



**Dialogic® PowerVille™ LB**  
**Load Balancer for Real-Time Communications**  
Quick Start Guide

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## Revision History

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Revision	Release Date	Notes
3.0	September 2017	Updates to support PowerVille LB 1.5.0. <a href="#">System Requirements</a> : Updated the operating system requirements. <a href="#">Enable NTP</a> : Added the section.
2.1	December 2016	Updates to support PowerVille LB 1.4.6. <a href="#">System Requirements</a> : Added a command and note for UDP.
2.0	November 2016	Updates to support PowerVille LB 1.4.5. <a href="#">Software Installation</a> : Updated the <a href="#">Command Line Installation</a> and <a href="#">Graphical Environment Installation</a> sections.
1.4	September 2016	<a href="#">System Requirements</a> : Updated the operating system requirements because the same version of CentOS must be used for each PowerVille LB in an HA pair.
1.3	July 2016	Updates to support PowerVille LB 1.3.31. <a href="#">PowerVille LB Installation</a> : Added Java 8 to the <a href="#">System Requirements</a> and removed the netcat workaround in the <a href="#">Software Installation</a> .
1.2	June 2016	Global Change: Renamed the Installation and Configuration Guide to Installation and Operations Guide. <a href="#">Enable High Availability (HA)</a> : Added note about synchronizing the times of the paired PowerVille LBs.
1.1	May 2016	<a href="#">PowerVille LB Configuration</a> : Updated screenshots and text to reflect the use of SIP and HTTP Stateless services. <a href="#">System Requirements</a> : Removed Java 8.
1.0	April 2016	Initial release of this document.
Last modified: September 2017		

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# 1. Welcome

---

This Quick Start Guide provides information about the installation and basic configuration of the Dialogic® PowerVille™ LB – Load Balancer for Real-Time Communications (also referred to herein as "PowerVille LB").

## Related Information

See the following for additional information:

- PowerVille LB documentation at <http://www.dialogic.com/manuals/lb/powervillelb1-5>.

## Terms to Know

Term	Description
Node	An instance of the server being fronted by the PowerVille LB (e.g., a farm of HTTP servers). This is configured as part of a service.
Paired Node	A secondary PowerVille LB instance that is configured to allow for replication of key services and service continuity in the event of failure of the primary PowerVille LB.
Service	An independent collection of servers that are fronted by a Virtual IP Address (VIP) and Service Port combination (e.g., a SIP service running on a VIP a.b.c.d and Service Port 5060).
Service Port	A service-specific port that is presented to the network on a provisioned Virtual IP Address (VIP).
Stateful Transport Protocol Service	A service that handles 3xx redirects but supports a slower rate through the PowerVille LB. Refer to <a href="#">Configure the PowerVille LB Services</a> .
Stateless Transport Protocol Service	A service that supports a higher rate through the PowerVille LB but does not handle 3xx redirects. Refer to <a href="#">Configure the PowerVille LB Services</a> .
VIP	Virtual IP Address that represents a floating IP address presented to the network to front the PowerVille LB for the purpose of receiving traffic.
VIP Manager	A separate service used by the PowerVille LB to present a Virtual IP Address (VIP) to the network to provide a protocol service.

## 2. PowerVille LB Installation

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### System Requirements

The system requirements are as follows.

Component	Requirement
Operating System	<b>Note:</b> 32-bit operating systems are not supported. Community ENTerprise Operating System (CentOS) 7.3 and 6.4 Oracle Linux 6.4 <b>Note:</b> The same version of CentOS must be used for each PowerVille LB in a high availability (HA) pair.
Processor	Intel Dual 56xx or greater
Ethernet	Up to 3 1000Base-TX (RJ-45)
Memory	8 GB RAM minimum
Storage	60 GB HDD minimum
Software	Install the latest update of Java Runtime Environment (JRE) version 8 (.rpm) on the target installation machine. As of June 2016, obtain the latest Oracle JRE 8 update at the following location: <a href="http://www.oracle.com/technetwork/java/javase/downloads/jre8-downloads-2133155.html">http://www.oracle.com/technetwork/java/javase/downloads/jre8-downloads-2133155.html</a> . <b>Note:</b> The JRE is not required if the latest Oracle Java Development Kit (JDK) version 8 is installed.
UDP	For UDP transport, the following command needs to be applied to master and slave nodes: <pre>iptables -I OUTPUT -t raw -p udp -j CT --notrack</pre> <b>Note:</b> This command will not persist on reboot and must be reapplied.

### Disable SELinux

SELinux is not currently supported and must be disabled. To disable SELinux, proceed with the following:

1. Edit the `/etc/selinux/config` file as a root user.
2. Find the line with the key **SELINUX=** and replace the value after the equals sign with **disabled**.
3. Save the file and reboot the operating system.

## Enable NTP

To ensure time synchronization between the HA PowerVille LB nodes, proceed as follows on both nodes:

1. Ensure the ntp package is installed. If not, run the "yum install ntp" command.
2. Open the `/etc/ntp.conf` file and add an entry for the ntp time server using the syntax "server <nt-server-address>" (e.g., server 192.168.2.x).
3. Enable the ntpd startup service using the "systemctl enable ntpd" command.
4. Start the ntp daemon using the "systemctl start ntpd" command.

## Disable the Firewall Service

The CentOS and Oracle Linux firewall services are currently not supported and must be disabled. The procedure to disable the firewall service differs between [CentOS 7.x](#) and [CentOS 6.x and Oracle Linux](#).

### CentOS 7.x

To disable the firewall service for CentOS 7.x, perform the following procedure:

1. Stop the firewall service:

```
systemctl stop firewalld
```

2. Disable the firewall service:

```
systemctl disable firewalld
```

### CentOS 6.x and Oracle Linux

To disable the firewall service for CentOS 6.x or Oracle Linux, perform the following procedure:

1. Stop the firewall service:

```
service iptables stop
```

2. Disable the firewall service:

```
chkconfig iptables off
```

## Software Installation

After reviewing the system requirements, disabling SELinux, and disabling the firewall service, install the PowerVille LB. There are two methods to install the PowerVille LB depending on the available capabilities of the environment:

- [Command Line Installation](#)
- [Graphical Environment Installation](#)

### Command Line Installation

To install the PowerVille LB using the command line, perform the following procedure:

1. Run the following command to execute the installer file:

```
java -jar dialogic-lb-installer-<version>.jar -console
```

**Note:** Alter the command as necessary to match the version and path of the Java executable.

2. Install the required packages if prompted using the yum install command followed by the packages. Refer to the following example.

```
yum install nc
yum install net-tools
yum install nmap
```

After the required packages have been installed, execute the installer file again. Proceed to the next step if no additional packages are required.

3. Enter the following information or use the default value by pressing **Enter**, and then press **1** to continue.
  - Enter the location of the Java install (JRE or JDK) that will be used to run the PowerVille LB (e.g., /user/bin/java).
  - Enter the management IP address that will be used for management traffic.
  - Enter the multicast base address if you want to use an explicit address for multicast traffic. For normal installations, use the default address (228.8.8.0).  
**Note:** The multicast base address must be the same address for master and slave nodes in a high availability (HA) pair, but different for every PowerVille LB installation.
  - Enter a unique label to identify the PowerVille LB cluster pair (must be the same on the PowerVille LB slave).
4. Select the target path or press **Enter** to accept the default, and then press **1** to continue.
5. Press **1** to create a new installation of the Jetty web server or press **2** if you have an existing Jetty web server. Press **1** if you do not know if Jetty has been previously installed. If prompted, enter the installation location of the Jetty web server or press **Enter** to accept the default.
6. Select the packs that you want to install, and then press **1** to continue. When the installation process is complete, the installation details will be displayed.

The following example is from the command line installation.

```
$ java -jar dialogic-lb-installer-1.5.0.jar -console
Please enter the location of your Java JRE install that will be used to run the Load Balancer
[/usr/bin/java]

The list of available IP Addresses are as follows:
192.168.188.212
192.168.188.251
Please enter your IP Address that the Load Balancer will use for management traffic.
[192.168.188.212]

Please enter a Multicast Base Address [default:228.8.8.0]:

Please enter a unique label to identify this loadbalancer cluster pair (must be the same on the
slave LB)
lb-cluster-101
press 1 to accept, 2 to reject, 3 to redisplay
1
Select target path [/opt/nst-loadbalancer]
```

```
press 1 to continue, 2 to quit, 3 to redisplay
1
* Press 1 if you would like to create a new installation of the Jetty web server
* Press 2 if you would like to install the Load Balancer Admin UI within an existing Jetty
instance
1
Please enter a path where you would like to install the jetty web server [default: /opt/nst-
loadbalancer] :

Select the packs you want to install:

[<required>] LB (The Load Balancer base Installation files)

...pack selection done.
press 1 to continue, 2 to quit, 3 to redisplay
1
[ Starting to unpack ]
[ Processing package: LB (1/1) ]
[ Unpacking finished ]

Install of the Load Balancer successfully complete.
The Load Balancer has been installed at the following location - /opt/nst-loadbalancer

You can now view the web admin ui at the following URL:
http://192.168.188.212:8888/lb

Login details are as follows
Username : root
Password : admin

[ Console installation done ]
```

## Graphical Environment Installation

To install the PowerVille LB using the graphical environment, perform the following procedure:

1. Run the following command to execute the installer file:

```
java -jar dialogic-lb-installer-<version>.jar
```

**Note:** Alter the command as necessary to match the version and path of the Java executable.

2. If prompted, install the required packages using the yum install command. Refer to the following example.

```
yum install nc  
yum install net-tools  
yum install nmap
```



After the required packages have been installed, execute the installer file again. Click **Next** to proceed to the next step if no additional packages are required.

3. Enter the following information or use the default value, and then click **Next**:
  - Enter the location of the Java install (JRE or JDK) that will be used to run the PowerVille LB (e.g., /usr/bin/java).
  - Enter the IP address that will be used for management traffic.
  - Enter the multicast base address if you want to use an explicit address for multicast traffic. For normal installations, use the default address (228.8.8.0).

**Note:** The multicast base address must be the same address for master and slave nodes in a high availability (HA) pair, but different for every PowerVille LB installation.
  - Enter a unique label to identify the PowerVille LB cluster pair (must be the same on the PowerVille LB slave).

**Dialogic** 

Please enter the location of your Java will be used to run the Load Balancer

Please enter your IP Address that the Load Balancer will use for management traffic

Please enter a Multicast Base Address

Please enter a unique label to identify this loadbalancer cluster pair (must be the same on the slave LB)

(Made with IzPack - <http://izpack.org/>)

4. Review the license agreement if populated, accept the terms, and then click **Next**.

**Dialogic** 

 Please read the following license agreement carefully:

I accept the terms of this license agreement.

I do not accept the terms of this license agreement.

(Made with IzPack - <http://izpack.org/>)

5. Select the installation path, and then click **Next**.



6. Set the Jetty web server preferences, and then click **Next**:

- **Select new Jetty install location** - Choose this option if there is not a Jetty instance on the server already. If you do not know if Jetty has been previously installed, select this option.
- **Select existing Jetty installation** - Choose this option if there is a Jetty instance on the server already.

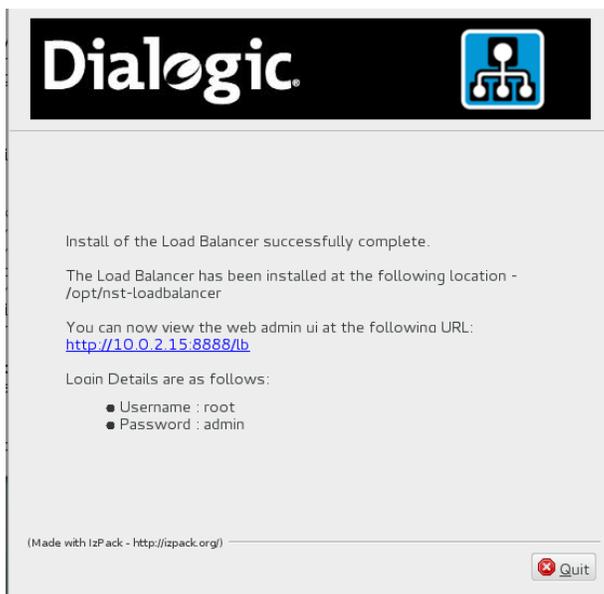


7. Select the pack to install. Choose the PowerVille LB as the base installation.

**Note:** Grayed packs are required.



8. When the installation process is complete, click **Next** to view the installation details.



### 3. PowerVille LB Console

---

The PowerVille LB console is a web-based graphical user interface (WebGUI) used to manage the PowerVille LB. HTTPS is not enabled by default on the PowerVille LB console. For details on setting up HTTPS, refer to the *Dialogic® PowerVille™ LB – Load Balancer for Real-Time Communications Installation and Operations Guide*.

Proceed as follows to log in to the PowerVille LB console.

1. Launch the **PowerVille LB Login** page in a web browser using one of the following URLs: `http://{server_address}:8888/lb` or `https://{server_address}:8888/lb` for secure connection.

#### Dialogic Load Balancer Login

---

#### Welcome to the Dialogic Load Balancer

Username

Password

Login

**Note:** If the error message "Lost connection to LB on localhost:5101" is displayed when attempting to log in, refer to "PowerVille LB Troubleshooting: Resolve the Hostname" of the *Dialogic® PowerVille™ LB – Load Balancer for Real-Time Communications Installation and Operations Guide*.

2. When logging in to the PowerVille LB console for the first time, enter **root** in the **Username** field and **admin** in the **Password** field. Once logged in to the PowerVille LB console, it is possible to add different users by going to **the User Administration** page if desired.
3. Click **Login**. The PowerVille LB console opens and the **Dashboard** page appears. The status of the PowerVille LB is shown in the **Status** field using a traffic light system. A green status indicates that the node is running and functional. A red status indicates that the node is not running or is in an error state and is subsequently unavailable.
4. To make changes to the PowerVille LB console, click **Unlock Config** and proceed to [PowerVille LB Configuration](#).

## Dashboard

Status	Load Balancer			
	<b>Hostname</b>	192.168.188.185		
	<b>Status</b>	Active		
	<b>HA Enabled</b>	<input type="checkbox"/>		
	<b>Up Time</b>	000:06:21:37		
	<b>Start Time</b>	Wed, 19 Oct 2016 13:46:24 UTC		
	<b>JVM Vendor</b>	Oracle Corporation		
	<b>JVM Version</b>	Java HotSpot(TM) 64-Bit Server VM version 25.92-b14		
	<b>Java Version</b>	Java Virtual Machine Specification version 1.8		
	<b>Operating System Version</b>	Linux 3.10.0-327.22.2.el7.x86_64		
		<b>Number of Processors</b> 1	<b>Number of Threads</b>	39
	<b>Architecture</b> amd64	<b>Peak Number of Threads</b>	42	
	<b>Heap Size</b>		<b>Non Heap Size</b>	
	<b>Initial</b> 256.0 MB	<b>Initial</b>	2.44 MB	
	<b>Current</b> 133.87 MB	<b>Current</b>	23.99 MB	
	<b>Maximum</b> 512.0 MB	<b>Maximum</b>	-0.0 MB	
	<b>Committed</b> 256.0 MB	<b>Committed</b>	25.44 MB	

**Errors** [Clear Errors](#)

No errors

## 4. PowerVille LB Configuration

---

To get the PowerVille LB running, perform the following procedures:

1. [Enable High Availability \(HA\)](#)
2. [Add Service Nodes](#)
3. [Add Service VIPs](#)
4. [Add an Interface](#)
5. [Configure the PowerVille LB Services](#)

### Enable High Availability (HA)

To enable HA, proceed as follows:

1. Navigate to the **High Availability** page of the master webUI.

#### Dialogic Load Balancer HA Configuration

---

Enable HA	<input checked="" type="checkbox"/>	
Slave IP Address	<input type="text" value="192.168.1.100"/>	
Slave Jmx Port	<input type="text" value="5101"/>	
<input type="button" value="Cancel"/> <input type="button" value="Save"/> <input type="button" value="Restart Slave"/> <input type="button" value="Shutdown Slave"/>		

2. On the **Dialogic Load Balancer HA Configuration** page, select **Enable HA**. Enter the JMX bind address for the slave PowerVille LB in the **Slave IP Address** field and the slave JMX port. Click **Save** and then **Restart Slave**.
3. Navigate to the slave webUI to confirm that it is populated with the configurations of the master webUI. The **Dashboard** page will now contain a section for the paired load balancer.
4. Shut down the master PowerVille LB and make an inbound VIP call. The configuration is successful if the slave PowerVille LB takes over the call in place of the master PowerVille LB.

**Note:** The paired PowerVille LBs must have their times synchronized.

## Add Service Nodes

A service node is a server or application (e.g., a Dialogic® PowerMedia™ XMS system or an HTTP server) that the PowerVille LB sends traffic to. Proceed as follows to create service nodes.

1. On the **Service Node** page, click **Add**.

### Service Node Provisioning

---

Nodes	
127.0.0.1	<input type="button" value="Remove"/>
127.0.0.2	<input type="button" value="Remove"/>
<input type="button" value="Add"/>	

2. On the **Add Node** page, enter the service endpoint IP address.

### Add Node

---

Address	<input type="text"/>	<input type="button" value="Add"/>	<input type="button" value="Cancel"/>
---------	----------------------	------------------------------------	---------------------------------------

3. Repeat steps 1 and 2 to add service nodes as needed.

## Add Service VIPs

A service VIP is a floating IP address that can be passed between two high availability (HA) PowerVille LB nodes in case one node fails. When a node goes down, the second node takes control of the floating IP address so that all traffic will continue. Proceed as follows to add service VIPs.

1. On the **Service VIP** page, click **Add**.

### Service VIP Provisioning

---

VIP	Interface	
192.168.188.248	eth0	<input type="button" value="Remove"/>
192.168.188.253	eth0	<input type="button" value="Remove"/>
<input type="button" value="Add"/>		

2. On the **Add VIP** page, enter the inbound VIP endpoint IP address.

### Add VIP

---

Address  ⓘ

Interface Name  ⓘ

3. Repeat steps 1 and 2 to add service VIPs as needed. If configuring a PowerVille LB for SIP, a second service VIP is required: one service VIP for inbound traffic and one service VIP for outbound traffic.

## Add an Interface

Proceed as follows to add an interface to the PowerVille LB.

1. On the **Interfaces** page, click **Add**.

### Interface Provisioning

---

**INTERFACES**

eth0

2. On the **Add Interface** page, select the interface and click **Add**.

### Add Interface

---

Interface  ⓘ

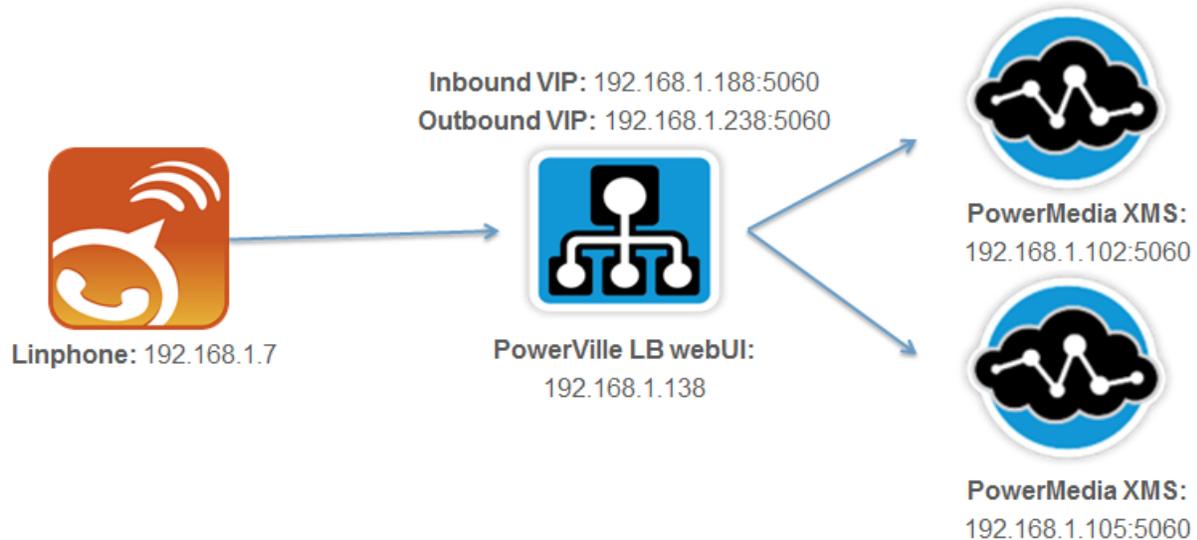
## Configure the PowerVille LB Services

Refer to the following sections depending on the type of service desired:

- [Configure a SIP PowerVille LB](#)
- [Configure an HTTP PowerVille LB](#)
- [Configure an HTTPS PowerVille LB](#)

## Configure a SIP PowerVille LB

This section provides information on configuring a PowerVille LB for SIP. The following diagram is an example of a call involving a Linphone softphone, a PowerVille LB configured for SIP, and two Dialogic® PowerMedia™ XMS system service nodes.



Proceed as follows to add PowerVille LB services.

1. On the **Services** page, click **Add Service**.
2. On the **Add LB Service** page, enter the name of the service, select the **SIP** type, and then click **Next**. For more details on the **Type** field, refer to the *Dialogic® PowerVille™ LB – Load Balancer for Real-Time Communications Installation and Operations Guide*.

### Add LB Service

---

Name  ⓘ

Type  ⓘ

- On the **LB Service Configuration** page, update the parameters as necessary, and then click **Next**. Refer to the following example.

### LB Service Configuration

Service Name	<input type="text" value="LB"/>	<a href="#">?</a>
Type	SIP	
<b>General</b>		
Inbound VIP Bind Address	<input type="text" value="192.168.188.248"/>	<a href="#">?</a>
Outbound VIP Bind Address	<input type="text" value="192.168.188.253"/>	<a href="#">?</a>
Algorithm	<input type="text" value="Round Robin"/>	<a href="#">?</a>
Max Java Heap Size (MB)	<input type="text" value="512"/>	<a href="#">?</a>
<b>Port Configuration</b>		
<b>Port type</b>	<b>Enabled</b>	<b>Port number</b>
SIP (non-TLS)	<input checked="" type="checkbox"/>	<input type="text" value="5060"/>
SIP (TLS)	<input type="checkbox"/>	<input type="text" value="5061"/>
WS-SIP	<input type="checkbox"/>	<input type="text" value="8090"/>
WSS-SIP	<input type="checkbox"/>	<input type="text" value="8091"/>
<b>SIP Configuration</b>		
Routing Option	<input type="text" value="Push Route"/>	<a href="#">?</a>
Enable SIP Dialog Aware	<input checked="" type="checkbox"/>	<a href="#">?</a>
Enable Recursion on 3xx Responses	<input type="checkbox"/>	<a href="#">?</a>
<b>Logging</b>		
Enable Detailed Logging	<input type="checkbox"/>	
Enable Stack Logging	<input type="checkbox"/>	
Enable SIP Message Logging	<input type="checkbox"/>	
<b>TLS Configuration</b>		
Encrypt A-side	<input type="checkbox"/>	<a href="#">?</a>
Encrypt B-side	<input type="checkbox"/>	<a href="#">?</a>
Security Profile	<input type="text" value=""/>	<a href="#">?</a>
<input type="button" value="Back"/> <input type="button" value="Cancel"/> <input type="button" value="Next"/>		

The configuration options are as follows.

Item	Description
Service Name	The name to identify the PowerVille LB service.
Type	The service type/protocol.
<b>General</b>	
Inbound VIP Bind Address	The A side VIP address.
Outbound VIP Bind Address	The B side VIP address.

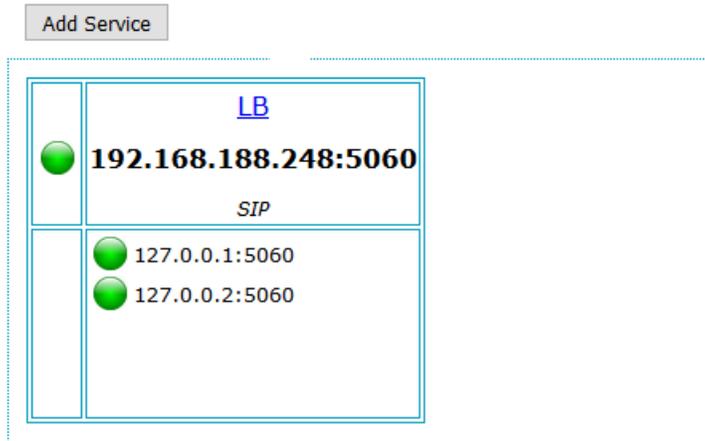
Item	Description
Algorithm	<p>The type of algorithm the PowerVille LB service should use.</p> <ul style="list-style-type: none"> <li>• <b>Round Robin</b> - Either node will service the request.</li> <li>• <b>Priority</b> - The same node will always service the request unless the node is down. The request will always go to the first node listed on the <b>LB Service Configuration</b> page. Adjust the priority using the arrows.</li> <li>• <b>Prioritized Round Robin</b> - This is a combination of both the Priority and Round Robin algorithms. When this algorithm is enabled, the first entry in the services list of nodes takes priority and all traffic will be directed to this node. Should the node fail or be taken out of service, then the remaining entries in the list will be used in a Round Robin fashion.</li> </ul>
Max Java Heap Size (MB)	The maximum Java heap size (i.e., the amount of space allocated for Java program memory) for the PowerVille LB service.
<b>Logging</b>	
Enable Detailed Logging	Allows the user to turn on and off detailed logging.
Enable Stack Logging	Allows the user to turn on and off full logging output to the log files. This option should only be enabled under the guidance of Dialogic Support.
Enable SIP Message Logging	Allows the user to turn on and off SIP message logging output to the log files.
<b>TLS Configuration</b>	
Encrypt A-side	A checkbox that enables all messages egressing A-side (following B-side initial request) will be encrypted. This is used in conjunction with the configured Security Profile, which must be configured. Refer to <a href="#">Security Profiles</a> for more information.
Encrypt B-side	A checkbox that enables all messages egressing B-side (following A-side initial request) will be encrypted. This is used in conjunction with the configured Security Profile, which must be configured. Refer to <a href="#">Security Profiles</a> for more information.
Security Profile	Allows the user to select a security profile to use for encrypted/secure interactions between the PowerVille LB and the server. Refer to <a href="#">Security Profiles</a> for more information.

<b>Port Configuration</b>	
SIP (non-TLS)	A checkbox that enables the port on which the SIP service listens for unencrypted SIP messages.
SIP (TLS)	A checkbox that enables the port on which the SIP service listens for encrypted SIP messages. This is used in conjunction with the configured Security Profile, which must be configured before this port can be used. Refer to <a href="#">Security Profiles</a> for more information.
WS-SIP	A checkbox that enables the port on which the SIP service listens for unencrypted WebSocket SIP commands.
WSS-SIP	A checkbox that enables the port on which the SIP service listens for encrypted WebSocket SIP commands. This is used in conjunction with the configured Security Profile, which must be configured before this port can be used. Refer to <a href="#">Security Profiles</a> for more information.
<b>SIP Configuration</b>	
Routing Option	<p>The outgoing requests can either push a SIP route or rewrite the R-URI for the next hop.</p> <ul style="list-style-type: none"> <li>• <b>Rewrite R-URI</b> - When this option is set, the PowerVille LB rewrites the request URI of the message that is sent into the PowerVille LB with the address and port of the node that the PowerVille LB is going to send the message to. In this mode, the PowerVille LB will not insert a "Route" header.</li> <li>• <b>Push Route</b> - When this option is set, the LB inserts a "Route" header (containing the node address and port) into the outgoing SIP message and forwards the request onto the node behind the PowerVille LB maintaining the original request URI.</li> </ul>
Enable SIP Dialog Aware	Allows requests to be load balanced per transaction rather than on a per SIP dialog basis.
Enable Recursion on 3xx Responses	Allows recursion on receiving a SIP 3xx response to an INVITE request.

- Click **Save** to save the PowerVille LB service.

**Note:** The nodes will not turn green until they are saved.

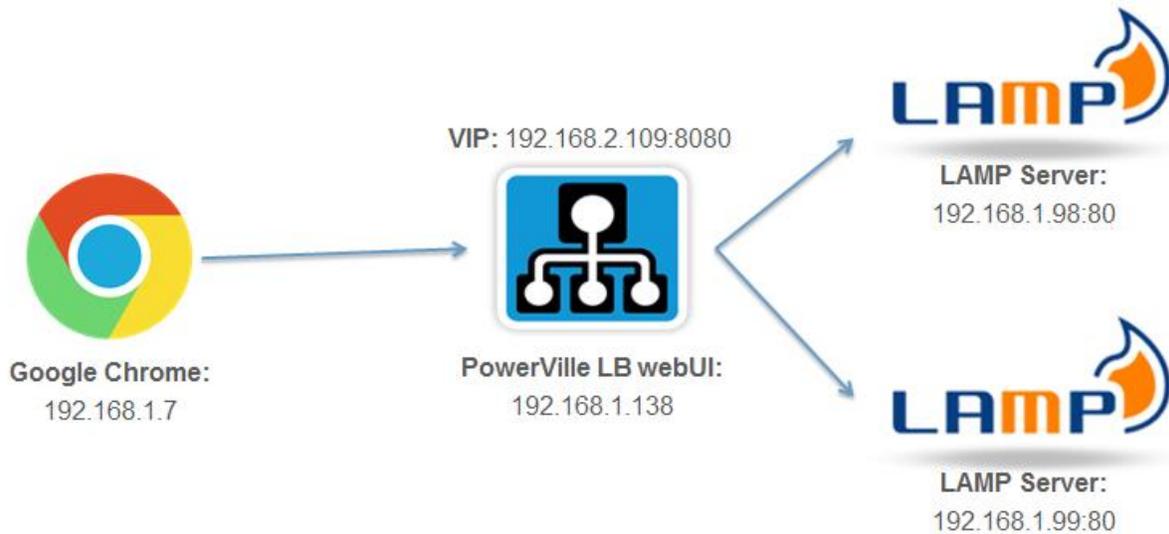
### Load Balancer Services



- Make a call to confirm that the PowerMedia XMS nodes work as configured.

### Configure an HTTP PowerVille LB

This section provides information on configuring a PowerVille LB for HTTP. The following diagram is an example of a call involving Google Chrome, a PowerVille LB configured for HTTP, and two LAMP service nodes.



Proceed as follows to add PowerVille LB services.

1. On the **Services** page, click **Add Service**.
2. On the **Add LB Service** page, enter the name of the service, select the **HTTP** type, and then click **Next**. For more details on the **Type** field, refer to the *Dialogic® PowerVille™ LB – Load Balancer for Real-Time Communications Installation and Operations Guide*.

### Add LB Service

Name  ⓘ

Type  ⓘ

3. On the **LB Service Configuration** page, update the parameters as necessary, and then click **Next**. Refer to the following example.

### LB Service Configuration

Service Name  ⓘ

Type HTTP

**General**

Inbound VIP Bind Address  ⓘ

HTTP port  ⓘ

Algorithm  ⓘ

Max Java Heap Size (MB)  ⓘ

**Logging**

Enable Detailed Logging

**HTTP configuration**

Session Affinity  ⓘ

Session Affinity Timeout (s)  ⓘ

The configuration options are as follows.

Item	Description
Service Name	The name to identify the PowerVille LB service.
Type	The service type/protocol.
<b>General</b>	
Inbound VIP Bind Address	The A side VIP address.

Item	Description
Service Port	The port for the PowerVille LB service. Ports 1 to 1024 cannot be used because the user roles do not have privileges.
Algorithm	<p>The type of algorithm the PowerVille LB service should use.</p> <ul style="list-style-type: none"> <li>• <b>Round Robin</b> - Either node will service the request.</li> <li>• <b>Priority</b> - The same node will always service the request unless the node is down. The request will always go to the first node listed on the <b>LB Service Configuration</b> page. Adjust the priority using the arrows.</li> <li>• <b>Prioritized Round Robin</b> - This is a combination of both the Priority and Round Robin algorithms. When this algorithm is enabled, the first entry in the services list of nodes takes priority and all traffic will be directed to this node. Should the node fail or be taken out of service, then the remaining entries in the list will be used in a Round Robin fashion.</li> </ul>
Max Java Heap Size (MB)	The maximum Java heap size (i.e., the amount of space allocated for Java program memory) for the PowerVille LB service.
<b>Logging</b>	
Enable Detailed Logging	Allows the user to turn on and off detailed logging.
<b>HTTP Configuration</b>	
Session Affinity	<p>Allows the user to choose how requests are routed to the node (sticky sessions).</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b> - There is no session affinity and a request could be sent to either node on entering the PowerVille LB.</li> <li>• <b>Cookie</b> - A request based on a key/data is stored on a client's web browser to ensure requests are sent to a specific node/server behind the PowerVille LB.</li> <li>• <b>Source Address</b> - The IP address of the incoming request is used as a key to send a request to a specific node/server behind the PowerVille LB.</li> </ul>
Session Affinity Timeout (s)	The amount of time in seconds before the session affinity is timed out.

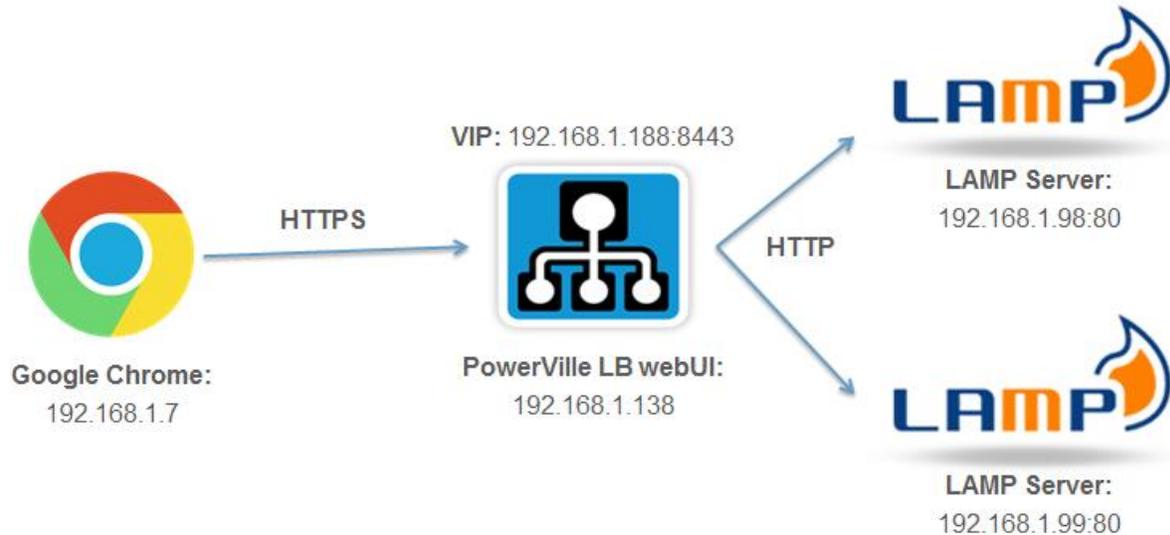
4. Click **Save** to save the PowerVille LB service.

**Note:** The nodes will not turn green until they are saved.

5. Make an inbound request to confirm that the HTTP servers respond as configured.

## Configure an HTTPS PowerVille LB

The following diagram is an example of a call involving Google Chrome, a PowerVille LB configured for HTTPS, and two LAMP service nodes.



There are three steps to configure a PowerVille LB for HTTPS:

1. [Create Self-Signed Certificates and Keys](#)
2. [Add a Security Profile](#)
3. [Add a PowerVille LB Service](#)

### Create Self-Signed Certificates and Keys

Proceed as follows to create self-signed certificates and keys.

1. Create a self-signed key.

```
keytool -genkey -keyalg RSA -alias server -keystore keystore.jks -storepass password -validity 360 -keysize 2048
```

To view the contents of this key, use the following command.

```
keytool -list -keystore keystore.jks
```

2. Export the key from keytool in PKCS12 format.

```
keytool -importkeystore -srckeystore keystore.jks -destkeystore inter.p12 -deststoretype PKCS12
```

To view the contents of this keystore, use the following command.

```
keytool -list -keystore inter.p12 -storetype PKCS12
```

3. Convert the key to PEM format.

```
openssl pkcs12 -in inter.p12 -out inter.pem -nodes
```

To view the PEM certificate, use the following command.

```
openssl x509 -in inter.pem
```

To view the contents of the PEM certificate, use the following command.

```
openssl x509 -in inter.pem -noout -text
```

4. Create a DER file.

```
openssl pkcs8 -topk8 -nocrypt -in inter.pem -outform der -out server.der
```

To view the contents of the PKCS8 unencrypted DER file, use the following command.

```
openssl pkcs8 -inform der -nocrypt -in server.der
```

5. Export the signed certificate.

```
keytool -export -keystore keystore.jks -alias server -file server.crt
```

To view the contents of the certificate, use the following command.

```
openssl x509 -in server.crt -noout -text -inform der
```

## Add a Security Profile

Proceed as follow to add the certificates.

1. Configure a PowerVile LB. Refer to [Configure an HTTP PowerVile LB](#).
2. On the **Security Profiles** page, click **Add**.

### Security Profiles

Profiles

Add

3. On the **Security Profile** page, enter a profile name.

### Security Profile

Profile Name



Trusted Certificates

Server Certificates

Alias

Alias

Add Certificate

Add Certificate

Cancel

Save

4. In the **Trusted Certificates** section, click **Add Certificate**.

### Add Trusted Certificate

Alias



Certificate File

Browse...

No file selected.



Cancel

Add

5. Enter an alias and click **Browse** to find and select the appropriate certificate file (locally stored). This is the SSL certificate file (X.509) for a secure connection to any nodes (required for SSL re-encryption mode). When the alias and certificate file have been added, click **Add** to add the certificate.

6. On the **Security Profile** page in the **Server Certificates** section, click **Add Certificate**.

### Add Server Certificate

---

Alias	<input type="text"/>	
Certificate File	<input type="button" value="Browse..."/> No file selected.	
Private Key	<input type="button" value="Browse..."/> No file selected.	
<input type="button" value="Cancel"/> <input type="button" value="Add"/>		

7. Enter an alias and click **Browse** to find and select the appropriate certificate file (stored locally). This is the signed certificate containing the public key, which is sent to the client when an SSL connection is made. Click **Browse** to find and select the appropriate private key file (stored locally). This is the complementary private key used for encryption when an SSL connection is made. This must be a DER file in PKCS8 format. When the alias and the files have been added, click **Add** to add the files.

### Add a PowerVille LB Service

Proceed as follows to add PowerVille LB services.

1. On the **Services** page, click **Add Service**.
2. On the **Add LB Service** page, enter the name, select the **HTTPS** type, and then click **Next**. For more details on the **Type** field, refer to the *Dialogic® PowerVille™ LB – Load Balancer for Real-Time Communications Installation and Operations Guide*.

### Add LB Service

---

Name	<input type="text" value="HTTPS"/>	
Type	<input type="text" value="HTTPS"/>	
<input type="button" value="Cancel"/> <input type="button" value="Next"/>		

3. On the **LB Service Configuration** page, update the parameters as described in [Configure an HTTP PowerVille LB](#) with the following exceptions:
  - Change the **Service Port** field to an unsecured port.
  - Select **Off Load** for the **SSL Type**.
  - Enter the name of the security profile you created.

Then, click **Next**. Refer to the following example.

## LB Service Configuration

Service Name	<input type="text" value="HTTPS"/>	
Type	HTTPS	
<b>General</b>		
Inbound VIP Bind Address	<input type="text" value="192.168.188.248"/>	
HTTPS port	<input type="text" value="8443"/>	
Algorithm	<input type="text" value="Round Robin"/>	
Max Java Heap Size (MB)	<input type="text" value="512"/>	
<b>Logging</b>		
Enable Detailed Logging	<input type="checkbox"/>	
<b>TLS Configuration</b>		
SSL Type	<input type="text" value="Off Load"/>	
Security Profile	<input type="text"/>	
<b>HTTP configuration</b>		
Session Affinity	<input type="text" value="Source Address"/>	
Session Affinity Timeout (s)	<input type="text" value="3600"/>	
<input type="button" value="Back"/> <input type="button" value="Cancel"/> <input type="button" value="Next"/>		

The configuration options are as follows.

Item	Description
Service Name	The name to identify the PowerVille LB service.
Type	The service type/protocol.
<b>General</b>	
Inbound VIP Bind Address	The A side VIP address.
Service Port	The port for the PowerVille LB service. Ports 1 to 1024 cannot be used because the user roles do not have privileges.

Item	Description
Algorithm	<p>The type of algorithm the PowerVille LB service should use.</p> <ul style="list-style-type: none"> <li>• <b>Round Robin</b> - Either node will service the request.</li> <li>• <b>Priority</b> - The same node will always service the request unless the node is down. The request will always go to the first node listed on the <b>LB Service Configuration</b> page. Adjust the priority using the arrows.</li> <li>• <b>Prioritized Round Robin</b> - This is a combination of both the Priority and Round Robin algorithms. When this algorithm is enabled, the first entry in the services list of nodes takes priority and all traffic will be directed to this node. Should the node fail or be taken out of service, then the remaining entries in the list will be used in a Round Robin fashion.</li> </ul>
Max Java Heap Size (MB)	The maximum Java heap size (i.e., the amount of space allocated for Java program memory) for the PowerVille LB service.
<b>Logging</b>	
Enable Detailed Logging	Allows the user to turn on and off detailed logging.
<b>TLS Configuration</b>	
SSL Type	<p>The type of SSL encryption to use.</p> <ul style="list-style-type: none"> <li>• <b>Off Load</b> - Encrypted incoming message to the PowerVille LB over TLS and unencrypted outgoing messages to the PowerVille LB node over TCP.</li> <li>• <b>Re-Encryption</b> - Encrypted incoming message to the PowerVille LB over TLS and encrypted outgoing messages to a PowerVille LB node over TLS.</li> </ul>
Security Profile	Allows the user to select a security profile to use for encrypted/secure interactions between the PowerVille LB and the server. Refer to <a href="#">Security Profiles</a> for more information.

<b>HTTP Configuration</b>	
Session Affinity	<p>Allows the user to choose how requests are routed to the node (sticky sessions).</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b> - There is no session affinity and a request could be sent to either node on entering the PowerVille LB.</li> <li>• <b>Cookie</b> - A request based on a key/data is stored on a client's web browser to ensure requests are sent to a specific node/server behind the PowerVille LB.</li> <li>• <b>Source Address</b> - The IP address of the incoming request is used as a key to send a request to a specific node/server behind the PowerVille LB.</li> </ul>
Session Affinity Timeout (s)	The amount of time in seconds before the session affinity is timed out.

4. Click **Save** to save the PowerVille LB service.

**Note:** The nodes will not turn green until they are saved.

5. Make a call to confirm that the HTTPS PowerVille LB is working as configured.