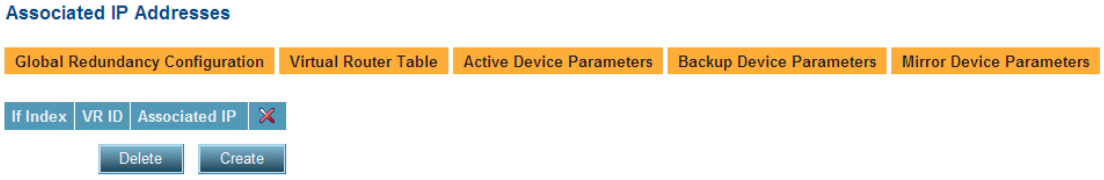


6. Click the **Set** button to save the parameters.

7. Verify that the new entries were created on the **Virtual Router Table** page:

Primary Associated IP Addresses

1. From the menu, select **AppDirector ⇨ Redundancy ⇨ VRRP ⇨ Associated IP Addresses** to display the **Associated IP Addresses** page similar to the one shown below:



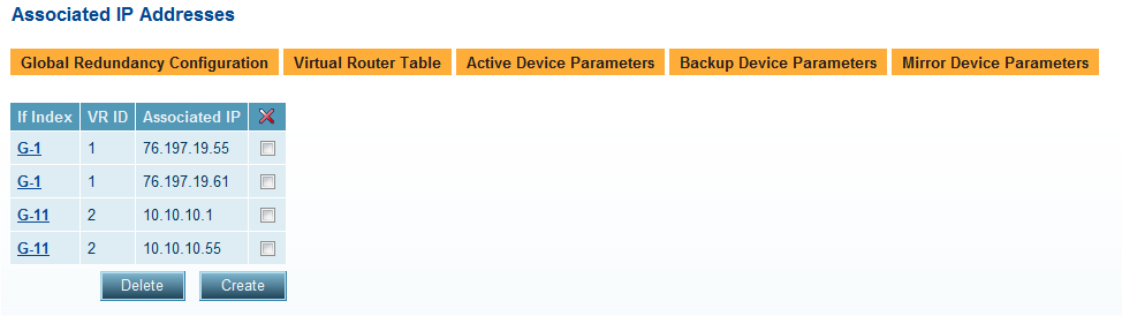
2. Click the **Create** button

3. On the **Associated IP Addresses Create** page, enter the necessary parameters as shown below:

4. Click the **Set** button to save the parameters

5. Follow steps 2-4 to create the associated IP Addresses 76.197.19.55((VIP), VR ID = 1), 10.10.10.1((default gateway for the web servers), VR ID = 2) and 10.10.10.55 ((Application VIP), VR ID = 2).

6. Verify that the new entries were created on the **Associated IP Addresses** page:

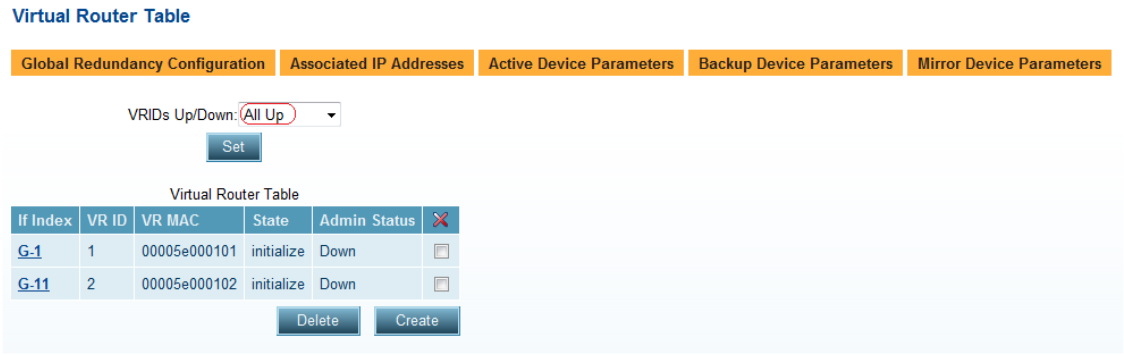


7. Go to **AppDirector ⇨ Redundancy ⇨ VRRP ⇨ Virtual Routers** and click on the link to If Index G-1

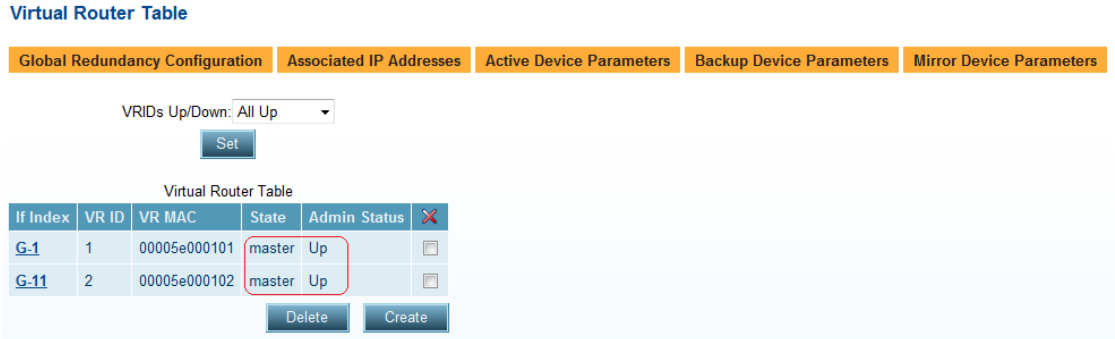
8. Change the **Admin Status** from *down* to *up*, but leave all other settings unchanged:

9. Click the **Set** button to save the parameters.

10. Or you can bring all the interfaces up by selecting **VRIDs** to **All Up** click the **Set** button to save the parameters.



11. Make certain that the **State** of this VR is displayed as *Master* in the Virtual Router table:

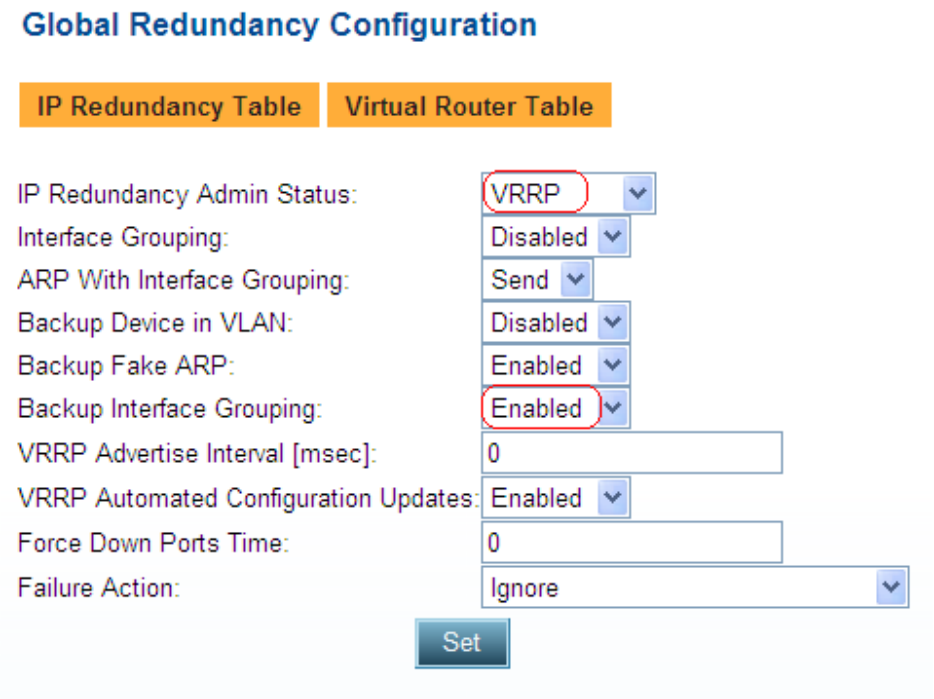


This completes VRRP redundancy configuration on the Active AppDirector.

Backup AppDirector VRRP Configuration

Note: Interface Grouping is not required for the backup AppDirector because of the working assumption that if the Backup device holds Master VRRP status we should continue to provide best effort traffic management even if a single interface is lost.

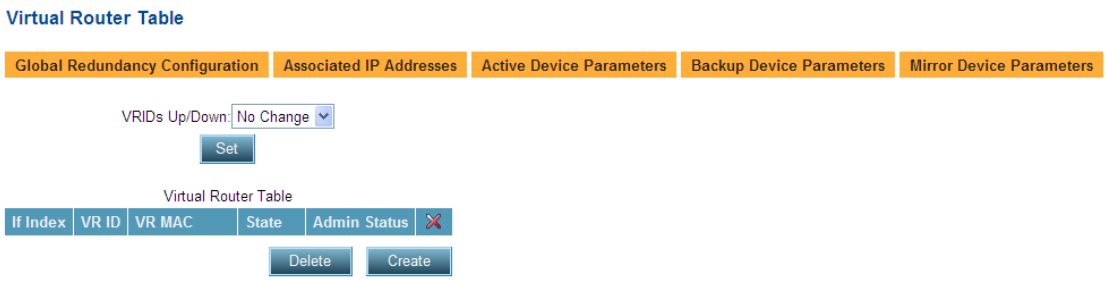
1. On the Backup AppDirector, go to **AppDirector ⇨ Redundancy ⇨ Global Configuration** and change the following setting:



2. Click the **Set** button to save the parameters.

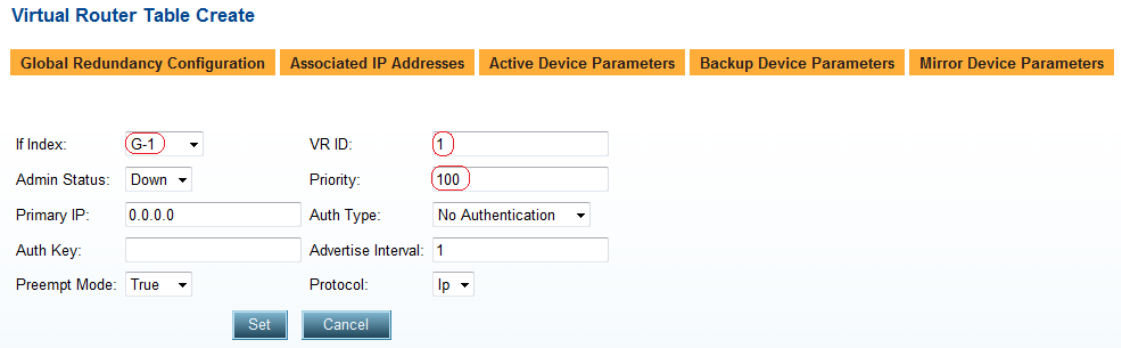
Backup Virtual Routers

3. From the menu, select **AppDirector ⇨ Redundancy ⇨ VRRP ⇨ Virtual Routers** to display the **Virtual Router Table** page similar to the one shown below.



4. Click the **Create** button

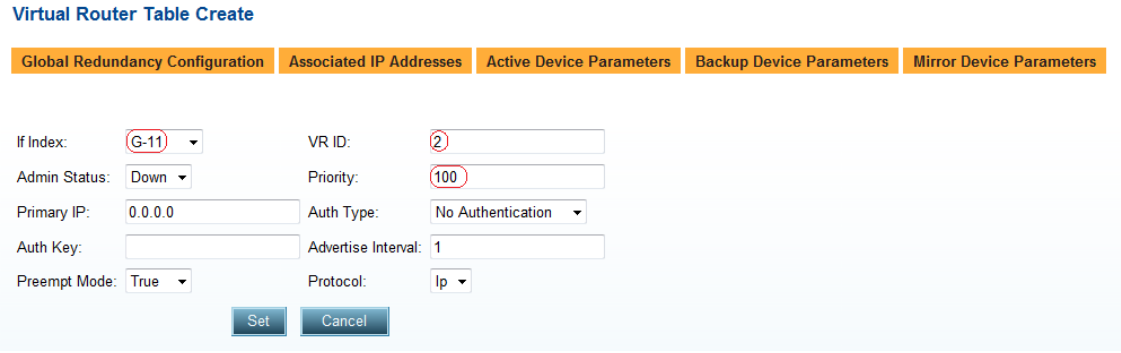
5. On the **Virtual Router Table** page, enter the necessary parameters as shown below.



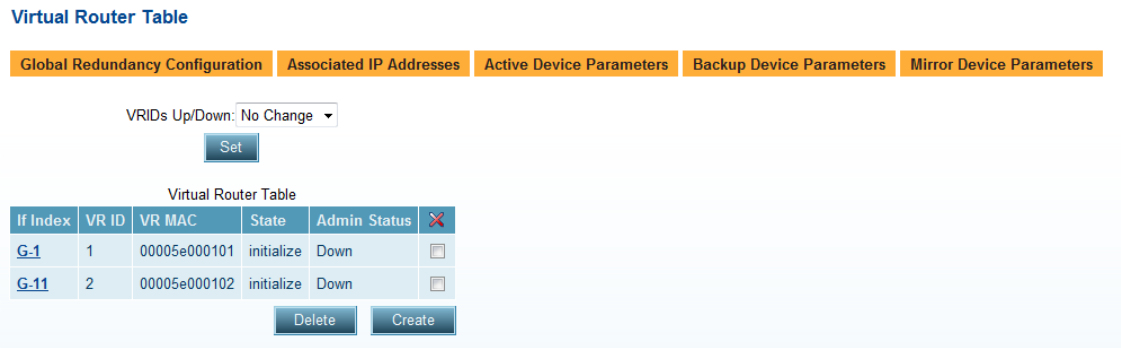
Note: that the Priority on the Backup AppDirector is set to 100 while on the Primary device, this value was set to 255. The device with the higher priority will be Master of this Virtual Router.

6. Click the **Set** button to save the parameters.

7. On the **Virtual Router Table Create** page, click the **Create** button to configure another interface. enter the necessary parameters as shown below:

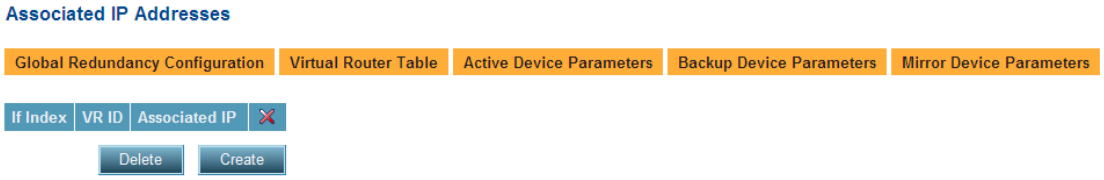


8. Verify that the new entries were created on the **Virtual Router Table** page:



Backup Associated IP Addresses

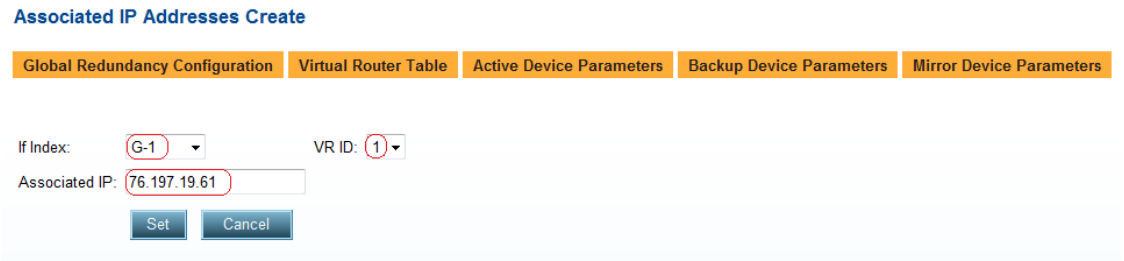
1. From the menu, select **AppDirector ⇨ Redundancy ⇨ VRRP ⇨ Associated IP Addresses** to display the **Associated IP Addresses Create** page similar to the one shown below:



2. Click the **Create** button

3. On the **Associated IP Addresses Create** page, enter the necessary parameters as shown below:

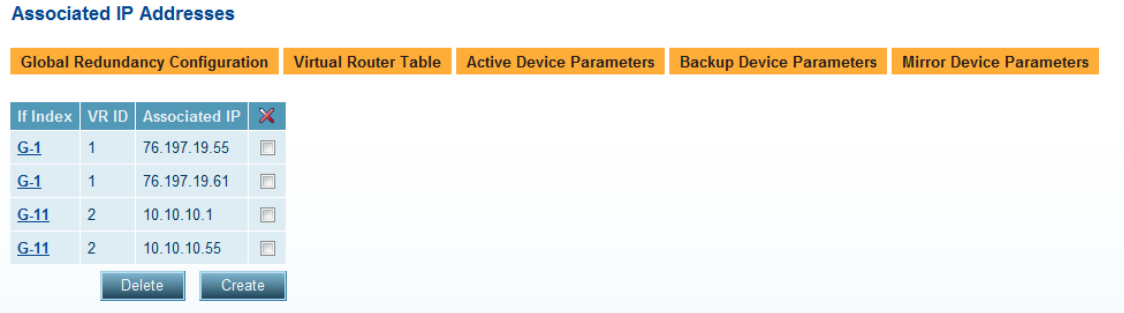
Note: This association entry is the interface address of the Primary AppDirector. Since that IP address functions as the default gateway address for each of the farm servers, we will need the backup AppDirector to assume responsibility for this IP if the Active device fails. This is why it is defined in the backup AppDirector's Associated IP Address table. The Association Table from both devices should match when complete.



4. Click the **Set** button to save the parameters

5. Follow steps 2-4 to create the associated IP Addresses 76.197.19.55((VIP), VR ID = 1), 10.10.10.1((default gateway for the web servers), VR ID = 2) and 10.10.10.55 ((Application VIP), VR ID = 2).

6. Verify that the new entries were created on the **Associated IP Addresses** page:

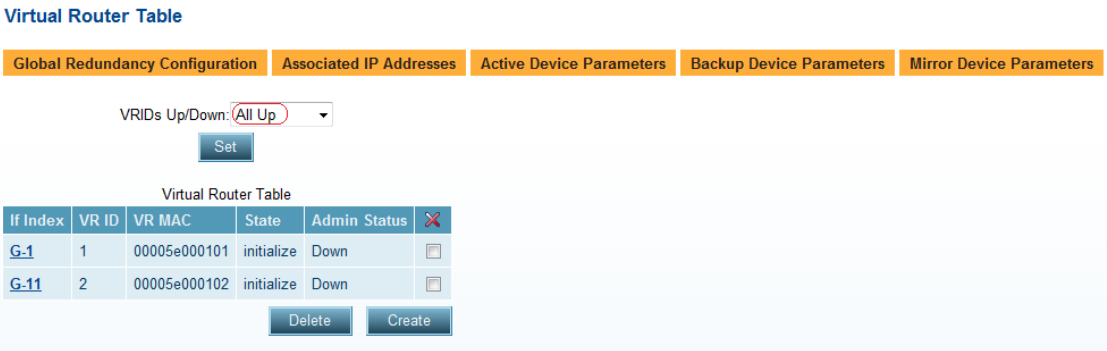


7. Go to **AppDirector ⇨ Redundancy ⇨ VRRP ⇨ Virtual Routers** and click on the link to If Index G-1

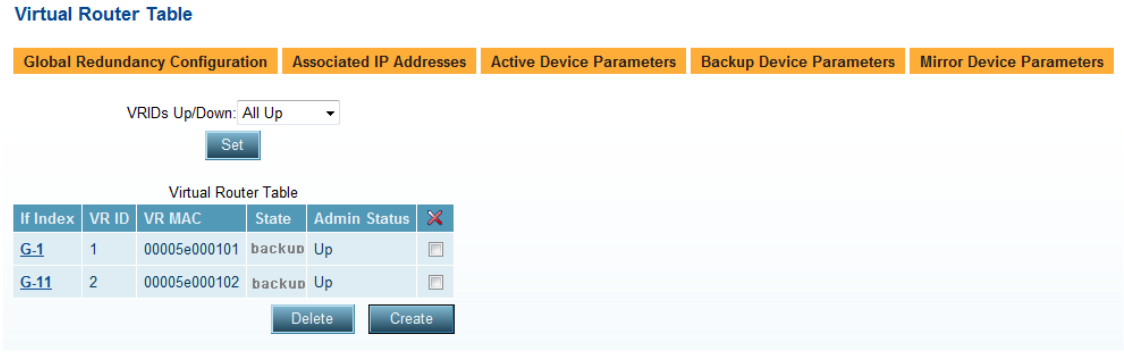
8. Change the **Admin Status** from *down* to *up*, but leave all other settings unchanged:

9. Click the **Set** button to save the parameters.

10. Or you can bring all the interfaces up by selecting **VRIDs** to **All Up** click the **Set** button to save the parameters.



11. Make certain that the **State** of this VR is displayed as *backup* in the Virtual Router table:



This concludes the configuration of the Backup AppDirector and the local HA solution.

Appendix 1 – Primary AppDirector Configuration File

```
!
!Device Configuration
!Date: 30-12-2008 09:58:49
!DeviceDescription: AppDirector with Cookie Persistency
!Base MAC Address: 00:03:b2:3d:dc:00
!Software Version: 2.00.01 (Build date Nov 20 2008, 09:46:21,Build#9)
!APSolute OS Version: 10.31-03.01A(3):2.06.08
!

!
! The following commands will take effect only
! once the device has been rebooted!
!

system tune bridge-fft-table set 1024
system tune ip-fft-table set 240000
system tune arp-table set 1024
system tune client-table set 1200000
system tune routing-table set 512
system tune url-table set 256
system tune request-table set 5000
system tune nat-address-table set 4
system tune nat-ports-table set 64511
system tune session-id-table set 32000
system tune l3-client-table-size set 20
system tune outbound-nat-address set 1
system tune outbound-nat-ports set 64511
system tune outbound-intrcpt-tbl set 4
system tune radius-attribute-table set 1
system tune segments set 15
system tune l4-policy-table set 512
system tune static-dns-persistency set 5
system tune dynamic-dns-persistency set 10
manage snmp versions-after-reset set "v1 & v2c & v3"
system tune session-pasv-protocols set 16
system tune session set 512
system tune session-resets set 100

!
! The following commands take effect immediately
! upon execution!
!


health-monitoring check create Sisnapi_HTTP_Broker_53 -id 1 -m HTTP -p 2321 -a \
"PATH=/SBA_80/SCBroker|HOST=10.10.10.53|MTCH=SCBroker Okay|MEXIST=Y|MTD=G|PR\
X=N|NOCACHE=N|" -d 10.10.10.53
health-monitoring check create Web_53 -id 4 -m HTTP -p 80 -a \
PATH=/iisstart.htm|HOST=10.10.10.53|MTD=G|PRX=N|NOCACHE=N|C1=200| -d 10.10.10.53
health-monitoring check create Web_50 -id 5 -m HTTP -p 80 -a \
PATH=/iisstart.htm|HOST=10.10.10.50|MTD=G|PRX=N|NOCACHE=N|C1=200| -d 10.10.10.50
health-monitoring check create Sisnapi_HTTP_Broker_50 -id 7 -m HTTP -p 2321 -a \
"PATH=/SBA_80/SCBroker|HOST=10.10.10.50|MTCH=SCBroker Okay|MEXIST=Y|MTD=G|PR\
X=N|NOCACHE=N|" -d 10.10.10.50
net ip-interface create 10.10.10.1 255.255.255.0 11
net ip-interface create 76.197.19.61 255.255.255.240 1
net ip-interface create 192.168.1.50 255.255.255.0 18
net route table create 0.0.0.0 0.0.0.0 76.197.19.62 -i 1
redundancy mode set VRRP
appdirector farm table setCreate "web server farm" -as Enabled -at 7300 \
-dm Cyclic -cm "No Checks" -sm RemoveOnSessionEnd-SPS
appdirector farm table setCreate App_Server_Farm -as Enabled -at 7300 -dm \
Cyclic -cm "No Checks" -sm ServerPerSession
appdirector farm table setCreate Server_50_Farm -as Enabled -at 7300 -dm Cyclic
appdirector farm table setCreate "Server_53_Farm " -as Enabled -at 7300 -dm Cyclic
appdirector farm server table create "web server farm" 10.10.10.50 None -sn web_50 -id 0
appdirector farm server table create "web server farm" 10.10.10.53 None -sn web_53 -id 1
appdirector farm server table create App_Server_Farm 10.10.10.50 None -sn \
Application_Server_50 -id 13 -cn Enabled -nr 10.10.10.100
```

```
appdirector farm server table create App_Server_Farm 10.10.10.53 None -sn \
Application_Server_53 -id 14 -cn Enabled -nr 10.10.10.100
appdirector farm server table create Server_50_Farm 10.10.10.50 None -sn \
siebel_server_50 -id 19 -cn Enabled -sd siebel_server_50 -nr 10.10.10.100
appdirector farm server table create "Server_53_Farm " 10.10.10.53 None \
-sn siebel_server_53 -id 18 -cn Enabled -sd siebel_server_53 -nr 10.10.10.100
appdirector l7 farm-selection method-table setCreate AppSrv50 -cm \
"Regular Expression" -ma EXP=.*/!5.*|
appdirector l7 farm-selection method-table setCreate LBAppSrv -cm \
"Regular Expression" -ma EXP=.*|
appdirector l7 farm-selection method-table setCreate AppSrv53 -cm \
"Regular Expression" -ma EXP=.*/!1.*|
appdirector l7 farm-selection method-table setCreate RR -cm \
"Regular Expression" -ma EXP=.*/RR*|
appdirector l7 farm-selection method-table setCreate\
 "Auto-G Cookie web s" -cm "Set Cookie" -ma \
KEY=yI8cugcRkX|VAL=$Server_SID_Cookie|
appdirector l7 farm-selection method-table setCreate\
 "Auto-G RCookie web " -cm Cookie -ma KEY=yI8cugcRkX|
appdirector l7 farm-selection policy-table setCreate App_lb 10 -m1 \
LBAppSrv -pa PRSST=On| -fn App_Server_Farm
appdirector l7 farm-selection policy-table setCreate App_lb 7 -m1 \
AppSrv50 -pa PRSST=On| -fn Server_50_Farm
appdirector l7 farm-selection policy-table setCreate App_lb 5 -m1 \
AppSrv53 -pa PRSST=On| -fn "Server_53_Farm "
appdirector l7 farm-selection policy-table setCreate App_lb 1 -m1 RR -pa \
PRSST=On| -fn App_Server_Farm
redundancy interface-group set Enabled
appdirector dns status set Disabled
appdirector nat server status set enable
appdirector dns two-records set Disabled
redundancy backup-in-vlan set Disabled
appdirector farm connectivity-check httpcode setCreate "web server farm" "200 - OK"
appdirector farm connectivity-check httpcode setCreate App_Server_Farm "200 - OK"
appdirector farm connectivity-check httpcode setCreate Server_50_Farm "200 - OK"
appdirector farm connectivity-check httpcode setCreate "Server_53_Farm " "200 - OK"
appdirector l7 server-persistency static-persist-table setCreate\
 "web server farm" narXaheDdlFn -sa 10.10.10.50 -sp 0 -fl 1
appdirector l7 server-persistency static-persist-table setCreate\
 "web server farm" ihtJZ7oCXWeM -sa 10.10.10.53 -sp 0 -fl 1
appdirector nat server specific-nat-address set 0.0.0.0
redundancy backup-fake-arp set Enabled
net next-hop-router setCreate 76.197.19.62 -id 10 -fl 1
appdirector farm nhr setCreate 0.0.0.0 -ip 76.197.19.62 -fl 1
appdirector farm extended-params set App_Server_Farm -nr 10.10.10.100
appdirector farm extended-params set "web server farm" -sc Enabled -ic \
"Enable and remove cookie on return path"
appdirector farm extended-params set Server_50_Farm -nr 10.10.10.100
appdirector farm extended-params set "Server_53_Farm " -nr 10.10.10.100
appdirector nat client address-range setCreate 10.10.10.100 -t 10.10.10.100
appdirector nat client range-to-nat setCreate 10.10.10.50 -t 10.10.10.53
appdirector nat client status set Enabled
redundancy backup-interface-group set Enabled
system internal appdirector full-session-id-table setCreate\
 "web server farm" 0 TCP -k yI8cugcRkX -fl 1
appdirector nat outbound status set Disabled
appdirector l4-policy ssl-policy create Siebel -c SiebelCert -r Enabled
appdirector l4-policy compression create Siebel -pe Hardware
appdirector l4-policy caching create Siebel
appdirector l4-policy table create 76.197.19.53 Any Any 0.0.0.0\
 Siebel_Server_53 -fn "Server_53_Farm "
appdirector l4-policy table create 76.197.19.50 Any Any 0.0.0.0\
 Siebel_Server_50 -fn Server_50_Farm
appdirector l4-policy table create 10.10.10.55 TCP 2321 0.0.0.0\
 App_svr_l7 -po App_lb -ta HTTP
appdirector l4-policy table create 76.197.19.55 TCP 80 0.0.0.0\
 WebServiceHTTP -fn "web server farm" -ta HTTP -pm Maintain -co Siebel -ca Siebel
redundancy vrrp automated-config-update set Enabled
appdirector l7 modification table setCreate "Auto-G Cookie web s" -i 0 -f \
"web server farm" -d Reply -am "Auto-G Cookie web s"
appdirector l7 modification table setCreate "Auto-G RCookie web " -i 0 -f \
"web server farm" -ac Remove -mm "Auto-G RCookie web "
```

```
redundancy global-configuration failure-action set Ignore
health-monitoring binding create 1 14
health-monitoring binding create 5 0
health-monitoring binding create 4 1
health-monitoring binding create 7 13
health-monitoring status set enable
health-monitoring response-level-samples set 0
redundancy vrrp virtual-routers create 1 1 -as Up -p 255 -pip 76.197.19.61
redundancy vrrp virtual-routers create 11 2 -as Up -p 255 -pip 10.10.10.1
redundancy vrrp associated-ip create 1 1 76.197.19.61
redundancy vrrp associated-ip create 1 1 76.197.19.55
redundancy vrrp associated-ip create 11 2 10.10.10.1
redundancy vrrp associated-ip create 11 2 10.10.10.55
manage user table create radware -pw GndridF04zNWSGOrZjKFV78REiEra/Qm
manage telnet status set enable
manage telnet server-port set 23
manage web status set enable
manage ssh status set enable
manage secure-web status set enable
services dns client primary-server set 68.94.156.1
services dns client alt-server set 0.0.0.0
services dns client status set Enabled
manage ftp server-port set 21
manage ftp status set enable
redundancy arp-interface-group set Send
net l2-interface set 100001 -ad up
net l2-interface set 100063 -ad up
redundancy vrrp global-advertise-int set 0
manage snmp groups create SNMPv1 public -gn initial
manage snmp groups create SNMPv1 ReadOnlySecurity -gn InitialReadOnly
manage snmp groups create SNMPv2c public -gn initial
manage snmp groups create SNMPv2c ReadOnlySecurity -gn InitialReadOnly
manage snmp groups create UserBased radware -gn initial
manage snmp groups create UserBased ReadOnlySecurity -gn InitialReadOnly
manage snmp access create initial SNMPv1 noAuthNoPriv -rvn iso -wvn iso -nvn iso
manage snmp access create InitialReadOnly SNMPv1 noAuthNoPriv -rvn ReadOnlyView
manage snmp access create initial SNMPv2c noAuthNoPriv -rvn iso -wvn iso -nvn iso
manage snmp access create InitialReadOnly SNMPv2c noAuthNoPriv -rvn ReadOnlyView
manage snmp access create initial UserBased authPriv -rvn iso -wvn iso -nvn iso
manage snmp access create InitialReadOnly UserBased authPriv -rvn ReadOnlyView
manage snmp views create iso 1
manage snmp views create ReadOnlyView 1
manage snmp views create ReadOnlyView 1.3.6.1.4.1.89.2.7.2 -cm excluded
manage snmp views create ReadOnlyView 1.3.6.1.6.3.18.1.1 -cm excluded
manage snmp views create ReadOnlyView 1.3.6.1.6.3.15.1.2.2 -cm excluded
manage snmp views create ReadOnlyView 1.3.6.1.4.1.89.35.1.61 -cm excluded
manage snmp views create ReadOnlyView 1.3.6.1.6.3.16.1.2 -cm excluded
manage snmp views create ReadOnlyView 1.3.6.1.6.3.16.1.4 -cm excluded
manage snmp views create ReadOnlyView 1.3.6.1.6.3.16.1.5 -cm excluded
manage snmp notify create allTraps -ta v3Traps
manage snmp users create radware -cf 0.0 -ap MD5 -akc \
54118f8ecffedac7e39d16b7c9cab095 -pp DES -pkc \
54118f8ecffedac7e39d16b7c9cab095
manage snmp target-address create v3MngStations -tl v3Traps -p radware-authPriv
manage snmp target-parameters create public-v1 -d SNMPv1 -sm SNMPv1 -sn \
public -sl noAuthNoPriv
manage snmp target-parameters create public-v2 -d SNMPv2c -sm SNMPv2c -sn \
public -sl noAuthNoPriv
manage snmp target-parameters create radware-authPriv -d SNMPv3 -sm \
UserBased -sn radware -sl authPriv
manage snmp community create public -n public -sn public
services auditing status set enable
manage telnet session-timeout set 5
manage telnet auth-timeout set 30
system diagnostics policies setCreate Login -i 2 -tr Disabled
system diagnostics capture output file set "ram drive"
system diagnostics capture output term set Disabled
system diagnostics trace-log output file set "ram drive and flash"
system diagnostics trace-log output term set Disabled
system diagnostics trace-log output syslog set Disabled
system diagnostics trace-log modules set HMM -st Enabled -sev Info
system diagnostics capture point set both
```

```
redundancy force-down-ports-time set 0
system diagnostics capture traffic-match-mode set "Inbound and Outbound"
appdirector global connectivity-check tcp-timeout set 3

!File Signature: ab39d5c111a713a32ce4188c4efccef6
```

Appendix 2 – Backup AppDirector Configuration File

```
!
!Device Configuration
!Date: 31-12-2008 22:08:17
!DeviceDescription: AppDirector with Cookie Persistency
!Base MAC Address: 00:03:b2:4b:16:40
!Software Version: 2.00.01 (Build date Nov 20 2008, 09:46:21,Build#9)
!APSolute OS Version: 10.31-03.01A(3):2.06.08
!

!
! The following commands will take effect only
! once the device has been rebooted!
!

system tune bridge-fft-table set 1024
system tune ip-fft-table set 240000
system tune arp-table set 1024
system tune client-table set 1200000
system tune routing-table set 512
system tune url-table set 256
system tune request-table set 5000
system tune nat-address-table set 4
system tune nat-ports-table set 64511
system tune session-id-table set 32000
system tune l3-client-table-size set 20
system tune outbound-nat-address set 1
system tune outbound-nat-ports set 64511
system tune outbound-intrcpt-tbl set 4
system tune radius-attribute-table set 1
system tune segments set 15
system tune l4-policy-table set 512
system tune static-dns-persistency set 5
system tune dynamic-dns-persistency set 10
manage snmp versions-after-reset set "v1 & v2c & v3"
system tune session-pasv-protocols set 16
system tune session set 512
system tune session-resets set 100

!
! The following commands take effect immediately
! upon execution!
!


health-monitoring check create Sisnapi_HTTP_Broker_53 -id 1 -m HTTP -p 2321 -a \
"PATH=/SBA_80/SCBroker|HOST=10.10.10.53|MTCH=SCBroker Okay|MEXIST=Y|MTD=G|PR\
X=N|NOCACHE=N|" -d 10.10.10.53
health-monitoring check create Web_53 -id 4 -m HTTP -p 80 -a \
PATH=/iisstart.htm|HOST=10.10.10.53|MTD=G|PRX=N|NOCACHE=N|C1=200| -d 10.10.10.53
health-monitoring check create Web_50 -id 5 -m HTTP -p 80 -a \
PATH=/iisstart.htm|HOST=10.10.10.50|MTD=G|PRX=N|NOCACHE=N|C1=200| -d 10.10.10.50
health-monitoring check create Sisnapi_HTTP_Broker_50 -id 7 -m HTTP -p 2321 -a \
"PATH=/SBA_80/SCBroker|HOST=10.10.10.50|MTCH=SCBroker Okay|MEXIST=Y|MTD=G|PR\
X=N|NOCACHE=N|" -d 10.10.10.50
net ip-interface create 192.168.1.53 255.255.255.0 17
net ip-interface create 10.10.10.3 255.255.255.0 11
net ip-interface create 76.197.19.60 255.255.255.240 1
net route table create 0.0.0.0 0.0.0.0 76.197.19.62 -i 1
redundancy mode set VRRP
appdirector farm table setCreate "web server farm" -as Enabled -at 7300 \
-dm Cyclic -cm "No Checks" -sm RemoveOnSessionEnd-SPS
appdirector farm table setCreate App_Server_Farm -as Enabled -at 7300 -dm \
```

```
Cyclic -cm "No Checks" -sm ServerPerSession
appdirector farm table setCreate Server_50_Farm -as Enabled -at 7300 -dm Cyclic
appdirector farm table setCreate "Server_53_Farm " -as Enabled -at 7300 -dm Cyclic
appdirector farm server table create "web server farm" 10.10.10.50 None -sn web_50 -id 0
appdirector farm server table create "web server farm" 10.10.10.53 None -sn web_53 -id 1
appdirector farm server table create App_Server_Farm 10.10.10.50 None -sn \
Application_Server_50 -id 13 -cn Enabled -nr 10.10.10.100
appdirector farm server table create App_Server_Farm 10.10.10.53 None -sn \
Application_Server_53 -id 14 -cn Enabled -nr 10.10.10.100
appdirector farm server table create Server_50_Farm 10.10.10.50 None -sn \
siebel_server_50 -id 19 -cn Enabled -sd siebel_server_50 -nr 10.10.10.100
appdirector farm server table create "Server_53_Farm " 10.10.10.53 None \
-sn siebel_server_53 -id 18 -cn Enabled -sd siebel_server_53 -nr 10.10.10.100
appdirector l7 farm-selection method-table setCreate AppSrv50 -cm \
"Regular Expression" -ma EXP=.*/!5.*|
appdirector l7 farm-selection method-table setCreate LBAppSrv -cm \
"Regular Expression" -ma EXP=.*|
appdirector l7 farm-selection method-table setCreate AppSrv53 -cm \
"Regular Expression" -ma EXP=.*/!1.*|
appdirector l7 farm-selection method-table setCreate RR -cm \
"Regular Expression" -ma EXP=.*/RR*|
appdirector l7 farm-selection method-table setCreate\
 "Auto-G Cookie web s" -cm "Set Cookie" -ma \
KEY=yI8cugcRkX|VAL=$Server_SID_Cookie|
appdirector l7 farm-selection method-table setCreate\
 "Auto-G RCookie web " -cm Cookie -ma KEY=yI8cugcRkX|
appdirector l7 farm-selection policy-table setCreate App_lb 10 -m1 \
LBAppSrv -pa PRSST=On| -fn App_Server_Farm
appdirector l7 farm-selection policy-table setCreate App_lb 7 -m1 \
AppSrv50 -pa PRSST=On| -fn Server_50_Farm
appdirector l7 farm-selection policy-table setCreate App_lb 5 -m1 \
AppSrv53 -pa PRSST=On| -fn "Server_53_Farm "
appdirector l7 farm-selection policy-table setCreate App_lb 1 -m1 RR -pa \
PRSST=On| -fn App_Server_Farm
redundancy interface-group set Enabled
appdirector dns status set Disabled
appdirector nat server status set enable
appdirector dns two-records set Disabled
redundancy backup-in-vlan set Disabled
appdirector farm connectivity-check httpcode setCreate "web server farm" "200 - OK"
appdirector farm connectivity-check httpcode setCreate App_Server_Farm "200 - OK"
appdirector farm connectivity-check httpcode setCreate Server_50_Farm "200 - OK"
appdirector farm connectivity-check httpcode setCreate "Server_53_Farm " "200 - OK"
appdirector l7 server-persistency static-persist-table setCreate\
 "web server farm" narXaheDdlFn -sa 10.10.10.50 -sp 0 -fl 0
appdirector l7 server-persistency static-persist-table setCreate\
 "web server farm" ihtJZ7oCXWeM -sa 10.10.10.53 -sp 0 -fl 0
appdirector nat server specific-nat-address set 0.0.0.0
redundancy backup-fake-arp set Enabled
net next-hop-router setCreate 76.197.19.62 -id 20 -fl 1
appdirector farm nhr setCreate 0.0.0.0 -ip 76.197.19.62 -fl 1
appdirector farm extended-params set App_Server_Farm -nr 10.10.10.100
appdirector farm extended-params set "web server farm" -sc Enabled -ic \
"Enable and remove cookie on return path"
appdirector farm extended-params set Server_50_Farm -nr 10.10.10.100
appdirector farm extended-params set "Server_53_Farm " -nr 10.10.10.100
appdirector nat client address-range setCreate 10.10.10.100 -t 10.10.10.100
appdirector nat client range-to-nat setCreate 10.10.10.50 -t 10.10.10.53
appdirector nat client status set Enabled
redundancy backup-interface-group set Enabled
system internal appdirector full-session-id-table setCreate\
 "web server farm" 0 TCP -k yI8cugcRkX -fl 0
appdirector nat outbound status set Disabled
appdirector l4-policy ssl-policy create Siebel -c SiebelCert -r Enabled
appdirector l4-policy compression create Siebel -pe Hardware
appdirector l4-policy caching create Siebel
appdirector l4-policy table create 76.197.19.53 Any Any 0.0.0.0\
 Siebel_Server_53 -fn "Server_53_Farm " -rs Backup
appdirector l4-policy table create 76.197.19.50 Any Any 0.0.0.0\
 Siebel_Server_50 -fn Server_50_Farm -rs Backup
appdirector l4-policy table create 10.10.10.55 TCP 2321 0.0.0.0\
 App_svr_l7 -po App_lb -ta HTTP -rs Backup
```

```
appdirector l4-policy table create 76.197.19.55 TCP 80 0.0.0.0\
 WebServiceHTTP -fn "web server farm" -ta HTTP -rs Backup -pm Maintain -co \
Siebel -ca Siebel
redundancy vrrp automated-config-update set Enabled
appdirector l7 modification table setCreate "Auto-G Cookie web s" -i 0 -f \
"web server farm" -d Reply -am "Auto-G Cookie web s"
redundancy global-configuration failure-action set Ignore
health-monitoring binding create 1 14
health-monitoring binding create 5 0
health-monitoring binding create 4 1
health-monitoring binding create 7 13
health-monitoring status set enable
health-monitoring response-level-samples set 0
redundancy vrrp virtual-routers create 1 1 -pip 76.197.19.60
redundancy vrrp virtual-routers create 11 2 -pip 10.10.10.3
redundancy vrrp associated-ip create 1 1 76.197.19.61
redundancy vrrp associated-ip create 1 1 76.197.19.55
redundancy vrrp associated-ip create 11 2 10.10.10.1
redundancy vrrp associated-ip create 11 2 10.10.10.55
manage user table create radware -pw GndridF04zNWSGOrZjKFV78REiEra/Qm
manage telnet status set enable
manage telnet server-port set 23
manage web status set enable
manage ssh status set enable
manage secure-web status set enable
services dns client primary-server set 68.94.156.1
services dns client alt-server set 0.0.0.0
services dns client status set Enabled
manage ftp server-port set 21
manage ftp status set enable
redundancy arp-interface-group set Send
net l2-interface set 100001 -ad up
net l2-interface set 100063 -ad up
redundancy vrrp global-advertise-int set 0
manage snmp groups create SNMPv1 public -gn initial
manage snmp groups create SNMPv1 ReadOnlySecurity -gn InitialReadOnly
manage snmp groups create SNMPv2c public -gn initial
manage snmp groups create SNMPv2c ReadOnlySecurity -gn InitialReadOnly
manage snmp groups create UserBased radware -gn initial
manage snmp groups create UserBased ReadOnlySecurity -gn InitialReadOnly
manage snmp access create initial SNMPv1 noAuthNoPriv -rvn iso -wvn iso -nvn iso
manage snmp access create InitialReadOnly SNMPv1 noAuthNoPriv -rvn ReadOnlyView
manage snmp access create initial SNMPv2c noAuthNoPriv -rvn iso -wvn iso -nvn iso
manage snmp access create InitialReadOnly SNMPv2c noAuthNoPriv -rvn ReadOnlyView
manage snmp access create initial UserBased authPriv -rvn iso -wvn iso -nvn iso
manage snmp access create InitialReadOnly UserBased authPriv -rvn ReadOnlyView
manage snmp views create iso 1
manage snmp views create ReadOnlyView 1
manage snmp views create ReadOnlyView 1.3.6.1.4.1.89.2.7.2 -cm excluded
manage snmp views create ReadOnlyView 1.3.6.1.6.3.18.1.1 -cm excluded
manage snmp views create ReadOnlyView 1.3.6.1.6.3.15.1.2.2 -cm excluded
manage snmp views create ReadOnlyView 1.3.6.1.4.1.89.35.1.61 -cm excluded
manage snmp views create ReadOnlyView 1.3.6.1.6.3.16.1.2 -cm excluded
manage snmp views create ReadOnlyView 1.3.6.1.6.3.16.1.4 -cm excluded
manage snmp views create ReadOnlyView 1.3.6.1.6.3.16.1.5 -cm excluded
manage snmp notify create allTraps -ta v3Traps
manage snmp users create radware -cf 0.0 -ap MD5 -akc \
54118f8ecffedac7e39d16b7c9cab095 -pp DES -pkc \
54118f8ecffedac7e39d16b7c9cab095
manage snmp target-address create v3MngStations -tl v3Traps -p radware-authPriv
manage snmp target-parameters create public-v1 -d SNMPv1 -sm SNMPv1 -sn \
public -sl noAuthNoPriv
manage snmp target-parameters create public-v2 -d SNMPv2c -sm SNMPv2c -sn \
public -sl noAuthNoPriv
manage snmp target-parameters create radware-authPriv -d SNMPv3 -sm \
UserBased -sn radware -sl authPriv
manage snmp community create public -n public -sn public
services auditing status set enable
manage telnet session-timeout set 5
manage telnet auth-timeout set 30
system diagnostics policies setCreate Login -i 2 -tr Disabled
system diagnostics capture output file set "ram drive"
```

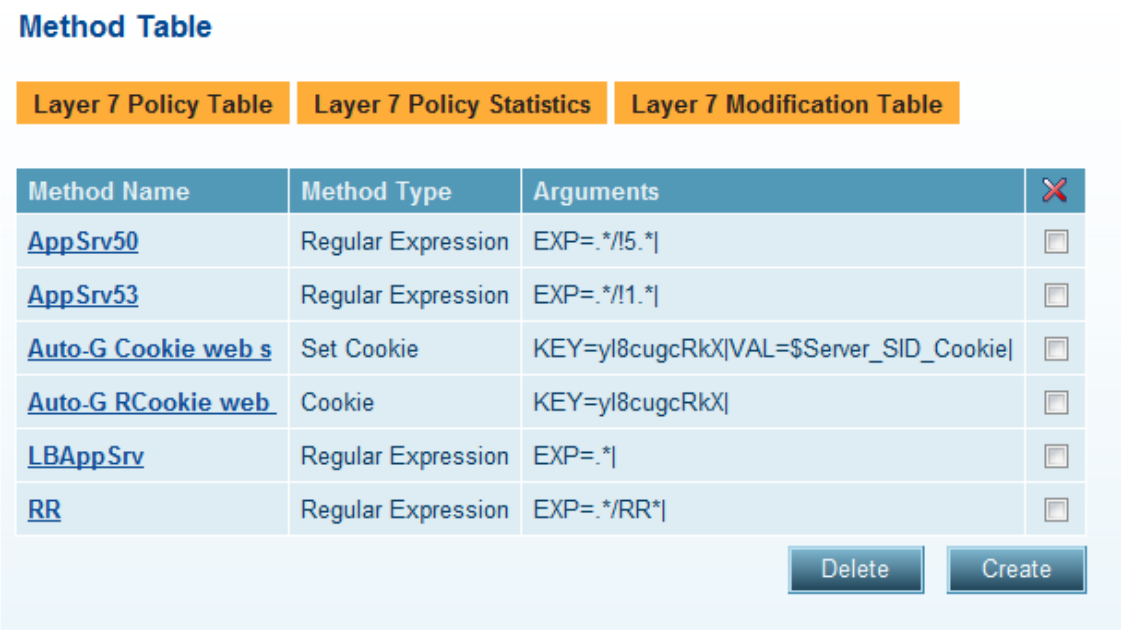
```
system diagnostics capture output term set Disabled
system diagnostics trace-log output file set "ram drive and flash"
system diagnostics trace-log output term set Disabled
system diagnostics trace-log output syslog set Disabled
system diagnostics trace-log modules set HMM -st Enabled -sev Info
system diagnostics capture point set both
redundancy force-down-ports-time set 0
system diagnostics capture traffic-match-mode set "Inbound and Outbound"
appdirector global connectivity-check tcp-timeout set 3

!File Signature: c2f60b9aed3a4f2ab689fdd07ad0b778
```

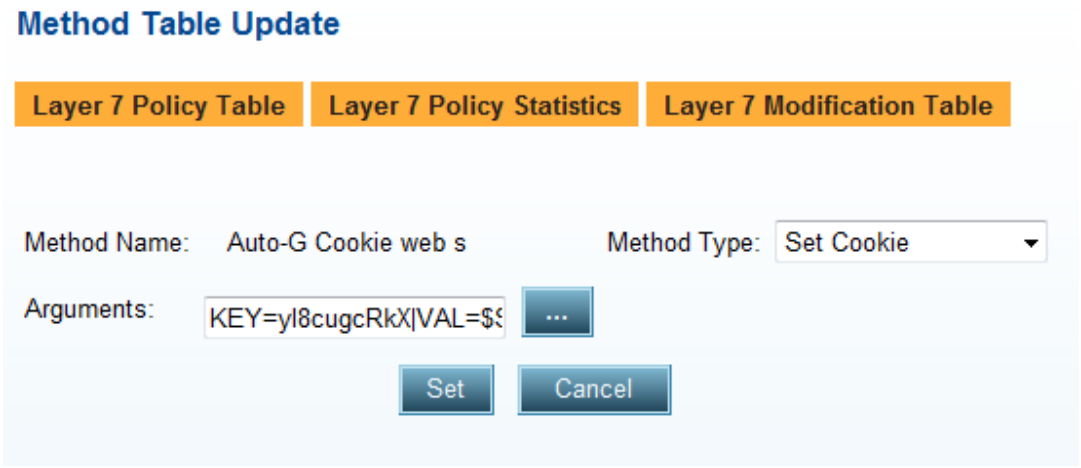
Appendix 3 – Insert Cookie - Auto Generated Configuration

Below are the entries that get generated by enabling insert cookie.

From the menu, select **AppDirector ⇨ Layer 7 Farm Selection ⇨ Methods** to display the **Methods Table** page similar to the one shown below:

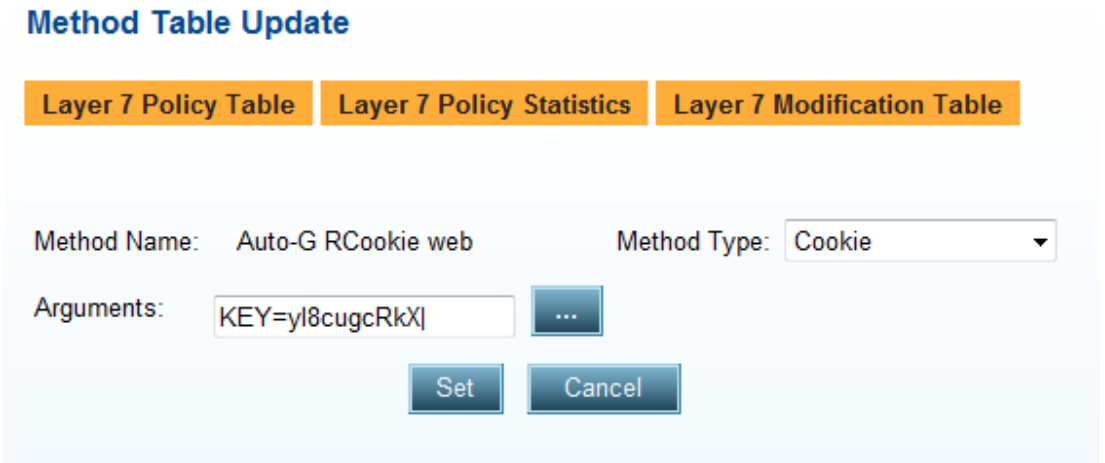


Select **"Auto-G Cookie web s"** from the **Method Table** to display the **Methods Table Update** page similar to the one shown.

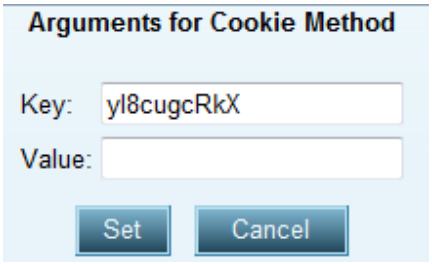


Select  to see the **Arguments** values.

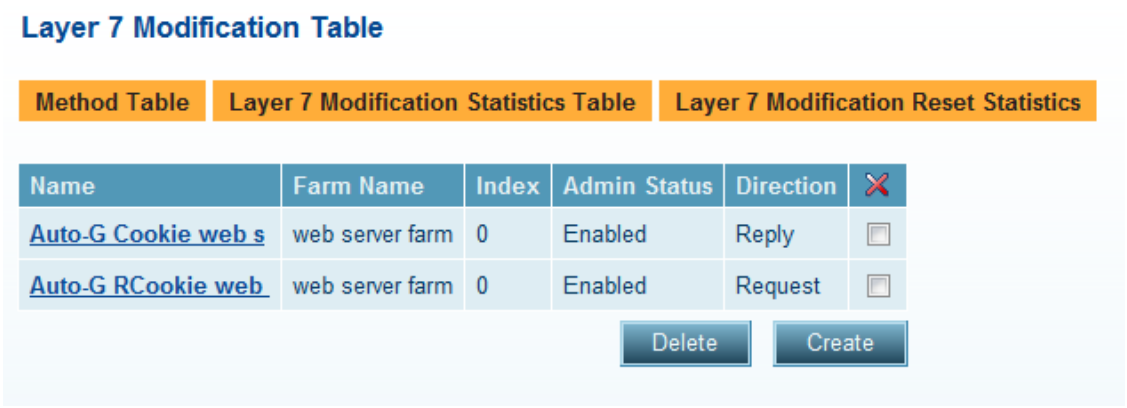
Select **"Auto-G RCookie web"** from the **Method Table** to display the **Methods Table Update** page similar to the one shown.



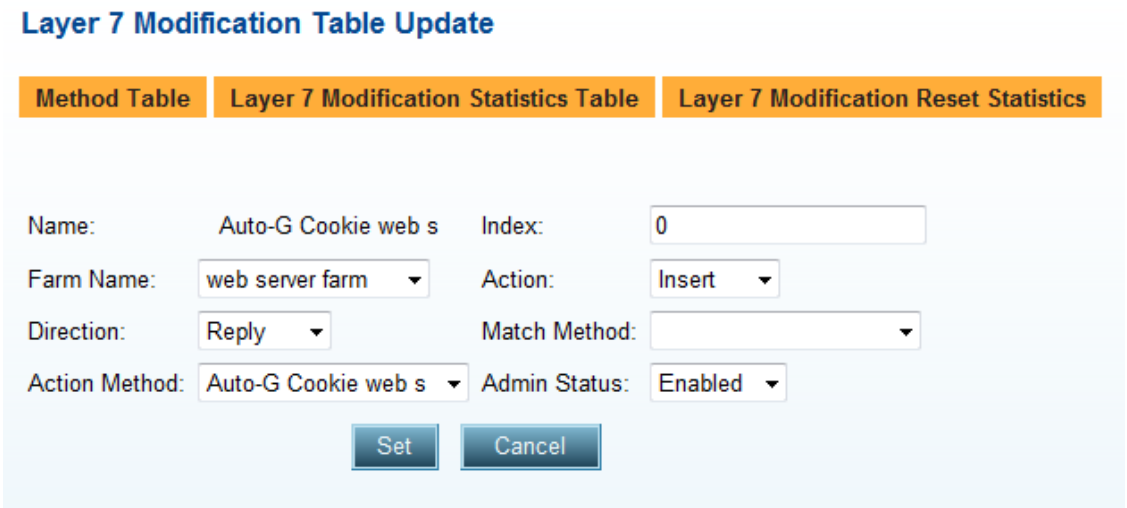
Select  to see the **Arguments** values.



From the menu, select **AppDirector ⇨ Layer 7 Modification ⇨ Rules** to display the **Layer 7 Modification Table** page similar to the one shown below:

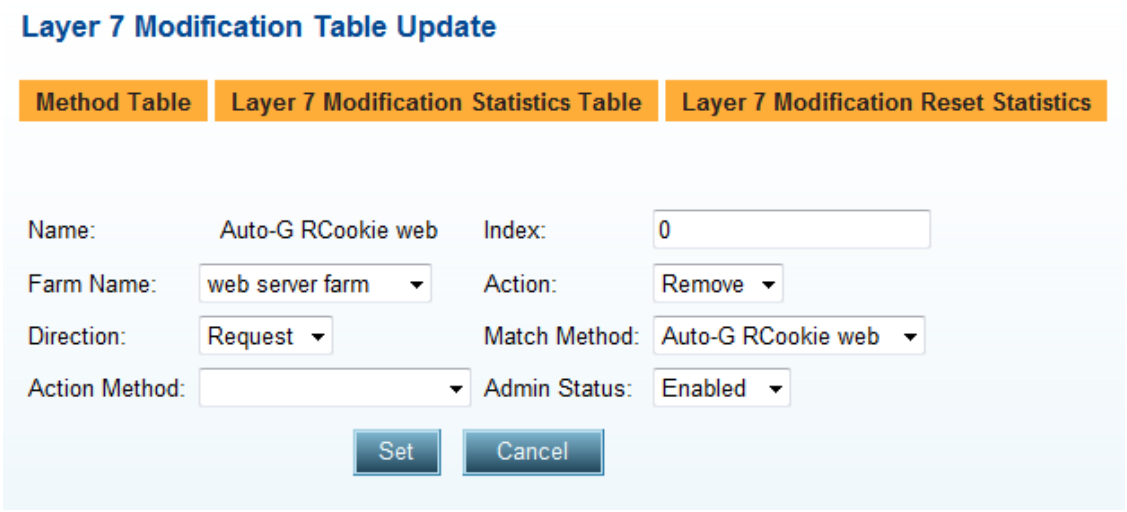


Select **"Auto-G Cookie web s"** from the **Layer 7 Modification Table** to display the **Layer 7 Modification Table Update** page similar to the one shown.

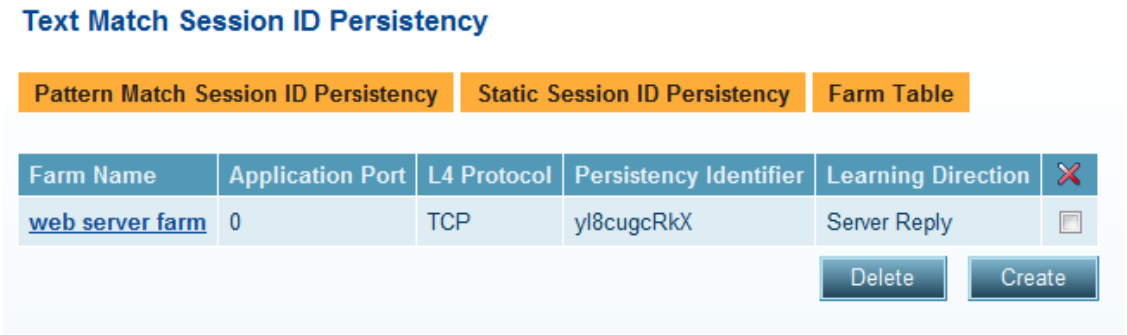


Select **"Auto-G RCookie web"** from the **Layer 7 Modification Table** to display

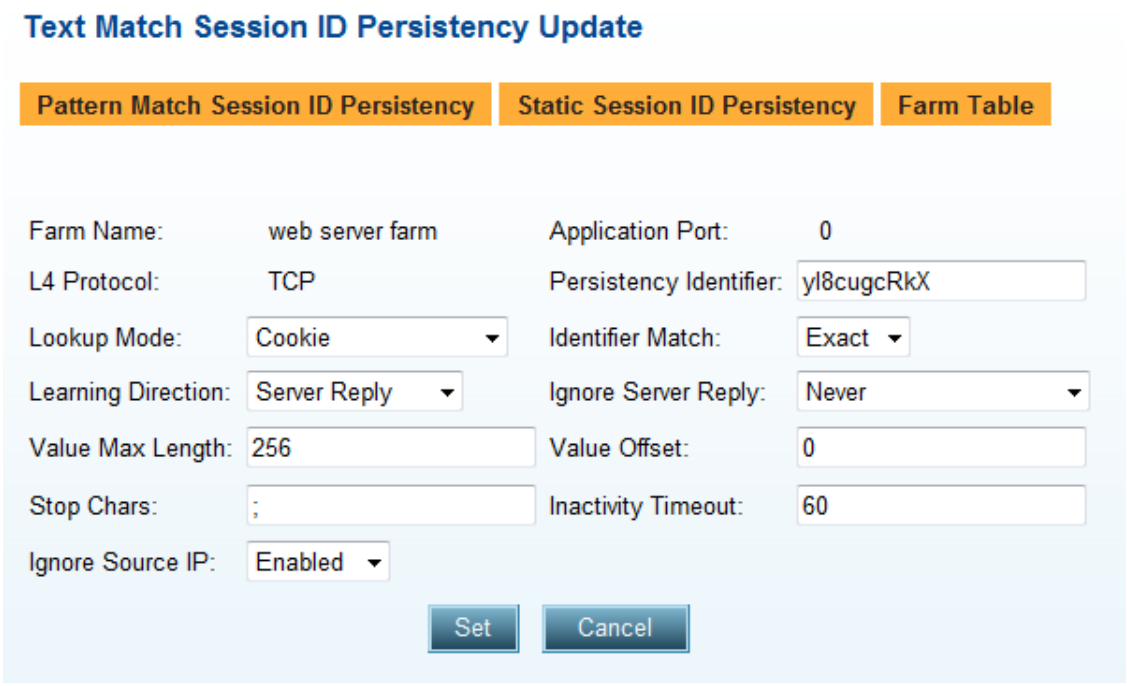
the **Layer 7 Modification Table Update** page similar to the one shown.



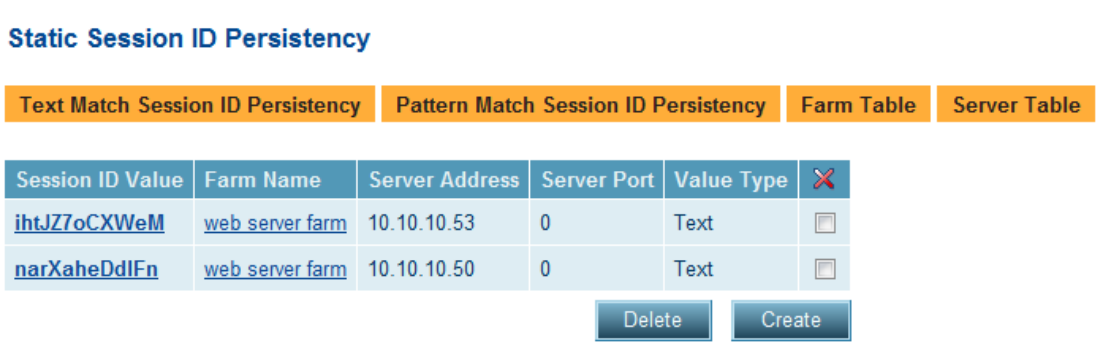
From the menu, select **AppDirector ⇨ Layer 7 Server Persistence ⇨ Text Match** to display the **Text Match Session ID Persistence** page similar to the one shown below:



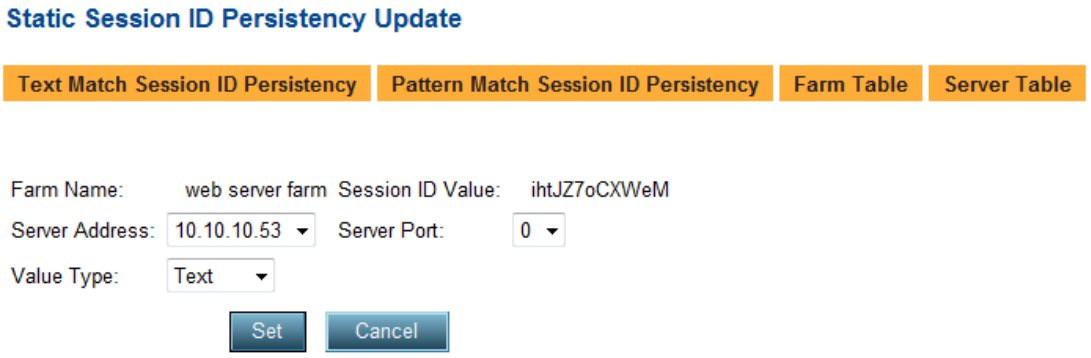
Select **"web server farm"** from the **Text Match Session ID Persistence** to display the **Text Match Session ID Persistence Update** page similar to the one shown.



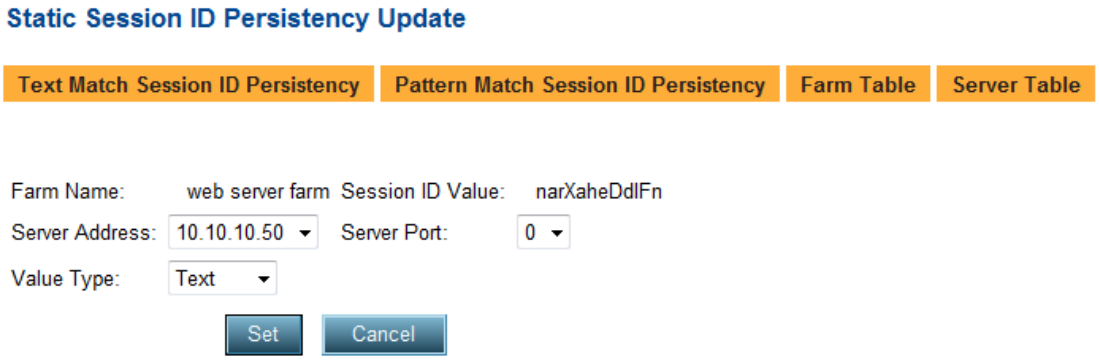
From the menu, select **AppDirector ⇨ Layer 7 Server Persistence ⇨ Static Session ID Persistency** to display the **Static Session ID Persistency** page similar to the one shown below:



Select **"ihtJZ7oCXWeM"** from the **Static Session ID Persistency** page to display the **Static Session ID Persistency Update** page similar to the one shown.



Select **"narXaheDdlFn"** from the **Static Session ID Persistency** page to display the **Static Session ID Persistency Update** page similar to the one shown.



Technical Support

Radware offers technical support for all of its products through the Radware Certainty Support Program. Please refer to your Certainty Support contract, or the Radware Certainty Support Guide available at:

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