

# MS Exchange 2013

## Deployment Guide

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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 2013 (Exchange 2013), 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 2013 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 2013, 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 2013 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

It is assumed that the reader is a network administrator or familiar with networking and general computer terminology. It is further assumed that the Exchange 2013 environment is set up and the Kemp LoadMaster is installed.

LoadMaster documentation is available on the Kemp documentation page.

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 2013 Overview

Microsoft Exchange Server is a mail server, calendaring software, and contact manager. It runs on Windows Server and is part of the Microsoft Servers line of products. The improvements made in Exchange 2013 have made it easier to load balance Exchange-related traffic.

Exchange 2013 includes the following solutions for switchover and failover redundancy:

- **High availability:** Exchange 2013 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 only 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 are 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.


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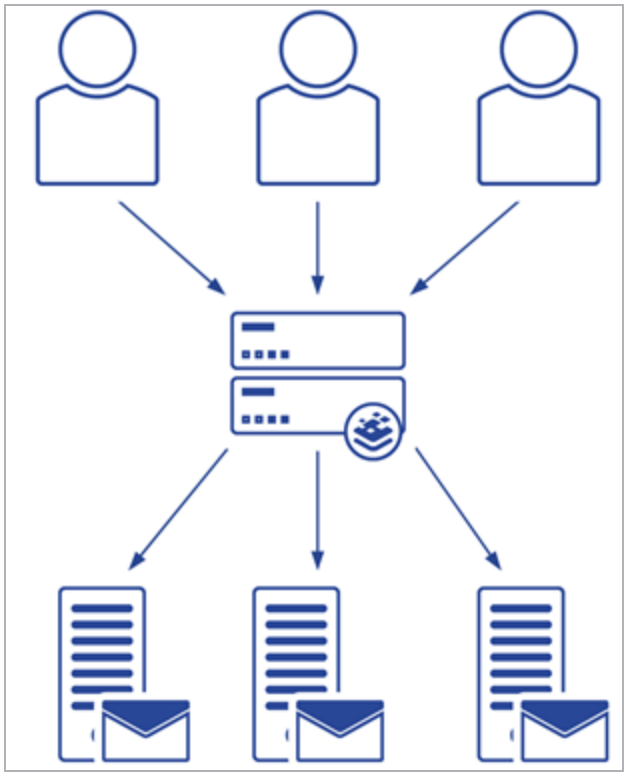
As OWA is rendered on the same server that is hosting the user's mailbox database; if a client hits a different CAS, there is no performance degradation because the session rendering for that user is already up and running.

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 Optimizing the Kemp LoadMaster for Exchange 2013

The Kemp LoadMaster has features and capabilities in addition to those described in this manual, however, the features and capabilities listed below in particular can be used to optimize the configuration of the LoadMaster to work best with Exchange 2013 server load balancing requirements.

### 2.2.1 SSL Acceleration (SSL Offloading)

The Kemp LoadMaster offers SSL acceleration (also referred to as "SSL offloading") for Virtual Services. With SSL acceleration, the SSL session is terminated at the LoadMaster. Some of the benefits to using SSL acceleration are that the LoadMaster migrates the SSL workload from the Real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Servers (which can be hardware accelerated by LoadMaster), can perform Layer 7 processing (such as persistence or content switching), SSL security hardening, and a central point of management of SSL certificates.

With SSL Acceleration, the SSL session is terminated at the LoadMaster and sent to the Real Servers un-encrypted. In some security situations, it may be necessary to encrypt the connection between the LoadMaster and Real Servers. This can be achieved with SSL reencryption. Review the **SSL Feature Description** on the Kemp Documentation Page for further details on configuring an SSL reencryption deployment.

With SSL reencryption, the SSL session is first terminated at the LoadMaster. Persistence and other Layer 7 functionality can then be performed. After that, the traffic is re-encrypted in a new SSL session between the LoadMaster and the Real Server.

Without terminating the SSL session at the LoadMaster, the headers and content cannot be read, so persistence cannot be done. The only consistently reliable persistence method available when the SSL session is not terminated at the LoadMaster is Source IP.

Hardware SSL and Software SSL are the two types of SSL termination capabilities available in your LoadMaster. Functionally, hardware and software SSL are the same. The difference is in what part of the LoadMaster handles the actual cryptographic functions associated with SSL operations.

With software SSL, the LoadMaster's general processor handles encryption/decryption tasks. These tasks are shared with other tasks that the LoadMaster performs, such as server load balancing, health checking, and other administrative tasks. Because SSL operations are CPU-intensive, software SSL is sufficient for low levels of SSL traffic but insufficient for higher levels of SSL traffic. Higher connection rates of SSL on a software SSL LoadMaster may degrade overall performance of the LoadMaster.

With hardware SSL, the LoadMaster has a separate specialized processor, which handles all SSL functions. No matter the level of SSL connections, the LoadMaster’s general processor is not burdened. This specialized hardware is purpose-built for SSL and can handle extremely high Transactions Per Second (TPS) of SSL traffic.

An SSL certificate is required for all SSL transactions, and as such is required for all SSL-enabled Virtual Services. With the LoadMaster, there are two types of SSL certificates: self-signed certificates generated by the LoadMaster or the administrator and certificates that are signed by a trusted CA (Certificate Authority) such as Digicert, Verisign or Thawte. In addition, with LoadMaster you are managing only one certificate instead of multiple certificates on each Real Server.

When an SSL-enabled Virtual Service is configured on the LoadMaster, a self-signed certificate is installed automatically. Both self-signed and CA signed certificates provide encryption for data in


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motion. A CA-signed certificate also provides authentication - a level of assurance that the site is what it reports to be, and not an impostor.

The primary operational difference between a self-signed certificate and a CA certificate is that with a self-signed, a browser will generally give some type of warning that the certificate came from an untrusted issuer. Generally, self-signed certificates should not be used for public-facing production websites. As such, the Exchange 2013 configuration instructions indicate that you would first need to export an appropriately signed certificate from Exchange 2013 so that you may import it into the LoadMaster.

### 2.2.2 Idle Connection Timeout

If there is no traffic for the period of time specified the connection is timed out and disconnected. The global default is 660 seconds (11 minutes). This value can be adjusted per service type by modifying the **Idle Connection Timeout** field in the **Standard Options** section of the Virtual Service modify screen.

For each Virtual Service you can set idle connection timeout values for the connections. To make optimal use of your Kemp LoadMaster, you should not set these timeout values too low because this could result in clients needing to re-establish a connection, which typically results in the end user being informed to re-authenticate. It is recommended you test which timeout values works best in your specific scenario before the solution goes into production.

> Setting the **Idle Connection Timeout** to **0** ensures that the default L7 connection timeout is used. You can modify the default **Connection Timeout** value by going to **System Configuration > Miscellaneous Options > Network Options**.

### 2.2.3 Drop Connections on Real Server Failure

By default, existing connections are not closed if a Real Server fails. This can lead to issues with Outlook clients if an Exchange CAS server fails. A solution to this is to enable the **Drop Connections on RS Failure** option, which can be found on the **System Configuration > Miscellaneous > L7 Configuration** screen in the WUI.

When this option is enabled, LoadMaster tracks all the incoming connections and which Real Servers they are connected to. When a Real Server fails, all connections to the Real Server are immediately dropped, forcing the connections to reconnect to a different Real Server.

Enabling this option has the added benefit of allowing relatively higher Idle Connection Timeout values to be set as the danger of the client retaining a connection to a failed server is removed.


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### 2.2.4 Drop at Drain Time End

By default, existing connections are not closed when a Real Server is disabled. This can lead to issues with Outlook clients if an Exchange CAS server is administratively disabled. A solution to this is to enable the **Drop at Drain Time End** option, which is found on the **System Configuration > Miscellaneous > L7 Configuration** screen in the WUI.

When this option is enabled, LoadMaster severs all existing connections to a disabled server after the **L7 Connection Drain Time** is reached. Clients are then forced to re-establish a connection to one of the remaining Real Servers. You can configure the **L7 Connection Drain Time** by going to the following screen in the WUI: **System Configuration Miscellaneous Options > L7 Configuration**.

### 2.2.5 Port Configuration

There are many different types of possible data paths. It is recommended that your port configuration stay within the realm of default protocol Request For Comment (RFC). However, your Kemp LoadMaster may be configured to use whichever port happens to be most appropriate for your particular network. For more information regarding port definitions, refer to Microsoft documentation at https://docs.microsoft.com/en-us/exchange/network-ports-for-clients-and-mail-flow-in-exchange-2013-exchange-2013-help.

### 2.2.6 Connection Scaling

LoadMaster is a scalable load balancer, allowing for more than 64,000 client connections to a single Virtual Service at one time. If this is required, you should execute the Connection Scaling for Large Scale Deployments procedure located in the **Appendix A: Connection Scaling For Large Scale Deployments**.

### 2.2.7 Header Rewriting

Your Kemp LoadMaster offers HTTP header insertions, deletions, and modifications. Our header rewriting feature can be useful with respect to the URL users must input or remember. For more information, refer to the **Content Rules, Feature Description** on the Kemp Documentation Page.

This is only possible with unencrypted or SSL-offloaded traffic.

## 2.3 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.


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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.

## 2.4 100-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**.





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

## 2.5 Additional L7 Header

When using the built-in Mail client on Mac, you may experience connectivity issues. This happens due to how Mail client on Mac handles Persistent-Auth headers from 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 2013. 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.

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 step for setting up Virtual Services using Kemp Application Templates.

The Exchange 2013 templates currently available are grouped in three downloadable files as follows:

- **Exchange2013Core**
  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 2013.
- **Exchange2013ESP**
  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.
- **Exchange2013Additional**
  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 2013

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 2013 Virtual Service Recommended API Settings (Optional)** outlines the API settings and values. You can use this information when using the Kemp LoadMaster API and automation tools.

## 4.1 HTTPS Offloaded or Reencrypt without ESP

The steps are the same when using Exchange HTTPS Offload and Exchange HTTPS Reencrypt 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 2013 HTTPS Offloaded** or the **Exchange 2013 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, reference the **SSL Accelerated Services Feature Guide** on the Kemp documentation page.

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


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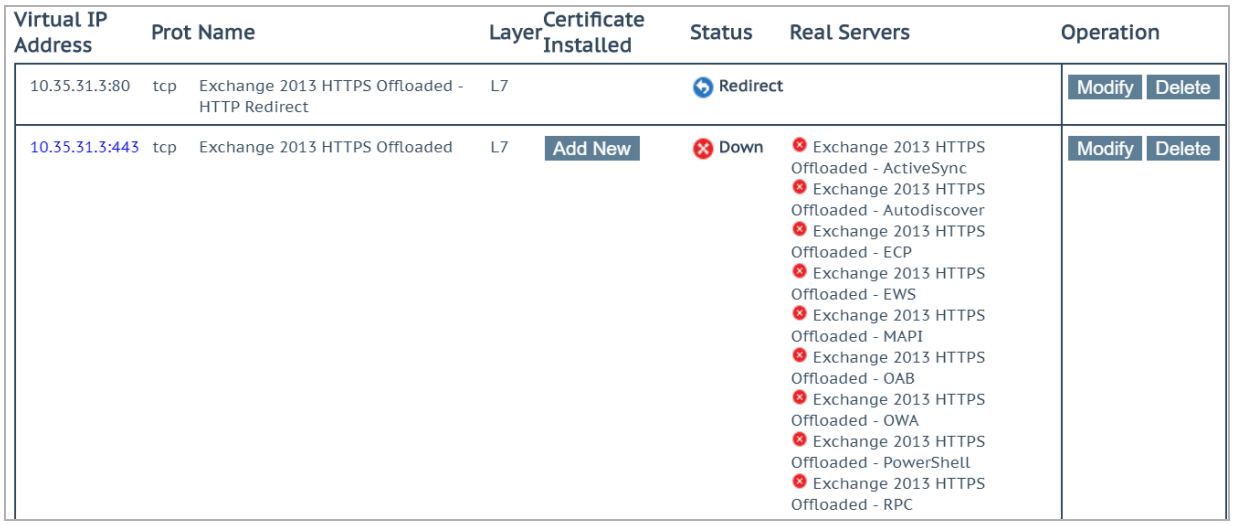
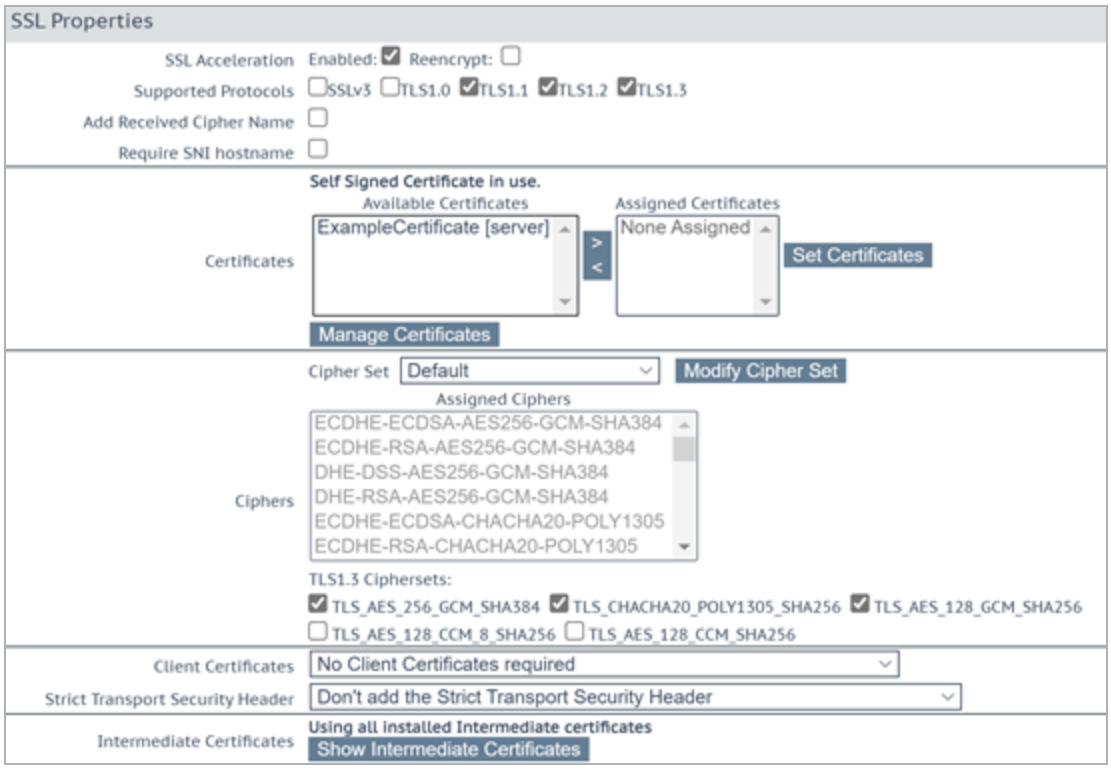



2. Click **Modify** for the **Exchange 2013 HTTPS Offloaded** Virtual Service on port 443 (or **Exchange 2013 HTTPS Reencrypted** if that was selected during the creation)

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 2013 HTTPS Reencrypted template.

### 4.1.2 Add the Real Servers

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



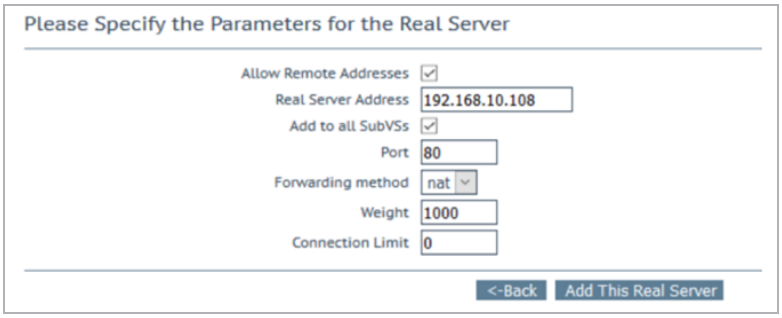

2. Click **Modify** for the **Exchange 2013 HTTPS Offloaded** Virtual Service on port 443 (or the **Exchange 2013 HTTPS Reencrypted** if that was selected during the creation).

3. Expand the **SubVSs** section.

4. Click **Modify** for **Exchange 2013 HTTPS Offloaded – ActiveSync** (or the **Exchange 2013 HTTPS Reencrypted – ActiveSync** if that was selected during the creation).

5. Expand the **Real Servers** section.

6. Click **Add New**.




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

8. Select the **Add to all SubVSs** check box.

9. Click **Add This Real Server**.

10. Add additional Real Servers using the **Add to all SubVSs** check box.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## 4.2 HTTPS Offloaded or Reencrypt with ESP

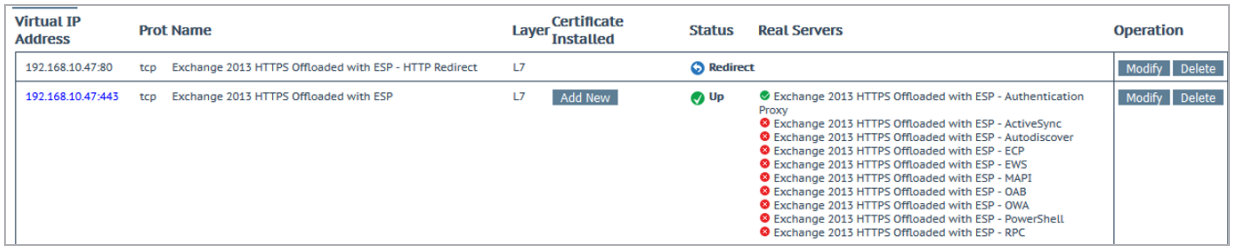
The steps are the same when using Exchange HTTPS Offload and Exchange HTTPS Reencrypt with ESP application template. To add the Virtual Services for Exchange HTTPS Offload or Exchange HTTPS Reencrypt with ESP using the template, follow the steps below:

1. Click **Virtual Services**.
2. Click **Add New**.
3. Enter a **Virtual Address**.
4. Select the **Exchange 2013 HTTPS Offloaded with ESP** or the **Exchange 2013 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 **View/Modify Services** in the left-hand navigation.




2. Click **Modify** for the **Exchange 2013 HTTPS Offloaded with ESP** Virtual Service on port 443 (or **Exchange 2013 HTTPS Reencrypted with ESP** if that was selected during the creation)
3. Expand **SSL Properties (Acceleration Enabled)**.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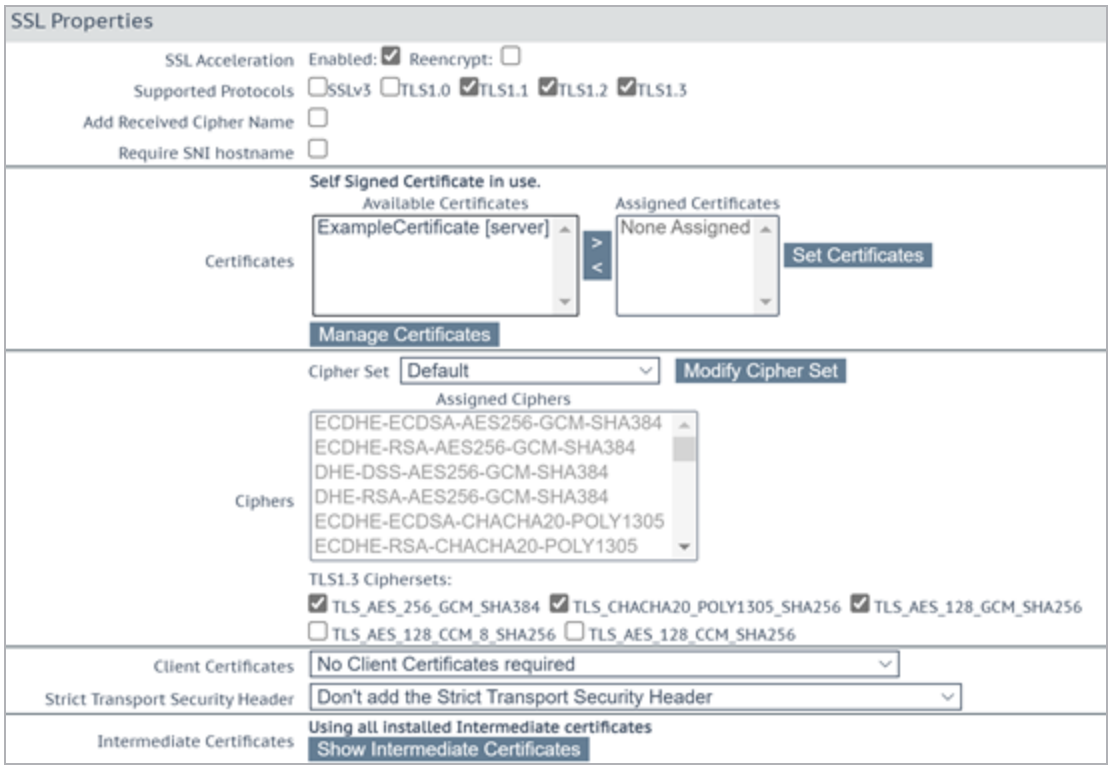


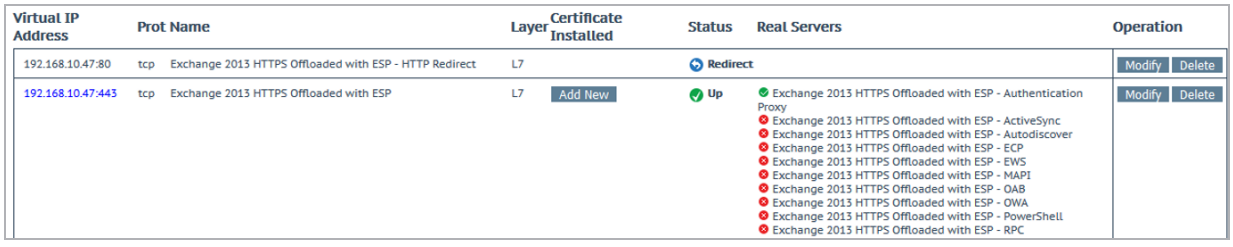

4. Select the certificate to use in the **Available Certificates** and click the “arrow” > to move it to **Assigned Certificates**.

5. Click **Set Certificate**.

> The **Reencrypt** check box is selected when using the **Exchange 2013 HTTPS Reencrypted with ESP** template.

### 4.2.2 Add the Real Servers

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





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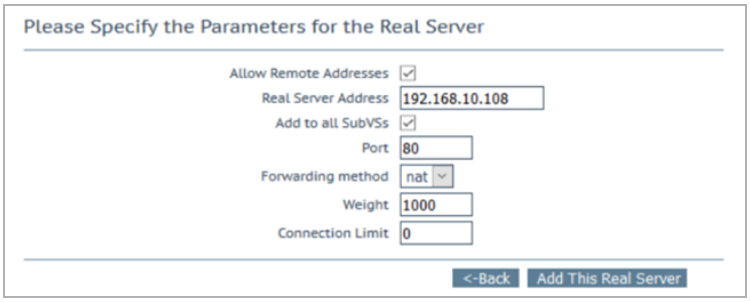
2. Click **Modify** for the **Exchange 2013 HTTPS Offloaded with ESP** Virtual Service on port 443 (or the **Exchange 2013 HTTPS Reencrypted with ESP** if that was selected during the creation).

3. Expand the **SubVSs** section.

4. Click **Modify** for **Exchange 2013 HTTPS Offloaded with ESP – Authentication Proxy** (or the **Exchange 2013 HTTPS Reencrypted with ESP – Authentication ctiveSync** if that was selected during the creation).

5. Expand the **Real Servers** section.

6. Click **Add New**.




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

8. Select the **Add to all SubVSs** check box.

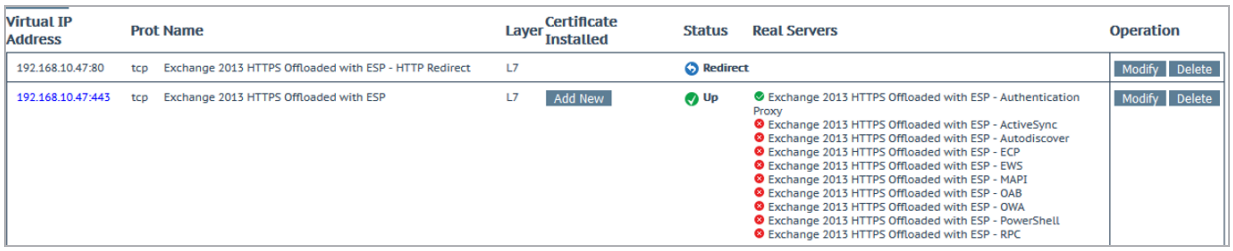
9. Click **Add This Real Server**.

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

### 4.2.3 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 2013 HTTPS Offloaded with ESP** Virtual Service on port 443 (or the **Exchange 2013 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 |
| 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 or IMAPS Virtual Service

The steps are the same when using Exchange IMAP and Exchange IMAPS application templates. When using IMAPS, this is a TLS pass through Virtual Service because using reencryption is not supported. 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 2013 IMAP** or the **Exchange 2013 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.


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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**.
10. Add any additional Real Servers as required.

## 4.4 IMAPS Offloaded or 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 2013 IMAP Offloaded** or the **Exchange 2013 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)**.


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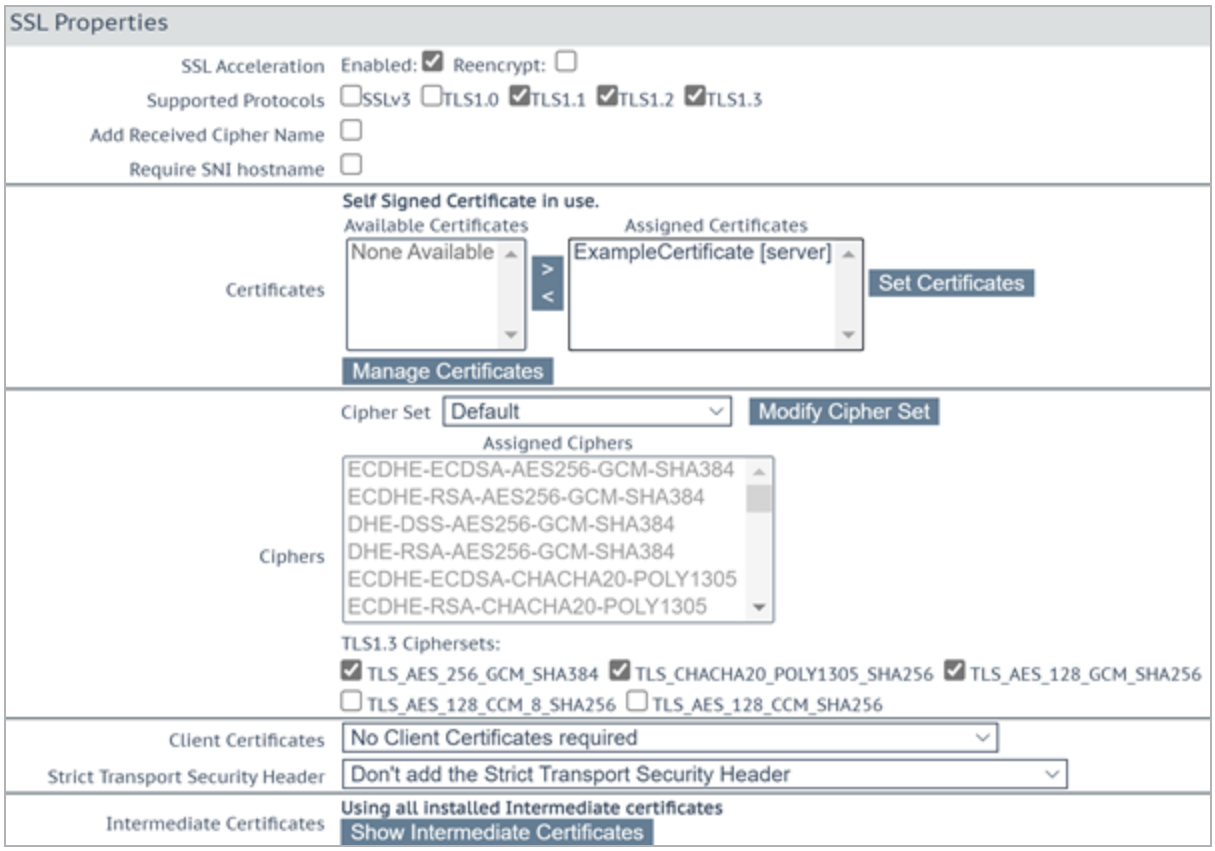


7. Select the certificate to use in the **Available Certificates** and click the “arrow” > to move it to **Assigned Certificates**.

8. Click **Set Certificate**.

9. Expand the **Real Servers** section.

10. Click **Add New**.

11. For **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.


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## 4.5 POP or 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 2013 POP** or the **Exchange 2013 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 **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 or 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:

1. Click **Virtual Services**.
2. Click **Add New**.
3. Enter a **Virtual Address**.
4. Select the **Exchange 2013 POPS Offloaded** or the **Exchange 2013 POP with StartTLS** template from the **Use Template** drop-down list depending on your preference.
5. Click **Add This Virtual Service**.
6. Expand **SSL Properties (Acceleration Enabled)**.


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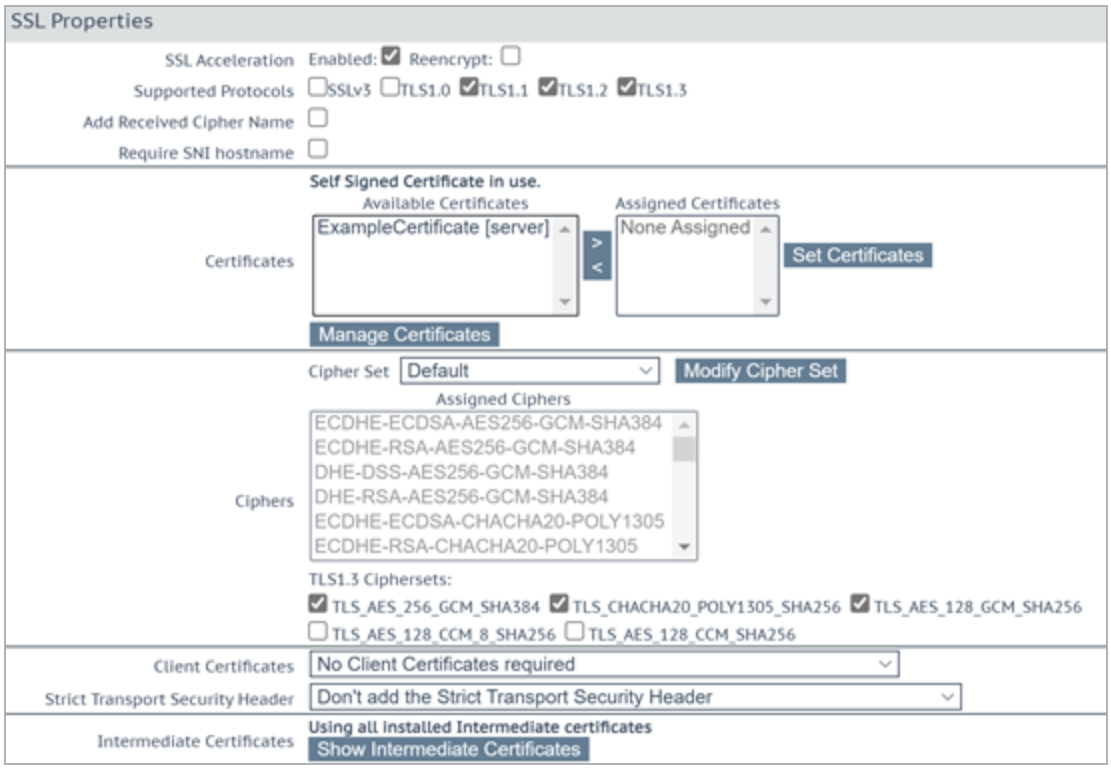


7. Select the certificate to use in the **Available Certificates** and click the “arrow” > to move it to **Assigned Certificates**.
8. Click **Set Certificate**.
9. Expand the **Real Servers** section.
10. Click **Add New**.
11. For **Real Server Address**, enter the IP Address for one of the Exchange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

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

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


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## 4.7 SMTP or 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 2013 SMTP** or the **Exchange 2013 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 **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 or 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 2013 SMTP Offloaded** or the **Exchange 2013 SMTPwith STARTTLS** 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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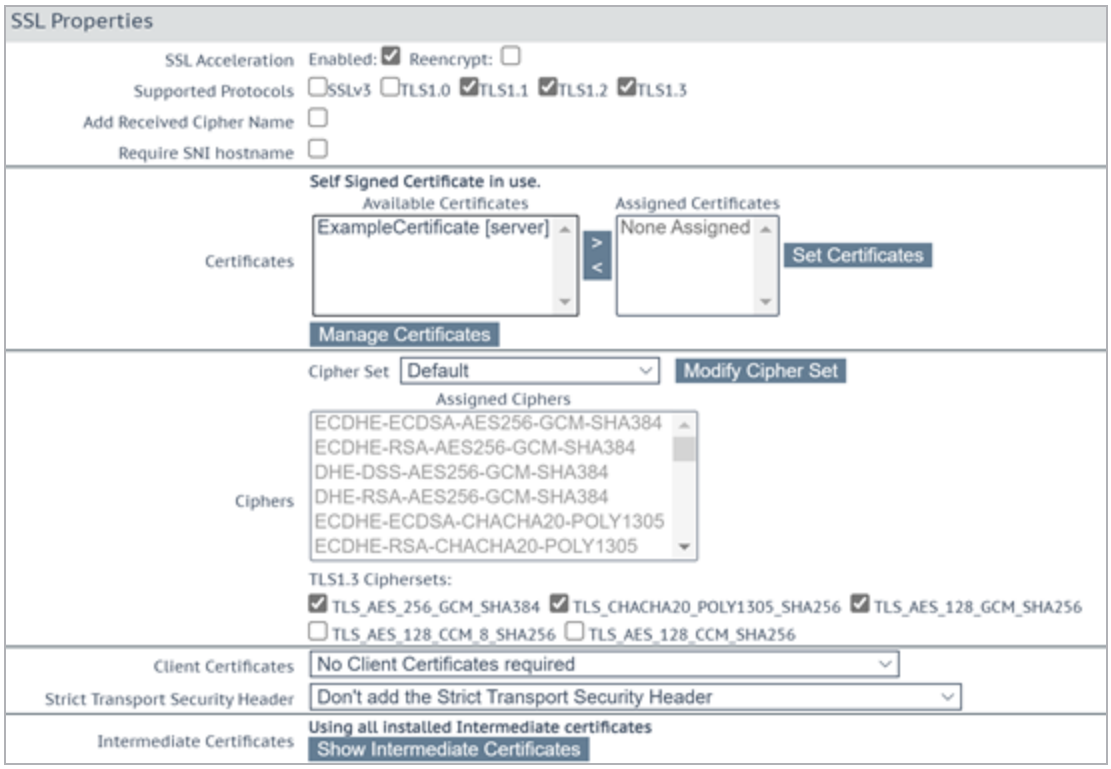


6. Select the certificate to use in the **Available Certificates** and click the “arrow” > to move it to **Assigned Certificates**.
7. Click **Set Certificate**.
8. Expand the **Real Servers** section.
9. Click **Add New**.
10. For **Real Server Address**, enter the IP Address for one of the Exchange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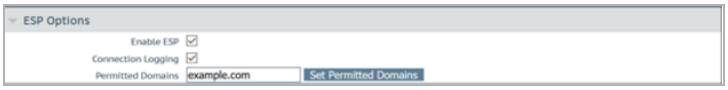
## 4.9 SMTP with ESP Virtual Service

To add the Virtual Services for Exchange 2013 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 2013 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 **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.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# 5 Exchange 2013 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 2013 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 |
| **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 |
| Pattern | %2F%5E%5C%2Fews.%2A%2F | All |
| Nocase | 1 | All |
| **MAPI** | | |
| name | MAPI | All |
| matchtype | Regex | All |


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| API Parameter | API Value | Use with Template |
|---|---|---|
| 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 |
| matchtype | Regex | All |
| Pattern | %2F%5E%5C%2Frpc.%2A%2F | All |
| Nocase | 1 | All |
| **Main Virtual Service** | | |
| port | 443 | All |


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| API Parameter | API Value | Use with Template |
|---|---|---|
| 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<br>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 |
| prot | tcp | ESP Enabled |
| Nickname | Authentication%20Proxy | ESP Enabled |
| Errorcode | 503 | ESP Enabled |
| ErrorUrl | Endpoint%20not%20available | ESP Enabled |
| CheckType | None | ESP Enabled |


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| API Parameter | API Value | Use with Template |
|---|---|---|
| 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 |
| CheckUseGet | 1 | All |
| EspEnabled | 1 | ESP Enabled |
| ESPLogs | 7 | ESP Enabled |
| InputAuthMode | 1 | ESP Enabled |
| OutputAuthMode | 1 | ESP Enabled |


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| API Parameter | API Value | Use with Template |
|---|---|---|
| AllowedHosts | Mail.example.com%20autodiscover.example.com | ESP Enabled |
| AllowedDirectories | %2Fmicrosoft-server-activesync%2A | ESP Enabled |
| **Autodiscover** | | |
| Port | 443 | All |
| prot | tcp | All |
| 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 |


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| API Parameter | API Value | Use with Template |
|---|---|---|
| Nickname | ECP | All |
| SubnetOriginating | 1 | All |
| Persist | None | All |
| Schedule | lc | All |
| Idletime | 1800 | All |
| 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 |


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| API Parameter | API Value | Use with Template |
|---|---|---|
| Idletime | 1800 | All |
| CheckPort | 443 | All |
| CheckType | https | All |
| CheckUrl | %2Fews%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 | %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 |


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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 | %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 |


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| API Parameter | API Value | Use with Template |
|---|---|---|
| AllowedHosts | Mail.example.com%20autodiscover.example.com | ESP Enabled |
| AllowedDirectories | %2Foab%2A%0A | ESP Enabled |
| | **OWA** | |
| port | 443 | All |
| prot | tcp | All |
| 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 |


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| API Parameter | API Value | Use with Template |
|---|---|---|
| **PowerShell** | | |
| port | 443 | All |
| prot | tcp | All |
| Nickname | PowerShell | All |
| SubnetOriginating | 1 | All |
| 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 |


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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 | %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 2013 IMAP Virtual Service Recommended API Settings (Optional)

| API Parameter | API Value |
|---|---|
| **IMAP** | |
| port | 143 |
| prot | tcp |
| VStype | gen |
| nickname | Exchange%20IMAP |
| ForceL7 | 1 |


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| API Parameter | API Value |
|---|---|
| Transparent | 0 |
| ServerInit | Imap4 |
| SubnetOriginating | 1 |
| Persist | None |
| Schedule | rr |
| 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 |


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| API Parameter | API Value |
|---|---|
| prot | tcp |
| VStype | gen |
| nickname | Exchange%20IMAPS%20Offload |
| ForceL7 | 1 |
| Transparent | 0 |
| 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 |


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| API Parameter | API Value |
|---|---|
| SubnetOriginating | 1 |
| Persist | None |
| Schedule | rr |
| Idletime | 3600 |
| SSLAcceleration | 1 |
| TLSType | 1 |
| CipherSet | BestPractices |
| CheckType | Imap |
| CheckPort | 143 |

## 5.3 Exchange 2013 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 |


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| API Parameter | API Value |
|---|---|
| CheckType | Pop3 |
| CheckPort | 110 |
| **POPS** | |
| port | 995 |
| prot | tcp |
| 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 |


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| API Parameter | API Value |
|---|---|
| SubnetOriginating | 1 |
| Persist | None |
| Schedule | rr |
| Idletime | 3600 |
| SSLAcceleration | 1 |
| 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 |


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| API Parameter | API Value |
|---|---|
| CipherSet | BestPractices |
| CheckType | pop |
| CheckPort | 110 |

## 5.4 Exchange 2013 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 |


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| API Parameter | API Value |
|---|---|
| VStype | gen |
| nickname | Exchange%20SMTPS |
| ForceL7 | 1 |
| Transparent | 0 |
| 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 |


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| API Parameter | API Value |
|---|---|
| Idletime | 120 |
| SSLAcceleration | 1 |
| SSLReencrypt | 0 |
| TLSType | 1 |
| 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 |


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| API Parameter | API Value |
|---|---|
| CheckPort | 25 |
| **SMTP with ESP** | |
| port | 25 |
| prot | tcp |
| 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 |


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# References

Unless otherwise specified, the documents below can be found at http://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 2016, Deployment Guide**

**Exchange Team Blog post on Load Balancing in Exchange 2013**

http://blogs.technet.com/b/exchange/archive/2014/03/05/load-balancing-in-exchange-2013.aspx

**KCD, Feature Description**

**View or configure Outlook Web App virtual directories**

https://technet.microsoft.com/en-us/library/dd298140(v=exchg.150).aspx


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# Last Updated Date

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