

MS Exchange 2016

Deployment Guide

UPDATED: 27 July 2023

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#1 Load Balancer in Price/Performance, 360 Central, 360 Vision, Chef, Chef (and design), Chef Habitat, Chef Infra, Code Can (and design), Compliance at Velocity, Corticon, Corticon.js, DataDirect (and design), DataDirect Cloud, DataDirect Connect, DataDirect Connect64, DataDirect XML Converters, DataDirect XQuery, DataRPM, Defrag This, Deliver More Than Expected, DevReach (and design), Driving Network Visibility, Flowmon, Inspec, Ipswitch, iMacros, K (stylized), Kemp, Kemp (and design), Kendo UI, Kinvey, LoadMaster, MessageWay, MOVEit, NativeChat, OpenEdge, Powered by Chef, Powered by Progress, Progress, Progress Software Developers Network, SequeLink, Sitefinity (and Design), Sitefinity, Sitefinity (and design), Sitefinity Insight, SpeedScript, Stylized Design (Arrow/3D Box logo), Stylized Design (C Chef logo), Stylized Design of Samurai, TeamPulse, Telerik, Telerik (and design), Test Studio, WebSpeed, WhatsConfigured, WhatsConnected, WhatsUp, and WS_FTP are registered trademarks of Progress Software Corporation or one of its affiliates or subsidiaries in the U.S. and/or other countries.

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1 Introduction

The Kemp LoadMaster combines versatility with ease-of-use to speed deployment of the complete portfolio of advanced messaging applications and protocols used by Microsoft Exchange 2016 (Exchange 2016), including Outlook on the Web, MAPI/HTTP, Outlook Anywhere (OA), Exchange ActiveSync (EAS), Simple Mail Transfer Protocol (SMTP), Post Office Protocol version 3 (POP3), Internet Message Access Protocol version 4 (IMAP4) and Office Online Server (OOS). With built-in SSL acceleration and/or overlay, the LoadMaster offloads a key source of CPU drain to improve the capacity of the Exchange 2016 infrastructure. Layer 7 health checking at the LoadMaster ensures that if one of the client access components becomes inaccessible, the load balancer will take that component offline for that server, while automatically re-routing and reconnecting users to other functioning servers.

The entire Kemp LoadMaster product family, including the Virtual LoadMaster (VLM) supports Exchange 2016, and includes a comprehensive first year warranty and technical support agreement.

1.1 About This Manual

This manual addresses how to deploy and configure a LoadMaster appliance with Exchange 2016 using Kemp application templates.

Kemp's LoadMaster family of products is available in various models to support networks of different throughput requirements. Information in this manual applies to all LoadMaster models.

1.2 Prerequisites

This guide assumes the reader is a network administrator or familiar with networking and general computer terminology. It is further assumed that the Exchange 2016 environment is set up and the Kemp LoadMaster is installed.

LoadMaster documentation is available at https://www.kemptechnologies.com/documentation.

At a minimum, you should have:

- Installed the Microsoft Servers, Active Directories, and followed other Microsoft requirements.
- Installed the LoadMaster on the same network as the servers.
- Established access to the LoadMaster Web User Interface (WUI).

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2 Exchange 2016 Overview

Microsoft Exchange Server is a mail server, calendaring software, and contact manager. It is a server program that runs on Windows Server and is part of the Microsoft Servers line of products. The improvements made in Exchange 2016 have made it easier to load balance Exchange-related traffic.

Exchange 2016 includes the following solutions for switchover and failover redundancy:

- **High availability:** Exchange 2016 uses Database Availability Groups (DAGs) to keep multiple copies of your mailboxes on different servers synchronized. That way, if a mailbox database fails on one server, users can connect to a synchronized copy of the database on another server.
- **Site resilience:** You can deploy two Active Directory sites in separate geographic locations, keep the mailbox data synchronized between the two, and have one of the sites take on the entire load if the other fails.
- **Online mailbox moves:** During an online mailbox move, email accounts are still accessible. Users are locked out for a brief period at the end of the process, when the final synchronization occurs. Online mailbox moves can be performed across forests or in the same forest.
- **Shadow redundancy:** Shadow redundancy protects the availability and recoverability of messages while they are in transit. With shadow redundancy, the deletion of a message from the transport databases is delayed until the transport server verifies that all the next hops for that message have completed. If any of the next hops fail before reporting successful delivery, the message is resubmitted for delivery to the hop that did not complete.

2.1 Understanding Server Load Balancing

Server load balancing is a way to manage which servers receive traffic. Server load balancing provides failover redundancy to ensure users continue to receive service in case of failure. It also enables your deployment to handle more traffic than one server can process while offering a single host name for clients.

Server load balancing serves two primary purposes. It reduces the impact of server failures within an exchange organization. In addition, server load balancing ensures that the load on the CAS and transport services are optimally distributed.

As OWA is rendered on the same server that is hosting the user's mailbox database; if a client hits a different CAS, there is no performance degradation because the session rendering for that user is already up and running.

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Forms-based authentication is improved. The authentication cookie is provided to the user after logon and it is encrypted using the CAS's SSL certificate. This allows a logged in user to resume their session on a different CAS without having to re-authenticate (if servers share the same SSL certificate).

2.2 Enable Subnet Originating Requests Globally

It is best practice to enable the **Subnet Originating Requests** option globally.

In a one-armed setup (where the Virtual Service and Real Servers are on the same network/subnet) **Subnet Originating Requests** is usually not needed. However, enabling **Subnet Originating Requests** should not affect the routing in a one-armed setup.

In a two-armed setup where the Virtual Service is on network/subnet A, for example, and the Real Servers are on network B, **Subnet Originating Requests** should be enabled on LoadMasters with firmware version 7.1-16 and above.



When **Subnet Originating Requests** is enabled, the Real Server sees traffic originating from 10.20.20.21 (LoadMaster eth1 address) and responds correctly in most scenarios.

With **Subnet Originating Requests** disabled, the Real Server sees traffic originating from 10.0.0.15 (LoadMaster Virtual Service address on **eth0**) and responds to **eth0** which could cause asymmetric routing.

When **Subnet Originating Requests** is enabled globally, it is automatically enabled on all Virtual Services. If the **Subnet Originating Requests** option is disabled globally, you can choose whether to enable **Subnet Originating Requests** on a per-Virtual Service basis.

To enable **Subnet Originating Requests** globally, follow the steps below:

1. In the main menu of the LoadMaster User Interface (UI), go to **System Configuration > Miscellaneous Options > Network Options**.
2. Select the **Subnet Originating Requests** check box.

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2.3 100-Continue Handling

To avoid issues with Exchange Web Services, especially in hybrid configuration, configure 100-continue handling to comply with RFC-7231 instead of the standard setting of RFC-2616.

To resolve this issue, apply the following setting on the Kemp LoadMaster.

100-Continue handling = RFC-7231 Complaint

1. To select **RFC-7231 Compliant** globally, follow the steps below:

   a) In the main menu of the LoadMaster WUI, go to **System Configuration > Miscellaneous Options > L7 Configuration**.

   b) Select **RFC-7231 Complaint** under **100-Continue Handling**.

2.4 Additional L7 Header

When using the built-in Mail client on Mac, you may experience connectivity issues. This happens due to how the Mail client on Mac handles Persistent-Auth headers from the Exchange server. This behavior is not present on Outlook for Mac clients or any Windows Office clients.

To resolve this issue, apply the following settings on the Kemp LoadMaster.

Additional L7 Header = None

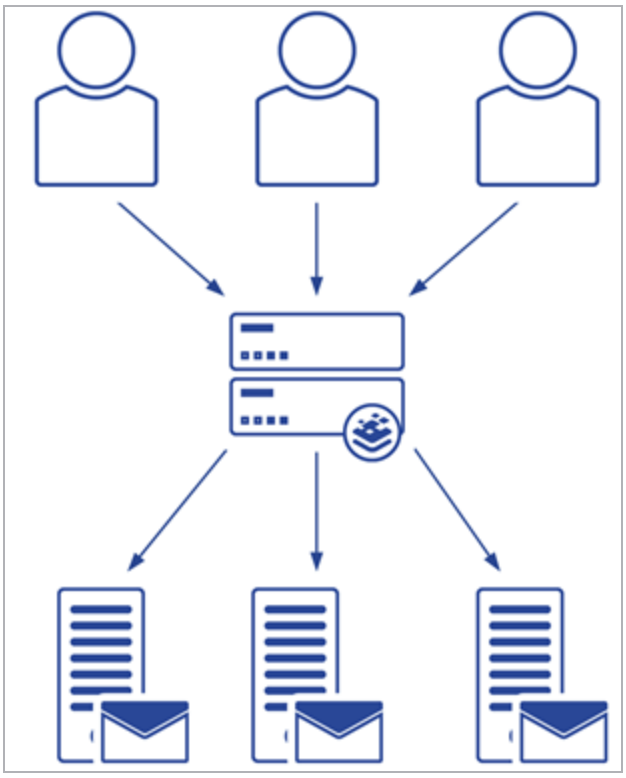
To select **None** for **Additional L7 Header** globally, follow the steps below:

1. In the main menu of the LoadMaster WUI, go to **System Configuration > Miscellaneous Options > L7 Configuration**.

2. Select **None** under **Additional L7 Header**.

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3 Virtual Service Templates

Kemp have developed templates containing our recommended settings for Exchange 2016. These templates can be installed on the LoadMaster and can be used when creating each of the Virtual Services. Using a template automatically populates the settings in the Virtual Services. This is quicker and easier than manually configuring each Virtual Service. If needed, you can make changes to any of the Virtual Service settings after using the templates.

Released templates can be downloaded from the Kemp documentation page: http://www.Kemptechnologies.com/documentation/.

For more information and steps on how to import and use templates, refer to the **Virtual Services and Templates, Feature Description**.

This guide outlines the steps for setting up Virtual Services using Kemp Application Templates. The Exchange 2016 templates currently available are grouped in three downloadable files as follows:

- **Exchange2016Core**
    - This file contains templates for non-SSL offloaded HTTPS, SSL offloaded HTTPS, and SMTP Virtual Services.
    - This is the primary set of services required to balance Exchange 2016.
- **Exchange2016ESP**
    - This set contains individual templates for a HTTPS service with SSL offloading and an SMTP service, both with ESP enabled.
    - These services are only necessary if you want to use ESP functionality.
- **Exchange2016Additional**
    - This set contains templates for IMAP, POP, and SMTP services, including variants for STARTTLS and SSL secured services.

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4 Configuring Virtual Services for Exchange 2016

Follow the instructions below to set up an Exchange Virtual Services using application templates. To configure the Virtual Services using the Application Programming Interface (API), refer to the **RESTful API** on the Kemp documentation page.

The **Exchange 2016 Virtual Service Recommended API Settings (Optional)** section outlines the API settings and values. You can use this information when using the Kemp LoadMaster API and automation tools.

4.1 HTTPS Offloaded and Reencrypt without ESP

The steps are the same when using Exchange HTTPS Offload and Exchange HTTPS Reencrypt with ESP application templates. To add the Virtual Services for Exchange HTTPS Offload or Exchange HTTPS Reencrypt, using the template, follow the steps below:

1. Click **Virtual Services**.

2. Click **Add New**.

3. Enter a **Virtual Address**.

4. Select the **Exchange 2016 HTTPS Offloaded** or the **Exchange 2016 HTTPS ReEncrypted** template from the **Use Template** drop-down list depending on your preference.

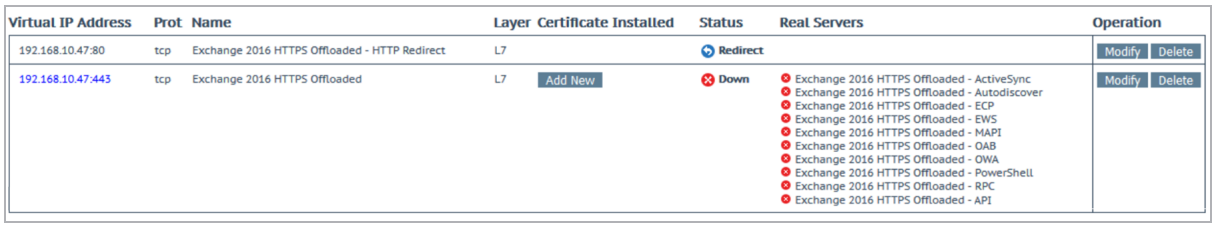
5. Click **Add This Virtual Service**.

4.1.1 Add SSL/TLS Certificate

This guide assumes an SSL/TLS certificate is imported into the LoadMaster. For more information and steps for SSL/TLS configuration, refer to the **SSL Accelerated Services Feature Description** on the Kemp documentation page.

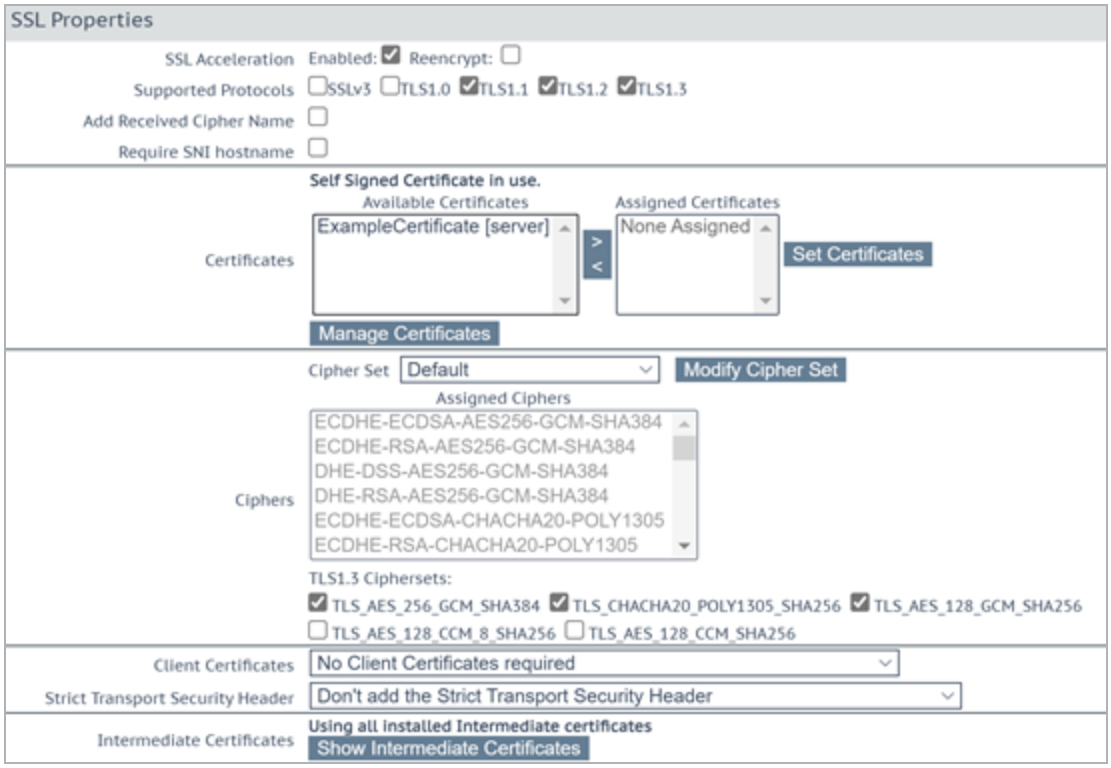
1. Click **View/Modify Services** in the left-hand navigation.

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2. Click **Modify** for the **Exchange 2016 HTTPS Offloaded** Virtual Service on port 443 (or **Exchange 2016 HTTPS Reencrypted** if that was selected during the creation)

3. Expand **SSL Properties (Acceleration Enabled)**.



4. Select the certificate to use in the **Available Certificates** and click the “arrow” > to move it to **Assigned Certificates**.

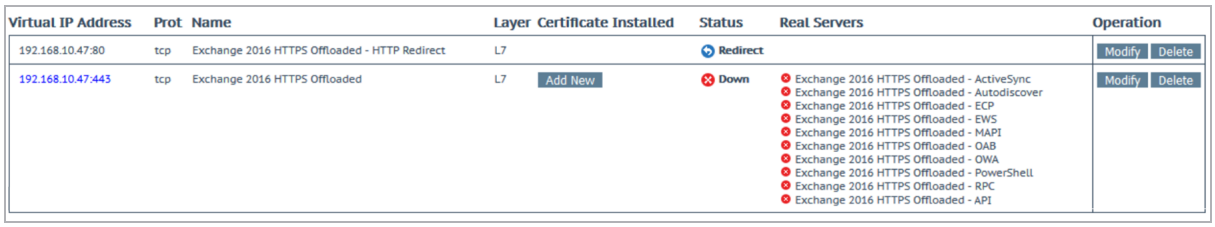
5. Click **Set Certificate**.

> The **Reencrypt** check box is selected when using the **Exchange 2016 HTTPS Reencrypted with ESP** template.

Add the Real Servers

a) Click **View/Modify Services** in the left-hand navigation.

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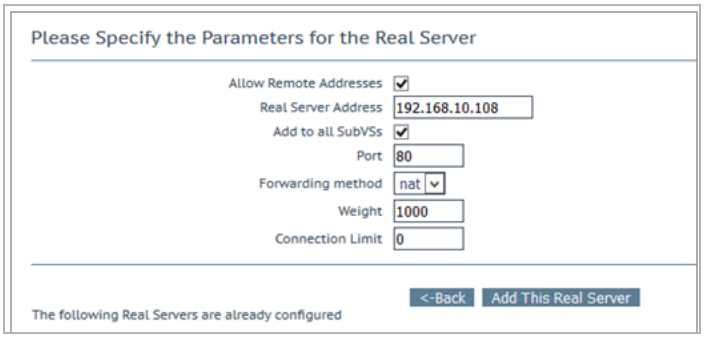
b) Click **Modify** for the **Exchange 2016 HTTPS Offloaded** Virtual Service on port 443 (or the **Exchange 2016 HTTPS Reencrypted** if that was selected during the creation).

c) Expand the **SubVSs** section.

d) Click **Modify** for **Exchange 2016 HTTPS Offloaded - ActiveSync** (or the **Exchange 2016 HTTPS Reencrypted - ActiveSync** if that was selected during the creation).

e) Expand the **Real Servers** section.

f) Click **Add New**.



g) For the **Real Server Address**, enter the IP Address for one of the Exchange Servers.

h) Select the **Add to all SubVSs** check box.

i) Click **Add This Real Server**.

j) Add additional Real Servers using the **Add to all SubVSs** check box.

4.2 HTTPS Offloaded and Reencrypt with ESP

The steps are the same when using Exchange HTTPS Offload and Exchange HTTPS Reencrypt with ESP application template. To add the Virtual Services for Exchange HTTPS Offload or Exchange HTTPS Reencrypt with ESP using the template, follow the steps below:

1. Click **Virtual Services**.
2. Click **Add New**.

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3. Enter a **Virtual Address**.

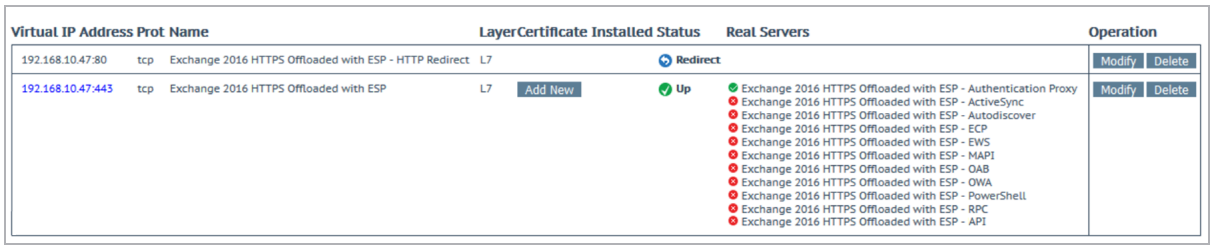
4. Select the **Exchange 2016 HTTPS Offloaded with ESP** or the **Exchange 2016 HTTPS ReEncrypted with ESP** template from the **Use Template** drop-down list depending on your preference.

5. Click **Add This Virtual Service**.

4.2.1 Add SSL/TLS Certificate

This guide assumes an SSL/TLS certificate is imported into the LoadMaster. For more information and steps for SSL/TLS configuration, reference the **SSL Accelerated Services Feature Guide** on the Kemp documentation page.

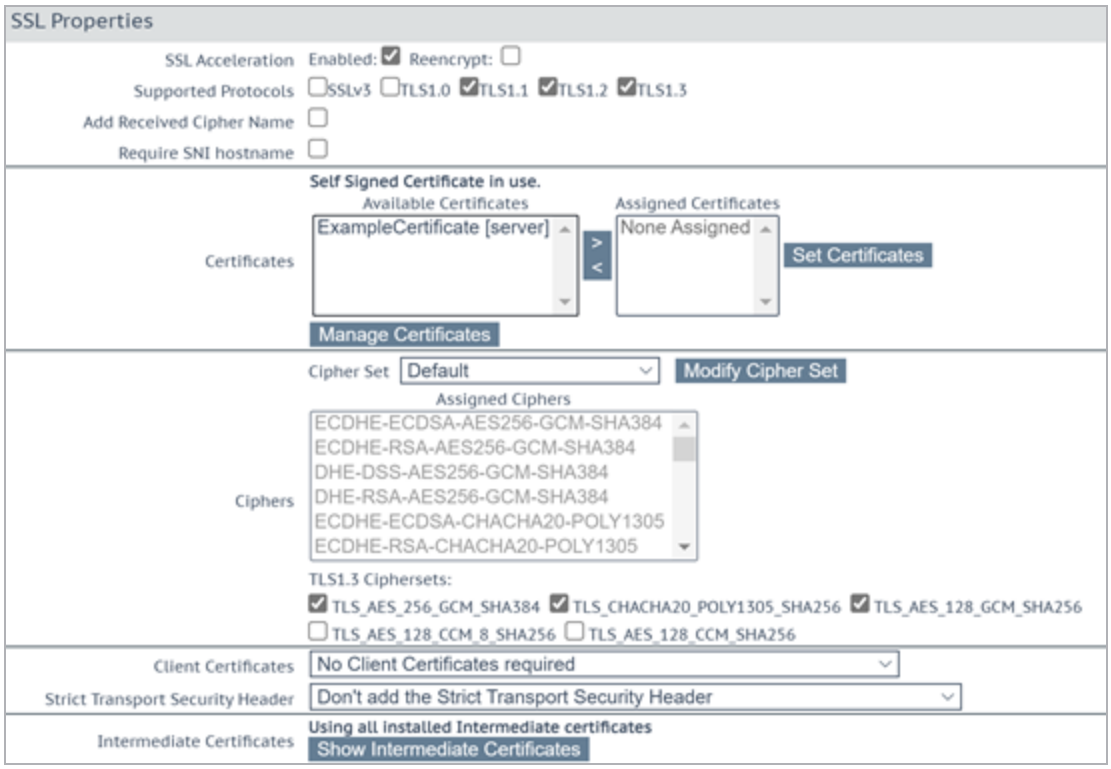
1. Click the **View/Modify Services** in the left-hand navigation.



2. Click **Modify** for the **Exchange 2016 HTTPS Offloaded with ESP** Virtual Service on port 443 (or **Exchange 2016 HTTPS Reencrypted with ESP** if that was selected during the creation)

3. Expand **SSL Properties (Acceleration Enabled)**.

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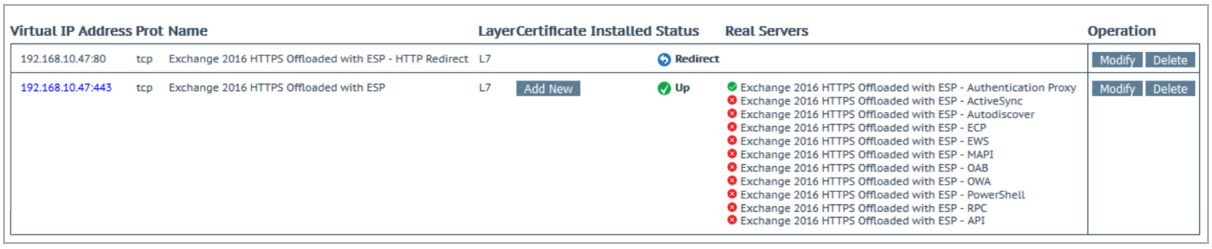
4. Select the certificate to use in the **Available Certificates** and click the “arrow” > to move it to **Assigned Certificates**.

5. Click **Set Certificate**.

> The **Reencrypt** check box is selected when using the **Exchange 2016 HTTPS Reencrypted with ESP** template.

Add the Real Servers

a) Click **View/Modify Services** in the left-hand navigation.



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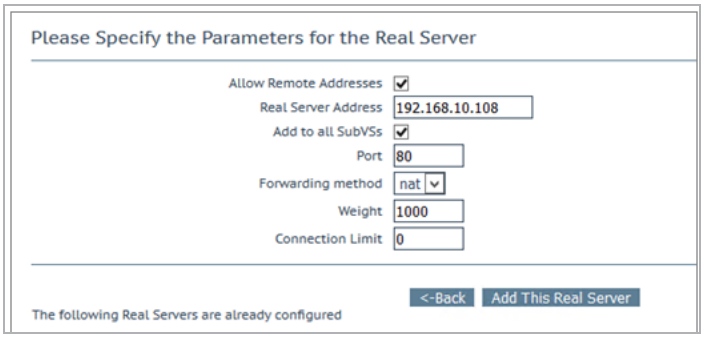
b) Click **Modify** for the **Exchange 2016 HTTPS Offloaded with ESP** Virtual Service on port 443 (or the **Exchange 2016 HTTPS Reencrypted with ESP** if that was selected during the creation).

c) Expand the **SubVSs** section.

d) Click **Modify** for **Exchange 2016 HTTPS Offloaded with ESP - Authentication Proxy** (or the **Exchange 2016 HTTPS Reencrypted with ESP - Authentication Proxy** if that was selected during the creation).

e) Expand the **Real Servers** section.

f) Click **Add New**.



g) For the **Real Server Address**, enter the IP Address for one of the Exchange Servers.

h) Select the **Add to all SubVSs** check box.

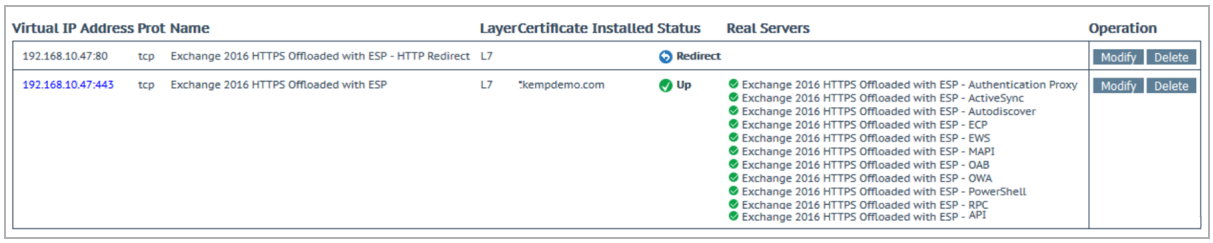
i) Click **Add This Real Server**.

j) Add additional Real Servers using the **Add to all SubVSs** check box.

4.2.2 Configure ESP

This guide assumes an SSO Domain is configured on the LoadMaster. For more information and steps for setting up an SSO Domain, refer to the **Edge Security Pack (ESP) Feature Guide** on the Kemp documentation page.

1. Click **View/Modify Services** in the left-hand navigation.



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2. Click **Modify** for the **Exchange 2016 HTTPS Offloaded with ESP** Virtual Service on port 443 (or the **Exchange 2016 HTTPS Reencrypted with ESP** if that was selected during the creation).

3. Expand the **SubVSs** section.

4. For each SubVS the following fields must be configured. Click the **set** button next to each field entered.

SubVS Name	Pre-Authorization Excluded Directories	Allowed Virtual Hosts	Logoff String	User Password Form
Authentication Proxy	n/a	Required	n/a	n/a
ActiveSync	n/a	Required	n/a	n/a
API	n/a	n/a	n/a	n/a
Autodiscover	n/a	Required	n/a	n/a
ECP	n/a	Required	n/a	n/a
EWS	n/a	Required	n/a	n/a
MAPI	n/a	Required	n/a	n/a
OAB	n/a	Required	n/a	n/a
OWA	/owa/<guid@smtpdomain>*[1]	Required	/owa/logoff.owa	https://<Exchange URL>/owa/auth/expiredpassword.aspx?url=/owa/auth.owa
PowerShell	n/a	Required	n/a	n/a
RPC	n/a	Required	n/a	n/a

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[1]GUID is unique to each Exchange deployment. To find the correct GUID, run the following command on the Exchange Server:
Get-Mailbox -Arbitration | where {$_.PersistedCapabilities -like "OrganizationCapabilityClientExtensions"} | fl exchangeGUID, primarysmtpaddress
The **Logoff String** must be set to **/owa/logoff.owa** in the OWA SubVS. In a customized environment, if the OWA logoff string has been changed, the modified logoff string must be entered in the **Logoff String** text box.
The SSO Greeting Message field accepts HTML code, so the users can insert their own image if desired. The grave accent character (` ) is not supported. If this character is entered in the SSO Greeting Message, the character will not display in the output, for example, **a`b`c** becomes **abc**.

4.3 IMAP and IMAPS Virtual Service

The steps are the same when using Exchange IMAP and Exchange IMAPS application templates. To add the Virtual Services for Exchange IMAP and Exchange IMAPS using the template, follow the steps below:

1. Click **Virtual Services**.
2. Click **Add New**.
3. Enter a **Virtual Address**.
4. Select the **Exchange 2016 IMAP** or the **Exchange 2016 IMAPS** template from the **Use Template** drop-down list depending on your preference.
5. Click **Add This Virtual Service**.
6. Expand the **Real Servers** section.
7. Click **Add New**.
8. For **Real Server Address**, enter the **IP Address** for one of the Exchange Servers.
9. Click **Add this Real Server**.

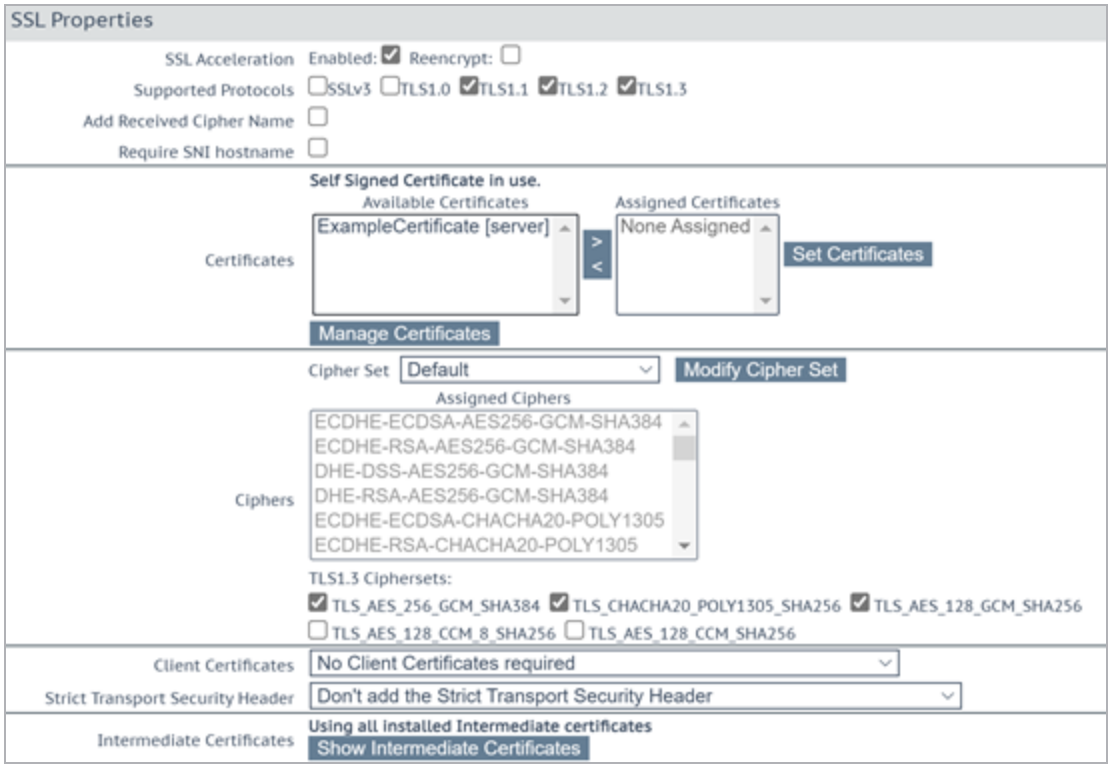
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10. Add any additional Real Servers as required.

4.4 IMAPS Offloaded and IMAP with STARTTLS Virtual Service

The steps are the same when using Exchange IMAPS Offloaded and Exchange IMAP with STARTTLS application templates. To add the Virtual Services for Exchange IMAPS Offloaded and Exchange IMAP with STARTTLS using the template, follow the steps below:

1. Click **Virtual Services**.
2. Click **Add New**.
3. Enter a **Virtual Address**.
4. Select the **Exchange 2016 IMAP** or the **Exchange 2016 IMAPS** template from the **Use Template** drop-down list depending on your preference.
5. Click **Add This Virtual Service**.
6. Expand **SSL Properties (Acceleration Enabled)**.



7. Select the certificate to use in the **Available Certificates** and click the “arrow” > to move it to **Assigned Certificates**.

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8. Click **Set Certificate**.
9. Expand the **Real Servers** section.
10. Click **Add New**.
11. For **Real Server Address**, enter the IP Address for one of the Exchange Servers.

    Ensure port 143 is entered in the **Port** field.

12. Click **Add this Real Server**.
13. Add any additional Real Servers as required.

4.5 POP and POPS Virtual Service

The steps are the same when using Exchange POP and Exchange POPS application templates. To add the Virtual Services for Exchange POP and Exchange POPS using the template, follow the steps below:

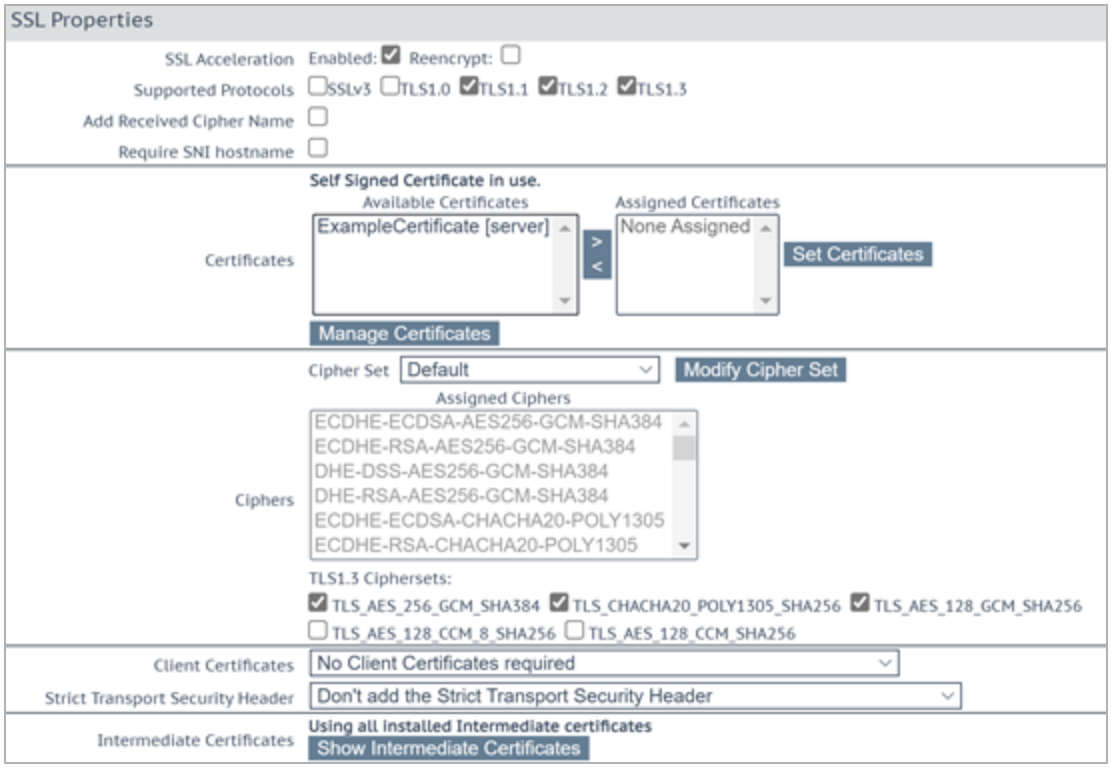
1. Click **Virtual Services**.
2. Click **Add New**.
3. Enter a **Virtual Address**.
4. Select the **Exchange 2016 POP** or the **Exchange 2016 POPS** template from the **Use Template** drop-down list depending on your preference.
5. Click **Add This Virtual Service**.
6. Expand the **Real Servers** section.
7. Click **Add New**.
8. For the **Real Server Address**, enter the IP Address for one of the Exchange Servers.
9. Click **Add this Real Server**.
10. Add any additional Real Servers as required.

4.6 POPS Offloaded and POP with STARTTLS Virtual Service

The steps are the same when using Exchange IMAPS Offloaded and Exchange IMAP with STARTTLS application templates. To add the Virtual Services for Exchange IMAPS Offloaded and Exchange IMAP with STARTTLS using the template, follow the steps below:

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1. Click **Virtual Services**.
2. Click **Add New**.
3. Enter a **Virtual Address**.
4. Select the **Exchange 2016 IMAP** or the **Exchange 2016 IMAPS** template from the **Use Template** drop-down list depending on your preference.
5. Click **Add This Virtual Service**.
6. Expand **SSL Properties (Acceleration Enabled)**.



7. Select the certificate to use in the **Available Certificates** and click the “arrow” > to move it to **Assigned Certificates**.
8. Click **Set Certificate**.
9. Expand the **Real Servers** section.
10. Click **Add New**.
11. For the **Real Server Address**, enter the IP Address for one of the Exchange Servers.

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Ensure port 110 is entered in the **Port** field.

12. Click **Add this Real Server**.
13. Add any additional Real Servers as required.

4.7 SMTP and SMTPS Virtual Service

The steps are the same when using Exchange SMTP and Exchange SMTPS application templates. To add the Virtual Services for Exchange SMTP and Exchange SMTPS using the template, follow the steps below:

1. Click **Virtual Services**.
2. Click **Add New**.
3. Enter a **Virtual Address**.
4. Select the **Exchange 2016 SMTP** or the **Exchange 2016 SMTPS** template from the **Use Template** drop-down list depending on your preference.
5. Click **Add This Virtual Service**.
6. Expand the **Real Servers** section.
7. Click **Add New**.
8. For the **Real Server Address**, enter the IP Address for one of the Exchange Servers.
9. Click **Add this Real Server**.
10. Add any additional Real Servers as required.

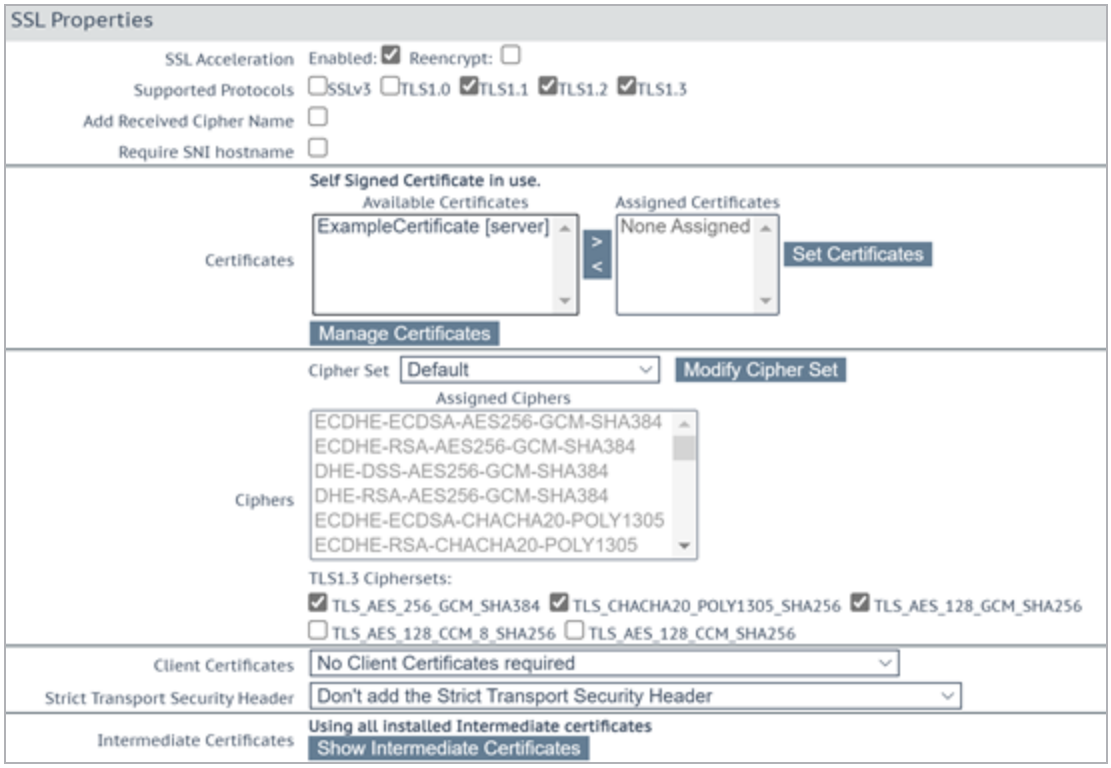
4.8 SMTPS Offloaded and SMTP with STARTTLS Virtual Service

The steps are the same when using Exchange SMTPS Offloaded and Exchange SMTP with STARTTLS application templates. To add the Virtual Services for Exchange SMTPS Offloaded and Exchange SMTP with STARTTLS using the template, follow the steps below:

1. Click the **Add New button**.
2. Enter a **Virtual Address**.
3. Select the **Exchange 2016 SMTP** or the **Exchange 2016 SMTPS** template from the **Use Template** drop-down list depending on your preference.
4. Click **Add This Virtual Service**.

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5. Expand **SSL Properties (Acceleration Enabled)**.



6. Select the certificate to use in the **Available Certificates** and click the “arrow” > to move it to **Assigned Certificates**.

7. Click **Set Certificate**.

8. Expand the **Real Servers** section.

9. Click **Add New**.

10. For the **Real Server Address**, enter the IP Address for one of the Exchange Servers.

> Ensure port 25 is entered in the **Port** field.

11. Click **Add this Real Server**.

12. Add any additional Real Servers as required.

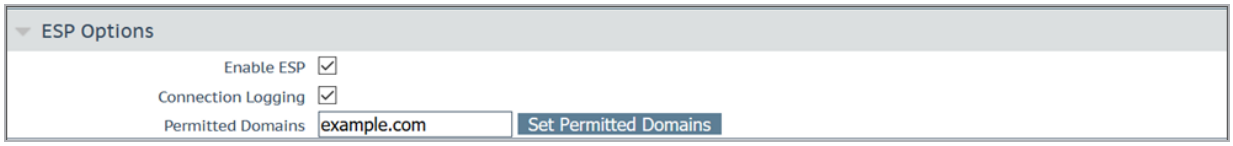
> SMTPS can be configured as offloaded as outlined above but cannot be set to Reencrypt.

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4.9 SMTP with ESP Virtual Service

To add the Virtual Services for Exchange 2016 SMTP with ESP using the template, follow the steps below:

1. Click the **Add New** button.
2. Enter a **Virtual Address**.
3. Select the **Exchange 2016 SMTP with ESP** template from the **Use Template** drop-down list depending on your preference.
4. Click **Add This Virtual Service**.
5. Expand **ESP Options**.



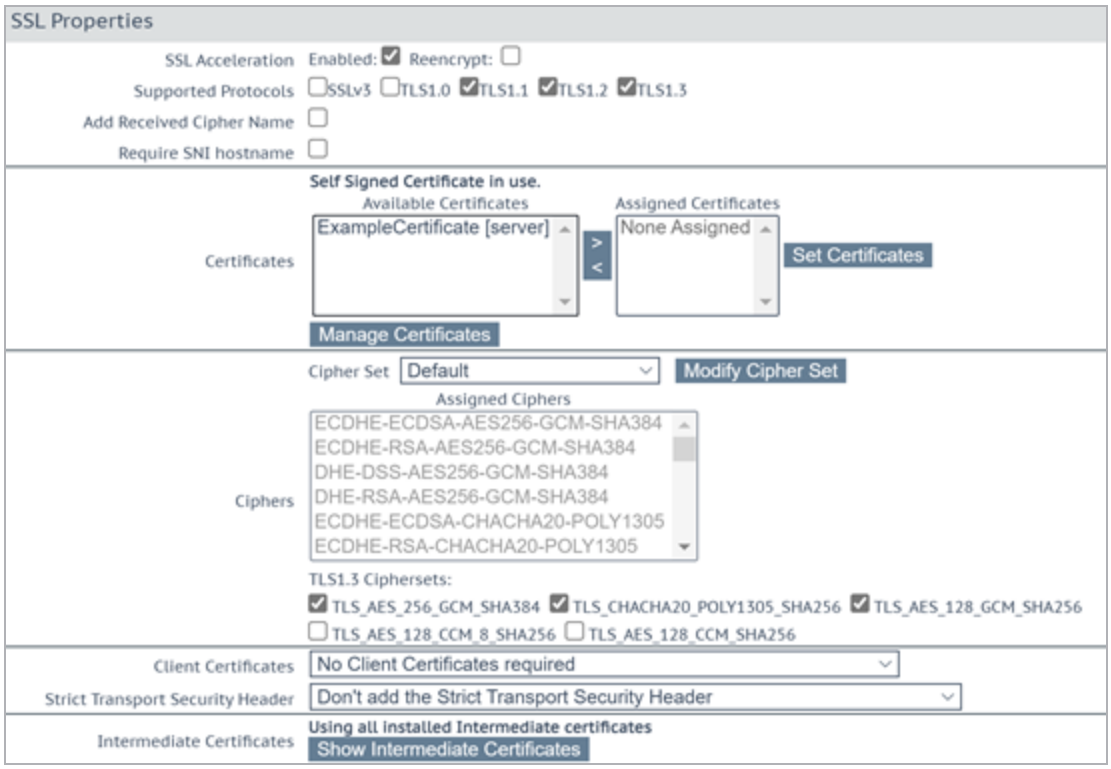
6. Enter the Permitted SMTP Domain for the Organization and click **Set Permitted Domains**.
7. Expand the **Real Servers** section.
8. Click **Add New**.
9. For the Real Server Address, enter the IP Address for one of the Office Online Servers.
10. Click **Add this Real Server**.
11. Add any additional Real Servers as necessary.

4.10 Office Online Server Virtual Service

To add the Virtual Services for Office Online Server using the template, follow the steps below:

1. Click the **Add New** button.
2. Enter a **Virtual Address**.
3. Select the **Exchange 2016 Office Online Server** template from the **Use Template** drop-down list depending on your preference.
4. Click **Add This Virtual Service**.
5. Expand **SSL Properties (Acceleration Enabled)**.

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6. Select the certificate to use in the **Available Certificates** and click the “arrow” > to move it to **Assigned Certificates**.

7. Click **Set Certificate**.

8. **Expand the Real Servers** section.

9. Click **Add New**.

10. For the **Real Server Address**, enter the IP Address for one of the Office Online Servers.

11. Click **Add this Real Server**.

12. Add any additional Real Servers as required.

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5 Exchange 2016 Virtual Service Recommended API Settings (Optional)

This table outlines the API parameters and values set using the Kemp application template. You can use these settings with scripts and automation tools.

5.1 Exchange 2016 HTTP Virtual Service Recommended API Settings (Optional)

API Parameter	API Value	Use with Template
HTTP Redirect		
port	80	All
prot	tcp	All
nickname	Exchange%20Redirect	All
ForceL7	1	All
Errorcode	302	All
ErrorUrl	https:%5C%2F%5C%2F%25h%25s	All
CheckType	none	
Content Rules		
Authentication Proxy		
name	Authentication_Proxy	ESP Enabled
matchtype	Regex	ESP Enabled
pattern	%2F%5E%5C%2Flm_auth_proxy%2A%24%2F	ESP Enabled

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API Parameter	API Value	Use with Template
Nocase	1	ESP Enabled
ActiveSync		
Name	ActiveSync	All
matchtype	Regex	All
pattern	%2F%5E%5C%2Fmicrosoft-server-activesync.%2A%2F	All
Nocase	1	All
Autodiscover		
name	Autodiscover	All
matchtype	Regex	All
pattern	%2F%5E%5C%2Fautodiscover.%2A%2F	All
Nocase	1	All
API		
name	api	All
matchtype	Regex	All
pattern	%2F%5E%5C%2Fapi.%2A%2F	All
Nocase	1	All
ECP		
name	ECP	All
matchtype	Regex	All
Pattern	%2F%5E%5C%2Fecp.%2A%2F	All
Nocase	1	All
EWS		
name	EWS	All
matchtype	Regex	All

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API Parameter	API Value	Use with Template
Pattern	%2F%5E%5C%2Fews.%2A%2F	All
Nocase	1	All
MAPI		
name	MAPI	All
matchtype	Regex	All
Pattern	%2F%5E%5C%2Fmapi.%2A%2F	All
Nocase	1	All
OAB		
name	OAB	All
matchtype	Regex	All
Pattern	%2F%5E%5C%2Foab.%2A%2F	All
Nocase	1	All
OWA		
name	OWA	All
matchtype	Regex	All
Patterns	%2F%5E%5C%2Fowa.%2A%2F	All
Nocase	1	All
PowerShell		
name	powershell	All
matchtype	Regex	All
Pattern	%2F%5E%5C%2Fpowershell.%2A%2F	All
Nocase	1	All
RPC		
name	RPC	All

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API Parameter	API Value	Use with Template
matchtype	Regex	All
Pattern	%2F%5E%5C%2Frpc.%2A%2F	All
Nocase	1	All
Main Virtual Service		
port	443	All
prot	tcp	All
VStype	http	All
nickname	Exchange%20HTTPS%20 Offloaded	Create Unique Name
ForceL7	1	All
Transparent	0	All
SubnetOriginating	1	All
SSLAcceleration	1	All
SSLReencrypt	0 or 1	0 for Offload 1 for Reencrypt
TLSType	1	All
CipherSet	BestPractices	All
Tls13CipherSet	BestPractices	All
Persist	None	All
Schedule	lc	All
Idletime	1800	All
Sub Virtual Service		
Authentication Proxy		
port	443	ESP Enabled

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API Parameter	API Value	Use with Template
prot	tcp	ESP Enabled
Nickname	Authentication%20Proxy	ESP Enabled
Errorcode	503	ESP Enabled
ErrorUrl	Endpoint%20not%20available	ESP Enabled
CheckType	None	ESP Enabled
EspEnabled	1	ESP Enabled
ESPLogs	7	ESP Enabled
InputAuthMode	2	ESP Enabled
OutputAuthMode	2	ESP Enabled
AllowedHosts	Mail.example.com%20autodiscover.example.com	ESP Enabled
Allowed Directories	%0A%2F%2A	ESP Enabled
SingleSignOnMessage	Please%20enter%20your%20Exchange%20credentials	ESP Enabled
	ActiveSync	
port	443	All
prot	tcp	All
Nickname	ActiveSync	All
SubnetOriginating	1	All
Persist	None	All
Schedule	lc	All
Idletime	1800	All
CheckPort	443	All
CheckType	https	All
CheckUrl	%2Fmicrosoft-server-activesync%2Fhealthcheck.htm	All
Checkversion	0	All

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API Parameter	API Value	Use with Template
CheckUseGet	1	All
EspEnabled	1	ESP Enabled
ESPLogs	7	ESP Enabled
InputAuthMode	1	ESP Enabled
OutputAuthMode	1	ESP Enabled
AllowedHosts	Mail.example.com%20autodiscover.example.com	ESP Enabled
AllowedDirectories	%2Fmicrosoft-server-activesync%2A	ESP Enabled
API		
Port	443	All
prot	tcp	All
Nickname	API	All
SubnetOriginating	1	All
Persist	None	All
Schedule	lc	All
Idletime	1800	All
CheckPort	443	All
CheckType	https	All
CheckUrl	%2Fapi%2Fhealthcheck.htm	All
Checkversion	0	All
CheckUseGet	1	All
EspEnabled	0	All
Autodiscover		
Port	443	All
prot	tcp	All

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API Parameter	API Value	Use with Template
Nickname	Autodiscover	All
SubnetOriginating	1	All
Persist	None	All
Schedule	lc	All
Idletime	1800	All
CheckPort	443	All
CheckType	https	All
CheckUrl	%2Fautodiscover%2Fhealthcheck.htm	All
Checkversion	0	All
CheckUseGet	1	All
EspEnabled	1	ESP Enabled
ESPLogs	7	ESP Enabled
InputAuthMode	0	ESP Enabled
OutputAuthMode	0	ESP Enabled
AllowedHosts	Mail.example.com%20autodiscover.example.com	ESP Enabled
AllowedDirectories	%2Fautodiscover%2A%0A	ESP Enabled
ECP		
port	443	All
prot	tcp	All
Nickname	ECP	All
SubnetOriginating	1	All
Persist	None	All
Schedule	lc	All
Idletime	1800	All

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API Parameter	API Value	Use with Template
CheckPort	443	All
CheckType	https	All
CheckUrl	%2Fecp%2Fhealthcheck.htm	All
Checkversion	0	All
CheckUseGet	1	All
EspEnabled	1	ESP Enabled
ESPLogs	7	ESP Enabled
InputAuthMode	2	ESP Enabled
OutputAuthMode	2	ESP Enabled
AllowedHosts	Mail.example.com%20autodiscover.example.com	ESP Enabled
AllowedDirectories	%2Fecp%2A%0A	ESP Enabled
SingleSignOnMessage	Please%20enter%20your%20Exchange%20credentials	ESP Enabled
	EWS	
port	443	All
prot	tcp	All
Nickname	EWS	All
SubnetOriginating	1	All
Persist	None	All
Schedule	lc	All
Idletime	1800	All
CheckPort	443	All
CheckType	https	All
CheckUrl	%2Fews%2Fhealthcheck.htm	All
Checkversion	0	All

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API Parameter	API Value	Use with Template
CheckUseGet	1	All
EspEnabled	1	ESP Enabled
ESPLogs	7	ESP Enabled
InputAuthMode	0	ESP Enabled
OutputAuthMode	0	ESP Enabled
AllowedHosts	Mail.example.com%20autodiscover.example.com	ESP Enabled
AllowedDirectories	%2Fews%2A%0A	ESP Enabled
MAPI		
port	443	All
prot	tcp	All
Nickname	MAPI	All
SubnetOriginating	1	All
Persist	None	All
Schedule	lc	All
Idletime	1800	All
CheckPort	443	All
CheckType	https	All
CheckUrl	%2Fmapi%2Fhealthcheck.htm	All
Checkversion	0	All
CheckUseGet	1	All
EspEnabled	1	ESP Enabled
ESPLogs	7	ESP Enabled
InputAuthMode	0	ESP Enabled
OutputAuthMode	0	ESP Enabled

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API Parameter	API Value	Use with Template
AllowedHosts	Mail.example.com%20autodiscover.example.com	ESP Enabled
AllowedDirectories	%2Fmapi%2A%0A	ESP Enabled
	OAB	
port	443	All
prot	tcp	All
Nickname	OAB	All
SubnetOriginating	1	All
Persist	None	All
Schedule	lc	All
Idletime	1800	All
CheckPort	443	All
CheckType	https	All
CheckUrl	%2Foab%2Fhealthcheck.htm	All
Checkversion	0	All
CheckUseGet	1	All
EspEnabled	1	ESP Enabled
ESPLogs	7	ESP Enabled
InputAuthMode	0	ESP Enabled
OutputAuthMode	0	ESP Enabled
AllowedHosts	Mail.example.com%20autodiscover.example.com	ESP Enabled
AllowedDirectories	%2Foab%2A%0A	ESP Enabled
	OWA	
port	443	All
prot	tcp	All

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API Parameter	API Value	Use with Template
Nickname	OWA	All
SubnetOriginating	1	All
Persist	None	All
Schedule	lc	All
Idletime	1800	All
CheckPort	443	All
CheckType	https	All
CheckUrl	%2Fowa%2Fhealthcheck.htm	All
Checkversion	0	All
CheckUseGet	1	All
EspEnabled	1	ESP Enabled
ESPLogs	7	ESP Enabled
InputAuthMode	2	ESP Enabled
OutputAuthMode	2	ESP Enabled
AllowedHosts	Mail.example.com%20autodiscover.example.com	ESP Enabled
AllowedDirectories	%2Fowa%2A%0A	ESP Enabled
ExcludedDirectories	%2Fowa%2Fguid%40smtpdomain%2A	ESP Enabled
SingleSignOnMessage	Please%20enter%20your%20Exchange%20credentials	ESP Enabled
Logoff	%2Fowa%2Flogoff.owa	ESP Enabled
	PowerShell	
port	443	All
prot	tcp	All
Nickname	PowerShell	All
SubnetOriginating	1	All

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API Parameter	API Value	Use with Template
Persist	None	All
Schedule	lc	All
Idletime	1800	All
CheckPort	443	All
CheckType	https	All
CheckUrl	%2Fpowershell%2Fhealthcheck.htm	All
Checkversion	0	All
CheckUseGet	1	All
EspEnabled	1	ESP Enabled
ESPLogs	7	ESP Enabled
InputAuthMode	0	ESP Enabled
OutputAuthMode	0	ESP Enabled
AllowedHosts	Mail.example.com%20autodiscover.example.com	ESP Enabled
AllowedDirectories	%2Fpowershell%2A%0A	ESP Enabled
	RPC	
port	443	All
prot	tcp	All
Nickname	RPC	All
SubnetOriginating	1	All
Persist	None	All
Schedule	lc	All
Idletime	1800	All
CheckPort	443	All
CheckType	https	All

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API Parameter	API Value	Use with Template
CheckUrl	%2Frpc%2Fhealthcheck.htm	All
Checkversion	0	All
CheckUseGet	1	All
EspEnabled	1	ESP Enabled
ESPLogs	7	ESP Enabled
InputAuthMode	0	ESP Enabled
OutputAuthMode	0	ESP Enabled
AllowedHosts	Mail.example.com%20autodiscover.example.com	ESP Enabled
AllowedDirectories	%2Frpc%2A%0A	ESP Enabled

5.2 Exchange 2016 IMAP Virtual Service Recommended API Settings (Optional)

API Parameter	API Value
IMAP	
port	143
prot	tcp
VStype	gen
nickname	Exchange%20IMAP
ForceL7	1
Transparent	0
ServerInit	Imap4
SubnetOriginating	1
Persist	None
Schedule	rr

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API Parameter	API Value
Idletime	3600
CheckType	Imap4
CheckPort	110
IMAPS	
port	993
prot	tcp
VStype	gen
nickname	Exchange%20IMAPS
forceL7	1
Transparent	0
ServerInit	Imap4
SubnetOriginating	1
Persist	None
Schedule	rr
Idletime	3600
CheckType	tcp
CheckPort	993
IMAPS Offloaded	
port	993
prot	tcp
VStype	gen
nickname	Exchange%20IMAPS%20Offload
ForceL7	1
Transparent	0

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API Parameter	API Value
ServerInit	Imap4
SubnetOriginating	1
Persist	None
Schedule	rr
Idletime	3600
SSLAcceleration	1
SSLReencrypt	0
TLSType	1
CipherSet	BestPractices
CheckType	Imap4
CheckPort	143
IMAP with STARTTLS	
port	143
prot	tcp
VStype	StartTLS
nickname	Exchange%20IMAP%20STARTTLS
ForceL7	1
Transparent	0
StartTLSMode	Imap
SubnetOriginating	1
Persist	None
Schedule	rr
Idletime	3600
SSLAcceleration	1

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API Parameter	API Value
TLSType	1
CipherSet	BestPractices
CheckType	Imap
CheckPort	143

5.3 Exchange 2016 POP Virtual Service Recommended API Settings (Optional)

API Parameter	API Value
POP	
port	110
prot	tcp
VStype	gen
nickname	Exchange%20POP
ForceL7	1
Transparent	0
ServerInit	Pop3
SubnetOriginating	1
Persist	None
Schedule	rr
Idletime	3600
CheckType	Pop3
CheckPort	110
POPS	
port	995
prot	tcp

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API Parameter	API Value
VStype	gen
nickname	Exchange%20POPS
ForceL7	1
Transparent	0
ServerInit	Pop3
SubnetOriginating	1
Persist	None
Schedule	rr
Idletime	3600
CheckType	tcp
CheckPort	993
POPS Offloaded	
port	995
prot	tcp
VStype	gen
nickname	Exchange%20POPS%20Offload
ForceL7	1
Transparent	0
ServerInit	Pop3
SubnetOriginating	1
Persist	None
Schedule	rr
Idletime	3600
SSLAcceleration	1

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API Parameter	API Value
SSLReencrypt	0
TLSType	1
CipherSet	BestPractice
CheckType	Pop3
CheckPort	110
POP with STARTTLS	
port	110
prot	tcp
VStype	StartTLS
nickname	Exchange%20IMAP%20STARTTLS
ForceL7	1
Transparent	0
StartTLSMode	Pop3
SubnetOriginating	1
Persist	None
Schedule	rr
Idletime	3600
SSLAcceleration	1
TLSType	1
CipherSet	BestPractices
CheckType	pop
CheckPort	110

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5.4 Exchange 2016 SMTP Virtual Service Recommended API Settings (Optional)

API Parameter	API Value
SMTP	
port	25
prot	tcp
VStype	gen
nickname	Exchange%20STMP
ForceL7	1
Transparent	0
ServerInit	smtp
SubnetOriginating	1
Persist	src
PersistTimeout	3600
Schedule	rr
Idletime	120
CheckType	smtp
CheckPort	25
SMTPS	
port	587
prot	tcp
VStype	gen
nickname	Exchange%20SMTPS
ForceL7	1
Transparent	0

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API Parameter	API Value
ServerInit	smtp
SubnetOriginating	1
Persist	src
PersistTimeout	3600
Schedule	rr
Idletime	120
CheckType	tcp
CheckPort	587
SMTPS Offloaded	
port	587
prot	tcp
VStype	gen
nickname	Exchange%20SMTPS%20Offload
ForceL7	1
Transparent	0
ServerInit	smtp
SubnetOriginating	1
Persist	src
PersistTimeout	3600
Schedule	rr
Idletime	120
SSLAcceleration	1
SSLReencrypt	0
TLSType	1

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API Parameter	API Value
CipherSet	BestPractices
CheckType	smtp
CheckPort	25
SMTP with STARTTLS	
port	25
prot	tcp
VStype	StartTLS
nickname	Exchange%20SMTP%20STARTTLS
ForceL7	1
Transparent	0
StartTLSMode	smtp
SubnetOriginating	1
Persist	src
PersistTimeout	3600
Schedule	rr
Idletime	120
SSLAcceleration	1
TLSType	1
CipherSet	BestPractices
CheckType	smtp
CheckPort	25
SMTP with ESP	
port	25
prot	tcp

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API Parameter	API Value
VStype	gen
nickname	Exchange%20STMP%20ESP
ForceL7	1
Transparent	0
ServerInit	smtp
SubnetOriginating	1
Persist	src
PersistTimeout	3600
Schedule	rr
IdleTime	120
EnableESP	1
ESPLog	4
Smtpallow	“Example.com”
CheckType	smtp
CheckPort	25

5.5 Exchange 2016 Office Online Server Virtual Service Recommended API Settings (Optional)

API Parameter	API Value
Office Online Server	
port	443
prot	tcp
VStype	http
nickname	Exchange%20Office%20Online
ForceL7	1

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API Parameter	API Value
Transparent	0
SubnetOriginating	1
Persist	Super-src
PersistTimeout	1800
Schedule	lc
Idletime	1800
SSLAcceleration	1
SSLReencrypt	1
TLSType	1
CipherSet	BestPractices
CheckType	https
CheckPort	443
CheckUrl	/hosting/discovery
CheckVersion	1
CheckUseGet	1

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6 References

Unless otherwise specified, the documents below can be found at http://www.kemptechnologies.com/documentation

Web User Interface (WUI), Configuration Guide

Virtual Services and Templates, Feature Description

ESP, Feature Description

Microsoft Exchange 2010, Deployment Guide

Microsoft Exchange 2013, Deployment Guide

Exchange Team Blog post on Load Balancing in Exchange 2016

http://blogs.technet.com/b/exchange/archive/2015/10/08/load-balancing-in-exchange-2016.aspx

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Last Updated Date

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