Load Balancing for the Gateway Server

When you install multiple BSM Gateway Servers, BSM can utilize external load balancing mechanisms to help ensure the even distribution of processing and communication activities across the network. This is particularly important in cases of high load, to avoid overwhelming any single server.

Note: We recommend installing BSM behind a load balancer or reverse proxy. This enables additional security options and can simplify disaster recovery and upgrade procedures.

This section includes the following topics:

"Configuring Load Balancing" below

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Configuring Load Balancing

1. Create two virtual hostnames. The virtual hostname must be a fully qualified domain name (FQDN), in the format **<servername>.<domainname>**. This requirement is necessary to support Lightweight Single Sign On authentication, which is enabled by default.

   The first host name is for accessing the BSM Web site on the Gateway Server. This URL can be distributed to BSM users. The second host name is for the data collectors to access the Gateway Server. This URL must be used when configuring data collectors to communicate with BSM.

2. Enter the relevant load balancer host names in the Infrastructure Settings for the virtual servers. To do so, select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, choose **Foundations**, select **Platform Administration - Host Configuration table**:

   - **Default Virtual Gateway Server for Application Users URL.** Virtual host name for the BSM Web site. The Gateway Server you are working on must be able to resolve this Virtual IP address. This means that **nslookup** for the **virtual host name for the application users** should return name and IP address when executed on this Gateway Server.

   - **Default Virtual Gateway Server for Data Collectors URL.** Virtual host name for Data Collectors. All data collectors must be able to resolve this Virtual IP address. This means that **nslookup** for the **virtual host name for the Data Collectors** should return name and IP address when executed on data collector server.

3. In the Reverse Proxy Configuration pane, set the following parameters:

   - **Enable Reverse Proxy parameter = true.**

   - **HTTP Reverse Proxy IPs**

Add the internal IP addresses of the Load Balancers to this setting.

- If the IP address of the load balancer sending the HTTP/S request is included, the URL returned to the client is either the Default Virtual Server URL or the Local Virtual Server URL (when defined).
- If no IP addresses are defined for this parameter (not recommended), BSM works in Generic Mode. This means that you will only be able to log into BSM using the Virtual URL and not directly to the Gateway.

> **Note:** If your load balancer and BSM Gateway Servers are not in the same domain, you must add the IP of the reverse proxy to the **HTTP or HTTPS Reverse Proxy IPs** parameter. For more details, see "LW-SSO Configuration for Multi-Domain and Nested Domain Installations" in the BSM Platform Administration Guide.

To determine the internal IP of your load balancer:

a. Log in to BSM through the load balancer.

b. Open the log in the following location **<BSM Gateway Server>\log\EJBContainer\UserActionsServlet.log**.

c. The IP that appears in the latest login line in this log is the internal load balancer IP. The entry should have your user name.

4. After changing the reverse proxy settings, restart the HP BSM service on the BSM Gateway and Data Processing servers.

> **Note:** If your load balancer allows you to choose between Full-NAT and Half-NAT topologies, choose **Full-NAT**.

5. Configure the load balancer for data collector access. All data collectors must be able to access the Virtual IP of the Load Balancer. Use the standard settings for the load balancer, but set the following:
   - The Load balancing method should be **Round robin.**
   - Use the following KeepAlive URI:
     - Send String: **GET /ext/mod_mdrv_wrap.dll?type=test**
     - Receive String: **Web Data Entry is up**
6. Configure the load balancer for user access.

- Use the standard settings for the load balancer, but set persistency to **stickiness by session enabled** or **Destination Address Affinity** (depending on the Load Balancer). If neither of these options are available and the choice is between **Cookie based** stickiness and **IP based** stickiness, then we recommend trying **IP based** stickiness. If this is not done properly, you may experience intermittent user interface failures.

- Use the following KeepAlive URI:

  - Send String: **GET /topaz/topaz_api/loadBalancerVerify_centers.jsp**

  - Receive String: **Success**

7. Configure the load balancer for BBC channel on port 383.

   - Port 383 needs to be open in both directions (meaning from the data collector through the load balancer to the gateway, and from the gateway and data processing server (not necessarily through the load balancer) to the data collectors).

   - The load balancing method should be “sticky session by IP address” for port 383.

   - Traffic on port 383 should be passed through on network layer 4 (not layer 7, no SSL offloading on the load balancer).

   - The load balancer's data connector address used for load balancing must be reachable and resolvable from all the BSM servers (gateway and data processing server) as well.

Notes and Limitations

- BSM supports hardware and virtual appliance based load balancers. A hardware load balancer solution is preferred for performance reasons.All load balancers must be able to configure sticky session for users and being able to configure URL based health monitors.

- If you use two load balancers for failover, you must ensure that you configure the hostnames of both load balancers on the DNS server machine. You can then specify the machine name, hostname’s FQDN, or URL of either load balancer when this information is required for the data collectors, or in the browser to open the BSM site.

- If two Gateway servers are installed into different drive paths, for example, one was installed onto the C:\ drive and the other onto the E:\ drive, BSM may not be able to be accessed.

  Workaround: Create a duplicate path on the **C:\ drive by copying E:\<HP BSM root directory>\conf\settings** to **C:\HP BSM root directory>\conf\settings.**

- If you use two load balancers for failover, and the load balancers each work with more than one server type, you should define a unique virtual hostname on each load balancer for each server type, map the virtual hostnames to the actual hostnames of the corresponding servers, and ensure that you configure all the virtual hostnames on the DNS server machine. You can then specify either of the relevant virtual hostnames for each data collector, or in the browser to open the BSM

site.

- When a load balancer or reverse proxy is configured, ensure that it can .be reached from all BSM servers (Gateway and Data Processing Servers) with the virtual addresses specified for the connections.