Application Notes for Dialogic PowerVille LB with Avaya Aura® Session Manager – Issue 1.0

Abstract

These Application Notes describe configuration steps required for Dialogic PowerVille LB to interoperate with Avaya Aura® Session Manager.

Dialogic PowerVille LB is a software based load-balancer for SIP traffic. During the compliance test Dialogic PowerVille LB load balanced SIP traffic between two Avaya Aura® Session Managers.

Readers should pay attention to Section 2, in particular the scope of testing as outlined in Section 2.1 as well as the observations noted in Section 2.2, to ensure that their own use cases are adequately covered by this scope and results.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.
1. Introduction

These Application Notes describe configuration steps required for Dialogic PowerVille LB (PowerVille LB) to interoperate with Avaya Aura® Session Manager (Session Manager).

Dialogic PowerVille LB is a software based load-balancer for SIP traffic. During the compliance test PowerVille LB load-balanced inbound SIP traffic between two Session Managers. PowerVille LB has the ability to work in either Active/Active or Active/Standby mode. In Active/Active mode, SIP traffic is divided, approximately 50%, between two Session Managers. In Active/Standby mode, SIP traffic is sent to primary Session Manager. In an event where primary Session Manager is unavailable, SIP traffic is sent to secondary Session Manager.

2. General Test Approach and Test Results

The compliance test focused on verifying load-balancing features offered by PowerVille LB. During the compliance testing, ingress SIP traffic from SIP trunk (SIP Entity) was a primary focus.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member’s solution.

2.1. Interoperability Compliance Testing

The compliance test included the following feature tests. During the compliance test, a pair of PowerVille LB was tested. All calls were generated using a SIP call generation tool:

- SIP OPTIONS to and from PowerVille LB
- SIP traffic load-balancing for SIP Trunk (SIP Entity) in Active/Active mode
- SIP traffic for SIP Trunk (SIP Entity) in Active/Standby mode
- SIP traffic failover in Active/Active and Active/Standby modes
- SIP traffic failover between PowerVille LB

Serviceability tests for Session Manager were performed by network disconnects and Deny Service. For PowerVille LB, network disconnects and server reboots were performed.

2.2. Test Results

All planned test cases were passed with following observations:

- When PowerVille LB is in Active/Active mode, and one of the Session Managers becomes unavailable, calls that are mid-stream, may fail. Calls in-progress will continue to work.
- When PowerVille LB is in Active/Standby mode, and the primary Session Manager becomes unavailable, new calls may fail until PowerVille LB detects the unavailability.
- OPTIONS messages from a SIP trunk (SIP Entity) to Session Manager are responded by PowerVille LB.

Note that SIP EndpointRegistration via PowerVille LB is not supported by Avaya.

### 2.3. Support

Technical support for Dialogic PowerVille LB can be obtained via following means:

- **Web:** [http://www.dialogic.com/support/contact/default.aspx](http://www.dialogic.com/support/contact/default.aspx)
- **Email:** [america.support@dialogic.com](mailto:america.support@dialogic.com)
- **Phone:** +1-973-993-1443
3. Reference Configuration

Figure 1 illustrates the compliance test configuration consisting of:

- Avaya Aura® Communication Manager
- Avaya Aura® Session Manager
- Avaya Aura® System Manager
- Avaya Aura® Media Server
- Avaya G450 Media Gateway
- Avaya 96xx IP Deskphone
- Avaya Digital and Analog Phones
- Dialogic PowerVille LB

All Avaya and Dialogic products were installed on a virtualization platform, with the exception of Avaya G450 Gateway.

Figure 1 – Test Configuration
**Figure 2** diagram below displays logical view of the inbound calls routed to Session Manager via PowerVille LB.

![Call Flow Diagram](image)

**Figure 2 – Call Flow**
4. Equipment and Software Validated

The following equipment and version were used in the reference configuration described above:

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avaya Aura® Communication Manager</td>
<td>7.0.1.1.1-FP1SP1</td>
</tr>
<tr>
<td>Avaya Aura® Session Manager</td>
<td>7.0.1.1.701114</td>
</tr>
<tr>
<td>Avaya Aura® System Manager</td>
<td>7.0.1.1</td>
</tr>
<tr>
<td>Avaya Aura® Media Server</td>
<td>7.7.0.359</td>
</tr>
<tr>
<td>Avaya G450 Gateway</td>
<td>37.19.0</td>
</tr>
<tr>
<td>Avaya 96xx IP Deskphones</td>
<td>Latest - Various</td>
</tr>
<tr>
<td>Dialogic PowerVille LB</td>
<td>lb-1.4.6</td>
</tr>
</tbody>
</table>
5. Configure Avaya Aura® Session Manager

This section provides the steps for configuring Session Manager to interoperate with PowerVille LB. For more details, refer to [2] in Section 9.

Session Manager is configured using browser access to System Manager. Enter the URL of System Manager such as https://<hostname>/network-login/SMGR where <hostname> is the ip address or qualified domain name of the System Manager. Log in using appropriate credentials.

Note that the basic configuration for Session Managers and Communication Manager had been pre-configured and is not documented. Two Session Managers were installed and configured. Please refer to the documentation in Additional References for more information.

The home page is a navigation screen as shown below. Each of these links will open a new tab from which to navigate to the details of the managed environment.
5.1. Configure SIP Entity and Entity Links

Navigate to Routing → SIP Entity. Select New to add a SIP entity for PowerVille LB.

- Enter the Name and FQDN or IP Address
- Type in the IP Address of the PowerVille LB for FQDN or IP Address

Under Entity Link, add two Entity Links, select Add.

- Type in a name in Name
- For SIP Entity 1 select Session Manager
- For Protocol select TCP
- For SIP Entity 2 select the SIP Entity that is currently being configured.

Add another Entity Link following the steps above, however select the secondary Session Manager for SIP Entity 1.

![SIP Entity Details](image)

<table>
<thead>
<tr>
<th>Name: PowerVilleLB</th>
</tr>
</thead>
<tbody>
<tr>
<td>FQDN or IP Address: 10.64.110.219</td>
</tr>
<tr>
<td>Type: SIP Trunk</td>
</tr>
<tr>
<td>Notes:</td>
</tr>
<tr>
<td>Adaptation:</td>
</tr>
<tr>
<td>Location:</td>
</tr>
<tr>
<td>Time Zone: America/Fortaleza</td>
</tr>
<tr>
<td>SIP Timer B/F (In seconds): 4</td>
</tr>
<tr>
<td>Credential name:</td>
</tr>
<tr>
<td>Securable:</td>
</tr>
<tr>
<td>Call Detail Recording: egress</td>
</tr>
</tbody>
</table>

**Entity Links**

Override Port & Transport with DNS SRV: no

Add | Remove
---|---


Select: All, None
6. Configure Dialogic PowerVille LB

This section provides the steps for configuring the PowerVille LB. For more details on configuring PowerVille LB including how to install the PowerVille LB, please refer to the administration guide in Additional References [8].

The PowerVille LB console is a web-based graphical user interface (WebGUI) used to manage the PowerVille LB. Launch the PowerVille LB admin UI login page in a web browser using the following URL: http://{server_address}:8888/lb. Log on using appropriate credentials.

![PowerVille LB Console](image)

6.1. Enabling High Availability

Navigate to Configuration → High Availability.

- Select the Enable HA check box.
- Enter the IP Address of the secondary PowerVille LB node in the Slave IP Address field.
- Click the Save button at the bottom of the page followed by Restart Slave.

![PowerVille LB HA Configuration](image)
Navigate to the **Configuration** page and click the **Restart** button.

6.2. Configuring Routing Interfaces

Navigate to **Provisioning → Interfaces** (not shown). Click the **Add** button.
- Select the chosen signaling interface from the **Interface** drop down list.
- Click the **Add** button.

6.3. Configuring Virtual IP Address

Navigate to **Provisioning → Service VIP**. Click the **Add** button.
- Enter the Ingress VIP (A side VIP) IP Address (10.64.110.218) in the **address** field (not shown).
- Select the previously added Interface from the **Interface Name** drop down list (not shown).
- Repeat the above steps for the Egress VIP (B side VIP) IP Address (10.64.110.219).

Screen capture below displays the configured VIPs during compliance testing.
6.4. Configuring PowerVille LB for Session Manager

Navigate to Provisioning → Service Node. Click the Add button.

- Enter the SIP IP Address of first Session Manager in the Address field (not shown).
- Click the Save button (not shown).
- Repeat above steps for the secondary Session Manager.

Screen capture below displays the configured Service Nodes during compliance testing.
6.5. Adding a Loadbalancer Service for an Active/Active Set Up (Round Robin)

Navigate to Services. Click the Add Service button.

- Enter an identifier for the service in the Name field.
- Select the service type SIP in the Type field.
- Click the Next button (not shown).
- Select the Ingress (A side inbound) VIP and Egress (B side outbound) VIP from the respective Inbound VIP Bind Address and Outbound VIP Bind Address drop down fields.
- Select Round Robin from the Algorithm drop down field.
- Select Rewrite R-URI in the Routing Option drop down field.
- Click the Next button (not shown).
- Configure the nodes for the service by following the steps outlined within Nodes subsection under the Service Configuration section of [8] in Additional References. Ensure the primary Session Manager node is added first.
- Click the Save button to add the service.
6.6. Adding a Loadbalancer Service for an Active/Standby Set Up (Priority)

Follow the steps outlined in Section 6.5 but instead of selecting the Round Robin algorithm from the Algorithm drop down field select Priority.
7. Verification Steps

Via System Manager, navigate to Session Manager → System Status → SIP Entity Monitoring. Verify the Entity Links to PowerVille LB is in UP Link State.

**SIP Entity, Entity Link Connection Status**

This page displays detailed connection status for all entity links from all Session Manager instances to a single SIP entity.

<table>
<thead>
<tr>
<th>All Entity Links to SIP Entity: PowerVilleLB</th>
</tr>
</thead>
</table>

### Status Details for the selected Session Manager:

<table>
<thead>
<tr>
<th>Session Manager Name</th>
<th>Resolved IP</th>
<th>Port</th>
<th>Proto</th>
<th>Dany</th>
<th>Conn. Status</th>
<th>Reason Code</th>
<th>Link Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>asm</td>
<td>10.64.110.219</td>
<td>5060</td>
<td>TCP</td>
<td>FALSE</td>
<td>UP</td>
<td>500 Caller not a configured node</td>
<td>UP</td>
</tr>
<tr>
<td>asm-secondary</td>
<td>10.64.110.219</td>
<td>5060</td>
<td>TCP</td>
<td>FALSE</td>
<td>UP</td>
<td>500 Caller not a configured node</td>
<td>UP</td>
</tr>
</tbody>
</table>

7.1. Loadbalancer Verification

Navigate to the PowerVille LB WebGUI homepage and ensure the dashboard displays a green light status for the Master and Slave PowerVille LB node.
Navigate to **Services** via the WebGUI. Ensure the given service for both the Master and Slave loadbalancer displays the green status.

Navigate to the **Vip Status** page, ensure a green status is displayed and a valid loadbalancer node IP address is displayed in the **Controlling Node IP Address** column of the VIP status table.
8. Conclusion
Dialogic PowerVille LB successfully completed compliance testing with the observations noted in Section 2.2.

9. Additional References
Product documentation for Avaya products may be found at http://support.avaya.com.
[1] Deploying Avaya Aura® System Manager, Release 7.0, August 2015
[3] Deploying Avaya Aura® Session Manager on VMWare, Release 7.0, August 2015