



Pearson PowerSchool

Deployment Guide

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1 Introduction

PowerSchool was established in 1997 and acquired by Pearson Education in 2006. After a school purchases PowerSchool, accounts can be set up for administrators, counsellors, office staff, teachers, students and parents. PowerSchool makes it easy for teachers to record grades, take attendance, and check student profiles. Also, it is convenient for parents to check all of their child's grades as soon as they are posted.

The Kemp LoadMaster is used to load balance the Pearson PowerSchool workload. The LoadMaster offers advanced Layer 4 and Layer 7 server load balancing, SSL Acceleration and a multitude of other advanced Application Delivery Controller (ADC) features. The LoadMaster intelligently and efficiently distributes user traffic among the application servers so that users get the best experience possible.

1.1 Document Purpose

This document provides the recommended LoadMaster settings used when load balancing the Pearson PowerSchool workload. The Kemp Support Team is available to provide solutions for scenarios not explicitly defined. The Kemp support site can be found at:
<https://support.kemptechnologies.com>

1.2 Intended Audience

This document is intended to be read by anyone who is interested in configuring the LoadMaster to optimize the Pearson PowerSchool server.

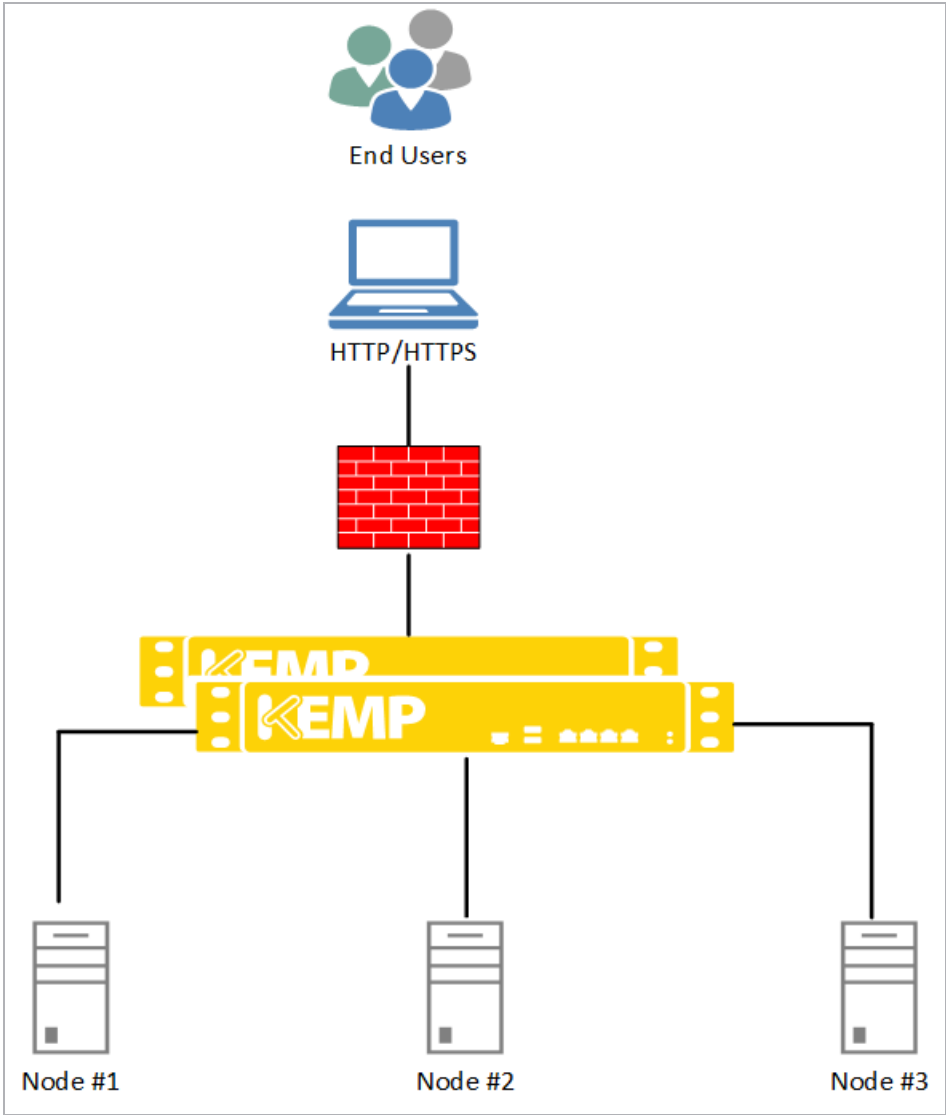
2 Template

Kemp has developed a template containing our recommended settings for this workload. You can install this template to help create Virtual Services (VSs) because it automatically populates the settings. You can use the template to easily create the required VSs with the recommended settings. You can remove templates after use and this will not affect deployed services. If needed, you can make changes to any of the VS settings after using the template.

Download released templates from the following page: [LoadMaster Templates](#).

For more information and steps on how to import and use templates, refer to the [Virtual Services and Templates, Feature Description](#) on the Kemp Documentation page.

3 Architecture



4 Configure the LoadMaster

The deployed Pearson PowerSchool environment determines which of the following setups is used.

4.1 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 LoadMaster routes traffic so that the Real Server sees traffic arriving from the LoadMaster interface that is in that network/subnet.

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 Web User Interface (WUI), go to **System Configuration > Miscellaneous Options > Network Options**.

4 Configure the LoadMaster

Enable Server NAT	<input checked="" type="checkbox"/>
Connection Timeout (secs)	660 Set Time (Valid values:0, 60-86400)
Enable Non-Local Real Servers	<input type="checkbox"/>
Enable Alternate GW support	<input type="checkbox"/>
Enable TCP Timestamps	<input type="checkbox"/>
Enable TCP Keepalives	<input checked="" type="checkbox"/>
Enable Reset on Close	<input type="checkbox"/>
Subnet Originating Requests	<input checked="" type="checkbox"/>
Enforce Strict IP Routing	<input type="checkbox"/>
Handle non HTTP Uploads	<input type="checkbox"/>
Enable Connection Timeout Diagnostics	<input type="checkbox"/>
Enable SSL Renegotiation	<input checked="" type="checkbox"/>
Size of SSL Diffie-Hellman Key Exchange	2048 Bits ▼
Use Default Route Only	<input type="checkbox"/>
HTTP(S) Proxy	<input type="text"/> Set HTTP(S) Proxy

2. Select the **Subnet Originating Requests** check box.

4.2 Enable Check Persist Globally

It is recommended that you change the **Always Check Persist** option to **Yes – Accept Changes**. Use the following steps:

1. Go to **System Configuration > Miscellaneous Options > L7 Configuration**.

Allow connection scaling over 64K Connections	<input type="checkbox"/>
Always Check Persist	Yes - Accept Changes ▼
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 checked="" type="checkbox"/>
Drop at Drain Time End	<input checked="" type="checkbox"/>
L7 Connection Drain Time (secs)	86400 Set Time (Valid values:0, 60 - 86400)
L7 Authentication Timeout (secs)	30 Set Timeout (Valid values:30 - 300)
L7 Client Token Timeout (secs)	120 Set Timeout (Valid values:60 - 300)
Additional L7 Header	X-Forwarded-For ▼
100-Continue Handling	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	0 Set Slow Start (Valid values:0 - 600)
Share SubVS Persistence	<input type="checkbox"/>
Log Insight Message Split Interval	10 Set Log Split Interval (Valid values:1 - 100)
Include User Agent Header in User Logs	<input type="checkbox"/>

2. Click the **Always Check Persist** drop-down arrow and select **Yes – Accept Changes**.

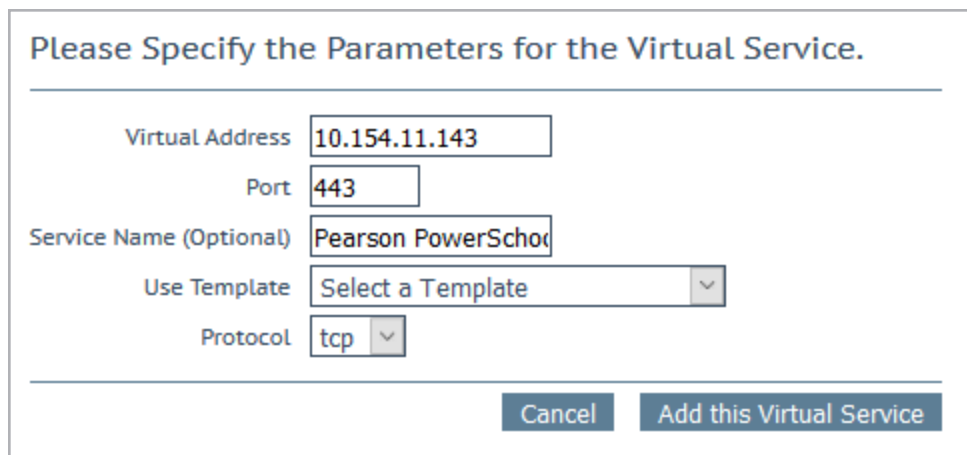
4.3 Create the PowerSchool Virtual Services

The following sections describe the recommended settings for the Pearson PowerSchool Virtual Services.

4.3.1 Create a Pearson PowerSchool HTTPS Virtual Service

The following are the steps involved and the recommended settings to configure the Pearson PowerSchool HTTPS Virtual Service:

1. In the main menu of the LoadMaster Web User Interface (WUI), go to **Virtual Services > Add New**.



Please Specify the Parameters for the Virtual Service.

Virtual Address: 10.154.11.143

Port: 443

Service Name (Optional): Pearson PowerSchool

Use Template: Select a Template

Protocol: tcp

Buttons: Cancel, Add this Virtual Service

2. Type a valid **Virtual Address**.
3. Type **443** as the **Port**.
4. Enter a recognizable **Service Name**, such as **Pearson PowerSchool HTTPS Virtual Service**.
5. Click **Add this Virtual Service**.
6. Configure the settings as recommended in the following table:

Section	Option	Value	Comment
Standard Options	Persistence Mode	Active Cookie	
	Timeout	6 Hours	
	Cookie name	PowerSchool_SSL	

Section	Option	Value	Comment
	Scheduling Method	least connection	
SSL Properties	Cipher Set	BestPractices	
Advanced Properties	Add a Port 80 Redirector VS	https://%h%s	Click Add HTTP Redirector.
Real Servers	URL	/admin/pw.html	

7. Add the Real Servers:

- a) Expand the **Real Servers** section.
- b) Click **Add New**.
- c) Enter the address of the relevant real server.
- d) Complete the other fields as required.
- e) Click **Add this Real Server** then click **OK** to the pop-up message.
- f) Repeat the steps above to add more Real Servers as needed, based on your environment.

Create a Pearson PowerSchool HTTPS Redirect Virtual Service

Clicking the **Add HTTP Redirector** button automatically creates a port 80 redirect Virtual Service. This is optional, but the purpose of this Virtual Service is to redirect any clients who have connected using HTTP to the HTTPS Virtual Service. Kemp also recommends changing the **Persistence Mode** to **None**.

4.3.2 Create a Pearson PowerSchool Scheduler Virtual Service

The following are the steps involved and the recommended settings to configure the Pearson PowerSchool Scheduler Virtual Service:

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

4 Configure the LoadMaster

Please Specify the Parameters for the Virtual Service.

Virtual Address	<input type="text" value="10.154.11.144"/>
Port	<input type="text" value="2000"/>
Service Name (Optional)	<input type="text" value="Pearson PowerSchool"/>
Use Template	<input type="text" value="Select a Template"/>
Protocol	<input type="text" value="tcp"/>

2. Type a valid **Virtual Address**.
3. Type **2000** as the **Port**.
4. Enter a recognizable **Service Name**, such as **Pearson PowerSchool Scheduler Virtual Service**.
5. Click **Add this Virtual Service**.
6. Configure the settings as recommended in the following table:

Section	Option	Value	Comment
Standard Options	Force L7	Disabled	
	Persistence Option	Source IP Address	
	Timeout	8 Hours	
	Scheduling Method	Least connection	

7. Add the Real Servers:
 - a) Expand the **Real Servers** section.
 - b) Click **Add New**.
 - c) Enter the address of the relevant Real Server.
 - d) Complete the other fields as required.
 - e) Click **Add this Real Server** then click **OK** to the pop-up message.

4 Configure the LoadMaster

f) Repeat the steps above to add more Real Servers as needed, based on your environment.

4.3.3 Create a Pearson PowerSchool PowerTeacher Virtual Service

The following are the steps involved and the recommended settings to configure the Pearson PowerSchool PowerTeacher Virtual Service:

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

Please Specify the Parameters for the Virtual Service.

Virtual Address

Port

Service Name (Optional)

Use Template

Select a Template

▼

Protocol

tcp

▼

Cancel

Add this Virtual Service

2. Type a valid **Virtual Address**.
3. Type **5443** as the **Port**.
4. Enter a recognizable **Service Name**, such as **Pearson PowerSchool PowerTeacher Virtual Service**.
5. Click **Add this Virtual Service**.
6. Configure the settings as recommended in the following table:

Section	Option	Value
Standard Options	Transparency	Enabled
	Persistence Mode	Source IP Address
	Timeout	6 Hours
	Scheduling Method	least connection
SSL Properties	SSL Acceleration	Enabled

4 Configure the LoadMaster

Section	Option	Value
	Cipher Set	BestPractices
Real Servers	Checked Port	80

7. Add the Real Servers:

- Expand the **Real Servers** section.
- Click **Add New**.
- Enter the address of the relevant Real Server.
- Complete the other fields as required.
- Click **Add this Real Server** then click **OK** to the pop-up message.
- Repeat the steps above to add more Real Servers as needed, based on your environment.

4.3.4 Create a Pearson PowerSchool Report Virtual Service

The following are the steps involved and the recommended settings to configure the Pearson PowerSchool Report Virtual Service:

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

Please Specify the Parameters for the Virtual Service.

Virtual Address

10.154.11.144

Port

8443

Service Name (Optional)

Pearson PowerSchool

Use Template

Select a Template

Protocol

tcp

Cancel

Add this Virtual Service

2. Type a valid **Virtual Address**.

3. Type **8443** as the **Port**.

4 Configure the LoadMaster

4. Enter a recognizable **Service Name**, such as **Pearson PowerSchool Report Virtual Service**.
5. Click **Add this Virtual Service**.
6. Configure the settings as recommended in the following table:

Section	Option	Value
Basic Properties	Service Type	HTTP/HTTPS
Standard Options	Transparency	Enabled
	Persistence Mode	Active Cookie
	Timeout	6 Hours
	Cookie name	PowerSchool_SSL
	Scheduling Method	least connection
SSL Properties	SSL Acceleration	Enabled
	Cipher Set	Best Practices
Real Servers	Checked Port	7980

7. Add the Real Servers:
 - a) Expand the **Real Servers** section.
 - b) Click **Add New**.
 - c) Enter the address of the relevant Real Server.
 - d) Complete the other fields as required.
 - e) Click **Add this Real Server** then click **OK** to the pop-up message.
 - f) Repeat the steps above to add more Real Servers as needed, based on your environment.

4.3.5 Create a Pearson PowerSchool Database Images Virtual Service

The following are the steps involved and the recommended settings to configure the Pearson PowerSchool Report Virtual Service:

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

4 Configure the LoadMaster

Please Specify the Parameters for the Virtual Service.

Virtual Address

Port

Service Name (Optional)

Use Template ▼

Protocol ▼

2. Type a valid **Virtual Address**.
3. Type **443** as the **Port**.
4. Enter a recognizable **Service Name**, such as **Pearson PowerSchool Database Images Virtual Service**.
5. Click **Add this Virtual Service**.
6. Configure the settings as recommended in the following table:

Section	Option	Value	Comments
Standard Options	Persistence Mode	Active Cookie	
	Timeout	6 Minutes	
	Cookie name	PowerSchool_Images	
SSL Properties	SSL Acceleration	Enabled	
	Cipher Set	Best Practices	
Real Servers	Checked Port	7980	
Advanced Properties	Add a Port 80 Redirector VS		Click Add HTTP Redirector

7. Add the Real Servers:
 - a) Expand the **Real Servers** section.
 - b) Click **Add New**.

4 Configure the LoadMaster

- c) Enter the address of the relevant Real Server.
- d) Complete the other fields as required.
- e) Click **Add this Real Server** then click **OK** to the pop-up message.
- f) Repeat the steps above to add more Real Servers as needed, based on your environment.

Create a Pearson PowerSchool Database Images HTTP Redirect Virtual Service

Clicking the **Add HTTP Redirector** button automatically creates a port 80 redirect Virtual Service. This is optional, but the purpose of this Virtual Service is to redirect any clients who have connected using HTTP to the HTTPS Virtual Service. Kemp also recommends changing the **Persistence Mode** to **None**.

4.3.6 Create a Pearson PowerSchool Database ODBC Virtual Service

The following are the steps involved and the recommended settings to configure the Pearson PowerSchool Report Virtual Service:

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

Please Specify the Parameters for the Virtual Service.

Virtual Address

10.154.11.143

Port

1521

Service Name (Optional)

Pearson PowerSchool

Use Template

Select a Template ▼

Protocol

tcp ▼

Cancel

Add this Virtual Service

2. Type a valid **Virtual Address**.
3. Type **1521** as the **Port**.
4. Enter a recognizable **Service Name**, such as **Pearson PowerSchool Database ODBC Virtual Service**.
5. Click **Add this Virtual Service**.
6. Configure the settings as recommended in the following table:

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Section	Option	Value
Standard Options	Force L7	Disabled
	Persistence Mode	Source IP Address
	Timeout	6 Minutes

7. Add the Real Servers:

- Expand the **Real Servers** section.
- Click **Add New**.
- Enter the address of the relevant Real Server.
- Complete the other fields as required.
- Click **Add this Real Server** then click **OK** to the pop-up message.
- Repeat the steps above to add more Real Servers as needed, based on your environment.

4.3.7 Create a Pearson PowerSchool Database RDB Virtual Service

The following are the steps involved and the recommended settings to configure the Pearson PowerSchool Database RDB Virtual Service:

- In the main menu of the LoadMaster WUI, go to **Virtual Services** > Add New.

Please Specify the Parameters for the Virtual Service.

Virtual Address

Port

Service Name (Optional)

Use Template

Protocol

- Type a valid **Virtual Address**.
- Type **3389** as the **Port**.

4 Configure the LoadMaster

4. Enter a recognizable **Service Name**, such as **Pearson PowerSchool Database RDB** Virtual Service.
5. Click Add this Virtual Service.
6. Configure the settings as recommended in the following table:

Section	Option	Value
Standard Options	Transparency	Enabled
	Timeout	4 Hours
	Scheduling Method	least connection

7. Add the Real Servers:
 - a) Expand the **Real Servers** section.
 - b) Click **Add New**.
 - c) Enter the address of the relevant Real Server.
 - d) Complete the other fields as required.
 - e) Click **Add this Real Server** then click **OK** to the pop-up message.
 - f) Repeat the steps above to add more Real Servers as needed, based on your environment.

References

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

Virtual Services and Templates, Feature Description

Last Updated Date

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