



DH2i DxEnterprise 21.0 Software: Azure Load Balancer Quick Start Guide

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Azure Load Balancer

This quick start guide describes how to set up and configure a load balancing solution for DxEnterprise running in Azure. Using this guide, the user will create an availability set and virtual machines, configure applications, and create and configure an Azure Load Balancer that will allow access to the resources assigned to the DxEnterprise Vhost.

Create Availability Set and Virtual Machines

1. Login to the Azure Management Portal.
2. Search for **Availability Sets** using the top search bar, then select **Add**.
3. Assign the availability set to a resource group and give it a name.

The screenshot shows the 'Create availability set' page in the Microsoft Azure portal. The page is divided into several sections:

- Project details:** Subscription is set to 'Microsoft Azure Sponsorship' and Resource group is 'dxe-rg'. There is a 'Create new' link below the resource group dropdown.
- Instance details:** Name is 'dxe-availset', Region is '(US) West US', Fault domains is 2, and Update domains is 5.
- Use managed disks:** The option 'Yes (Aligned)' is selected.

4. Select **Review + Create** in the bottom-left corner, then select **Create**.
5. Search for **DxEnterprise** in the top search bar and select one of the DxEnterprise offers available under Marketplace.
6. Under Select a software plan, choose an operating system and select **Create**.
7. Configure a virtual machine template and assign it to the availability set.
 - a. Assign the VM to the same resource group as the availability set and give it a name.
 - b. Under Instance Details > Availability options, select **Availability set**.
 - c. A new drop-down box will appear. Select the availability set created in step 4.
 - d. Setup an authentication type.
 - e. Under Networking, select **Create New** and set the SKU of the public IP address to standard.

NOTE: There is an option under network settings to place the virtual machine behind an existing load balancing solution. Do not select this option.

f. **Select Review + Create, then Create.**

The screenshot shows the 'Create a virtual machine' page in the Microsoft Azure portal, with the 'Review + create' tab selected. The page is titled 'Create a virtual machine' and includes a search bar at the top. Below the title, there are tabs for 'Basics', 'Disks', 'Networking', 'Management', 'Advanced', 'Tags', and 'Review + create'. The 'Review + create' tab is active, and the page displays the following configuration details:

- Project details:** Subscription: Microsoft Azure Sponsorship; Resource group: dxr-rg (with a 'Create new' link).
- Instance details:** Virtual machine name: dxr1; Region: (US) West US; Availability options: Availability set; Availability set: dxr-availset (with a 'Create new' link); Image: DxEnterprise on Ubuntu (BYOL) (with a 'Browse all public and private images' link); Azure Spot instance: No; Size: Standard_D2s_v3 - 2 vcpus, 8 GiB memory (\$85.41/month) (with a 'Select size' link).
- Administrator account:** Authentication type: SSH public key (selected); Username: AzureUser; SSH public key source: Generate new key pair; Key pair name: dxr-key.

A blue information box is visible, stating: 'Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.'

8. Repeat steps 8a-f for additional VM(s).
9. The availability set has been created with VMs assigned to it. Return to the Azure homepage by selecting **Microsoft Azure** in the top-left corner.

Configure DxEnterprise and Applications

1. The application must be installed and DxEnterprise must be configured before continuing. DH2i provides DxEnterprise quick start guides for some applications – such as Microsoft SQL Server – running within a VM on Azure. Hyperlinks for these guides are provided below. Other configurations, however, may also utilize the Azure load balancer. After configuring the application, leave the console or DxAdmin window open for the second step.
 - [SQL Server Availability Groups with DxCLI Quick Start Guide](#)
 - [SQL Server Availability Groups with DxAdmin Quick Start Guide](#)
 - [SQL Server High Availability Instances on Linux Quick Start Guide](#)
2. After configuring DxEnterprise and your application on the VM, add a probe port to the Vhost using DxCLI or DxAdmin.
 - For DxAdmin:
 - i. Right-click on the Vhost and select **Update virtual host**.

- ii. Select the pencil icon to the right of the Probe Port field, then enter a port number into the field. More than one probe port may be added to the Vhost by separating the ports with a comma.
 - iii. Note the Vhost IP and probe port for later use. Save the changes by selecting **OK** at the bottom of the window.
- For Dxcli:
 - i. Run the command `sudo dxcli set-vhost-ilbports` to add a load balancer port to the Vhost.

Syntax

`dxcli set-vhost-ilbports <vhost> <ilb_ports>`

Parameters

Name	Description	Required
vhost	The name of the Vhost.	True
ilb_ports	List of ports to use for internal load balancer probing (Comma-separated list for multiples).	True

Example

`sudo dxcli set-vhost-ilbports VHOST1 50000`

- ii. Run the command `sudo dxcli get-vhost` to gather the Vhost IP address and verify the load balancer port is correct. Save these two items for later use.

Syntax

`dxcli get-vhost <vhost>`

Parameters

Name	Description	Required
vhost	The name of the Vhost.	True

Example

`sudo dxcli get-vhost VHOST1`

- 3. After adding the probe port to the Vhost, return to the Azure Management Portal for the next section.

Create and Configure the Azure Load Balancer

- 1. Search for **Load Balancers** in the top search bar, then select **Add**.
 - a) Assign the load balancer to the resource group and give it a name.
 - b) Set the Type to **Internal**.
 - c) Set the SKU to **Standard**.
 - d) Assign the load balancer to the same virtual network as the VMs.
 - e) Set the IP address assignment to **Static**.
 - f) Enter the IP address for the load balancer. This is the same IP used for the Vhost retrieved in step two of the previous section.

g) Select **Review + Create** in the bottom-left corner, then select **Create**.

2. After the deployment completes, select the **Go to resource** box. Alternatively, the resource can be found by navigating to the resource group from the Azure homepage.
3. Select **Backend pools** from the options in the left pane.
 - a) Select **Add** near the top.
 - b) Assign a name to the backend pool.
 - c) Under virtual machines, select **Add** and add the DxEnterprise VMs to the list.
 - d) Select **Add** at the bottom to add the backend pool to the load balancer.

Virtual machine	IP Configuration	Availability set
<input type="checkbox"/> dx-e2	ipconfig1 (10.0.3.5)	DXE-AVAILSET
<input type="checkbox"/> dx-e1	ipconfig1 (10.0.3.4)	DXE-AVAILSET

4. Select **Health probes** from the options in the left pane.
 - a) Select **Add** near the top.

- b) Assign a name for the health probe.
- c) Set the Port to the Vhost probe port.
- d) Select **OK** at the bottom to add the health probe to the load balancer.

The screenshot shows the 'Add health probe' configuration page in the Microsoft Azure portal. The breadcrumb navigation is 'Home > dxr-rg > dxr-lb | Health probes >'. The page title is 'Add health probe' with the resource name 'dxr-lb' below it. The configuration fields are as follows:

- Name ***: A text input field containing 'dxr-hp' with a green checkmark on the right.
- Protocol ⓘ**: A dropdown menu set to 'TCP'.
- Port * ⓘ**: A text input field containing '50000' with a green checkmark on the right.
- Interval * ⓘ**: A text input field containing '5', with 'seconds' written below it.
- Unhealthy threshold * ⓘ**: A text input field containing '2', with 'consecutive failures' written below it.

5. Select **Load balancing rules** from the options in the left pane.
 - a) Select **Add** near the top.
 - b) Assign a name for the load balancing rule.
 - c) Select **HA Ports** to allow all traffic through the Frontend IP address.
 - d) Set **Floating IP** to **Enabled**.
 - e) Select **OK** at the bottom to add the rule to the load balancer.

Microsoft Azure Search resources, services, and docs (G+)

Home > dxr-rg > dxr-lb | Load balancing rules >

Add load balancing rule

dxr-lb

i A load balancing rule distributes incoming traffic that is sent to a selected IP address and port combination across a group of backend pool instances. Only backend instances that the health probe considers healthy receive new traffic.

Name *
dxr-lbrule ✓

IP Version *
 IPv4 IPv6

Frontend IP address * ⓘ
10.0.3.110 (LoadBalancerFrontEnd) ✓

HA Ports ⓘ

Backend pool ⓘ
dxr-bepool (2 virtual machines) ✓

Health probe ⓘ
dxr-hp (TCP:50000) ✓

Session persistence ⓘ
None ✓

Idle timeout (minutes) ⓘ
 4

TCP reset
 Disabled Enabled

Floating IP (direct server return) ⓘ
 Disabled Enabled

Create implicit outbound rules ⓘ
 Yes No

References

- [DxEnterprise DxCli Guide](#)
- [DxEnterprise Admin Guide](#)
- [Microsoft – Load Balancer Documentation](#)
- [Microsoft – Load Balancer Components](#)
- [Microsoft – Create Internal Load Balancer](#)