



Azure Multi-Factor Authentication

Technical Note

UPDATED: 30 July 2023

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1 Introduction

Multi-Factor Authentication (MFA) is a method of authentication that requires the use of more than one verification method and adds a critical second layer of security to user sign-ins and transactions. It works by requiring any two or more of the following verification methods:

- Something you know (typically a password)
- Something you have (a trusted device that is not easily duplicated, like a phone)
- Something you are (biometrics)

Azure MFA is a method of verifying who you are that requires the use of more than just a username and password. It provides a second layer of security to user sign-ins and transactions.

Azure MFA helps safeguard access to data and applications while meeting user demand for a simple sign-in process. It delivers strong authentication with a range of easy verification options – phone call, text message or mobile app notification – allowing users to choose the method they prefer.

Azure MFA is an easy to use, scalable and reliable solution that provides a second method of authentication so your users are always protected.

The security of multi-factor authentication lies in its layered approach. Comprising multiple authentication factors presents a significant challenge for attackers. Even if an attacker manages to learn the user's password, it is useless without also having possession of the trusted device. Should the user lose the device, the person who finds it will not be able to use it unless they also know the user's password.

1.1 Document Purpose

This document provides step-by-step instructions on how to configure Azure, the MFA server and the Kemp LoadMaster in order to provide multi-factor authentication.

This document uses an Exchange environment as an example scenario.

1.2 Intended Audience

This document is intended to be used by anyone interested in finding out more about using Azure MFA with the Kemp LoadMaster.

2 Configure NPS Settings to Accept Requests from the LoadMaster

The Network Policy Server (NPS) extension for Azure Multi-Factor Authentication (MFA) adds cloud-based MFA capabilities to your authentication infrastructure using your existing servers. For more information, refer to the [Integrate your existing NPS infrastructure with Azure Multi-Factor Authentication](#) page.

You must create a RADIUS client so that the LoadMaster can authenticate. For more information, refer to the [RADIUS Authentication and Authorization Technical Note](#).

3 Configure the LoadMaster

Follow the steps in the sub-sections below to configure the LoadMaster.

3.1 Increase the L7 Authentication Timeout

The L7 Authentication Timeout should be increased in order to provide enough time for the following actions to occur:

- The user enters their credentials
- Azure MFA communicates with the service in the cloud
- The service in the cloud sends the authentication to the user's phone (by app or phone call)

To increase the L7 Authentication Timeout, follow the steps below:

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

3 Configure the LoadMaster

Allow connection scaling over 64K Connections	<input type="checkbox"/>
Always Check Persist	<input type="text" value="No"/>
Add Port to Active Cookie	<input type="checkbox"/>
Conform to RFC	<input checked="" type="checkbox"/>
Close on Error	<input type="checkbox"/>
Add Via Header In Cache Responses	<input type="checkbox"/>
Real Servers are Local	<input type="checkbox"/>
Drop Connections on RS failure	<input type="checkbox"/>
Drop at Drain Time End	<input type="checkbox"/>
L7 Connection Drain Time (secs)	<input type="text" value="300"/> Set Time (Valid values:0, 60 - 86400)
L7 Authentication Timeout (secs)	<input type="text" value="30"/> Set Timeout (Valid values:30 - 300)
L7 Wait after POST(ms)	<input type="text" value="2000"/> Set Post Wait (Valid values:1 - 2000)
L7 Client Token Timeout (secs)	<input type="text" value="120"/> Set Timeout (Valid values:60 - 300)
Additional L7 Header	<input type="text" value="X-Forwarded-For"/>
100-Continue Handling	<input type="text" value="RFC-7231 Compliant"/>
Allow Empty POSTs	<input type="checkbox"/>
Allow Empty HTTP Headers	<input type="checkbox"/>
Force Complete RS Match	<input type="checkbox"/>
Least Connection Slow Start	<input type="text" value="0"/> Set Slow Start (Valid values:0 - 600)
Share SubVS Persistence	<input type="checkbox"/>
Log Insight Message Split Interval	<input type="text" value="10"/> Set Log Split Interval (Valid values:1 - 100)
Include User Agent Header in User Logs	<input type="checkbox"/>
Use CEF Log Format	<input type="checkbox"/>
SSO Maximum Threads	<input type="text" value="128"/> Set SSO Max Threads (Valid values:64 - 512)
NTLM Proxy Mode	<input checked="" type="checkbox"/>

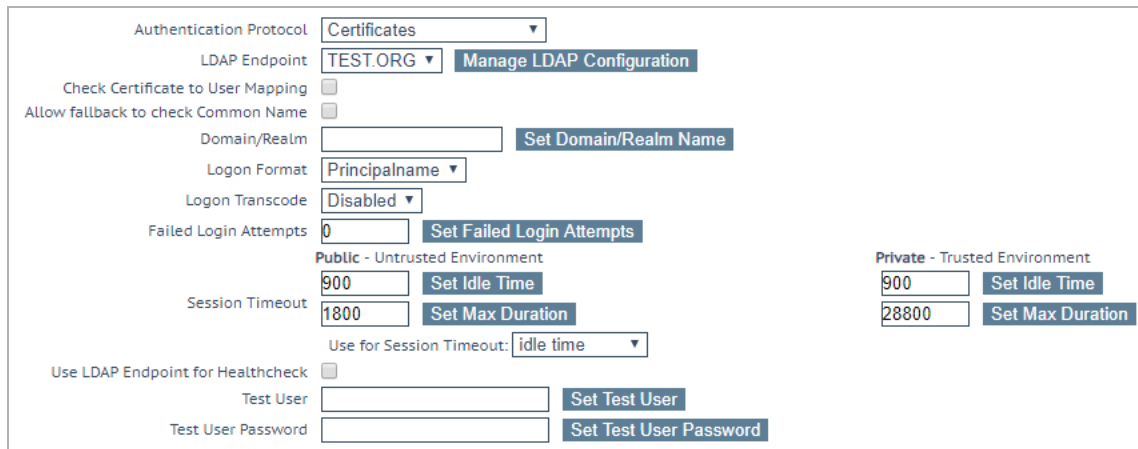
2. Enter the **L7 Authentication Timeout** and click **Set Timeout**.

Kemp recommends 300 seconds but this can be adjusted as needed to meet requirements.

You can also adjust the SSO LDAP server timeout by following the steps below:

1. In the main menu of the LoadMaster WUI, go to **Virtual Services > Manage SSO > Modify**.

3 Configure the LoadMaster



Authentication Protocol: **Certificates**

LDAP Endpoint: **TEST.ORG** [Manage LDAP Configuration](#)

Check Certificate to User Mapping: ☐

Allow fallback to check Common Name: ☐

Domain/Realm: [Set Domain/Realm Name](#)

Logon Format: **Principalname**

Logon Transcode: **Disabled**

Failed Login Attempts: **0** [Set Failed Login Attempts](#)

Session Timeout: **900** [Set Idle Time](#)

Session Timeout: **1800** [Set Max Duration](#)

Use for Session Timeout: **idle time**

Use LDAP Endpoint for Healthcheck: ☐

Test User: [Set Test User](#)

Test User Password: [Set Test User Password](#)

Public - Untrusted Environment

Private - Trusted Environment

Session Timeout: **900** [Set Idle Time](#)

Session Timeout: **28800** [Set Max Duration](#)

2. Configure the **Public Session Timeout** and click **Set Idle Time**.

3.2 Create a New SSO Domain

Follow the steps below to create a new SSO domain:

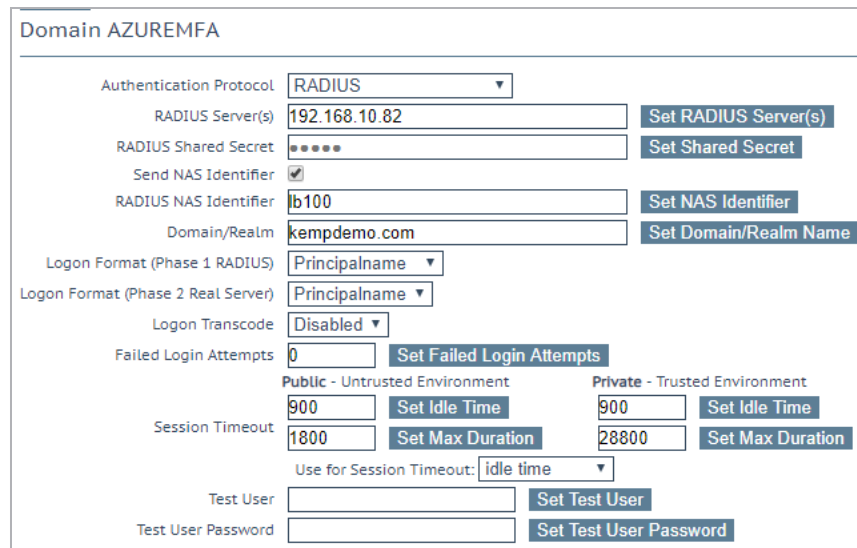
1. In the main menu of the LoadMaster WUI, go to **Virtual Services > Manage SSO**.



Add new Client Side Configuration

AZUREMFA [Add](#)

2. Enter a name in the **Add new Client Side Configuration** text box and click **Add**.



Domain **AZUREMFA**

Authentication Protocol: **RADIUS**

RADIUS Server(s): **192.168.10.82** [Set RADIUS Server\(s\)](#)

RADIUS Shared Secret: ********* [Set Shared Secret](#)

Send NAS Identifier: ☒

RADIUS NAS Identifier: **lb100** [Set NAS Identifier](#)

Domain/Realm: **kempdemo.com** [Set Domain/Realm Name](#)

Logon Format (Phase 1 RADIUS): **Principalname**

Logon Format (Phase 2 Real Server): **Principalname**

Logon Transcode: **Disabled**

Failed Login Attempts: **0** [Set Failed Login Attempts](#)

Public - Untrusted Environment

Private - Trusted Environment

Session Timeout: **900** [Set Idle Time](#)

Session Timeout: **900** [Set Idle Time](#)

Session Timeout: **1800** [Set Max Duration](#)

Session Timeout: **28800** [Set Max Duration](#)

Use for Session Timeout: **idle time**

Test User: [Set Test User](#)

Test User Password: [Set Test User Password](#)

3. Select **RADIUS** as the **Authentication Protocol**.

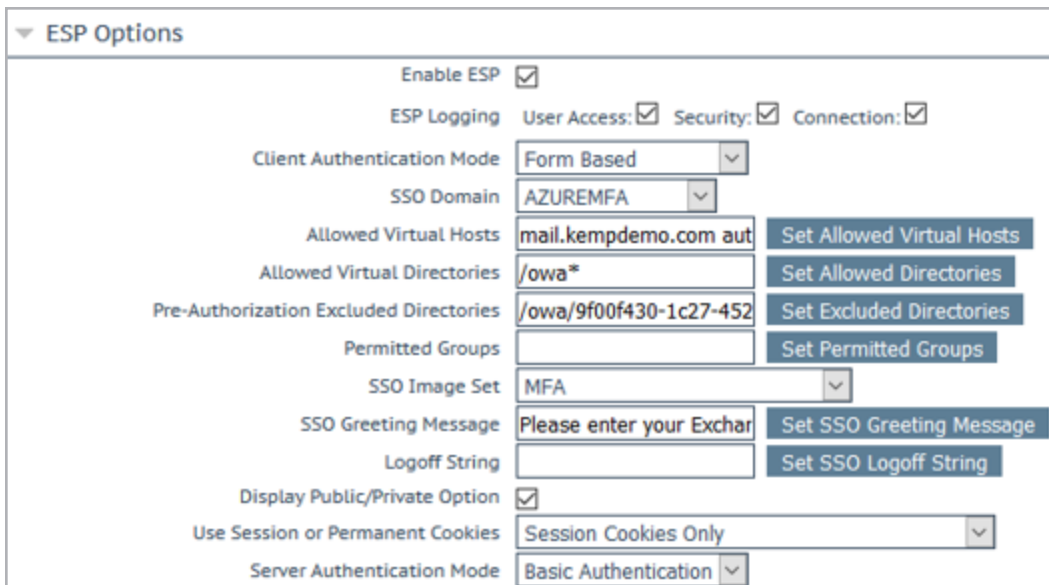
3 Configure the LoadMaster

4. Enter the IP address of the MFA Server in the **RADIUS server(s)** text box and click **Set RADIUS Server(s)**. Multiple addresses can be entered in this text box, if required.
5. Enter the **RADIUS Shared Secret**, which was created in the MFA configuration earlier, and click **Set Shared Secret**.
6. Enter the **Domain/Realm** and click **Set Domain/Realm Name**.

3.3 Configure the ESP Options in the SubVSs

Our example is based on using an Exchange environment. For this example scenario, the Edge Security Pack (ESP) Options for the OWA and Authentication Proxy SubVSs need to be configured. To do this, follow the steps below:

1. In the main menu of the LoadMaster WUI, go to **Virtual Services > View/Modify Services**.
2. Click **Modify** on the relevant Virtual Service.
3. Expand the **ESP Options** section.



▼ ESP Options

Enable ESP ☒

ESP Logging ☒ User Access: ☒ Security: ☒ Connection: ☒

Client Authentication Mode

SSO Domain

Allowed Virtual Hosts [Set Allowed Virtual Hosts](#)

Allowed Virtual Directories [Set Allowed Directories](#)

Pre-Authorization Excluded Directories [Set Excluded Directories](#)

Permitted Groups [Set Permitted Groups](#)

SSO Image Set

SSO Greeting Message [Set SSO Greeting Message](#)

Logoff String [Set SSO Logoff String](#)

Display Public/Private Option ☒

Use Session or Permanent Cookies

Server Authentication Mode

4. Select **Form Based** as the **Client Authentication Mode**.
 5. Select the **SSO Domain** that was created in the previous section.
 6. Configure any of the other settings as needed.
- You may want to configure a custom **SSO Image Set** to inform users that MFA will be

3 Configure the LoadMaster

required. For further information on doing this, please refer to the [Custom Authentication Form, Technical Note](#).

7. Repeat the steps above to configure the other SubVS.

For further information on configuring the LoadMaster to work with Exchange, refer to the relevant Exchange Deployment Guide. For further information on ESP, refer to the [ESP, Feature Description](#).

References

Unless otherwise specified, the following documents can be found at <http://kemptechnologies.com/documentation>.

ESP, Feature Description

Custom Authentication Form, Technical Note

Last Updated Date

This document was last updated on 30 July 2023.