Deployment Guide

AX Series with Microsoft Office Communications Server

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DEPLOYMENT GUIDE

AX Series with Microsoft Office Communications Server

Introduction

This deployment guide contains configuration procedures for AX Series server load balancers to support Microsoft Office Communications Server 2007 (OCS).

OCS is the first Microsoft product to combine enterprise-ready IM (instant messaging), presence, conferencing, and VoIP (Voice over IP) telephony in a fully integrated unified communications solution. Office Communications Server 2007 provides richer presence capabilities, rich multimedia experiences that include data collaboration, group IM, audio and video, and multiparty audio conferencing, and improved deployment and management than its predecessor, Microsoft Office Live Communications Server 2005.

For more information on OCS, visit:

http://office.microsoft.com/en-us/communicationsserver/default.aspx

The AX Series with its Advanced Core Operating System (ACOS) has been designed specifically for applications such as OCS, providing better robustness in failover situations, load balancing VoIP users' sessions for better performance and scalability, offloading processing for security, and performing intelligent load sharing for Web based clients' access for OCS services.

Prerequisites & Assumptions

- A10's AX platform should be running software version 2.0 or later.
- It is assumed that users have some basic configuration familiarity with both AX as well as OCS administration.
- The AX can be configured in one armed mode or routed mode.

The configurations that are in this deployment guide can be used for OCS setups and topologies for clients' access using a HTTP Web browser for OCS services, and for VoIP services of OCS based on the SIP configuration.

Enterprise Deployment Example

For High Availability Enterprise deployment supporting mission-critical IM and conferencing internally as well as providing external access, the following Microsoft's OCS reference topology is used as an example.

This reference topology is well positioned to scale if the need for external access becomes more critical. To scale, you add additional computers that are running the same server roles and connect them to the AX load balancer.

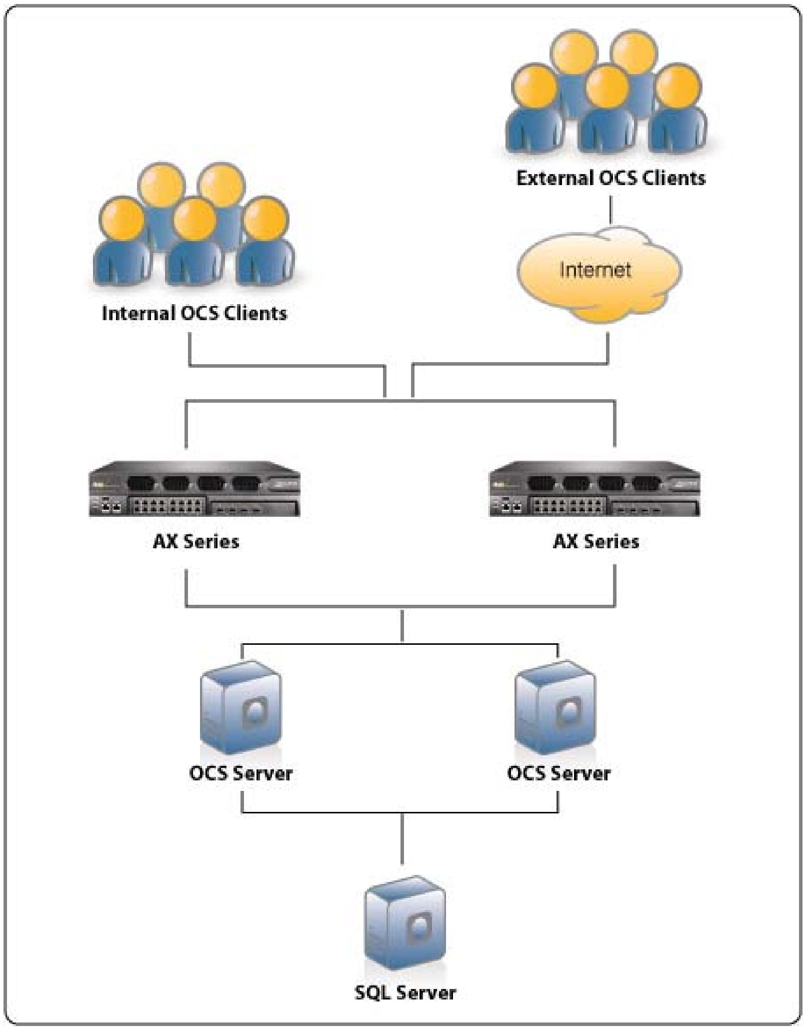


Figure 2.1 Office Communications Server Reference Topology

The configuration steps in this document are based on AX Series Software Release 2.4 and Microsoft Office Communications Server 2007 Enterprise Edition.

Configuring AX for HTTPS (444) port on Microsoft Office Communications Server 2007

To configure AX for Microsoft Office Communication Server 2007, you need to configure the following steps on AX.

- Configure HTTPS Health Monitor
- Configure OCS (Office Communications Server)
- Configure Service Group
- Configure Template
- Configure Virtual Server

Configuring HTTPS Health Monitor

In these steps we will configure the HTTPS health check for port 444 on OCS.

To configure HTTPS health monitor:

1. Select **Config Mode** > **Service** > **Health Monitor**

2. Click **Add**

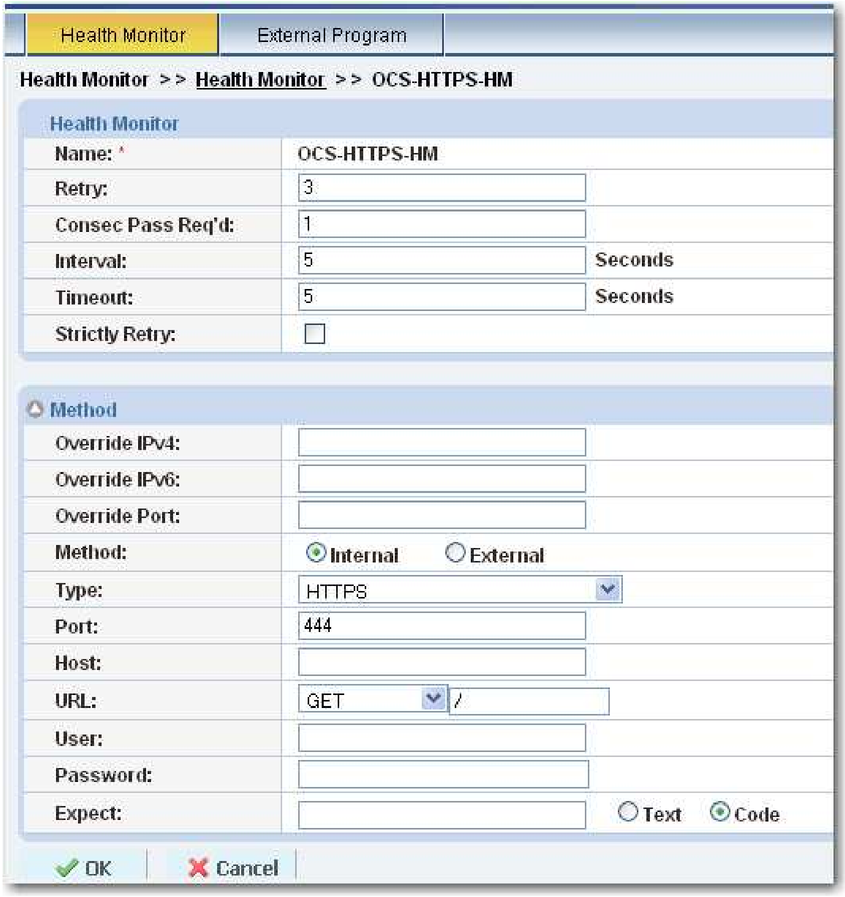
3. On the **Health Monitor** tab, enter a name for the monitor in the **Name** field. In this example, we type *“OCS-HTTPS-HM”*

4. In the **Method** section, select **HTTPS** from the Type drop-down list

5. In the **Port** field, port number enter *“444”*

6. Configure optional fields as required for your deployment. In this example, the default health monitor settings are used

7. Click **OK** to finish configuration of the health monitor. The health monitor appears in the health monitor table



Health Monitor >> Health Monitor >> OCS-HTTPS-HM

Health Monitor	
Name: *	OCS-HTTPS-HM
Retry:	3
Consec Pass Req'd:	1
Interval:	5 Seconds
Timeout:	5 Seconds
Strictly Retry:	□
Method	
Override IPv4:	
Override IPv6:	
Override Port:	
Method:	● Internal ○ External
Type:	HTTPS
Port:	444
Host:	
URL:	GET /
User:	
Password:	
Expect:	○ Text ● Code

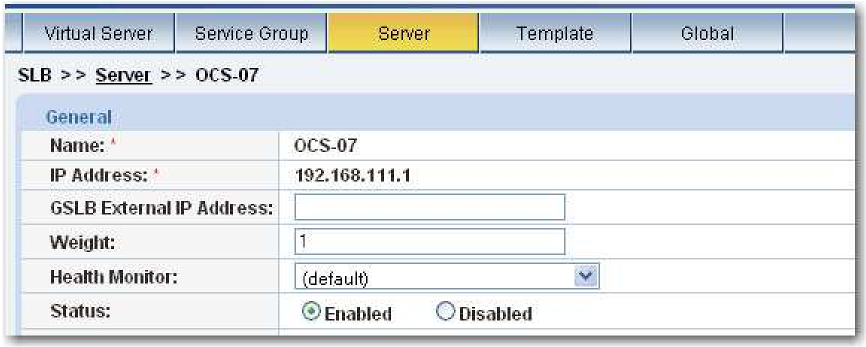
Figure 2.2 Health Monitor Configuration

Configuring Real Servers for OCS

In this step we configure Microsoft OCS real server with service port 444. We configure HTTPS health monitor on the service port.

To configure a real server:

1. Select **Config Mode** > **Service** > **SLB**
2. Select **Server** on the menu bar
3. Click **Add.** The **General** tab appears
4. In the **Name** field, enter a name for the server. In this example, the name is *"OCS-07"*
5. In the **IP Address** field, enter the IP address of the server. In this example we type *"192.168.111.1"*
6. In the **Health Monitor** drop-down list, leave the default health monitor for Layer 3, which is ping to the server's IP address



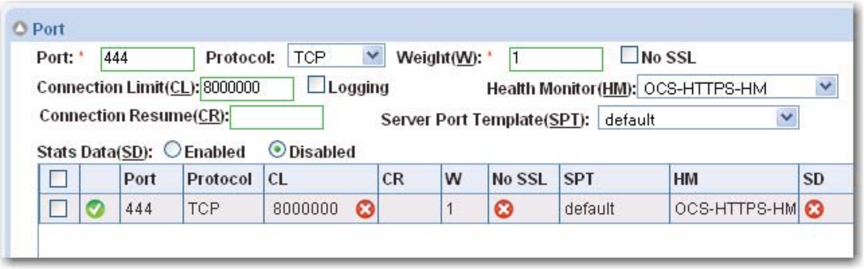
SLB >> Server >> OCS-07

General

Name: *	OCS-07
IP Address: *	192.168.111.1
GSLB External IP Address:	
Weight:	1
Health Monitor:	(default)
Status:	● Enabled ○ Disabled

Figure 2.3 Real Server Configuration

7. In the **Port** field, enter the number of the service port on the real server. In this example, the port number is *“444”*
8. In the **Health Monitor** drop-down list for the port, select the previously configured HTTP health monitor *“OCS-HTTPS-HM”*



Port

Port: * 444 Protocol: TCP Weight(W): * 1 □ No SSL

Connection Limit(CL): 8000000 □ Logging Health Monitor(HM): OCS-HTTPS-HM

Connection Resume(CR): Server Port Template(SPT): default

Stats Data(SD): ○ Enabled ● Disabled

□		Port	Protocol	CL	CR	W	No SSL	SPT	HM	SD
□	✓	444	TCP	8000000 ✗		1	✗	default	OCS-HTTPS-HM	✗

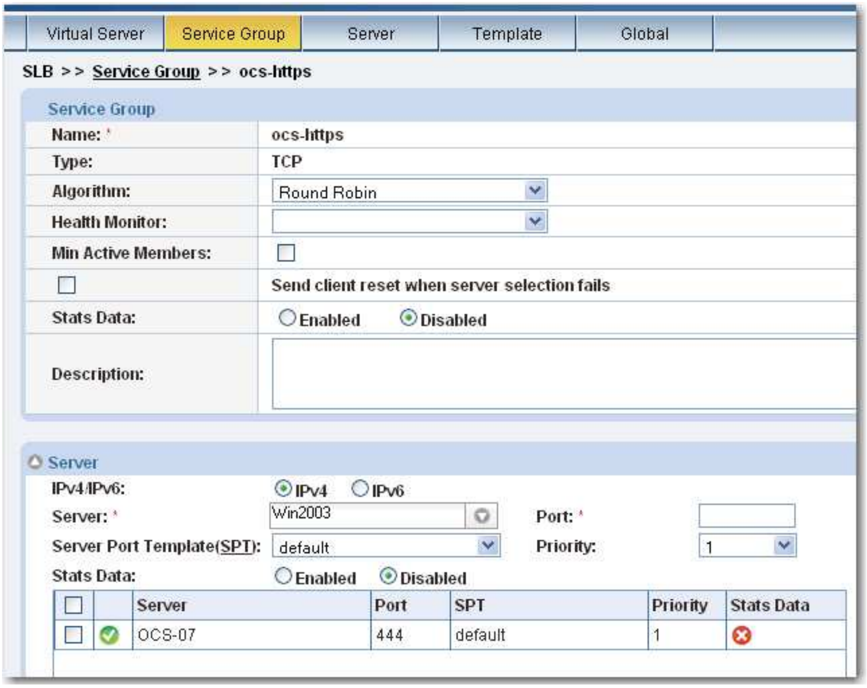
Figure 2.4 Real Server Port Configuration (Continuation)

9. Click **Add** to add the port to the port list for the server
10. Click **OK**. The real server appears in the server table
11. Repeat this procedure for each of the Microsoft Office Communications servers

Service Group Configuration

To configure a service group:

1. Select **Config Mode** > **Service** > **SLB**
2. Select **Service Group** on the menu bar
3. Scroll down to click **Add**. The **Service Group** tab appears
4. In **Name** field, enter name of service group. In this example, the name is *"ocs-https"*
5. In the **Algorithm** drop-down list, select the preferred load-balancing method. You can control the load on each server by selecting the appropriate type of load balancing methods. For this configuration, **Round Robin** is used
6. In the Server section, select a configured real server from the **Server** drop-down list
7. In the Port field, enter the port *"444"*
8. Click **Add.** Repeat steps 6-8 for each real server
9. Click **OK**. The new group appears in the service group table



SLB >> Service Group >> ocs-https

Service Group

Name: *	ocs-https
Type:	TCP
Algorithm:	Round Robin
Health Monitor:	
Min Active Members:	□
□	Send client reset when server selection fails
Stats Data:	○ Enabled ● Disabled
Description:	

Server

IPv4/IPv6: ● IPv4 ○ IPv6
Server: * Win2003 Port: *
Server Port Template(SPT): default Priority: 1
Stats Data: ○ Enabled ● Disabled

□		Server	Port	SPT	Priority	Stats Data
□	✓	OCS-07	444	default	1	☒

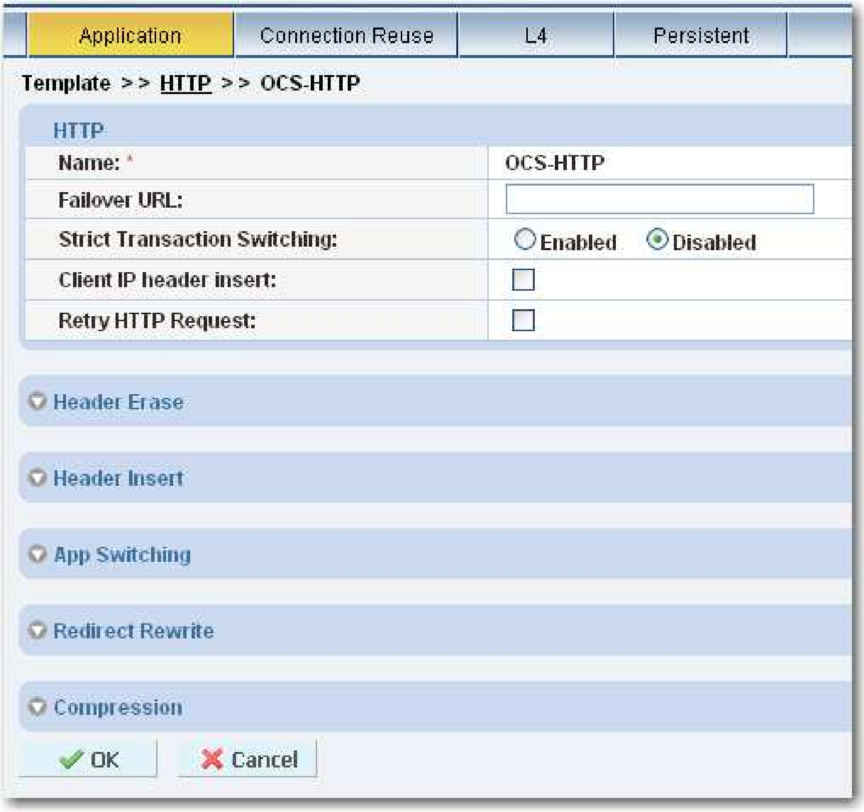
Figure 2.5 Service Group Configuration

Template Configuration

- HTTP Template
- TCP-Proxy Template
- Client SSL Template
- Server SSL Template

Configuring HTTP Template

1. Select **Config Mode** > **Service** > **Template**
2. Select **Application** > **HTTP** from the drop down menu bar. The Template >> **HTTP** >> **List** page appears
3. Click **Add**. The Template >> **HTTP** >> **Create** page appears
4. Enter a name for the template in the **Name** field. In our example we type *"OCS-HTTP"*
5. Select or enter values for the template options you want to use. In this example, the default values are used for the remaining options
6. Click **OK** to finish configuration and the template now appears in the HTTP template list



Template >> HTTP >> OCS-HTTP

HTTP

Name: *	OCS-HTTP
Failover URL:	
Strict Transaction Switching:	○ Enabled ● Disabled
Client IP header insert:	□
Retry HTTP Request:	□

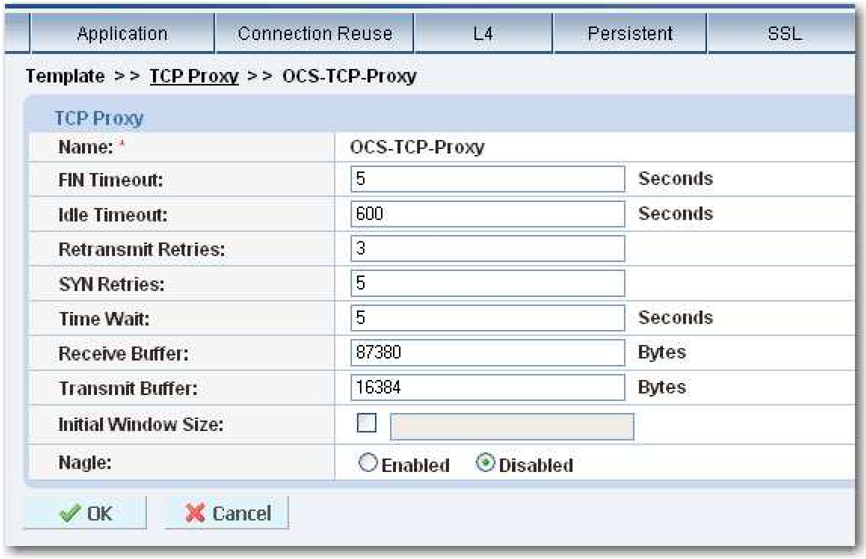
Figure 2.6 HTTP Template Configuration

Configuring TCP Proxy Template

TCP-proxy templates control TCP stack settings such as the idle timeout for TCP connections. We will configure this template on a virtual server port later in the deployment guide.

To configure a TCP-Proxy template:

1. Select **Config Mode** > **Service** > **Template**
2. Click **TCP Proxy** on the top menu bar
3. Click **Add** to configure new template
4. In the **Name** field, enter a name for new template. In this example we type *"OCS-TCP-Proxy"*
5. In the **Idle Timeout** field, the default value of *"600"* seconds is used. The other default settings are also used in this example
6. Click **OK**



Template >> TCP Proxy >> OCS-TCP-Proxy

TCP Proxy

Name: *	OCS-TCP-Proxy	
FIN Timeout:	5	Seconds
Idle Timeout:	600	Seconds
Retransmit Retries:	3	
SYN Retries:	5	
Time Wait:	5	Seconds
Receive Buffer:	87380	Bytes
Transmit Buffer:	16384	Bytes
Initial Window Size:	□	
Nagle:	○ Enabled ● Disabled	

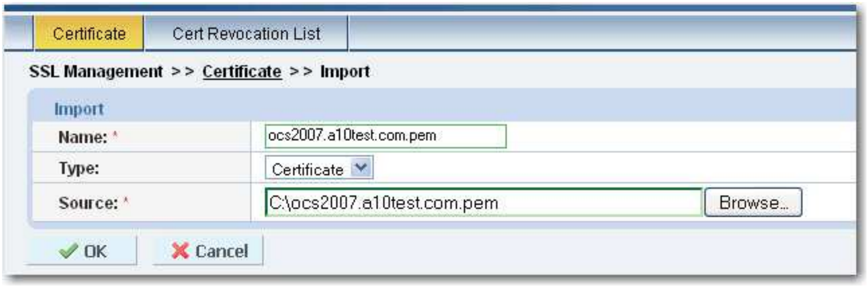
Figure 2.7 TCP Proxy Template

Importing of SSL Certificate

For client-SSL template, we imported certificate and key from a remote server. If you are importing a CA-signed certificate for which you used the AX device to generate the CSR, you do not need to import the key. The key is automatically generated on the AX device when you generate the CSR. But in this example we separately imported certificate and key from the remote server.

To import the Certificate:

1. Select **Config Mode** > **Service** > **SSL Management**
2. To import the certificate click Import. The **SSL Management** >> **Certificate** >> **Import** screen appears
3. In the **Name** field, enter a name for the certificate. This is the name you will refer to when adding the certificate to a client-SSL or server-SSL template
4. Select **Certificate** from the **Type** drop-down list, if not already selected
5. Click **Browse** and navigate to the location of the certificate
6. Once selected click **Open**. The path and filename appear in the **Source** field
7. Click **OK.** The certificate appears in the certificate and key list

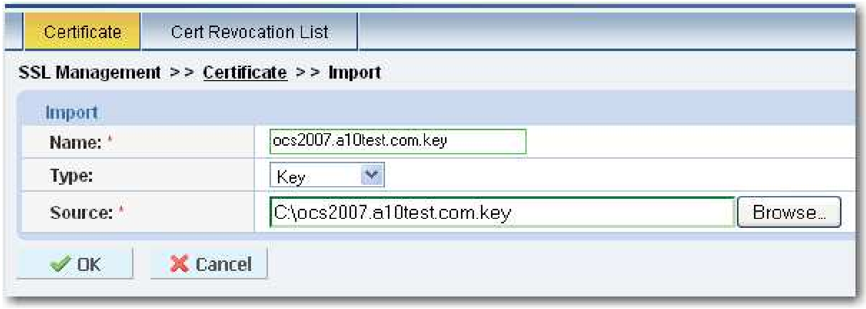


Name: * ocs2007.a10test.com.pem
Type: Certificate
Source: * C:\ocs2007.a10test.com.pem

Figure 2.8 SSL Certificate

To Import the Key:

1. Select **Config Mode** > **Service** > **SSL Management**
2. Click on the **Import** button. The **SSL Managemen**t >> **Certificate** >> **Import** screen appears
3. In the **Name** field, enter a name for the key
4. Select **Key** from the **Type** drop-down list
5. Click **Browse** and navigate to the location of the key
6. Once selected click **Open**. The path and filename appear in the Source field
7. Click **OK**. The key appears in the certificate and key list



SSL Management >> Certificate >> Import

Import

Name: * ocs2007.a10test.com.key

Type: Key

Source: * C:\ocs2007.a10test.com.key

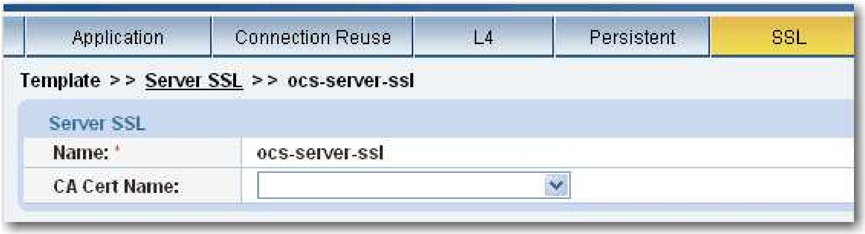
Figure 2.9 SSL Key

Configuring SSL Server Template

In this step, SSL server template is configured for the virtual server.

To configure a Server SSL template:

1. Select **Config Mode** > **Service** > **Template**
2. Select **SSL** > **Server SSL** from the menu bar
3. Click **Add.** The Server SSL section appears
4. In the **Name** field, enter a name for the template. In this example, the name is *"ocs-server-ssl"*
5. In this example the other fields use the default values
6. Click **OK**. The new template appears in the Server SSL >> List



Template >> Server SSL >> ocs-server-ssl

Server SSL

Name: * ocs-server-ssl

CA Cert Name:

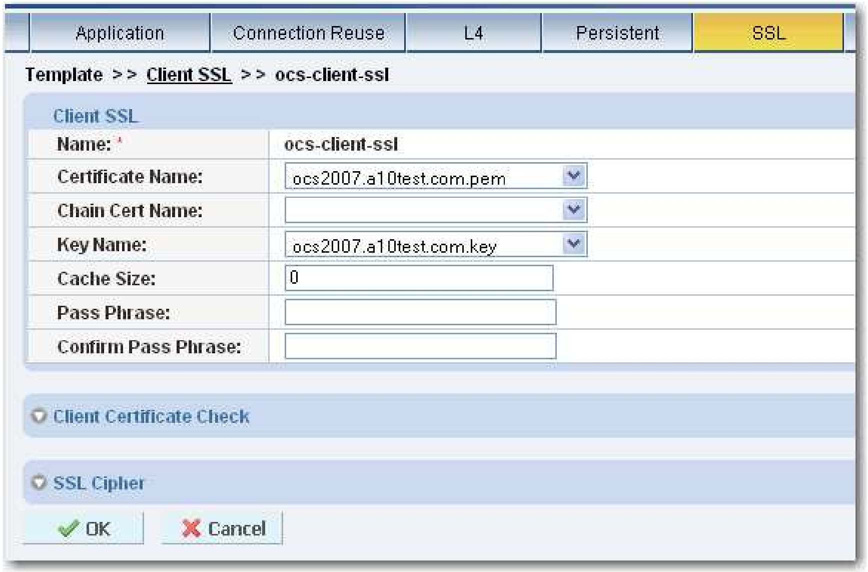
Figure 2.10 Server SSL Template Configuration

Configuring SSL Client Template

In this step, SSL client template is configured for the HTTPS virtual server. The SSL certificate and key imported in the previous step are used here. Later, during configuration of the virtual server, the template will be bound to the HTTPS virtual service port.

To configure a client SSL template:

1. Select **Config Mode > Service > Template**
2. Select **SSL** > **Client SSL** from the menu bar and drop down list
3. Click **Add**. The **Template** >> **Client SSL** >> **Create** screen appears
4. In the **Name** field, enter a name for the template. In this example, the name is *"ocs-client-ssl"*
5. In the **Certificate Name** drop-down list, select the certificate imported above. In this example, name is *"ocs2007.a10test.com.pem"*
6. In the **Key Name** field, select the key imported above. In this example, name is *"ocs2007.a10test.com.key"*
7. Click **OK**. The new template appears in the **Client SSL** >> **List**



Template >> Client SSL >> ocs-client-ssl

Client SSL

Name: *	ocs-client-ssl
Certificate Name:	ocs2007.a10test.com.pem
Chain Cert Name:	
Key Name:	ocs2007.a10test.com.key
Cache Size:	0
Pass Phrase:	
Confirm Pass Phrase:	

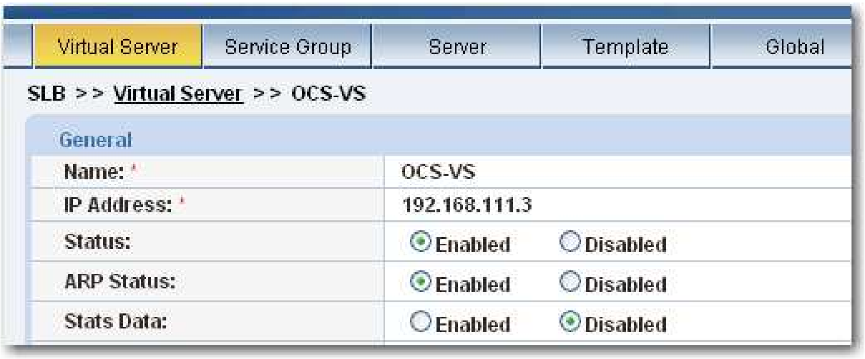
Figure 2.11 Client SSL Template Configuration

Configuring the Virtual Server for port 444 (HTTPS)

In this step we will configure the virtual server for port 444. This is a secure port so we will configure the client and server SSL template on port 444.

To configure a virtual server:

1. Select **Config Mode** > **Service** > **SLB**
2. Click **Virtual Server** on the menu bar
3. Click **Add**. The **General** tab appears
4. In the **Name** field, enter a name for the virtual server. In this example, the name is *"OCS-VS"*
5. In the **IP Address** field, enter the IP address that clients will request. In this example we use *"192.168.111.3"*



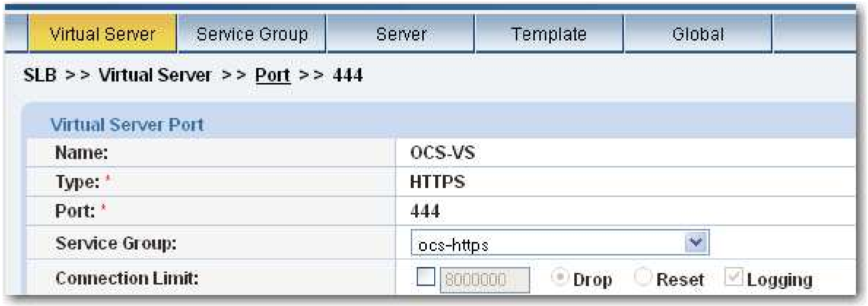
SLB >> Virtual Server >> OCS-VS

General

Name: *	OCS-VS
IP Address: *	192.168.111.3
Status:	● Enabled ○ Disabled
ARP Status:	● Enabled ○ Disabled
Stats Data:	○ Enabled ● Disabled

Figure 2.12 Virtual Server Configuration

6. In the **Port** section, click **Add**. The **Virtual Server Port** tab appears
7. In the **Type** drop-down list, select **HTTPS** type for virtual server
8. In the **Port** field, type *"444"* for the HTTPS type
9. In the **Service Group** drop-down list, select the service group *"ocs-https"* from list



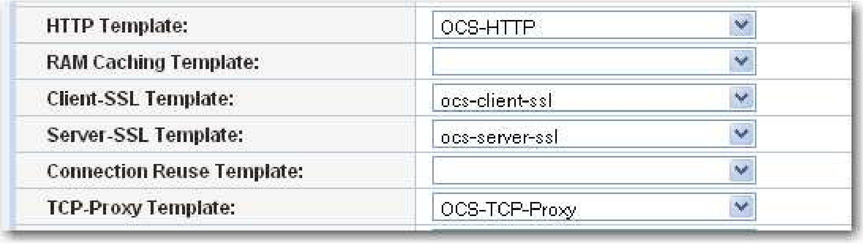
SLB >> Virtual Server >> Port >> 444

Virtual Server Port

Name:	OCS-VS
Type: *	HTTPS
Port: *	444
Service Group:	ocs-https
Connection Limit:	□ 8000000 ● Drop ○ Reset ☑ Logging

Figure 2.13 Virtual Server Configuration (Continuation)

10. The default **Virtual Server Port Template** is used for the service port, so leave **default** selected
11. In the **HTTP Template** drop-down list, select the *"OCS-HTTP"* template configured above
12. In the **Client-SSL Template** drop-down list, select the *"ocs-client-ssl"* template configured above
13. In the **Server-SSL Template** drop-down list, select the *"ocs-server-ssl"* template configured above
14. In the **TCP-Proxy Template** field, select the *"OCS-TCP-Proxy"* template configured above



HTTP Template:	OCS-HTTP
RAM Caching Template:	
Client-SSL Template:	ocs-client-ssl
Server-SSL Template:	ocs-server-ssl
Connection Reuse Template:	
TCP-Proxy Template:	OCS-TCP-Proxy

Figure 2.14 Virtual Server Configuration (Continuation)

15. Click **OK**. The port appears in the Port list of the **Port** section
16. Click **OK**. The virtual server appears in the virtual server table
17. Click **Save** to save the configuration changes to the startup-config

Configuring AX for SIP (5061) port on Microsoft Office Communications Server 2007

In this section we will configure the AX for SIP on port 5061. For the OCS server we will use the default health check on port 5061. You need to configure the following steps on AX.

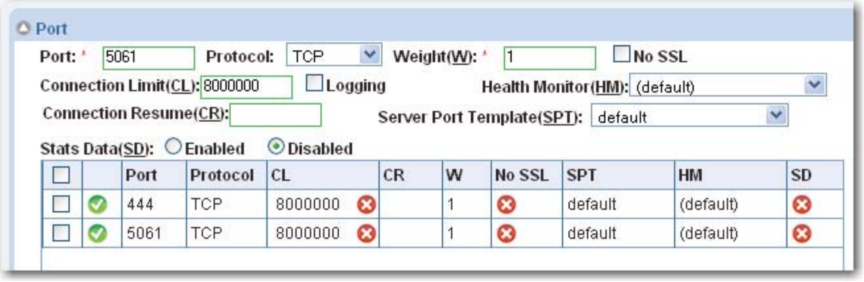
- Configure OCS (Office Communications Server) for port 5061
- Configure Service Group
- Configure Template
- Configure Virtual Server

Configuring Real Servers for OCS

In this step we configure Microsoft OCS real server with service port 5061. We configured port 444 and 5061. So steps 1 to 6 are the same as port 444 previously.

To configure a real server:

1. Select **Config Mode** > **Service** > **SLB**
2. Click the previously configured Server *"OCS-07"* from the Server list
3. In the **Port** section and the **Port** field, enter the number of the service port on the real server. In this example, the port number is *"5061"*
4. In the **Health Monitor (HM)** drop-down list for the port, the health monitor is **(default)**



Port

Port: * 5061 Protocol: TCP Weight(W): * 1 □ No SSL

Connection Limit(CL): 8000000 □ Logging Health Monitor(HM): (default)

Connection Resume(CR): Server Port Template(SPT): default

Stats Data(SD): ○ Enabled ● Disabled

□		Port	Protocol	CL	CR	W	No SSL	SPT	HM	SD
□	✓	444	TCP	8000000 ✗		1	✗	default	(default)	✗
□	✓	5061	TCP	8000000 ✗		1	✗	default	(default)	✗

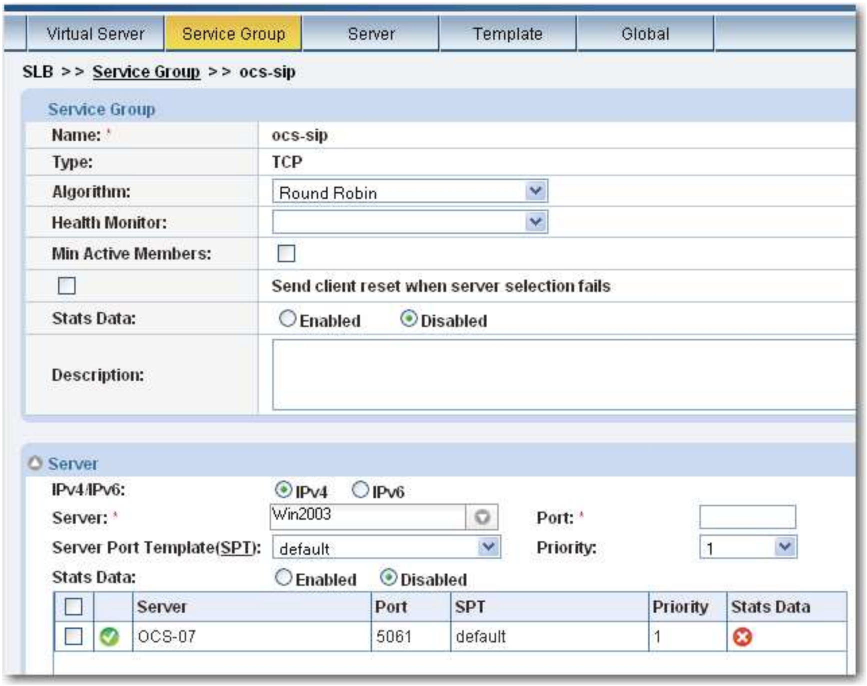
Figure 3.1 Real Server Port Configuration

5. Click **Add** to add the port to the port list for the server
6. Click **OK**. The real server appears in the server table
7. Repeat this procedure for each of the Microsoft Office Communications Servers

Service Group Configuration

To configure a service group:

1. Select **Config Mode** > **Service** > **SLB**
2. Select **Service Group** on the menu bar
3. Click **Add**. The **Service Group** tab appears
4. In **Name** field, enter name of service group. In this example, the name is *"ocs-sip"*
5. In the **Algorithm** drop-down list, select the preferred load-balancing method. You can control the load on each server by selecting the appropriate type of load balancing methods. For this configuration, the default **Round Robin** is used
6. In the **Server** section, select a configured real server from the drop-down list
7. In the **Port** field, enter the port *"5061"*
8. Click **Add**. Repeat steps 6-8 for each real server
9. Click **OK**. The new group appears in the service group table



SLB >> Service Group >> ocs-sip

Service Group

Name: *	ocs-sip
Type:	TCP
Algorithm:	Round Robin
Health Monitor:	
Min Active Members:	□
□	Send client reset when server selection fails
Stats Data:	○ Enabled ● Disabled
Description:	

Server

IPv4/IPv6: ● IPv4 ○ IPv6

Server: * Win2003 Port: *

Server Port Template(SPT): default Priority: 1

Stats Data: ○ Enabled ● Disabled

□		Server	Port	SPT	Priority	Stats Data
□	✓	OCS-07	5061	default	1	☒

Figure 3.2 Service Group Configuration

Template Configuration

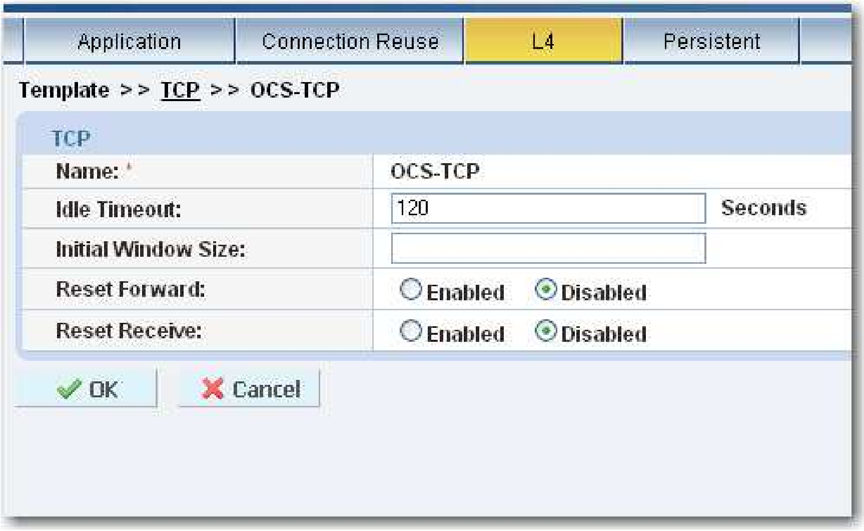
- TCP Template
- Source IP Persistence Template

Configuring TCP Template

For SIP, the TCP template is used for the service. The AX device has a default TCP template and you can also configure your own TCP template on the AX. In this configuration we will configure a default TCP template.

To configure TCP Template:

1. Select **Config Mode** > **Service** > **Template**
2. Select **L4** > **TCP** on the top menu bar and drop down
3. Click **Add**
4. Enter a name for the template in the **Name** field, in this example we use *"OCS-TCP"*
5. Accept the default for the other configuration items
6. Click **OK**. The new template appears in the TCP template list



Template >> TCP >> OCS-TCP

TCP

Name: *	OCS-TCP	
Idle Timeout:	120	Seconds
Initial Window Size:		
Reset Forward:	○ Enabled ● Disabled	
Reset Receive:	○ Enabled ● Disabled	

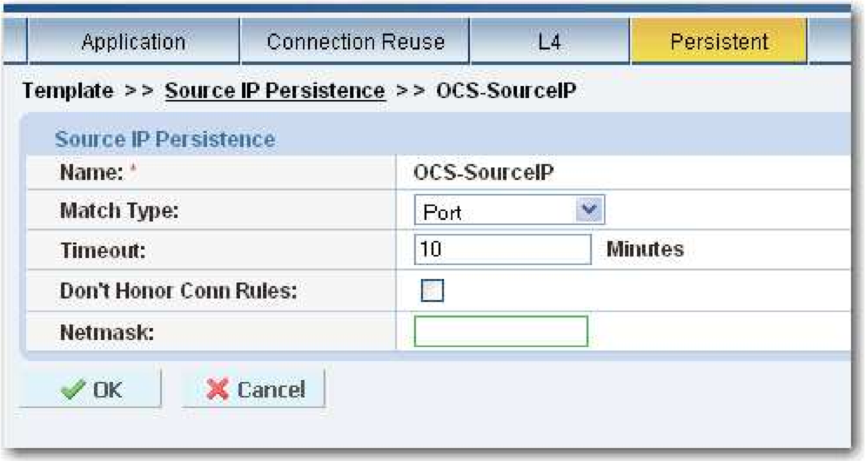
Figure 3.3 TCP Template Configuration

Configuring Source IP Persistence Template

Source IP Persistence directs a given client, identified by its IP address, to the same service port, server, or service group.

To configure Source IP Persistence Template

1. Select **Config Mode** > **Service** > **Template**
2. Select **Persistent** > **Source IP Persistent** on the menu bar
3. Click **Add** to configure the new template
4. In the **Name** filed enter a name for the template. In our example we used *"OCS-SourceIP"*
5. In the **Timeout** field default value is 5 minutes but in this example we used *"10"* minutes
6. Click **OK**. The new template appears in Source IP Persistence list



Template >> Source IP Persistence >> OCS-SourceIP

Source IP Persistence

Name: *	OCS-SourceIP
Match Type:	Port
Timeout:	10 Minutes
Don't Honor Conn Rules:	□
Netmask:	

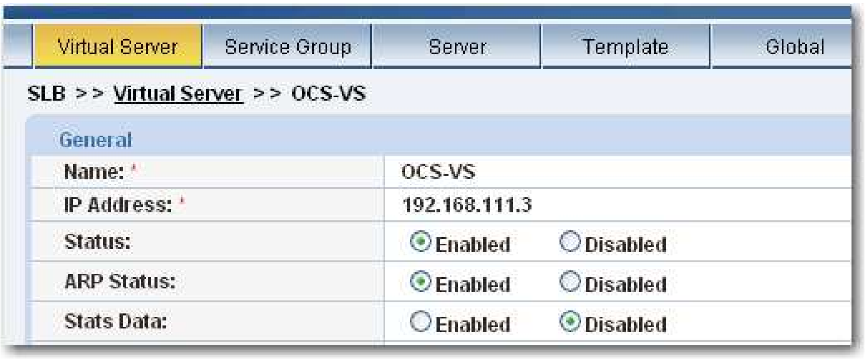
Figure 3.4 Source IP Persistance Template Configuration

Configuring Virtual Server for port 5061 (SIP)

In this step we configure the virtual server for port 5061. We configured port 444 and 5061 on the same virtual server so steps 1 to 5 are the same as port 444.

To configure a virtual server:

1. Select **Config Mode** > **Service** > **SLB**
2. Select **Virtual Server** on the menu bar
3. Click **Add**. The **General** tab appears
4. In the **Name** field, enter a name for the virtual server. In this example, the Name is *"OCS-VS"*
5. In the **IP Address** field, enter the IP address that clients will request. In this example we use *"192.168.111.3"*



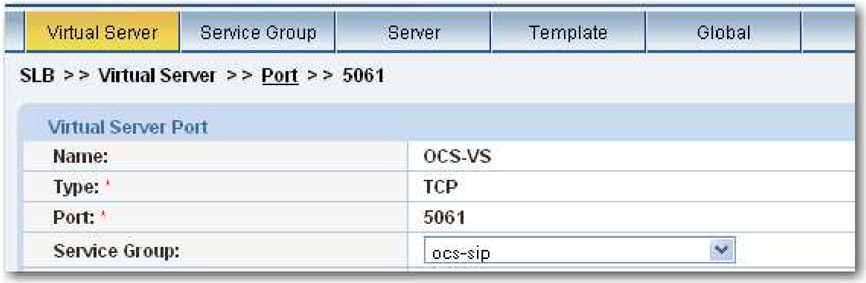
SLB >> Virtual Server >> OCS-VS

General

Name: *	OCS-VS	
IP Address: *	192.168.111.3	
Status:	● Enabled	○ Disabled
ARP Status:	● Enabled	○ Disabled
Stats Data:	○ Enabled	● Disabled

Figure 3.5 Virtual Server Configuration

6. On the **Port** tab, click **Add**. The **Virtual Server Port** tab appears
7. In the **Type** drop-down list, select **TCP** type for virtual server
8. In the **Port** field, type *"5061"* as a port number for SIP service
9. In the **Service Group** drop-down list, select the service group *"ocs-sip"* from list



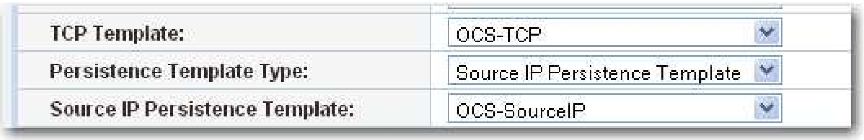
SLB >> Virtual Server >> Port >> 5061

Virtual Server Port

Name:	OCS-VS
Type: *	TCP
Port: *	5061
Service Group:	ocs-sip

Figure 3.6 Virtual Server Configuration (Continuation)

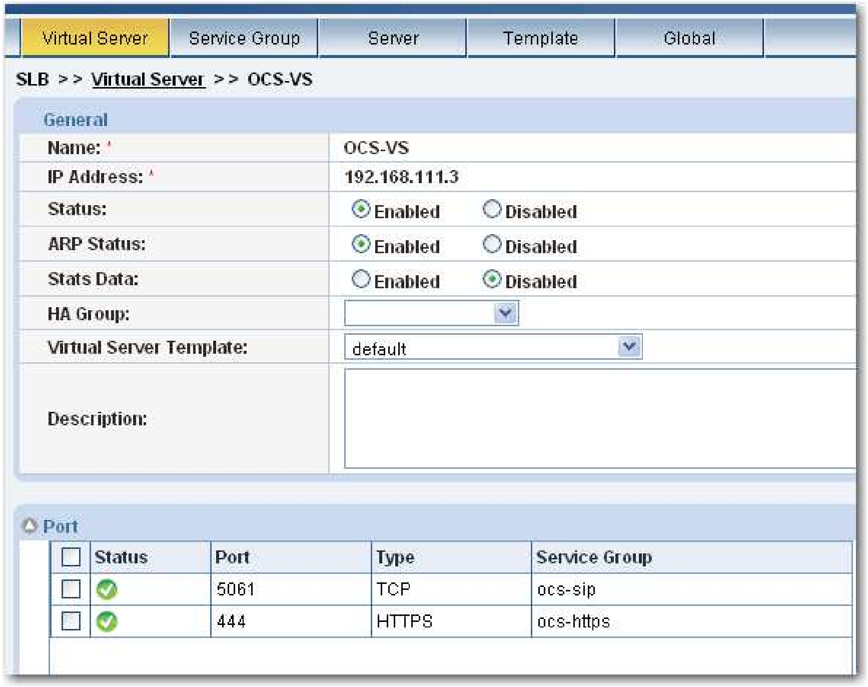
10. The default port template is used for the service port, so leave **default** selected
11. In the **TCP Template** drop-down list, select the *"OCS-TCP"* template
12. In the **Persistence Template Type** select **Source IP Persistence Template** from the drop-down list, the **Source IP Persistence Template** field appears below, from the drop down select *"OCS-SourceIP"* template for this example



TCP Template:	OCS-TCP
Persistence Template Type:	Source IP Persistence Template
Source IP Persistence Template:	OCS-SourceIP

Figure 3.7 Virtual Server Configuration (Continuation)

13. Click **OK**. The port appears in the Port list of the **Port** section



SLB >> Virtual Server >> OCS-VS

General

Name: *	OCS-VS
IP Address: *	192.168.111.3
Status:	● Enabled ○ Disabled
ARP Status:	● Enabled ○ Disabled
Stats Data:	○ Enabled ● Disabled
HA Group:	
Virtual Server Template:	default
Description:	

Port

□	Status	Port	Type	Service Group
□	✓	5061	TCP	ocs-sip
□	✓	444	HTTPS	ocs-https

Figure 3.8 Virtual Server Configuration (Continuation)

14. Click **OK**. The virtual server appears in the virtual server table
15. Click **Save** to save the configuration changes to the startup-config

Summary and Conclusion

The configuration steps described above show how to set up the AX for Microsoft Office Communications Server 2007. By using the AX device to load balance OCS Services, the following key advantages are achieved:

- Transparent application load sharing
- Obtain higher availability when Office Communications Servers fail so that there is no direct impact to how users access the applications
- Higher utilization as AX transparently load balances to multiple OCS servers
- Achieve higher connection throughput and faster end user responsiveness by off-loading security processing to the AX device

By using the AX Series Advanced Traffic Manager, significant benefits are achieved for all users of Microsoft OCS services. For more information about AX Series products, refer to:

http://a10networks.com/products/axseries.php
http://a10networks.com/resources/solutionsheets.php
http://a10networks.com/resources/casestudies.php

About A10 Networks

A10 Networks was founded in 2004 with a mission to provide innovative networking and security solutions. A10 Networks makes high-performance products that help organizations accelerate, optimize and secure their applications. A10 Networks is headquartered in Silicon Valley with offices in the United States, Europe, Japan, China, Korea and Taiwan. For more information, visit
www.a10networks.com.

Performance by Design

To learn more about the AX Series Advanced Traffic Manager and how to improve application performance up to 8 times faster while enhancing reliability and security, visit A10 Networks' website at:
www.a10networks.com

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