Deployment Guide
January-2016 rev. b

Deploying Array Networks APV Series Application Delivery Controllers With IBM WebSphere 8.5

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1 Introduction

This guide contains step-by-step procedures for configuring Array APV Series application delivery controllers (ADCs) for IBM WebSphere 8.5 and IBM HTTP Server resulting in a secure, fast and available deployment.

IBM WebSphere Application Server offers options for a faster, more flexible Java application server runtime environment with enhanced reliability and resiliency for building and running applications, including cloud and mobile. It supports environments from single-server and medium-sized configurations to large deployments requiring Web tier clustering over multiple application server instances.

For more information on IBM WebSphere, see:

http://www-03.ibm.com/software/products/en/appserv-was

For more information on the Array devices included in this guide, see http://www.arraynetworks.com/products-application-delivery-controllers-apv-series.html.

1.1 Prerequisites and Configuration Notes

The following are general prerequisites for this deployment guide; each section contains specific prerequisites:

- All of the configuration procedures in this document are performed on APV Series devices. For information on how to deploy or configure WebSphere & IBM HTTP server, consult the appropriate IBM documentation.
- This document is written with the assumption that you are familiar with both the APV Series appliances and IBM WebSphere. For more information on configuring these Products, consult the appropriate documentation.
- This Deployment Guide assumes that you have already installed the APV Series appliance in your network. It also assumes that you have performed basic configuration tasks such as creating Self IP addresses and VLANs. For more information on how to install APV Series ADC appliances and configure the basic settings, refer to the appropriate Application Guide, WebUI Handbook and CLI Handbook.

1.2 Configuring the Array APV Series for IBM HTTP Server and the WebSphere Plug-in.

1.2.1 Prerequisites and Configuration Notes

The following are lab setups used for this deployment:

The APV Series should be running version 8.4.0 or later

Application type: 3 Tier Architecture

Web Server: IBM HTTP Server (IHS) * 2 No

Application Server: WebSphere Application Server Version 8.5 (WAS) * 2 No

Database Server: Oracle 11G RAC – Cluster

IHS IP: Web Server01-172.21.2.165 port 80 (IHS1)

IHS IP: Web Server02- 172.21.2.166 Port 80 (IHS2)

Load Balancer Configuration:

Deployment Method: One Arm

Load Balancer interface IP address: 172.21.6.15

VIP for IHS Web Server: 172.21.6.16 port 80 & 443

1.2.2 Configuration Example

The APV Series provides intelligent traffic management and high availability for IBM WebSphere deployments.

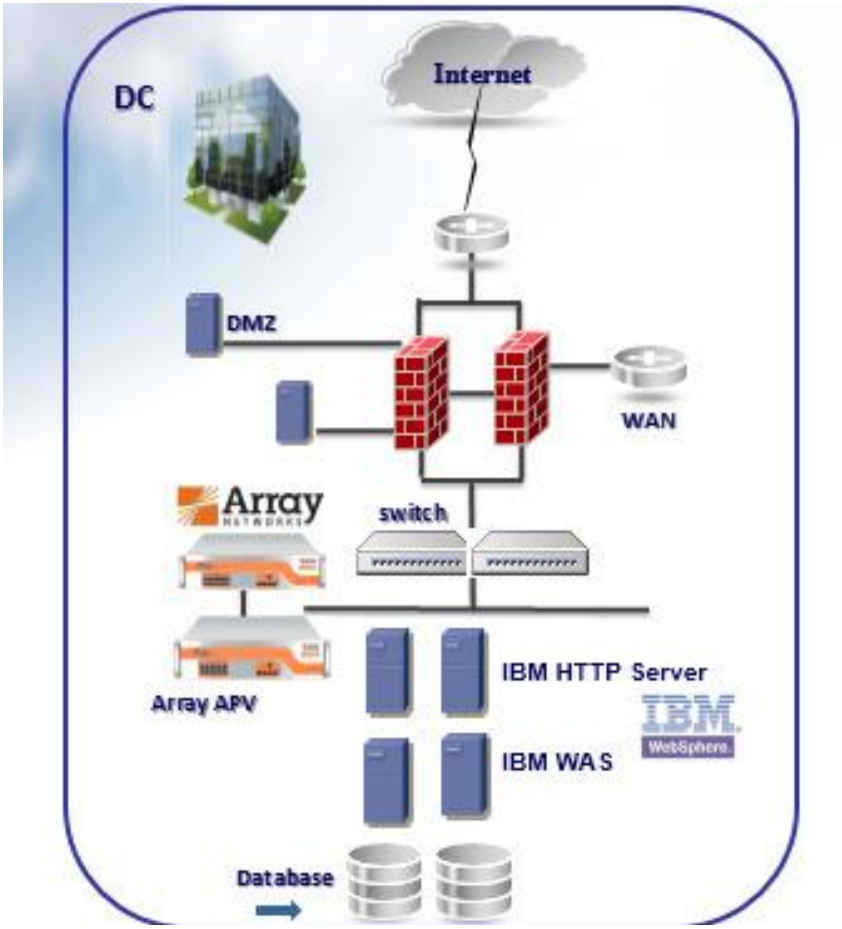


Figure 1: Array APV and WebSphere Logical Configuration

1.3 Configuration Tasks

To configure the APV Series and WebSphere devices for integration, you need to complete the following procedures:

1. Connect to the APV device
2. Create the real service
3. Create the group
4. Create the Server Load Balancing (SLB) virtual server
5. Check the SLB Virtual Service Status and visit the Web site to view the result

1.4 Connecting to the APV device

Use the following procedure to access the APV Series' Web-based Configuration utility using a Web browser.

To connect to the APV system using the Configuration utility:

1. In a browser, type the following URL: https://<administrative IP address of the APV device>

A Security Alert dialog box appears; click **Yes**. The authorization dialog box appears.

2. Type your user name and password, and click **OK**. The Array Networks Pilot Login screen opens.

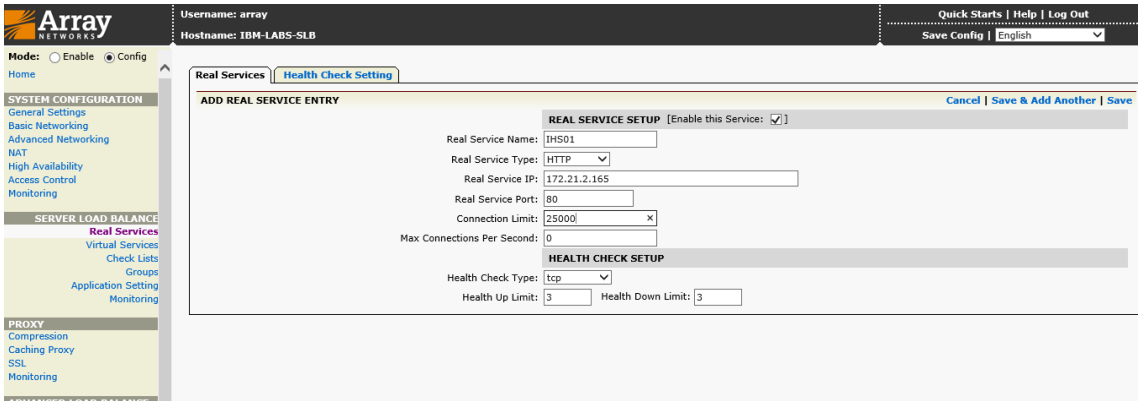
3. Type your 'enable' password, and click **Login**. The welcome screen opens.

Once you are logged onto the APV appliance, the Welcome screen of the Configuration utility opens. From the Configuration utility, you can configure and monitor the APV Series, as well as access online help, download SNMP MIBs and Plug-ins, and even search for specific objects.

1.5 Creating the Real Service

The first step in setting up your network architecture with the APV Series performing SLB tasks is to create and configure your real services.

Make certain you are in Config mode and have selected the feature link **Real Services** from the sidebar. The configuration window will display two tabs. The default page is Real Services.



1.5.1 To Create a Real Service

1. Click on the "**Health Check Setting**" tab. A new window will display. Input the fields relating to the Response String.

2. Select the action link "**Add Real Service Entry**". The configuration window will present a new screen.

3. The new screen is for you to configure real servers. Depending on which type of real service is specified, certain parameter fields will appear, change or disappear in relation to what the requirements for the setting entail. Input the fields relating to the real services, including Real Service Name, IP, Port, Maximum Connections, Session Timeout, Real Service MAC, and Output Interface. In our example, we type IHS 01 and IHS 02 as the Real Service Names, and input the IP addresses 172.21.2.165 and 172.21.2.166 as our Web site. Because our example will demonstrate a Web Service, we set the Real Service Port to **80.**

4. Then set the Health Check type for the real service via the selector, and configure the related parameters of the health check

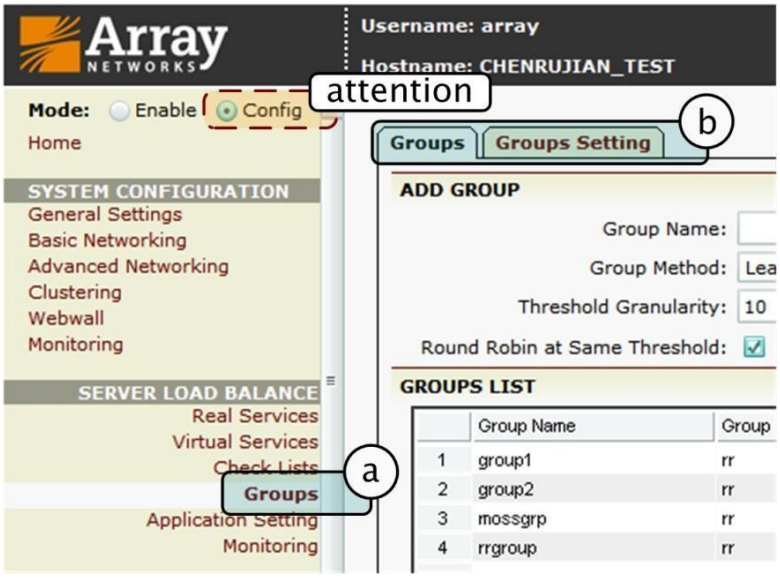
5. Finish the creation of the real service and its health check configuration by clicking "**save**" on the desired action link.

1.6 Creating the Group

The next step is to create a group containing the real service you just created.

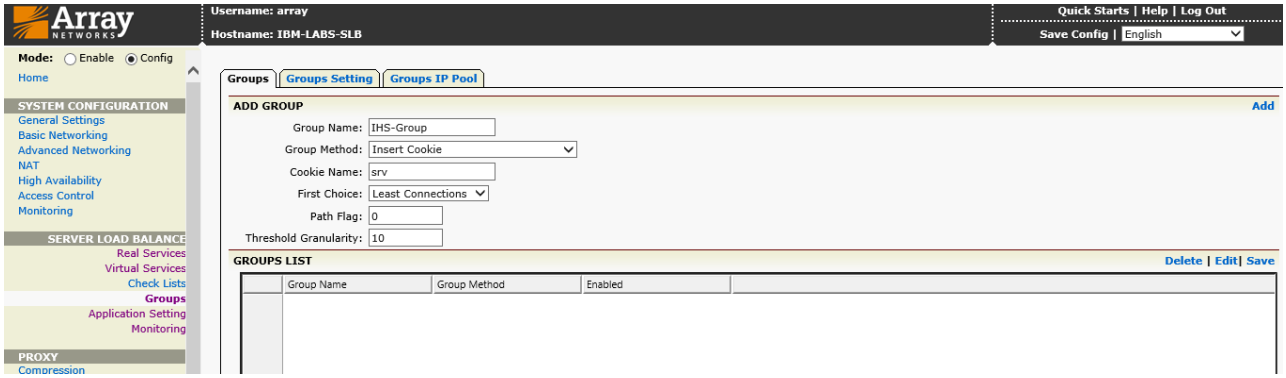
A group is first defined by using the SLB Group Method command. This command will define a group to which you may add real servers.

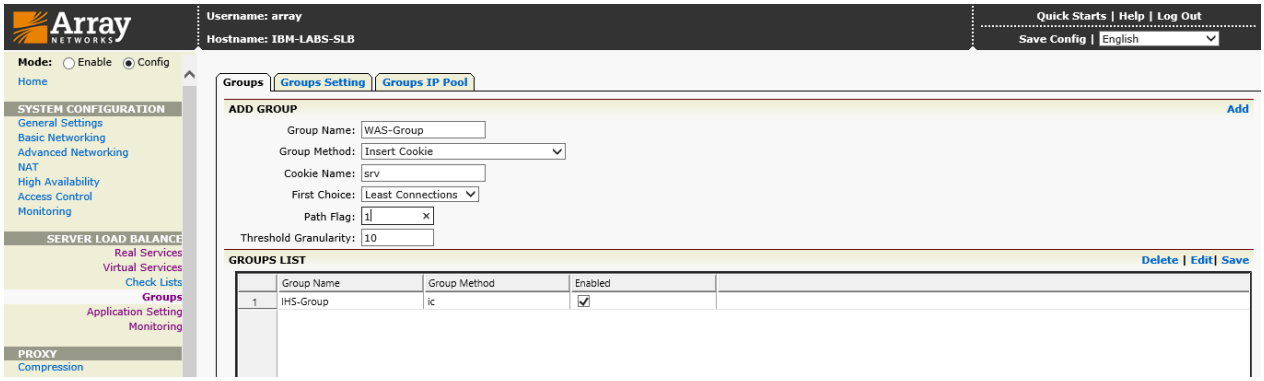
Make certain you are in Config mode and have selected the feature link Groups from the sidebar. The configuration window will display two tabs. Click on the "**Groups**" tab.

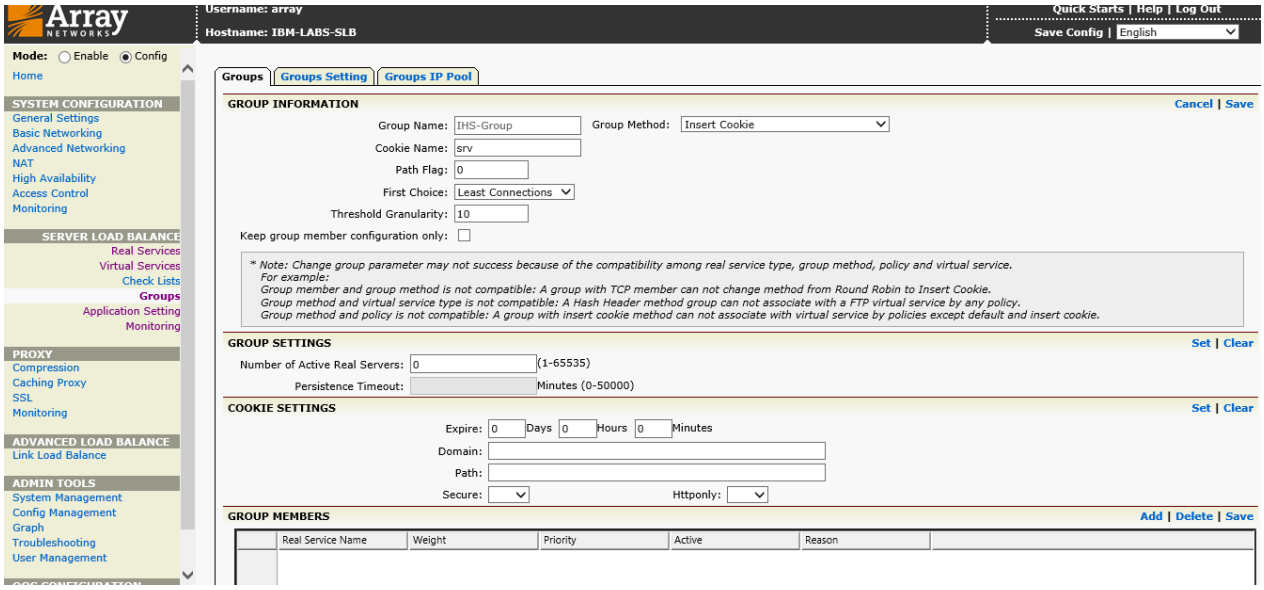


1.6.1 To Create the Group

Input the group name IHS-Group. Select the insert cookie method by selecting from the pull down menu and RoundRobin. Depending on which method is selected, certain parameter fields will change, appear or disappear. After making configurations on those parameter fields, click on the action link "**Add**". Then the newly created IHS-Group will be displayed in the sort-ready table below. Choose IHS-Group in the table and double click on it or click on the action link "**Edit**". A new configuration page will be displayed.


Array NETWORKS
Username: array
Hostname: IBM-LABS-SLB
Quick Starts | Help | Log Out
Save Config | English
Mode: Enable Config
Home
SYSTEM CONFIGURATION
General Settings
Basic Networking
Advanced Networking
NAT
High Availability
Access Control
Monitoring
SERVER LOAD BALANCE
Real Services
Virtual Services
Check Lists
Groups
Application Setting
Monitoring
PROXY
Compression
Groups
Groups Setting
Groups IP Pool
ADD GROUP
Add
Group Name: IHS-Group
Group Method: Insert Cookie
Cookie Name: srv
First Choice: Least Connections
Path Flag: 0
Threshold Granularity: 10
GROUPS LIST
Delete | Edit | Save
Group Name
Group Method
Enabled


Array NETWORKS
Username: array
Hostname: IBM-LABS-SLB
Quick Starts | Help | Log Out
Save Config | English
Mode: Enable Config
Home
SYSTEM CONFIGURATION
General Settings
Basic Networking
Advanced Networking
NAT
High Availability
Access Control
Monitoring
SERVER LOAD BALANCE
Real Services
Virtual Services
Check Lists
Groups
Application Setting
Monitoring
PROXY
Compression
Groups
Groups Setting
Groups IP Pool
ADD GROUP
Add
Group Name: WAS-Group
Group Method: Insert Cookie
Cookie Name: srv
First Choice: Least Connections
Path Flag: 1
Threshold Granularity: 10
GROUPS LIST
Delete | Edit | Save
Group Name
Group Method
Enabled
1
IHS-Group
ic


Array NETWORKS
Username: array
Hostname: IBM-LABS-SLB
Quick Starts | Help | Log Out
Save Config | English
Mode: Enable Config
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SYSTEM CONFIGURATION
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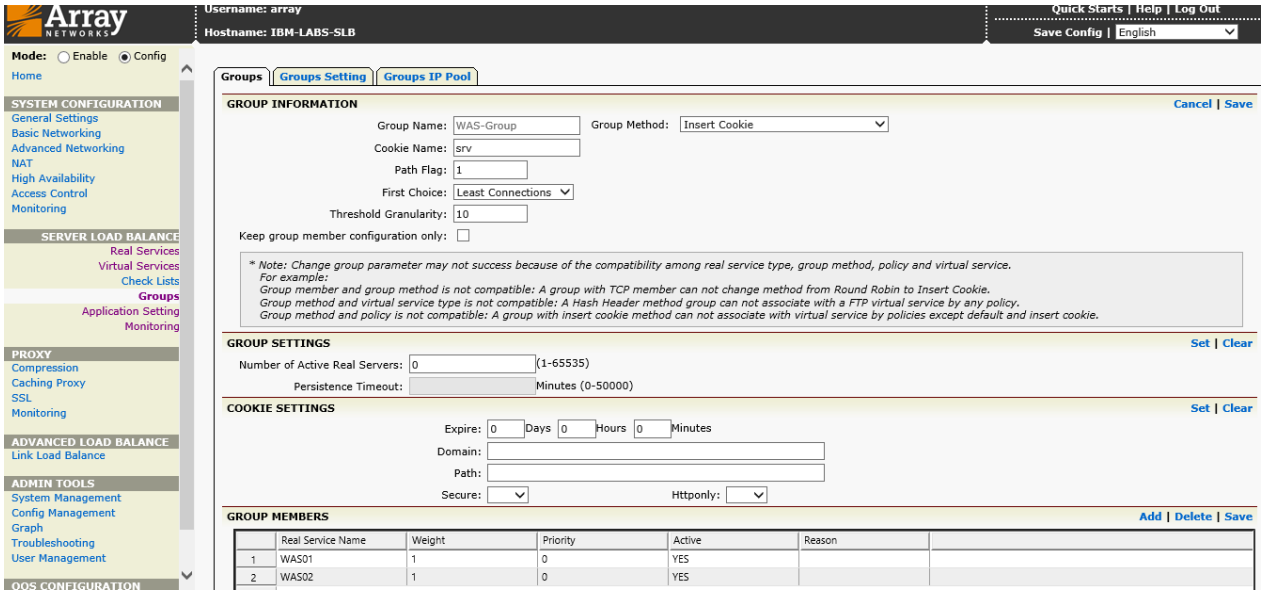
SERVER LOAD BALANCE
Real Services
Virtual Services
Check Lists
Groups
Application Setting
Monitoring
PROXY
Compression
Caching Proxy
SSL
Monitoring
ADVANCED LOAD BALANCE
Link Load Balance
ADMIN TOOLS
System Management
Config Management
Graph
Troubleshooting
User Management
Groups
Groups Setting
Groups IP Pool
GROUP INFORMATION
Cancel | Save
Group Name: IHS-Group
Group Method: Insert Cookie
Cookie Name: srv
Path Flag: 0
First Choice: Least Connections
Threshold Granularity: 10
Keep group member configuration only:
* Note: Change group parameter may not success because of the compatibility among real service type, group method, policy and virtual service.
For example:
Group member and group method is not compatible: A group with TCP member can not change method from Round Robin to Insert Cookie.
Group method and virtual service type is not compatible: A Hash Header method group can not associate with a FTP virtual service by any policy.
Group method and policy is not compatible: A group with insert cookie method can not associate with virtual service by policies except default and insert cookie.
GROUP SETTINGS
Set | Clear
Number of Active Real Servers: 0 (1-65535)
Persistence Timeout: Minutes (0-50000)
COOKIE SETTINGS
Set | Clear
Expire: 0 Days 0 Hours 0 Minutes
Domain:
Path:
Secure:
Httponly:
GROUP MEMBERS
Add | Delete | Save
Real Service Name
Weight
Priority
Active
Reason

6. You can modify the group method and relevant configurations in this tab. Depending on which method is selected, certain parameter fields will change, appear or disappear.

7. Assign the configured real services IHS01 and IHS02 to the newly created groups by using the pull down menu "**Eligible Reals**". Set the "Weight" parameter if the group method is rr, pi, ph, hh, hc, ic or rc, or set the "Cookie Value" parameter if the group method is pc, or set the "**URL Value**" parameter if the group method is pi. Then, click on the "**Add**" action link and the assigned real services IHS01 and IHS02 will appear in the display window.

8. Also at this page, there is a display window showing the current running statistics of the particular group.

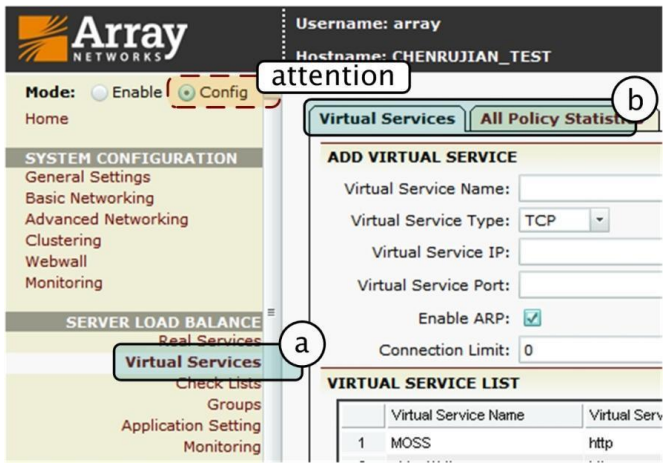


1.7 Creating the Virtual Service

The next step in this section is to create a virtual service.

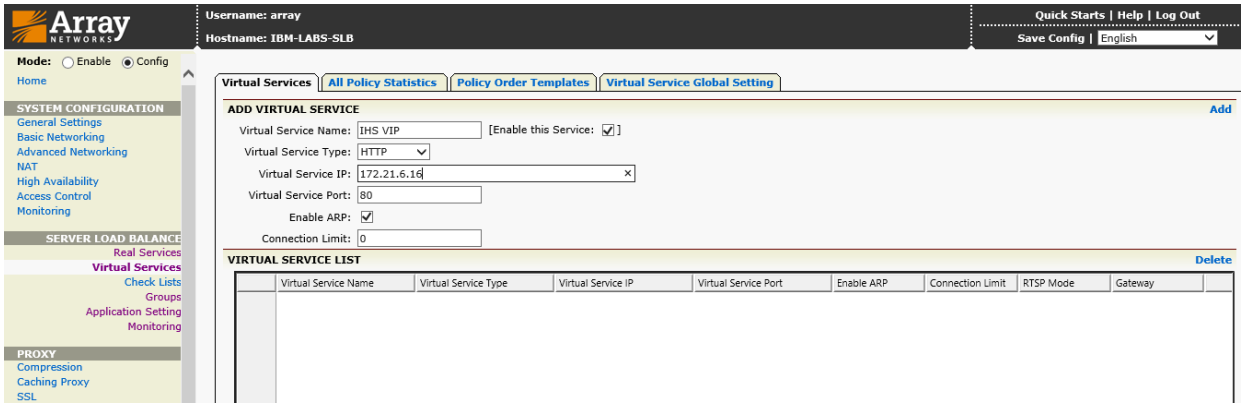
A Virtual IP is an IP address that you define and that will service requests for the content for which a group is designed.

Make certain you are in the **Config** mode and have selected the feature link **Virtual Services** from the sidebar. The configuration window will display four tabs. The Virtual Services tab is displayed by default.

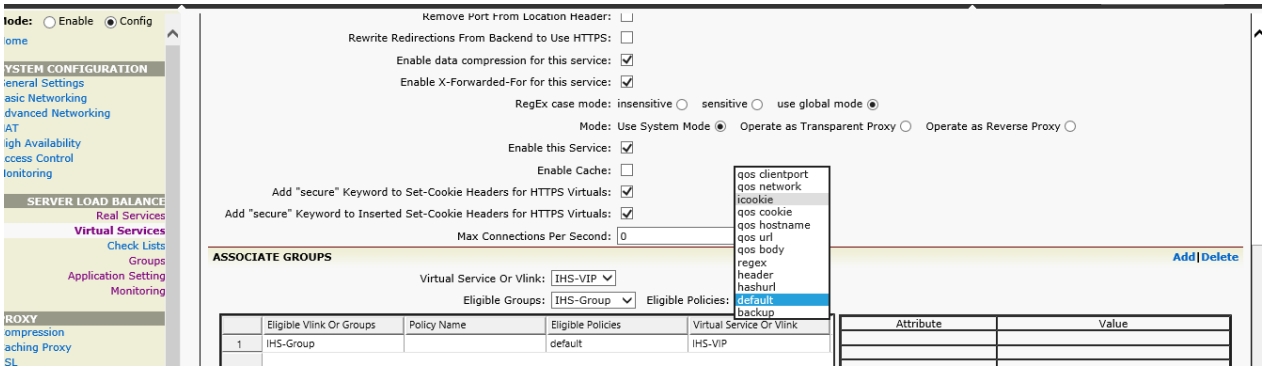


1.7.1 To Create a Virtual Server

1. Set the virtual service's name to be IHS VIP. Use the check box to enable the virtual service. Select the virtual service type http from the selector. Set the virtual service IP and port **80**. Use the check box to enable ARP. Set the maximum number of open connections per virtual service. Depending on which type of virtual service is specified, certain parameter fields will appear, change or disappear. Click on the desired action link to add a virtual service. Once a virtual service is added, it will be displayed within the table. Select a virtual service in the table and double click on it or click on the action link "**Edit**". A new configuration window will present a new series of tabs for completing the virtual services configuration.

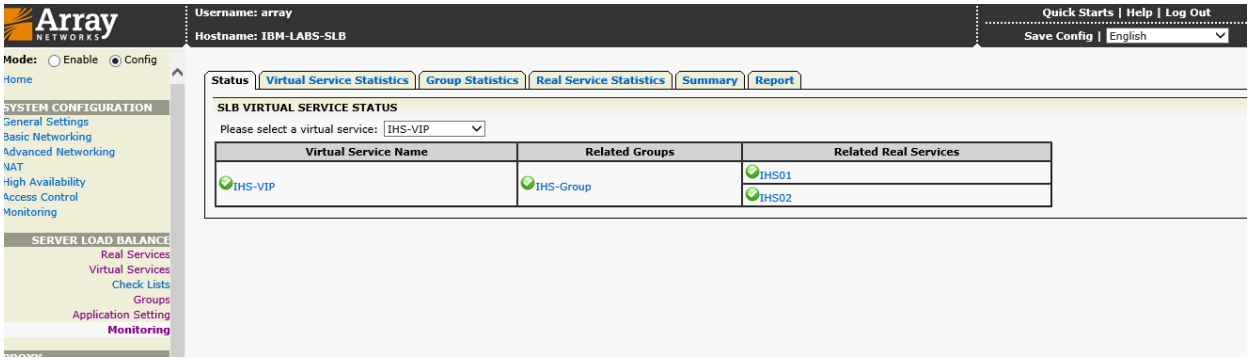


2. Select the pre-created IHS-Group and set it to be the default group. Click **add** button to save this Virtual Service-SLB Group association. The IHS-Group will be shown in the ASSOCIATE GROUPS list.



1.8 Checking the Status

Click on **Monitoring** in the Server load balancing section to see if the entire map is visible, ensuring your configuration is precise.



3. Open your browser and type the Virtual IP address of your Web site. The main page screen opens.

2 Configure the APV for WebSphere 8.5 SSL Offload

This section describes how to configure the APV Series as an SSL proxy for a WebSphere Server deployment. If you are not using the APV Series to offload SSL traffic, you do not need to perform the following procedures.

> **Note:**
>
> **This section is optional, we will only list CLI configurations. We assume that you have already configured your APV system for a WebSphere deployment as described earlier in this Deployment Guide.**

2.1 Prerequisites and Configuration Notes

The following are additional prerequisites for this section:

- You need an SSL certificate for your site that is compatible with the APV Series application delivery controller. For more information, consult the APV documentation.
- You must have already configured the APV Series as described in this Deployment Guide.

This section contains the following procedures for configuring the APV system:

- Using SSL certificates and keys
- Creating the HTTPS virtual service
- Starting SSL Offload

2.2 Using SSL Certificates and Keys

Before you can enable the APV Series to act as an SSL proxy, you must install an SSL certificate on the virtual server that you wish to use for WebSphere connections on the APV device. For this Deployment Guide, we assume that you already have obtained an SSL certificate, but it is not yet installed on the APV system. For information on generating certificates, or using the APV Series to generate a request for a new certificate and key from a certificate authority, see the SSL chapter in the APV Application Guide.

2.2.1 Importing Keys and Certificates

Once you have obtained a certificate, you can import this certificate into the APV system using the following CLI commands; for detailed usage, please refer to APV Application Guide.

```
ssl import key  www.arraytest.com
ssl import certificate  www.arraytest.com
```

2.2.2 Create an HTTPS Virtual Service

This step will create an https virtual service.

```
slb virtual https "IHS_https-VIP" 10.3.47.254 443 arp 1 slb
policy default "IHS_https-vip" "IHS-Group"
```

2.2.3 Start SSL Offload

```
ssl host virtual  www.arraytest.com
“IHS_https” ssl start  www.arraytest.com
```

Appendix A: CLI Configuration

```
slb real http "IHS01" 172.21.2.165 80 1000 http 3 3
slb real http "IHS02" 172.21.2.166 80 1000 http 3 3
slb group method "IHS-Group" rr

slb group member "IHS-Group" "IHS01" 1 0
slb group member "IHS-Group" "IHS02" 1 0

slb virtual http "IHS VIP" 172.21.6.16 80 arp 0 slb policy default
"IHS VIP" "IHS-Group"
slb virtual health on
```

SSL Offload (Optional)

```
slb virtual https "IHS_https" 172.21.6.16 443 arp 1
slb policy default "IHS https" " IHS -Group"
http redirect https IHS VIP

ssl host virtual www.arraytest.com "IHS https"
ssl start  www.arraytest.com
```

About Array Networks

Array Networks is a global leader in application delivery networking with over 5000 worldwide customer deployments. Powered by award-winning SpeedCore software, Array application delivery, WAN optimization and secure access solutions are recognized by leading enterprise, service provider and public sector organizations for unmatched performance and total value of ownership. Array is headquartered in Silicon Valley, is backed by over 400 employees worldwide and is a profitable company with strong investors, management and revenue growth. Poised to capitalize on explosive growth in the areas of mobile and cloud computing, analysts and thought leaders including Deloitte, IDC and Frost & Sullivan have recognized Array Networks for its technical innovation, operational excellence and market opportunity.

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