



SOFTWARE VERSION
2.0.X

HA Cloud Connector

Installation & Configuration Guide

Document Properties

Document Number: 2.0.2.27.24.10.02

Document Creation Date: 1 February 2024

Document Last Edited: 27 February 2024

Document Author: Jay Savoor

Document Last Edited by:

Document Disclaimer

This manual's screenshots and graphics may differ slightly from your product due to differences in product release. Edgenexus ensures that they make every reasonable effort to ensure that the information in this document is complete and accurate. Edgenexus assumes no liability for any errors. Edgenexus makes changes and corrections to the information in this document in future releases when the need arises.

Copyrights

© 2024 All rights reserved.

Information in this document is subject to change without prior notice and does not represent a commitment on the manufacturer's part. No part of this guide may be reproduced or transmitted in any form or means, electronic or mechanical, including photocopying and recording, for any purpose, without the express written permission of the manufacturer. Registered trademarks are properties of their respective owners. Every effort is made to make this guide as complete and accurate as possible, but no warranty of fitness is implied. The authors and the publisher shall have neither responsibility nor liability to any person or entity for loss or damages arising from using the information contained in this guide.

Trademarks

Edgenexus logo, Edgenexus, EdgeADC, EdgeWAF, EdgeGSLB, EdgeDNS are all Edgenexus Limited's trademarks. All other trademarks are the properties of their respective owners and are acknowledged.

Edgenexus Support

If you have any technical questions regarding this product, please raise a support ticket at: support@edgenexus.io

Table of Contents

Document Properties.....	1
Document Disclaimer.....	1
Copyrights.....	1
Trademarks.....	1
Edgenexus Support	1
What is the HA Cloud Connector?	4
Why is HACC needed?	4
How does it work?.....	4
Amazon AWS	5
Prerequisites, Examples and More	6
Prerequisites.....	6
Example Architecture.....	6
AWS Instance Example	7
Instance 1.....	7
Instance 2.....	8
Using AWS Tags.....	8
Configuring ADC Networking.....	9
Installing the HA Cloud Connector.....	10
Obtaining the HA Cloud Connector	10
Downloading and importing the App using the EdgeADC.....	10
Download and import the App using direct download.....	10
Making the App Operational.....	14
Configuring the HA Connector for AWS.....	16
Logging onto the HA Cloud Connector Console.....	16
The Cloud Connector Main Page	16
Adding Cloud Connections.....	17
Adding Cloud Destinations.....	17
Adding a Virtual Service.....	19
Testing the installation	21
Other Settings	22
Changing the password	22
Dark Mode	23
Full-Screen Mode.....	23
Microsoft Azure	24
Prerequisites, Examples and More	25

HA Cloud Connector

Installation & Configuration Guide

Prerequisites	25
Example Architecture	25
VM Cloud Configuration.....	27
Important - Using Tags	28
Preparing Azure for HACC	29
Creating the App registration.....	29
Creating a Resource Group	30
Access Control (IAM) and Roles	31
Creating the ADC Virtual Machines	34
Configuring the Virtual Machine	37
Networking.....	37
Adding a Subnet	38
Attach a Network Interface to new Subnet	39
Creating a Public IP Address	40
Important Information Required to Deploy HACC	42
Checklist	42
Information required to proceed	42
Configuring the EdgeADC	43
Configuring the ADC networking	43
Defining the Virtual Services	44
Installing the HA Cloud Connector.....	45
Obtaining the HA Cloud Connector	45
Downloading and importing the App using the EdgeADC.....	45
Download and import the App using direct download	45
Making the App Operational	48
Configuring the HA Cloud Connector for Azure	50
Logging onto the HA Cloud Connector Console.....	50
The Cloud Connector Main Page	51
Defining Cloud Connections.....	51
Defining Destinations for HA	54
Defining Services to be Monitored.....	55
Testing the HA Cloud Connector for Azure	56
Technical Support.....	58
Contacting Support.....	59

What is the HA Cloud Connector?

Designed especially for use with an Edgenexus EdgeADC pair within Microsoft Azure, or Amazon AWS, the HA Cloud Connector (HACC) monitors Applications for availability. It communicates with the cloud system API to move Elastic IPs to the secondary failover ADC and ensure continuous availability.

Why is HACC needed?

Normally, within LAN environments you would not need to have something like HACC. In a LAN we can create any IP within our IP segment, address it, and utilise it when we need to. This is not the case within Cloud environments are compartmentalised and highly restricted in terms of users being able to do what every they wish.

This means that setting up load balancers in HA pairs is extremely complex and requires the use of the cloud providers own load balancer to distribute the 'elastic' IP.

HACC has been designed and built to alleviate this issue allowing users to have HA pairs of load balancers without the use of the cloud provider load balancer as a IP address distributor.

How does it work?

The HACC works by monitoring an application and its server(s) through the use of a special monitoring Virtual Service, a Virtual Service whose job is to monitor the connection to the Real Servers and work with Cloud provider's API to move the Elastic IP to the partner ADC, and thus failover the ADC.

Important:

It must be noted that you can only form an ADC pairing for Elastic IP switching within a region. You have more than one set of ADCs paired in different regions.

Amazon AWS

Prerequisites, Examples and More

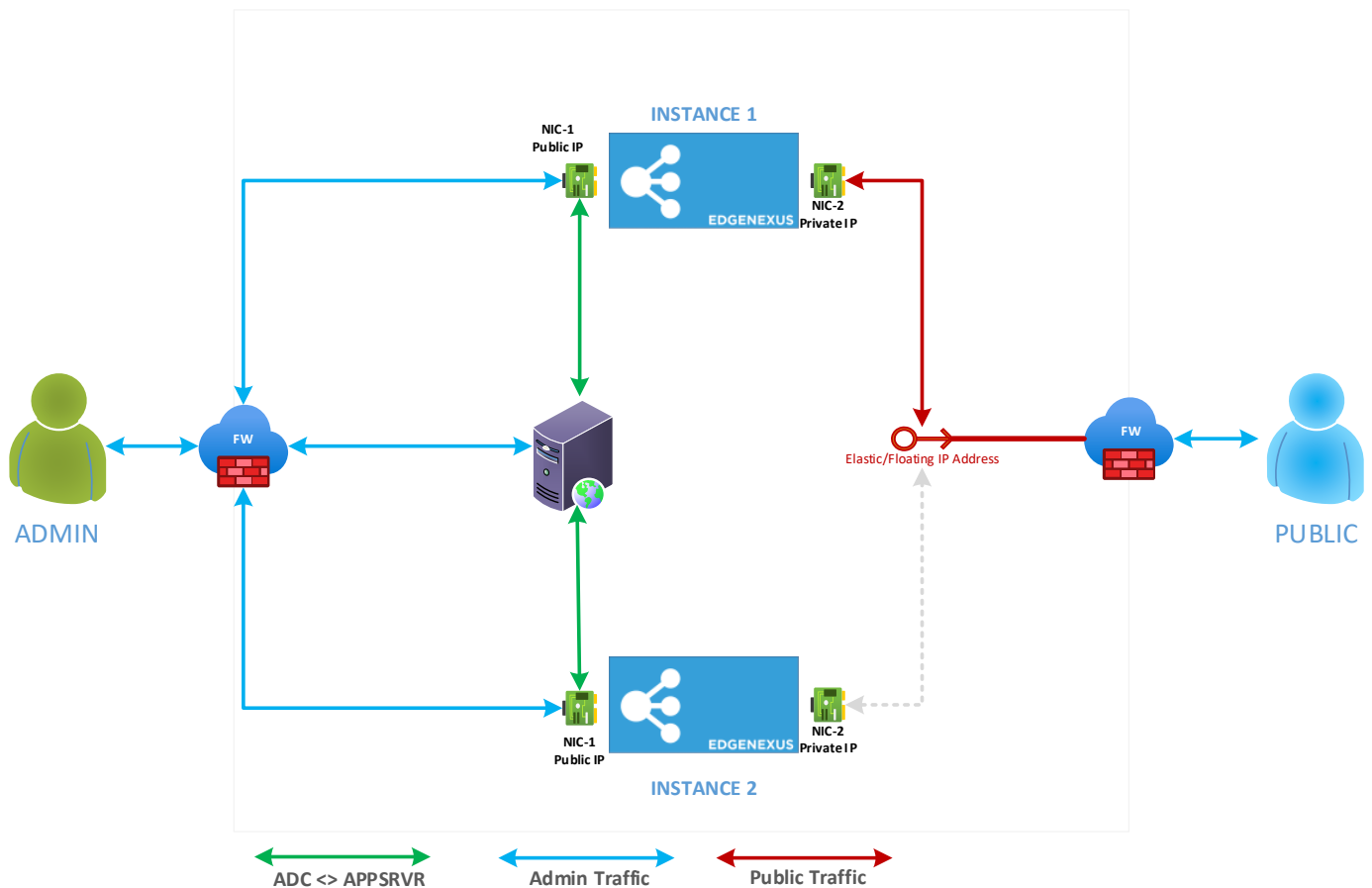
Prerequisites

To use the HA Cloud Connector, you need to fulfill some prerequisites.

1. You must have TWO Edgenexus ADCs configured and running within Amazon AWS, with the same VIP/VS configurations.
2. The ADCs must be configured as stand-alone devices.
3. You require TWO network interfaces. Let's call them NIC-1 and NIC-2.
4. NIC-1 on each ADC must have an AWS Public IP.
5. Associate the Elastic IP with NIC-2 on ADC 1. The AWS Cloud Connector App uses this and will switch this automatically to NIC-2 on ADC2 when required.

Example Architecture

Below is our sample architecture.



To summarise the network connectivity:

- ADC-1 NIC1:
 - Public IP1 -> Private IP1 -> NIC
- ADC-2 NIC1:
 - Public IP2 -> Private IP2 -> NIC
- ADC-1 NIC2:
 - Elastic IP -> Private IP3 -> NIC

HA Cloud Connector

Installation & Configuration Guide

- "nothing" -> Private IP4 -> NIC

The term “nothing” refers to the NIC not having the Elastic IP connected to it and waiting for the switchover in case of service failure.

AWS Instance Example

Note that we have blurred details on the images for reasons of security.

Instance 1

Instance: i-01eddd9d42af884a7 (Instance 1)

Details

Security

Networking

Storage

Status checks

Monitoring

Tags

▼ Networking details info

Public IPv4 address
3.220.74.188 [open address](#)

Public IPv4 DNS
-

Subnet ID
subnet-0a9c007c969ae3e64

Availability zone
us-east-1e

Use RBN as guest OS hostname
Disabled

Private IPv4 addresses
172.30.4.134
172.30.100.38

Private IP DNS name (IPv4 only)
ip-172-30-4-134.ec2.internal

IPv6 addresses
-

Carrier IP addresses (ephemeral)
-

Answer RBN DNS hostname IPv4
Enabled

VPC ID
vpc-0a992bfda349f1512

Secondary private IPv4 addresses
-

Outpost ID
-

▼ Network Interfaces (2) info

Filter network interfaces

Interface ID	Description	IPv4 Prefixes	IPv6 Prefixes	Public IPv4 address	Private IPv4 address	Private IPv4 DNS	IPv6 addresses	Primary IPv6 address
eni-0516d64737d49a0f9	-	-	-	3.220.74.188	172.30.4.134	-	-	-
eni-00ea4e66382201ab2	NIC 2	-	-	35.169.163.125	172.30.100.38	-	-	-

▼ Elastic IP addresses (2) info

Filter Elastic IP addresses

Name	Allocated IPv4 address	Type	Address pool	Allocation ID
Instance 1 NIC 1	3.220.74.188	Public IP	amazon	eipalloc-00b352dcac506e2ae
Elastic IP 1	35.169.163.125	Public IP	amazon	eipalloc-0213c7cab2a26ba50

In the Instance 1 example, you can see an Elastic IP allocated to the network interface, NIC-2. Users will use this Elastic IP to access their application.

HA Cloud Connector

Installation & Configuration Guide

Instance 2

Instance: i-0dbc9f4645507353a (Instance 2)

Details

Security

Networking

Storage

Status checks

Monitoring

Tags

▼ Networking details info

Public IPv4 address

52.73.214.23 [open address](#)

Public IPv4 DNS

-

Subnet ID

subnet-0aec007c969ae3e64

Availability zone

us-east-1e

Use RBN as guest OS hostname

Disabled

Private IPv4 addresses

172.30.4.20

172.30.100.150

Private IP DNS name (IPv4 only)

ip-172-30-4-20.ec2.internal

IPv6 addresses

-

Carrier IP addresses (ephemeral)

-

Answer RBN DNS hostname IPv4

Enabled

VPC ID

vpc-0a992bfda349f1512

Secondary private IPv4 addresses

-

Outpost ID

-

▼ Network Interfaces (2) info

Filter network interfaces

Interface ID	Description	IPv4 Prefixes	IPv6 Prefixes	Public IPv4 address	Private IPv4 address	Private IPv4 DNS	IPv6 addresses	Primary IPv6 address
eni-09ee335d3acfd097	-	-	-	52.73.214.23	172.30.4.20	-	-	-
eni-071b849ad2e740bd2	Instance 2 NIC 2	-	-	-	172.30.100.150	-	-	-

▼ Elastic IP addresses (1) info

Filter Elastic IP addresses

Name	Allocated IPv4 address	Type	Address pool	Allocation ID
Instance 2 NIC 1	52.73.214.23	Public IP	amazon	eipalloc-01580d766b8678234

Note: Users should only be provided the Elastic IP to access the Application.

Using AWS Tags

You may find using the Tags feature for the AWS Instances very useful. Within each Instance, add a Tag called Name. Then add the value, for example, Instance 1, for Instance #1, or ADC-1. The HA Cloud Connector App will read and utilize the Tag in the drop-down menus. Do the same for NICs.

EC2 > Instances > i-01eddd9d42af884a7

Instance summary for i-01eddd9d42af884a7 (Instance 1) info

Updated less than a minute ago

Refresh

Connect

Instance state

Actions

Instance ID

i-01eddd9d42af884a7 (Instance 1)

IPv6 address

-

Hostname type

IP name: ip-172-30-4-134.ec2.internal

Answer private resource DNS name

IPv4 (A)

Auto-assigned IP address

4.134.7 [Public IP]

IAM Role

-

Public IPv4 address

35.152.25 (Elastic IP 1) | [open address](#)

Instance state

Running

Private IP DNS name (IPv4 only)

ip-172-30-4-134.ec2.internal

Instance type

t2.medium

VPC ID

vpc-0a992bfda349f1512

Subnet ID

subnet-0aec007c969ae3e64

Private IPv4 addresses

172.30.4.134

172.30.100.38

Public IPv4 DNS

-

Elastic IP addresses

35.152.25 (Elastic IP 1) [Public IP]

AWS Compute Optimizer finding

[Opt-in to AWS Compute Optimizer for recommendations.](#) | [Learn more](#)

Auto Scaling Group name

-

Details

Security

Networking

Storage

Status checks

Monitoring

Tags

Tags

Manage tags

< 1 >

Key	Value
Name	Instance 1

Configuring ADC Networking

The first step in getting the ACC to work is configuring the ADC networking correctly.

The network configuration is the most critical step in correct configuration. Proceed to System > Networking, and configure your ADC. See the examples below:

The screenshot shows the 'Network' configuration page. The 'Basic Setup' section has 'Name: Edgenexus-CSLB', 'IPv4 Gateway: 172.30.4.1', 'IPv6 Gateway: ', 'DNS Server 1: 172.30.0.2', and 'DNS Server 2: 8.8.4.4'. The 'Adapter Details' section shows a table with columns: Adapter, VLAN, IP Address, Subnet Mask, Gateway, RP Filter, Description, Web Console, and REST. The 'Interfaces' section shows a table with columns: ETH Type, Status, Speed, Duplex, and Bonding.

Adapter	VLAN	IP Address	Subnet Mask	Gateway	RP Filter	Description	Web Console	REST
eth0		172.30.4.134	255.255.255.0		<input checked="" type="checkbox"/>	Green side	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
eth1		172.30.100.38	255.255.255.0	172.30.100.1	<input type="checkbox"/>	NIC 2	<input type="checkbox"/>	<input type="checkbox"/>

ETH Type	Status	Speed	Duplex	Bonding
eth0	<input checked="" type="checkbox"/>	auto	auto	none
eth1	<input checked="" type="checkbox"/>	auto	auto	none

ADC-1 Networking Page

The screenshot shows the 'Network' configuration page. The 'Basic Setup' section has 'Name: Edgenexus-CSLB', 'IPv4 Gateway: 172.30.4.1', 'IPv6 Gateway: ', 'DNS Server 1: 172.30.0.2', and 'DNS Server 2: 8.8.8.8'. The 'Adapter Details' section shows a table with columns: Adapter, VLAN, IP Address, Subnet Mask, Gateway, RP Filter, Description, Web Console, and REST. The 'Interfaces' section shows a table with columns: ETH Type, Status, Speed, Duplex, and Bonding.

Adapter	VLAN	IP Address	Subnet Mask	Gateway	RP Filter	Description	Web Console	REST
eth0		172.30.4.20	255.255.255.0		<input checked="" type="checkbox"/>	Green side	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
eth1		172.30.100.150	255.255.255.0	172.30.100.1	<input type="checkbox"/>	NIC 2	<input type="checkbox"/>	<input type="checkbox"/>

ETH Type	Status	Speed	Duplex	Bonding
eth0	<input checked="" type="checkbox"/>	auto	auto	none
eth1	<input checked="" type="checkbox"/>	auto	auto	none

ADC-2 Networking Page

You can see from the image that we have defined the two network interfaces, together with relevant gateway addresses.

Installing the HA Cloud Connector

Important

The HA Cloud Connector must be installed on both ADCs you have spun up in the selected region. Each must be configured individually to talk to the Cloud Provider API to switch the Elastic IP when needed.

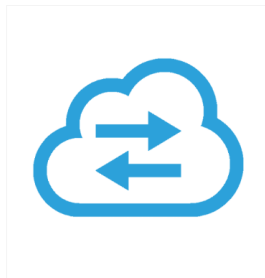
Obtaining the HA Cloud Connector

As with every Edgenexus App, the HA Cloud Connector is available through the App Store and is free of cost to download, and some are even free to use.

At this point, you have two options: Using the App Store from within the EdgeADC or directly downloading the App from the App Store and then uploading it to the EdgeADC.

Downloading and importing the App using the EdgeADC

- The first option is to log in using your App Store credentials inside the EdgeADC. The integrated App Store interface is available using Services > App Store.
- This method will allow you to make the purchase, and then you will find it available within the Purchased Apps section in Library > Apps.
- The HA Cloud Connector App looks something like the one shown below.



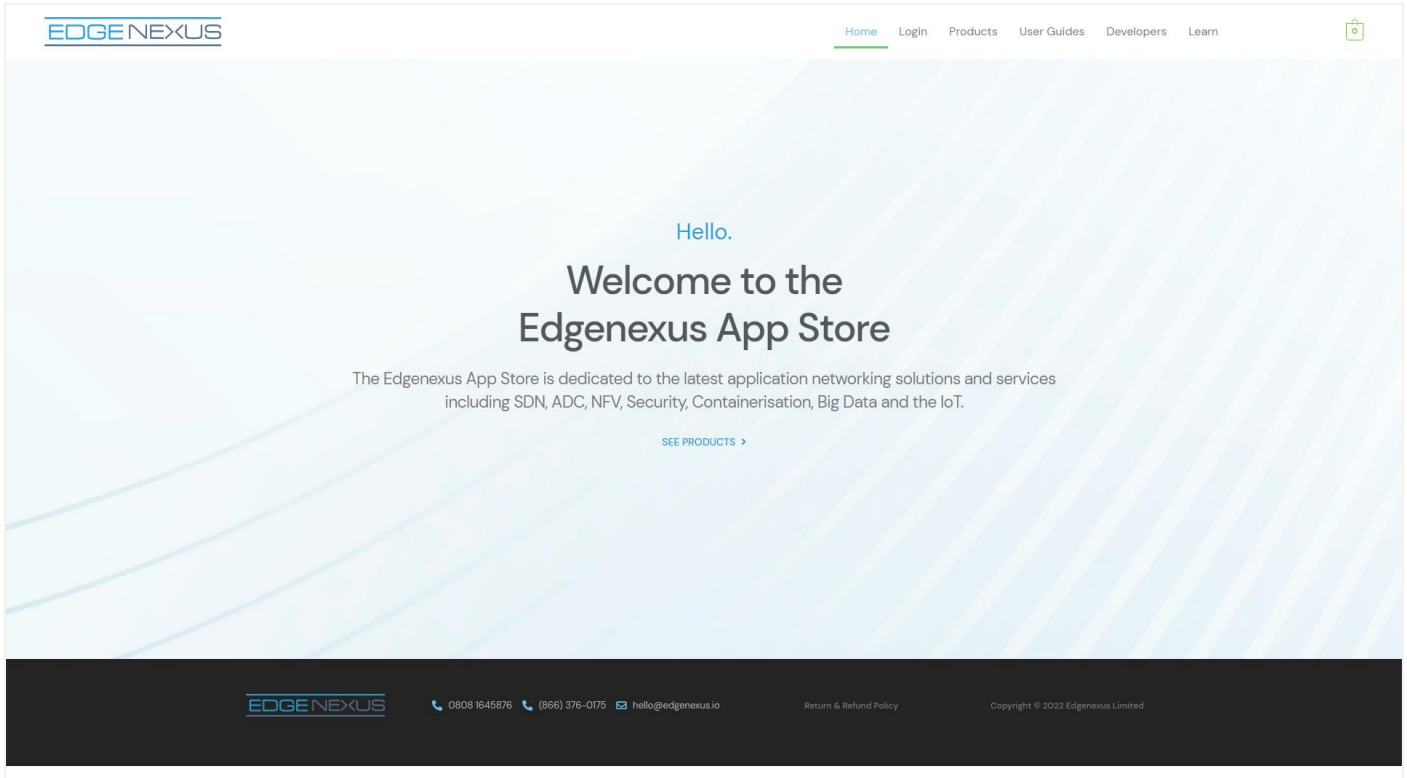
- From the Library > Apps > Downloaded Apps section, locate the HA Cloud Connector App and then deploy it to the EdgeADC by clicking the Deploy button.
- Once deployed, it will be available in the Library > Add-Ons tab

Download and import the App using direct download

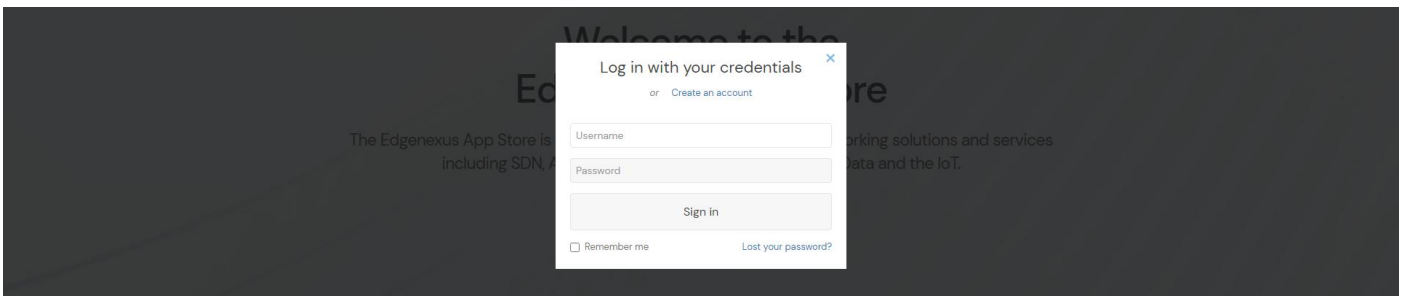
- The first thing to do is to register for access to the Edgenexus App Store. This process is done by using a browser and navigating to <https://appstore.edgenexus.io>.

HA Cloud Connector

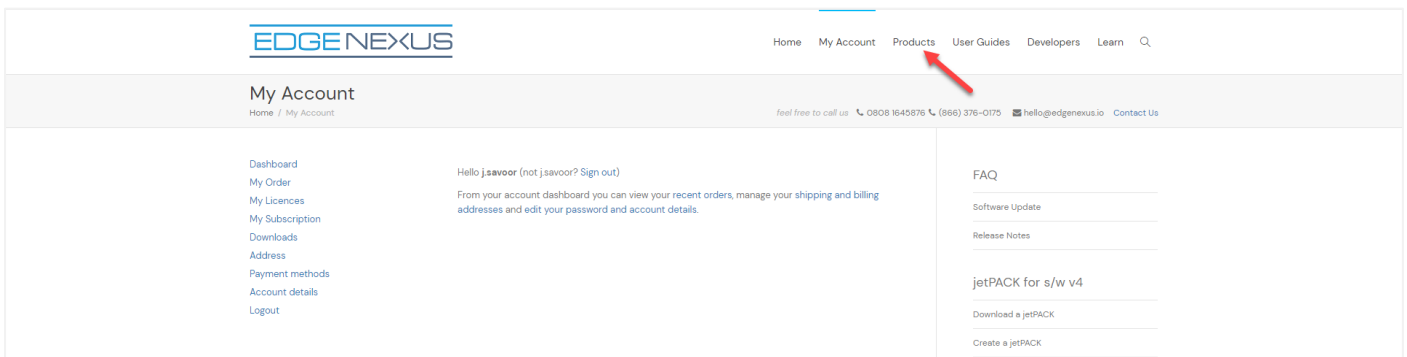
Installation & Configuration Guide



- Click on the login link located in the menu.
- Click on Create an Account, or log in using your account credentials.



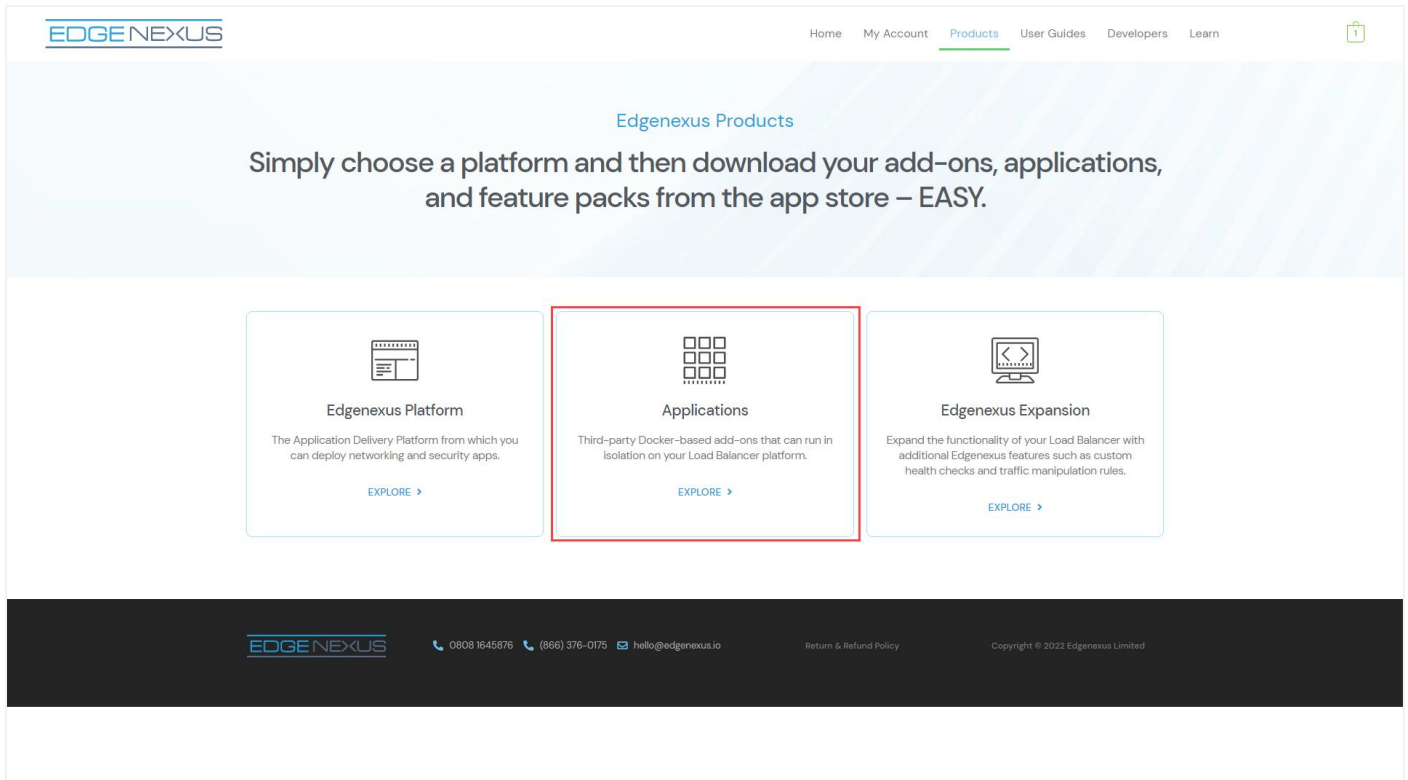
- Once you have logged in, please click on the Products link located in the menu.



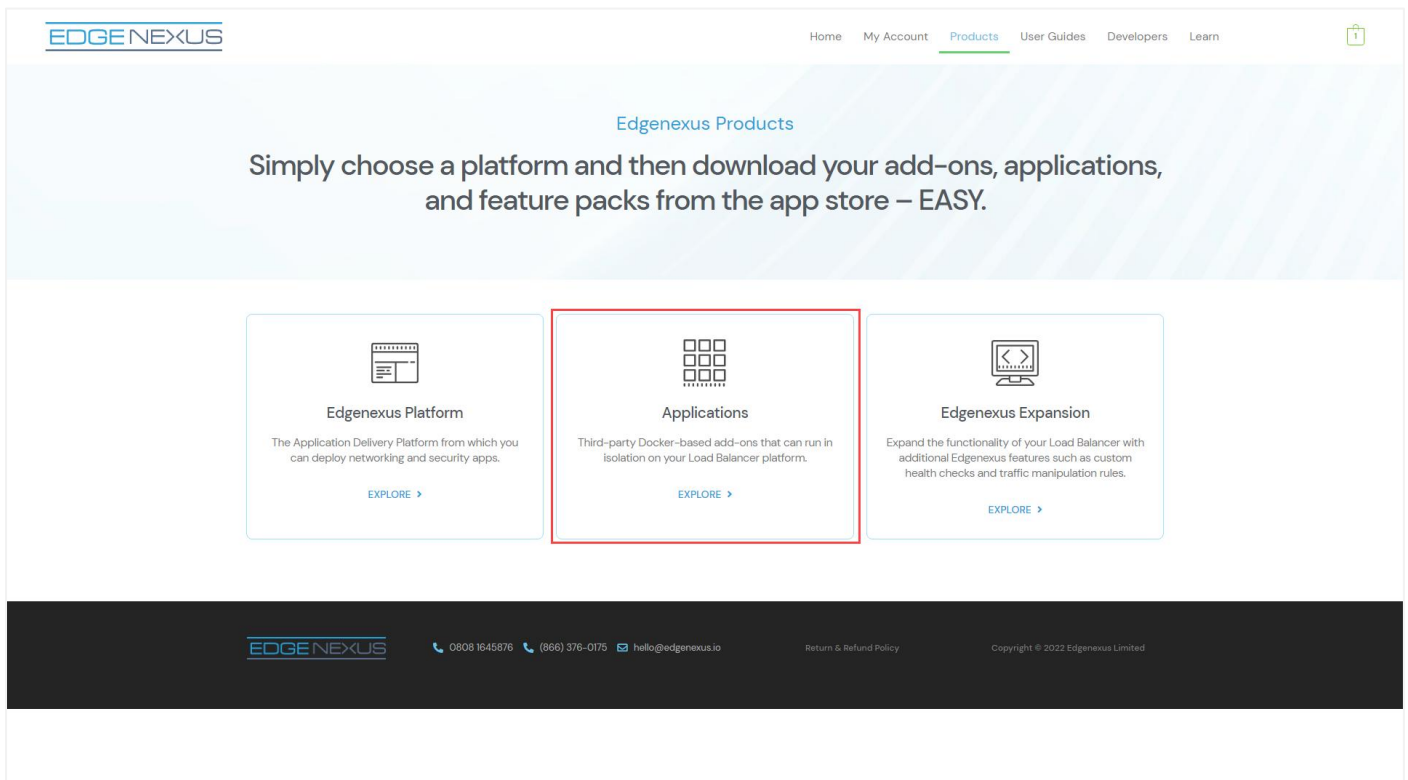
- Next, click on Applications.

HA Cloud Connector

Installation & Configuration Guide



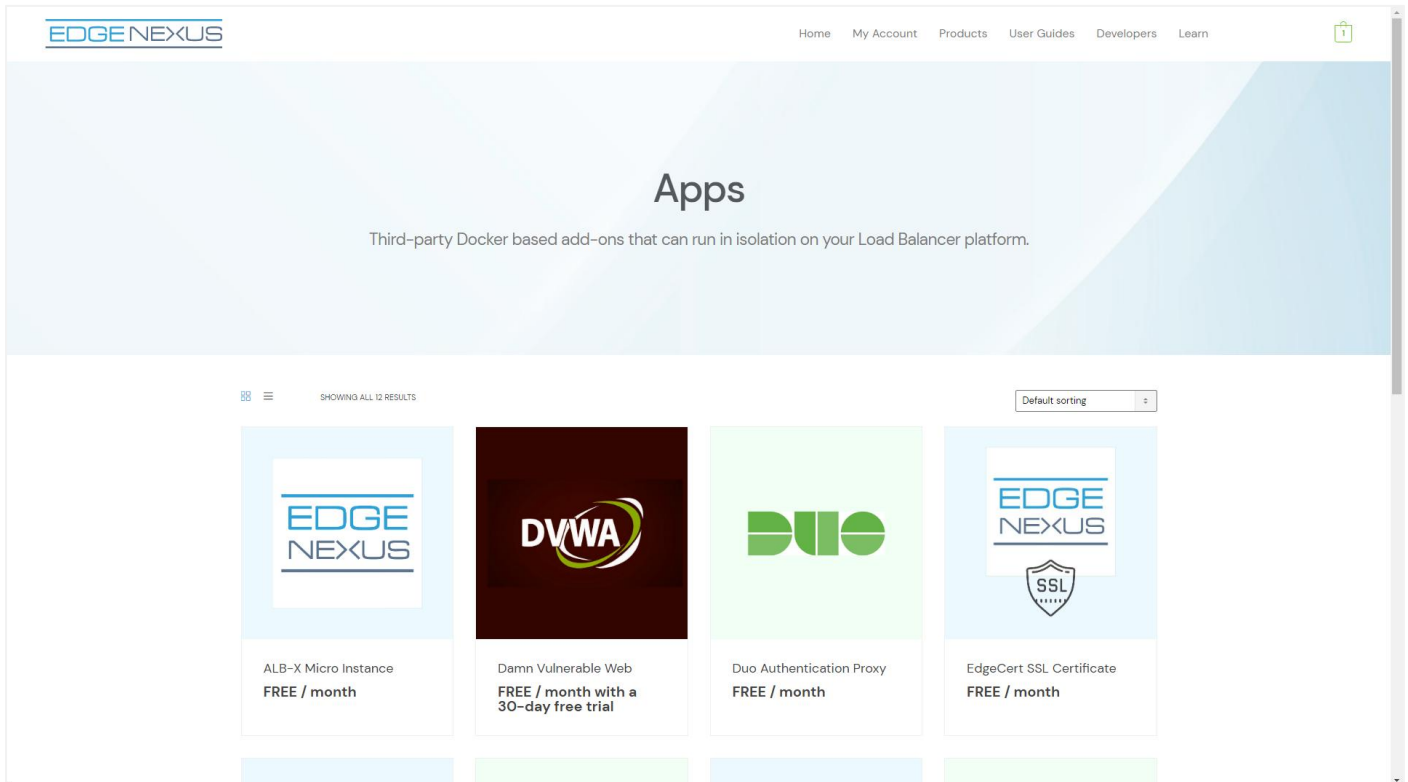
- This action will take you to the Applications page, where you can download the HA Cloud Connector. An example of the Applications page is shown below.



- Within the applications page, you can browse for and order the App.

HA Cloud Connector

Installation & Configuration Guide



- The HA Cloud Connector app is free of cost, but you will still need to follow the route of making a purchase.

Please make sure you save it without altering the filename.

Please also ensure that there is no (1) or something similar in the filename, indicating a second download, etc.

- With the file downloaded, navigate to Advanced > Software of the EdgeADC GUI using your browser.

HA Cloud Connector

Installation & Configuration Guide

The screenshot shows the Edgenexus web interface. The top navigation bar includes 'GUI Status', 'Home', 'Help', and a user dropdown 'admin'. The left sidebar has a 'NAVIGATION' menu with options like 'Services', 'Library', 'View', 'System', 'Advanced', 'Configuration', 'Global Settings', 'Protocol', 'Software', and 'Troubleshooting'. The main content area is titled 'Software' and contains several sections: 'Software Details' (showing user, location, machine ID, licence ID, support expiry, support type, and current software version), 'Download From Cloud' (a table of available updates), 'Upload Software' (highlighted with a red box, containing a 'Browse' button and 'Upload Apps And Software'/'Upload And Apply Software' buttons), and 'Apply Software' (a table of installed updates). The 'Upload Software' section is the focus of the guide.

Code Name	Release Date	Version	Build	Release Notes	Notes
ALB-X Version 4.2.6	2020-04-15	4.2.6	1826	Click here for release nc This is our latest release 4.2.6. This	
OWASP Core Rule Set 3.2.0 Update fo...	2020-10-22	3.2.0_28.10.2...	jetNEXUS	The OWASP CRS is a set The OWASP CRS is a set of web ap	
ALB-X Version 4.2.6	2020-05-15	4.2.6	1834	Click here for release nc Flightpath update 4.2.6. This APP	

Image	Code Name	Release Date	Version	Build	Notes
	jetNEXUS ALB v4.3.0	18 Jul 2021	4.3.0	(Build1950) 712100	build1950-4100-712100-v4.3.0-Electron-update-64
	jetNEXUS ALB v4.2.8	2021-07-05	4.2.8	(Build1896)	build1896-7215-v4.2.8-Sprint2-update-64
	jetNEXUS ALB v4.2.8	20 May 2021	4.2.8	(Build1895)	build1895-7127-v4.2.8-Sprint2-update-64

- There are several sections within the Software page, but we need the Upload Software section.
- First, click the Browse button and find the HA Cloud Connector App you downloaded.
- Next, click the Upload Apps and Software button.
- The App will be shown in the Downloaded Apps section of Library > Apps.
- From the Library > Apps > Downloaded Apps section, locate the HA Cloud Connector App and then deploy it to the EdgeADC by clicking the Deploy button.
- Once deployed, it will be available in the Library > Add-Ons tab

Making the App Operational

When an App is downloaded and deployed, it is yet to be operational. It has to be given an IP address in the same subnet as the EdgeADC and ports through which it needs to be accessible.

- Navigate to Library > Add-Ons and locate the HA Cloud Connector App.
- It should look something like the image below.

HA Cloud Connector

Installation & Configuration Guide

The screenshot shows the configuration interface for the HA Cloud Connector. On the left, there is a cloud icon with a play button and a pause button. The main configuration area includes fields for Container Name, External IP, and External Port. To the right, there are fields for Parent Image, Internal IP, Started At, and Stopped At. Below these fields are buttons for Update, Remove Add-On, Import Configuration, and Export Configuration. Numbered callouts 1-5 highlight the following elements: 1. Container Name field, 2. External IP field, 3. External Port field, 4. Update button, and 5. Play button.

- Give the Add-On a name **1** – the EdgeADC's internal DNS system uses this to refer to the App when needed.
- Enter the value for the External IP **2**. This value should equal the Private IP given to NIC1 of the AWS Instance.
- Enter a value of **5005/tcp** for the External Port **3**.
- Once you have done this, click the Update button **4** to initialize the App.
- Click the PLAY icon **5** above to activate the App into an operational state.
- Once operational, it will look like the following image and be listed in the Services section as an embedded App.

The screenshot shows the configuration interface after the app has been initialized. The Container Name is 'cc1', External IP is '172.30.4.134', and External Port is '5005/tcp'. The Parent Image is 'Edgenexus-Cloud-Connector-E'. The Internal IP is '10.172.0.4', Started At is '2022-12-19 07:21:31', and Stopped At is empty. The Import File field has 'Browse' and 'Import Configuration' buttons. The Export Configuration button is also present. Numbered callout 6 highlights the Add-On GUI button.

- Note the Add-On GUI **6** button to launch the App GUI and the Pause App and Stop App buttons. Clicking the Add-On GUI button will open the App management screen in another browser tab.

Note: You will need to do this on the HA Cloud Connector on each ADC.

Configuring the HA Connector for AWS

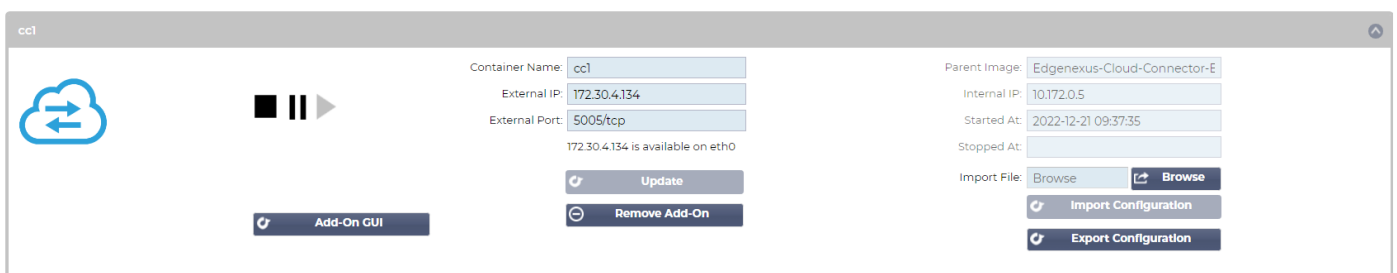
The HA Cloud Connector has been developed to be extremely easy to configure and use.

Logging onto the HA Cloud Connector Console

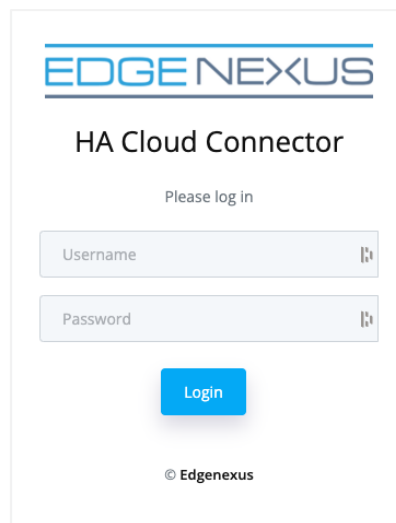
The first step is to log in and access the management console.

To do this, access the Add-ons section of the ADC using the navigation panel. It can be found in the Library section.

Locate the HA Cloud Connector App that you deployed. If the fields are blank, you have yet to operationalize the App. See the section Making the App Operational in the last chapter.



Click the Add-On GUI button to launch the console login page.



The default credentials are **admin/admin** for the username and password. You may change this later within the console if you wish.

The Cloud Connector Main Page

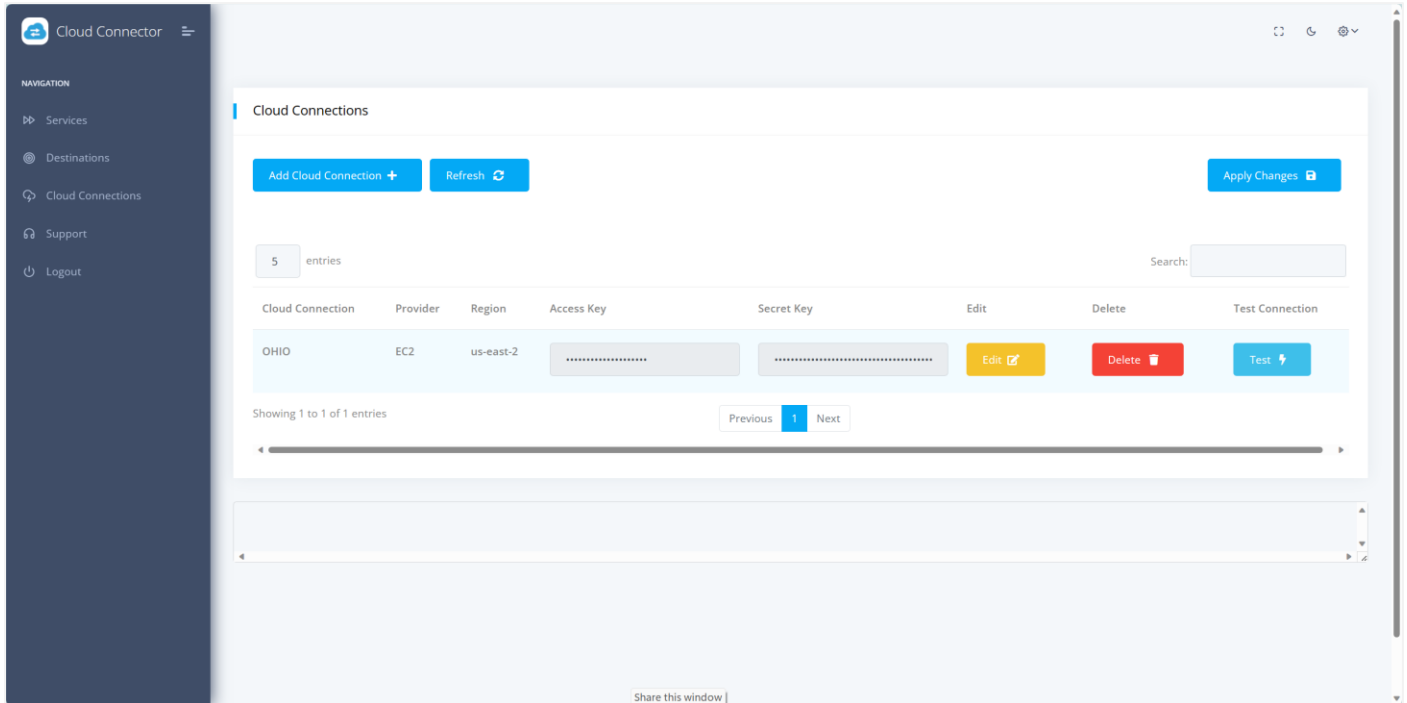
Once logged into the HA Cloud Connector, you will be presented with the main or Home page. It is from this page that you will perform the configuration of the HA Cloud Connector.

The first step in configuring the HA Cloud Connector is to define the Cloud Connections. The information you provide will give the HA Cloud Connector access to your AWS environment, particularly to the instances it will need to manipulate.

Adding Cloud Connections

Click Cloud Connections from the navigation panel on the page's left side.

The example shown has some information pre-populated, but it will be blank in your case.



Click the Add Cloud Connection button.

A blank entry line will be created, facilitating the required data entry.

Cloud Connection	Provider	Region	Access Key	Secret Key	Edit	Delete
<input type="text"/>	EC2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<button>Save</button>	<button>Cancel</button>

Field	Description
Cloud Connection	A descriptive name for the connection being defined.
Provider	This is the cloud provider you are deploying the HA Cloud Connector onto. In this case, EC2.
Region	The Amazon AWS region in which the ADCs are located.
Access Key	The Amazon IAM Access key that you use to access the AWS EC2 instances.
Secret Key	The Amazon IAM Secret key that you use to access your EC2 instances.

You will need to do this for each region where the ADC and HA Cloud Connector are located. In our demo case, we have used us-east-2.

The next stage is to create the Destinations.

Adding Cloud Destinations

A Destination is an Instance or Network Interface on which you want the Elastic IP to reside. You must have at least two Destinations defined.

HA Cloud Connector

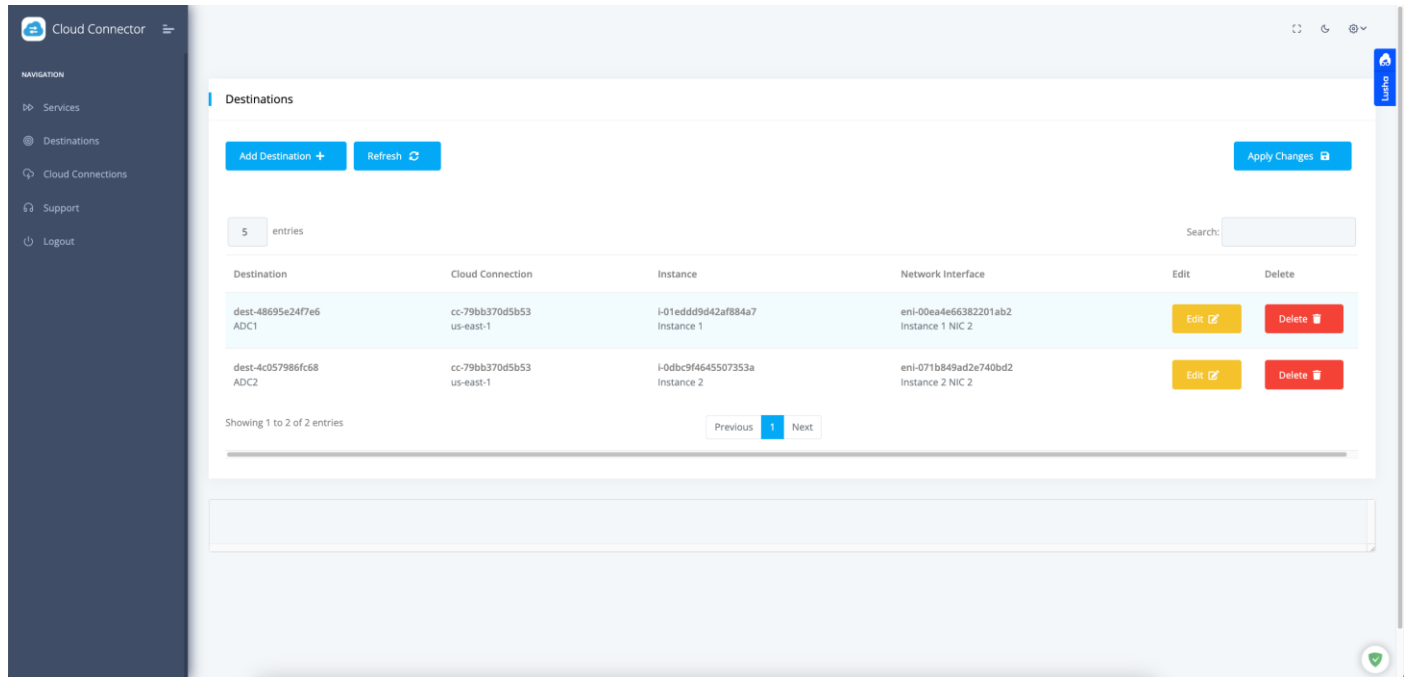
Installation & Configuration Guide

ADC-1 in our case hosts the Elastic IP associated with NIC-2.

ADC-2 also has a NIC-2, awaiting the Elastic IP to be switched over.

We need to add Destinations to allow the HA Cloud Connector to determine where to move the Elastic IP in case of failures that require a failover.

The image below shows what a populated Destinations page looks like. In your case, this will be blank.



Click the Add Destination button to create a blank entry line to add the information.

Destination	Cloud Connection	Instance	Network Interface	Edit	Delete
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="Save"/>	<input type="button" value="Cancel"/>

See the table below for a full description.

Field	Description
Destination	A descriptive name field.
Cloud Connection	A drop-down that is auto-populated using your Cloud Connections data.
Instance	A drop-down list that is auto-populated using the Cloud Connections data.
Network Interface	This is the NIC on which the Elastic IP is located or should be moved. If you have multiple NICs then you will need to choose the appropriate one from the drop-down.

The next stage is configuring the Virtual Service.

Adding a Virtual Service

A Service defines how the HA Cloud Connector will react to a failure of the Real Servers and the Destination it chooses to move the Elastic IP to. To understand the context of the data in our demo, you will need to see our ADC's configuration.

We have two Virtual Services defined in our example.

The screenshot displays the Edgenexus IP-Services configuration interface. The top navigation bar includes 'GUI Status', 'Home', 'Help', and a user dropdown 'admin'. The left sidebar shows 'NAVIGATION' with options for 'Services', 'App Store', and 'IP-Services'. The main content area is titled 'Virtual Services' and contains a search bar and buttons for 'Copy Service', 'Add Service', and 'Remove Service'. Below this is a table of Virtual Services:

Mode	VIP	VS	Enabled	IP Address	SubNet Mask / Prefix	Port	Service Name	Service Type
Stand-alone				172.30.100.38	255.255.255.0	80	WEB-NIC2	HTTP
Stand-alone				172.30.4.134	255.255.255.0	80	Monitoring NIC1	HTTP

Below the Virtual Services table is a section for 'Real Servers' with tabs for 'Server', 'Basic', 'Advanced', and 'flightPATH'. The 'Server' tab is active, showing a 'Group Name' of 'Server Group' and buttons for 'Copy Server', 'Add Server', and 'Remove Server'. A table of Real Servers is displayed:

Status	Activity	Address	Port	Weight	Calculated Weight	Notes	ID
	Online	webserv1.loadbalancer.software	80	100	100		

The first Virtual Service on port 443, is the main Ingress VS through which users access the Application. The Elastic IP is attached to the network interface (NIC-2) for this IP address.

The second on port 80, associated with NIC-1, is the Monitoring VS and corresponds to the one defined in the Service definition explained later in this section.

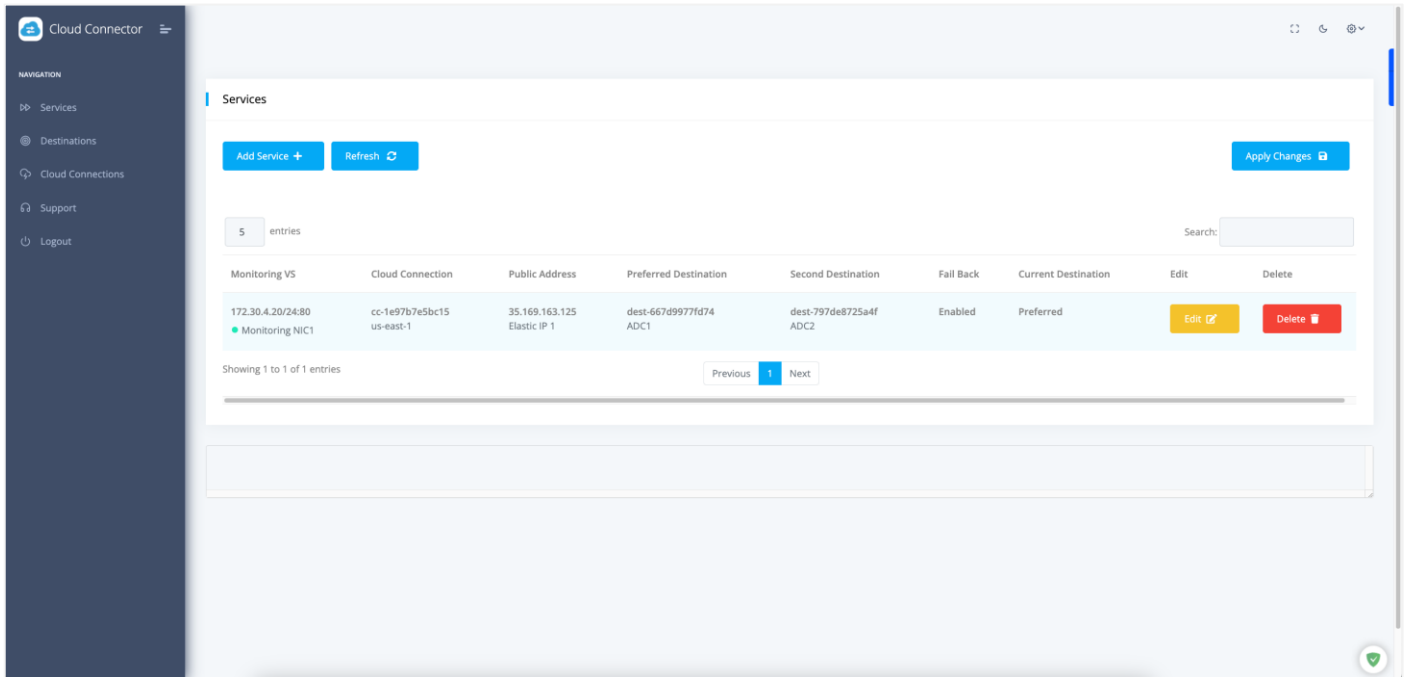
Both Virtual Services terminate to the same Real Servers.

This is the case on both ADCs, except for the different Virtual IP addresses.

In the image below, you can see our demo example for the Services page.

HA Cloud Connector

Installation & Configuration Guide



In this example, you will see that the entry for the Monitoring VS matches the Monitoring NIC 1 VS defined in our ADC.

There will be no entries in the HA Cloud Connector you have just deployed, and you need to define your Service.

Click the Add Service button to create a new entry line.

Monitoring VS	Public Address	Preferred Destination	Second Destination	Fail Back	Current Destination	Edit	Delete
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Dis <input type="text"/>		<input type="button" value="Save"/>	<input type="button" value="Cancel"/>

Field	Description
Monitoring VS	Select the Monitoring VS you created in your ADC from the drop-down.
Public Address	Select the Elastic IP address that you have allocated in the AWS Instance.
Preferred Destination	The Preferred Destination is where you would like traffic ingressing into the Elastic IP to be routed to.
Second Destination	The Destination where you would like traffic ingressing into the Elastic IP to be routed to in the event of failure.
Fallback	When Enabled is selected, the Elastic IP will be moved back to the Preferred Destination when the failed Service is restored.

You must define the Virtual Service entry within the HA Cloud Connector on both ADCs.

Note: The Service definition should appear so the Preferred and Secondary destinations are interchanged on the two ADCs.

HA Cloud Connector

Installation & Configuration Guide

ADC 1 Monitoring Service definition:

Monitoring VS	Cloud Connection	Public Address	Preferred Destination	Second Destination	Fail Back	Current Destination	Edit	Delete
172.31.40.68/20:80 ● Monitoring	cc-c83df06a2315 OHIO	3.131.207.210 None	dest-d22faed17527 EADC-1	dest-64864399a122 EADC-2	Enabled	Finding	Edit	Delete

ADC 2 Monitoring Service definition:

Monitoring VS	Cloud Connection	Public Address	Preferred Destination	Second Destination	Fail Back	Current Destination	Edit	Delete
172.31.40.70/20:80 ● Monitoring	cc-f2105f0f17bf OHIO	3.131.207.210 None	dest-867ed83aad61 EADC-2	dest-b020e53f8fc EADC-1	Enabled	Finding	Edit	Delete

Testing the installation

To test the installation is very simple.

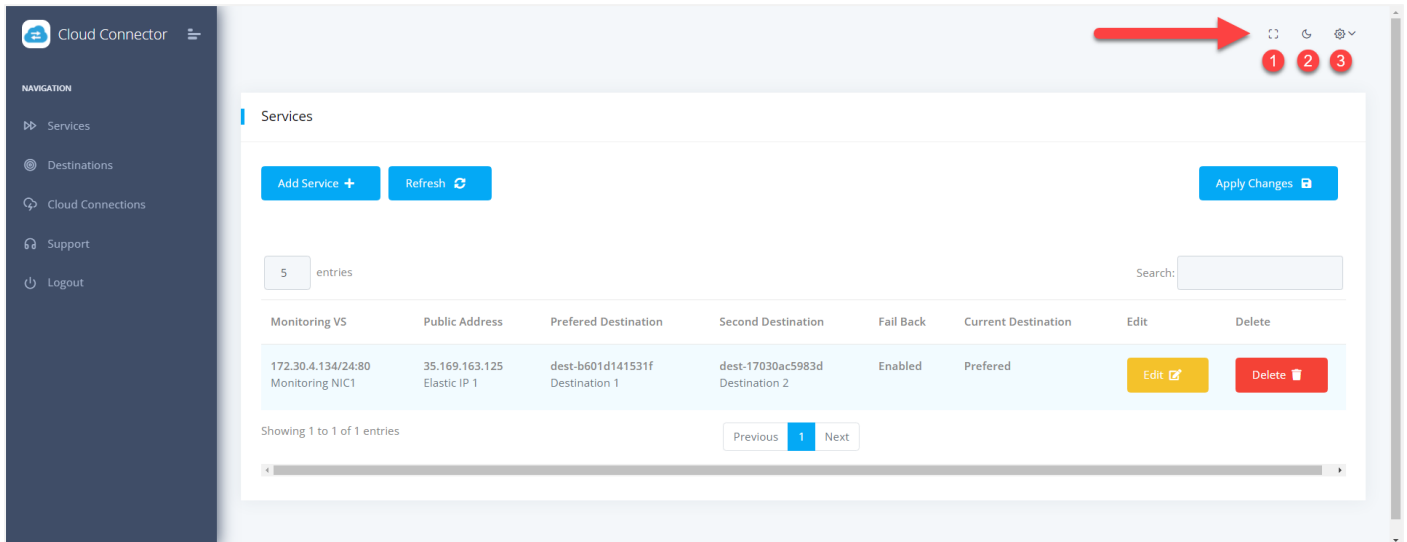
The easiest way is to change the Port of the Real Server to something other than the value you have set. This action will result in a failure of monitoring traffic to the Real Server.

If you now look at the Instances you have, you will notice that the Elastic IP has moved from one ADC to another.

If Failback has been selected, changing the Real Server's Port back to the original value will result in the Elastic IP being changed back to the Preferred Destination.

Other Settings

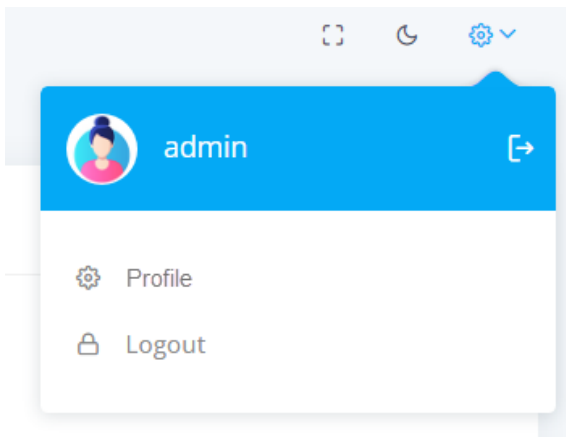
There are a few other settings in the HA Cloud Connector that you may wish to use. These are accessed using one of the icons displayed at the top right of the page.



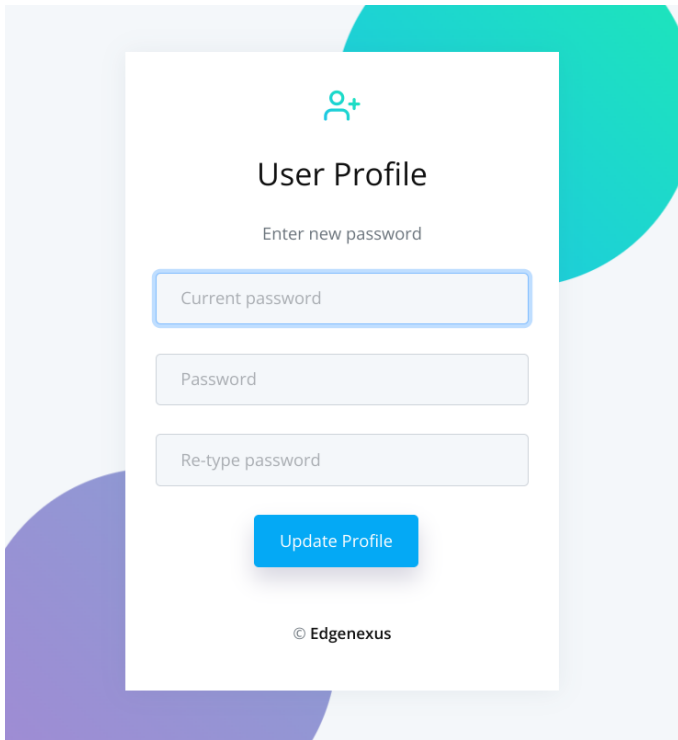
Changing the password

You may change the default password from **admin** to something of your choice.

To do this, click on the icon **3** indicated in the image above to open a menu, from which you must select Profile.



Once selected, you will be shown the form to change your password.



Provide the current password and enter your new password.

Dark Mode

You can display the HA Cloud Connector user interface in either Dark or Light Mode by selecting the icon **2**. Clicking the icon alternates the display modes.

Full-Screen Mode

If you wish to display the HA Cloud Connector App on full screen, click the icon **3**. The Escape key exits from the full screen display.

Microsoft Azure

Prerequisites, Examples and More

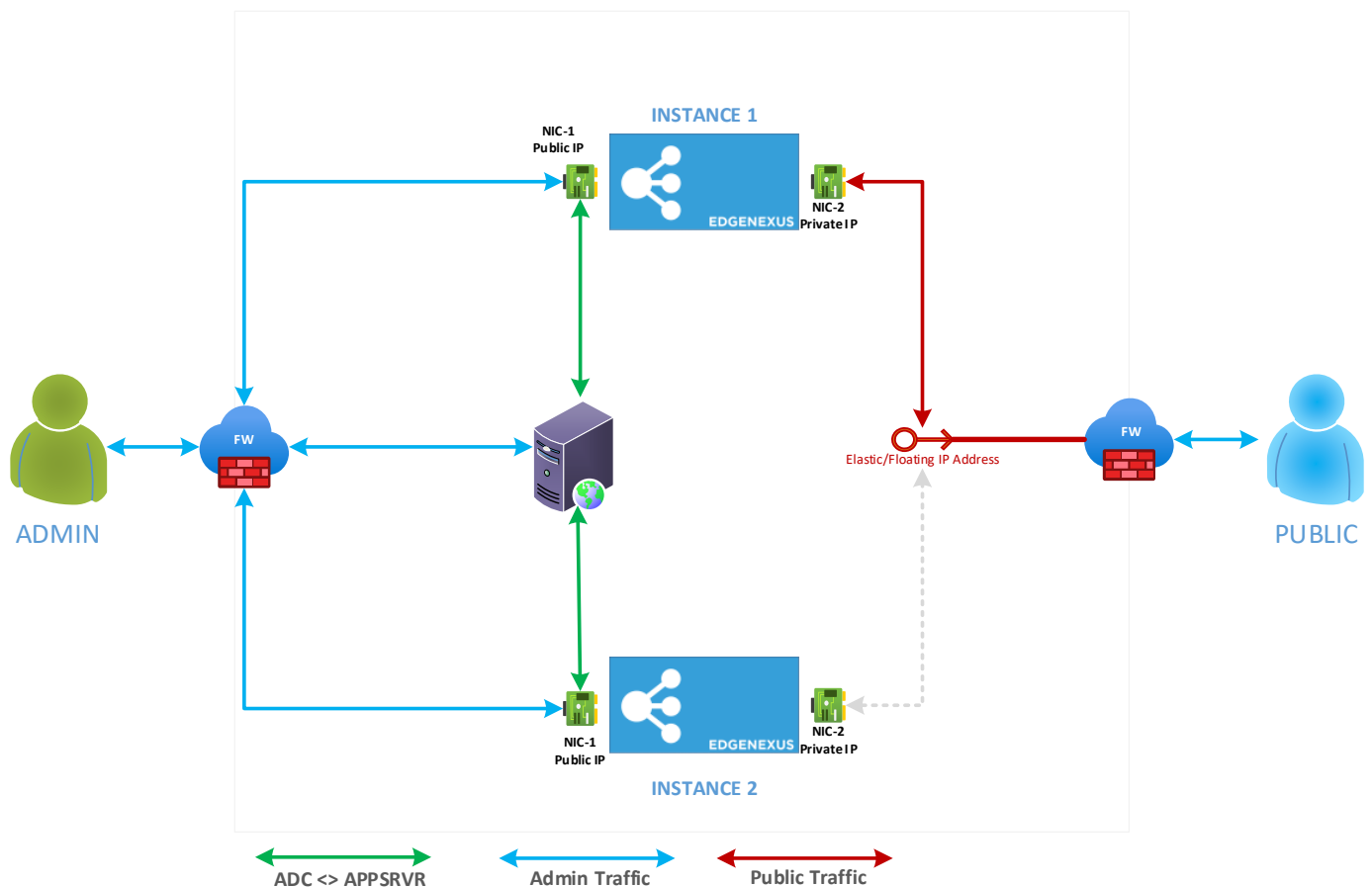
Prerequisites

To use the HA Cloud Connector, you need to fulfill some prerequisites.

6. You must have TWO Edgenexus ADCs configured and running within Microsoft Azure, with the same VIP/VS configurations.
7. The ADCs must be configured as stand-alone devices.
8. You require TWO network interfaces. Let's call them NIC-1 and NIC-2.
9. All IP addresses used must be Static IP addresses – **Important**.
10. NIC1 on each VM will have a static public IP address for ADC administration use.
11. You must have an AWS Public IP configured and available.
12. Associate the Elastic IP with NIC-2 on ADC 1. The HA Cloud Connector App uses this and will switch this automatically to NIC-2 on ADC2 when required.

Example Architecture

Below is our sample architecture.



To summarise the network connectivity:

- ADC-1 NIC1:
 - Public IP1 -> Private IP1 -> NIC
- ADC-2 NIC1:
 - Public IP2 -> Private IP2 -> NIC

- ADC-1 NIC2:
 - Elastic IP -> Private IP3 -> NIC
 - "No IP Address" -> Private IP4 -> NIC

The term “No IP Address” refers to the NIC not having the Elastic IP connected to it and waiting for the failover in case of service failure.

VM Cloud Configuration

Important - Using Tags

We strongly advise that you define each element you configure with an Azure TAG.

This makes it easier to select the right elements when configuring the HA Cloud Connector, and the lack of tags not only makes it more difficult, but also leads to incorrect operation of the product leading to increased support.

For example, we have named our VMs JS-HACC-VM1-UKS-Z1. This allows us to easily see that JS has created a HACC VM number 1, in the UK South region's Zone 1.

Similarly, we also name our NICs. For example, HACC-VM1-NIC2.

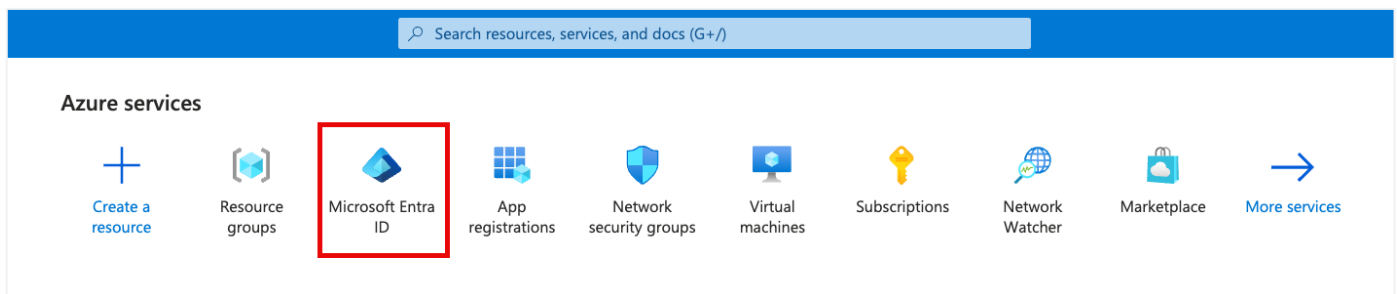
Preparing Azure for HACC

In order to create the Azure environment for use with HA Cloud Connector, you will need to follow the stages below.

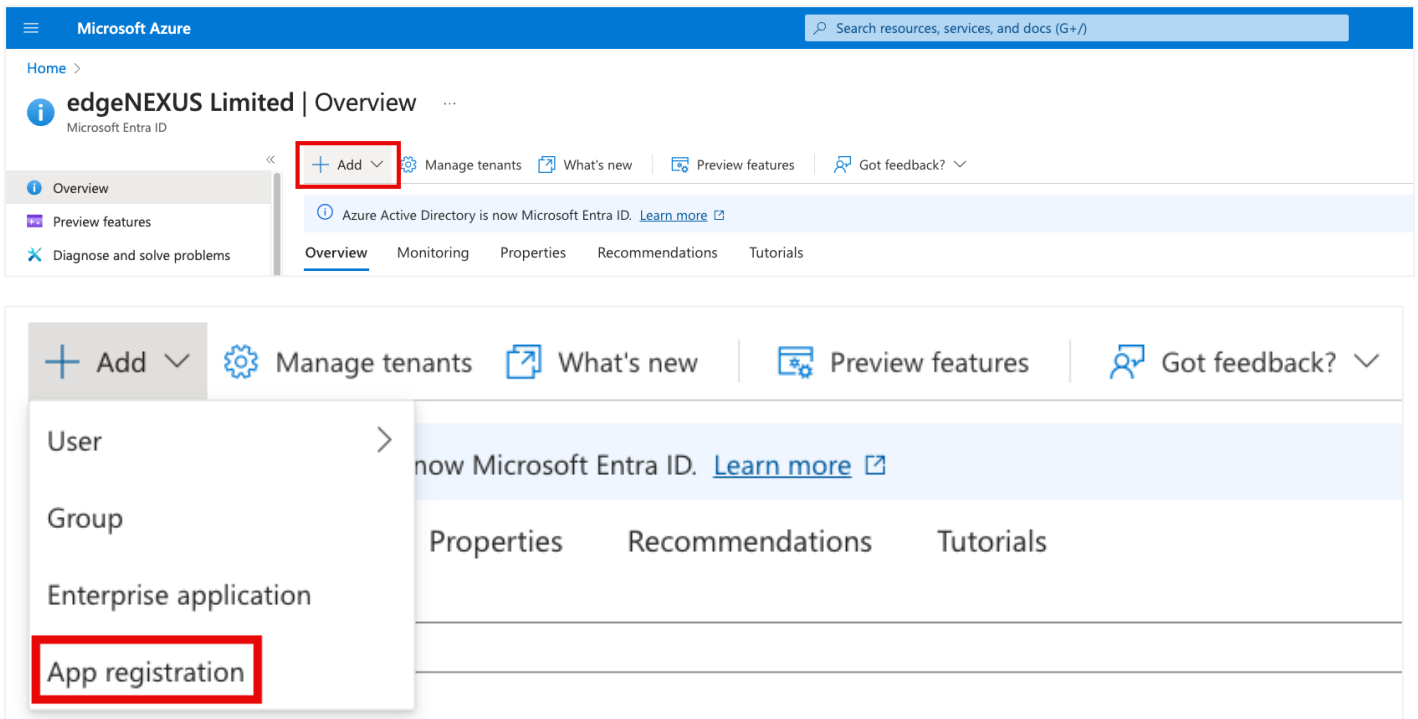
Creating the App registration

In order to use an App to communicate with Azure's API, you are required to first register it. This process is called App Registration.

- Log into the Azure portal.
- Navigate to Microsoft Entra ID. You can find this by typing Entra ID into the search field at the top, or clicking the icon if it is already visible.



On the next screen (shown below) you need to click the small arrow next to the Add button (highlighted), and choose App registration.



The following screen will display a form that is very easy to fill in.

HA Cloud Connector

Installation & Configuration Guide

Home > edgeNEXUS Limited | App registrations > Register an application

Name
The user-facing display name for this application (this can be changed later).

Supported account types
Who can use this application or access this API?
☒ Accounts in this organizational directory only (edgeNEXUS Limited only - Single tenant)
☐ Accounts in any organizational directory (Any Microsoft Entra ID tenant - Multitenant)
☐ Accounts in any organizational directory (Any Microsoft Entra ID tenant - Multitenant) and personal Microsoft accounts (e.g. Skype, Xbox)
☐ Personal Microsoft accounts only

Help me choose...

Redirect URI (optional)
We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.

Select a platform

Register an app you're working on here. Integrate gallery apps and other apps from outside your organization by adding from [Enterprise applications](#).

By proceeding, you agree to the [Microsoft Platform Policies](#)

Register

Provide a name for the application and click Register. We have used the AppName of Edgenexus HA Cloud Connector, but you can use anything that suits you.

On the next screen, you will see the Certificates & Secrets for the Application.

Microsoft Azure

Home > edgeNEXUS Limited | App registrations > Edgenexus HA Cloud Connector

Edgenexus HA Cloud Connector | Certificates & secrets

Search
Got feedback?

Overview
Quickstart
Integration assistant

Manage
Branding & properties
Authentication
Certificates & secrets
Token configuration
API permissions
Expose an API
App roles
Owners
Roles and administrators
Manifest

Support + Troubleshooting
Troubleshooting
New support request

Credentials enable confidential applications to identify themselves to the authentication service when receiving tokens at a web addressable location (using an HTTPS scheme). For a higher level of assurance, we recommend using a certificate (instead of a client secret) as a credential.

Application registration certificates, secrets and federated credentials can be found in the tabs below.

Certificates (0) **Client secrets (1)** Federated credentials (0)

A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.

+ New client secret

Description	Expires	Value	Secret ID
HACC-Secret-21-FEB-24	2/20/2026	JPX*****	80a*****47be

NOTE: It is very important that you make a note of the content in the VALUE field. This is also referred to as the Client Secret and is required within the HACC application.

This concludes the App Registration section.

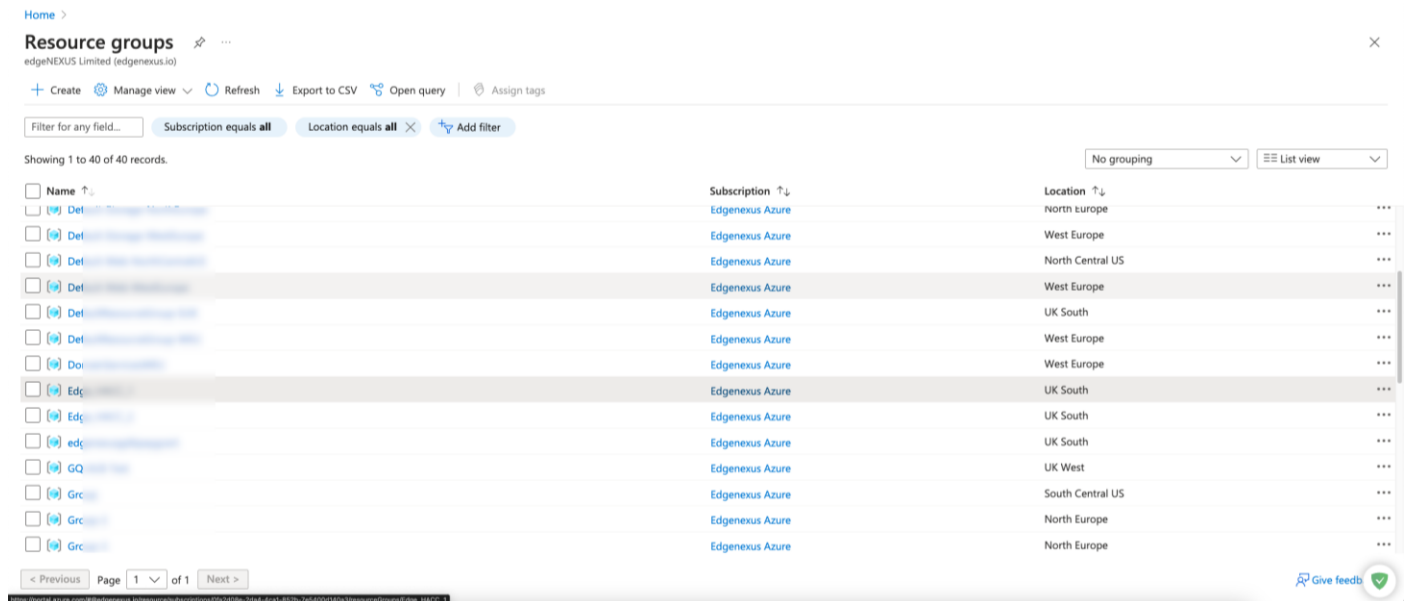
Creating a Resource Group

We advise you to create two Resource Groups for holding the two ADCs and their respective assets. In our case, we have created two Resource Groups called HACC_1 and HACC_2.

HA Cloud Connector

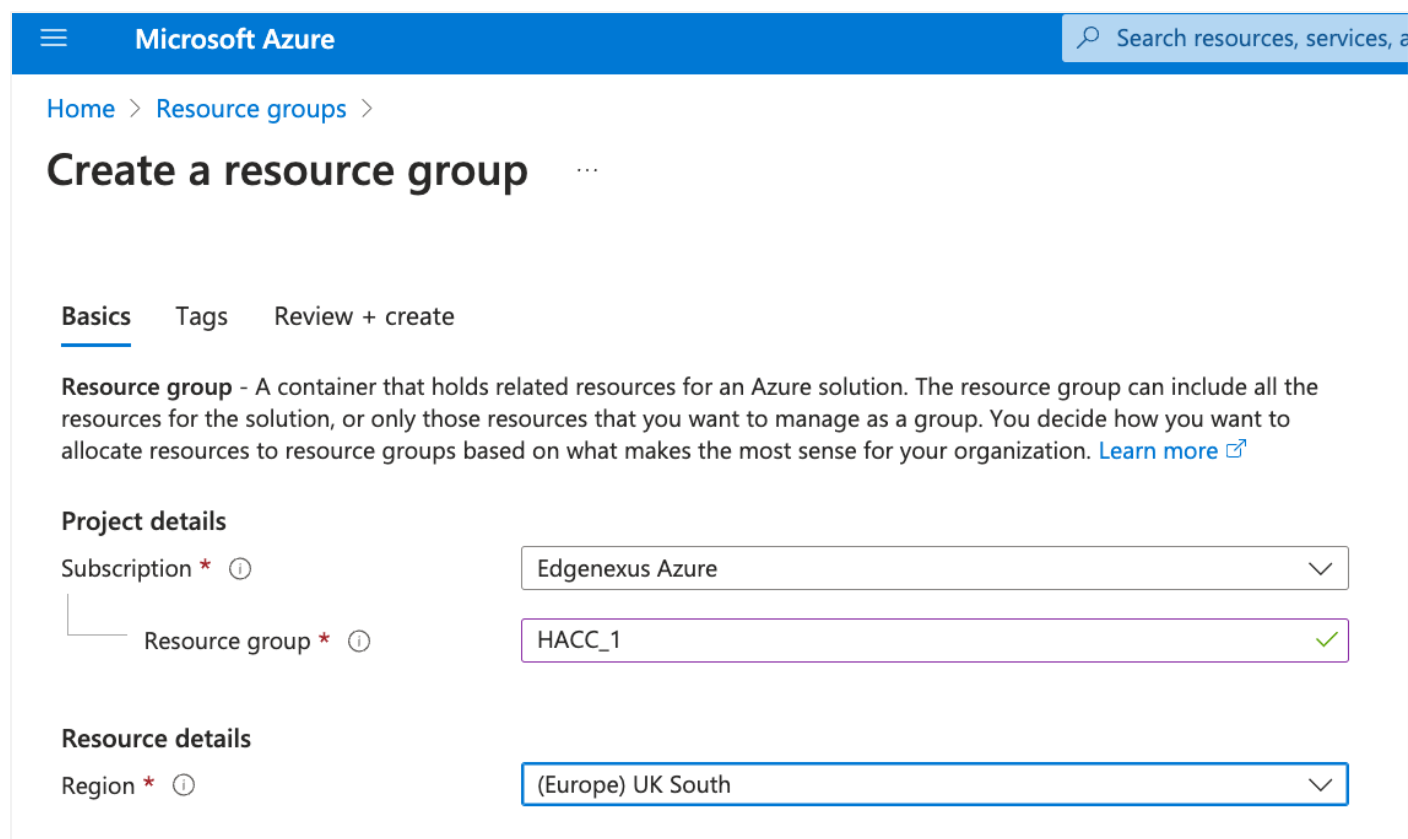
Installation & Configuration Guide

To create a Resource Group, type resource group in the search bar. This will show you the icon for the Resource Group section. Click this and go to the Resource Group section.



Name	Subscription	Location
Del	Edgenexus Azure	North Europe
Del	Edgenexus Azure	West Europe
Del	Edgenexus Azure	North Central US
Del	Edgenexus Azure	West Europe
Del	Edgenexus Azure	UK South
Del	Edgenexus Azure	West Europe
Del	Edgenexus Azure	West Europe
Edg	Edgenexus Azure	UK South
Edg	Edgenexus Azure	UK South
edc	Edgenexus Azure	UK South
GQ	Edgenexus Azure	UK West
Grc	Edgenexus Azure	South Central US
Grc	Edgenexus Azure	North Europe
Grc	Edgenexus Azure	North Europe

Click Create located at the top left.



Microsoft Azure Search resources, services, and documentation

Home > Resource groups >

Create a resource group

Basics Tags Review + create

Resource group - A container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization. [Learn more](#)

Project details

Subscription * ⓘ Edgenexus Azure

Resource group * ⓘ HACC_1

Resource details

Region * ⓘ (Europe) UK South

Fill in the details and create the Resource Group. Do this for both groups.

Access Control (IAM) and Roles

The next stage is to set the IAM roles in order for the HACC app to communicate and control aspects of the Azure infrastructure.

HA Cloud Connector

Installation & Configuration Guide

To do this you need to first access the Subscriptions. We will be creating roles called:

- [Network Contributor](#) and
- [Virtual Machine Contributor](#).

Within the Subscription page, click on the Access Control (IAM) link in the left panel.

Edgenexus Azure | Access control (IAM) ☆ ...

Subscription

Search

+ Add ▾ Download role assignments Edit columns Refresh Remove Feedback

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Security

Events

Cost Management

Cost analysis

Cost alerts

Budgets

Advisor recommendations

Billing

Billing profile invoices

Add role assignment

Add co-administrator

Add custom role

View my level of access to this resource.

View my access

Check access

Review the level of access a user, group, service principal, or managed identity has to this resource. [Learn more](#)

Check access

Grant access to this resource

Grant access to resources by assigning a role. [Learn more](#)

Add role assignment

View access to this resource

View the role assignments that grant access to this and other resources. [Learn more](#)

View

View deny assignments

View the role assignments that have been denied access to specific actions at this scope. [Learn more](#)

View

Now click Add Role Assignment as shown above. The screen you will see is one like below. Type Network Contributor in the search box and select the Network Contributor option as shown below.

Home > Edge_HACC_1 | Access control (IAM) >

Add role assignment ...

Role Members Conditions Review + assign

A role definition is a collection of permissions. You can use the built-in roles or you can create your own custom roles. [Learn more](#)

Job function roles Privileged administrator roles

Grant access to Azure resources based on job function, such as the ability to create virtual machines.

network contr

Type: All Category: All

Name	Description	Type	Category	Details
Classic Network Contributor	Lets you manage classic networks, but not access to them.	BuiltInRole	Networking	View
Classic Virtual Machine Contributor	Lets you manage classic virtual machines, but not access to them, and not the virtual network or storage account they're connected to.	BuiltInRole	Compute	View
Domain Services Contributor	Can manage Azure AD Domain Services and related network configurations	BuiltInRole	Identity	View
Network Contributor	Lets you manage networks, but not access to them.	BuiltInRole	Networking	View
Private DNS Zone Contributor	Lets you manage private DNS zone resources, but not the virtual networks they are linked to.	BuiltInRole	Networking	View
SQL Managed Instance Contributor	Lets you manage SQL Managed instances and required network configuration, but can't give access to others.	BuiltInRole	Databases	View
Virtual Machine Contributor	Lets you manage virtual machines, but not access to them, and not the virtual network or storage account they're connected to.	BuiltInRole	Compute	View
Windows 365 Network Interface Contributor	This role is used by Windows 365 to provision required network resources and join Microsoft-hosted VMs to network interfaces.	BuiltInRole	None	View

Showing 1 - 8 of 8 results.

Review + assign Previous Next

Now click the +Select Members link as seen below, and then click Next.

HA Cloud Connector

Installation & Configuration Guide

Home > Edge_HACC_1 | Access control (IAM) >

Add role assignment

Role: Members | Conditions: Review + assign

Selected role: Network Contributor

Assign access to: ☒ User, group, or service principal ☐ Managed identity

Members: + Select members

Name	Object ID	Type
No members selected		

Description: Optional

Review + assign Previous Next

You will now see the box shown below on the right side. Select the application you registered. In our case it looks like the image below.

Select members

Select ⓘ

Edge

- Edgenexus Azure AD integration
- Edgenexus HA Cloud Connector
- Edgenexus Technical Presales
EdgenexusPreSales@edgenexus.io

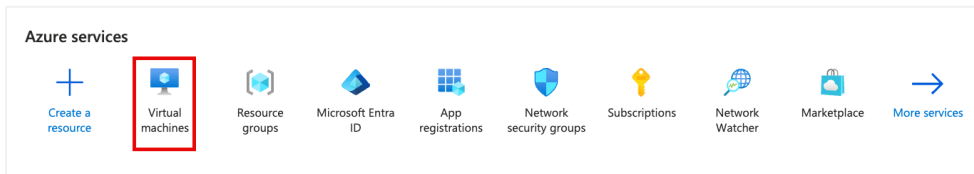
Now repeat the steps above to add the Virtual Machine Contributor role.

When done, go to the Home page of your portal to proceed to the next steps.

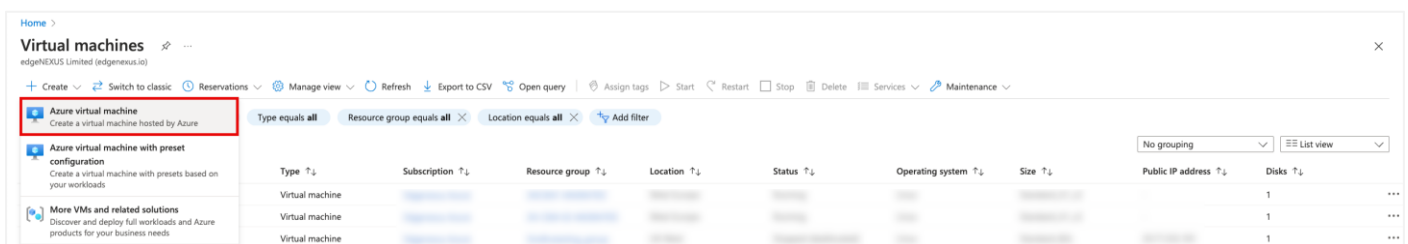
Creating the ADC Virtual Machines

Now comes the main step – creating the EdgeADC virtual machines. We will be creating two virtual machines, **both in the same region and zone**.

In the main portal, click the Virtual machines icon.



In the next screen click on the Create menu and select Azure virtual machine from the dropdown.



You will now come to the pages where you set up your virtual machine for the EdgeADC.

A screenshot of the 'Create a virtual machine' wizard in the Azure portal, specifically the 'Basics' tab. Several fields are highlighted with red rectangular boxes: 'Subscription' (set to 'Edgenexus Azure'), 'Resource group' (set to 'Edge_HACC_1'), 'Virtual machine name' (set to 'JS-HACC-VM-1'), 'Region' (set to '(Europe) UK South'), 'Availability zone' (set to 'Zones 1'), and 'Image' (set to 'Ubuntu Server 20.04 LTS - x64 Gen2'). The 'VM architecture' is set to 'x64'. At the bottom, there are navigation buttons: 'Review + create', '< Previous', and 'Next: Disks >'. The 'Review + create' button is highlighted with a red box.

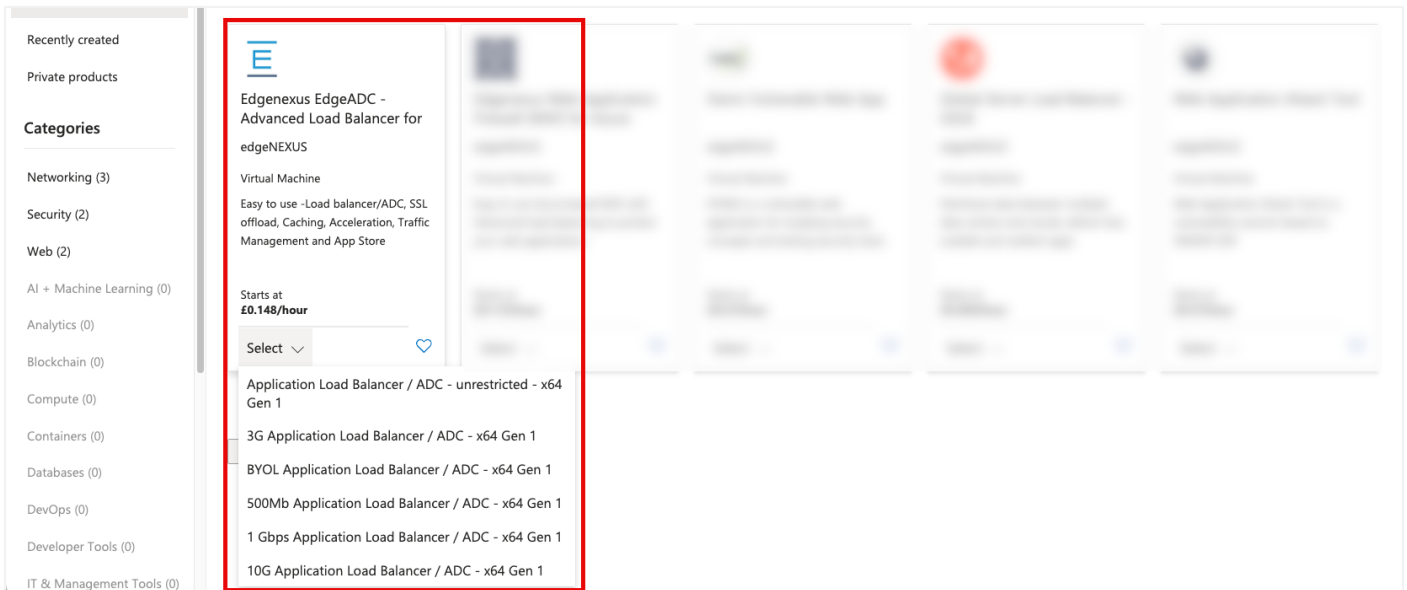
This is the first page of the VM setup. In the image above, we have indicated the fields that need to be selected.

- Select the Resource Group for ADC1 VM
- Give it a VM name of your choice
- Choose the Region and Zone – Need to be in the same region and zone

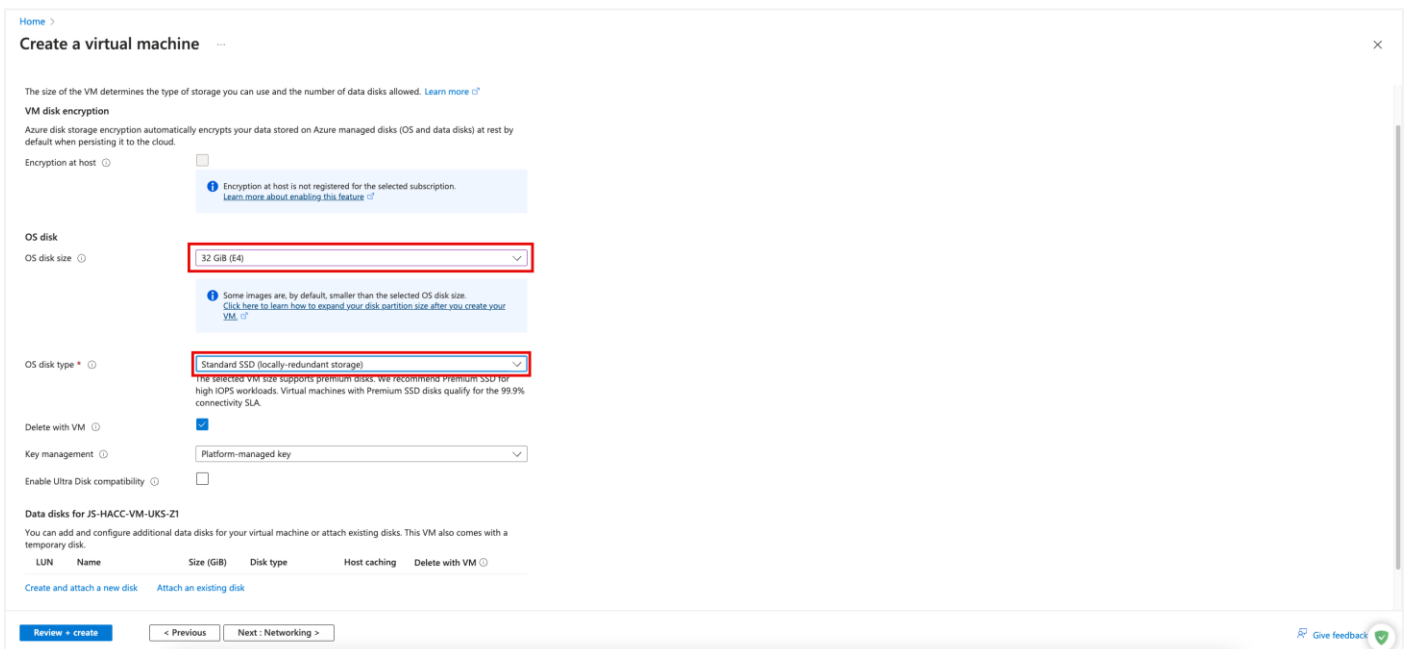
HA Cloud Connector

Installation & Configuration Guide

- Choose Standard as the Security type
- Click the See all images link.
- When the Marketplace comes up, search for Edgenexus



- Choose the type of EdgeADC licensing model you need.
If you are installing your own license purchased from Edgenexus, choose the BYOL option, otherwise choose one of the times/sized license options.
- You will then be taken back to the virtual machine creation page.
- Click the Next: Disks button.
- On the Disks page we have highlighted the options need changing.



- Choose the Disk size (we recommend 40GB but the nearest is 64GB).
- Choose the OS Disk Type as Standard SSD.
- Click Next: Networking.
- You can skip the Management page unless you wish to use it. Click Next: Monitoring.
- Unless you wish to use Monitoring, we suggest clicking the Disable option.

HA Cloud Connector

Installation & Configuration Guide

The screenshot shows the 'Create a virtual machine' wizard in the Azure portal, specifically the 'Monitoring' tab. The wizard has several tabs: Basics, Disks, Networking, Management, Monitoring (selected), Advanced, Tags, and Review + create. Under the 'Monitoring' tab, there are three sections: Alerts, Diagnostics, and Health. In the 'Diagnostics' section, under 'Boot diagnostics', there are three radio button options: 'Enable with managed storage account (recommended)' (which is selected), 'Enable with custom storage account', and 'Disable'. The 'Disable' option is highlighted with a red rectangle. At the bottom of the wizard, there is a 'Review + create' button, a '< Previous' button, and a 'Next: Advanced >' button. A 'Give feedback' button is also visible in the bottom right corner.

- Click on the Review & create button as we have no need to do anything on the Advanced page.

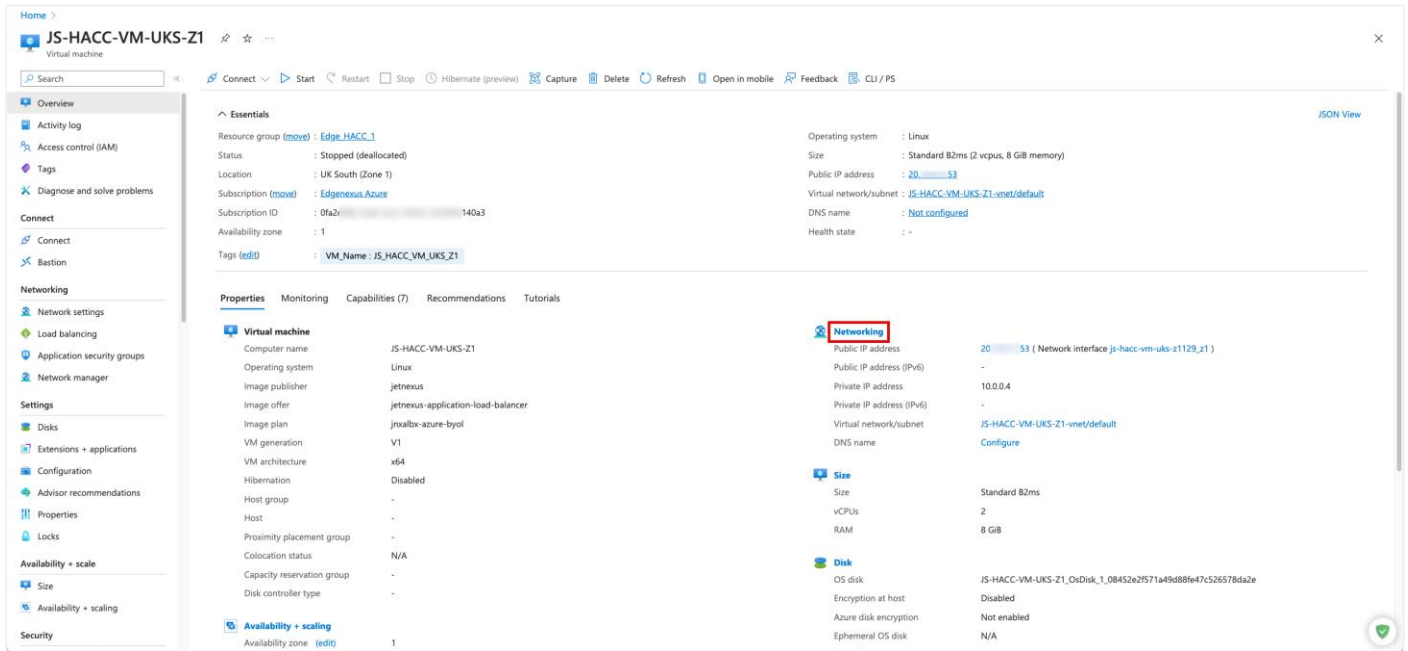
The ADC VM will now be created.

NOTE: These steps will need to be repeated to create the second ADC VM.

Configuring the Virtual Machine

When you have your Virtual machine created, make sure it is in the Off status, as we cannot make the changes we need if it is running.

Networking



The screenshot displays the Azure portal interface for a Virtual Machine named 'JS-HACC-VM-UKS-Z1'. The 'Networking' tab is highlighted in red, showing the network interface configuration. The 'Virtual machine' tab is also visible, showing the VM's properties.

Virtual machine properties:

- Resource group: Edge_HACC_1
- Status: Stopped (deallocated)
- Location: UK South (Zone 1)
- Subscription: Edgenexus Azure
- Subscription ID: 0fa2c1b1-140a3
- Availability zone: 1
- Tags: VM_Name: JS-HACC-VM-UKS_Z1

Networking configuration:

- Public IP address: 20.133.53 (Network interface js-hacc-vm-uks-z1129_z1)
- Public IP address (IPv6): -
- Private IP address: 10.0.0.4
- Private IP address (IPv6): -
- Virtual network/subnet: JS-HACC-VM-UKS-Z1-vnet/default
- DNS name: Configure

Size configuration:

- Size: Standard B2ms
- vCPUs: 2
- RAM: 8 GiB

Disk configuration:

- OS disk: JS-HACC-VM-UKS-Z1_OsDisk_1_08452e2f571a49d88fe47c526578da2e
- Encryption at host: Disabled
- Azure disk encryption: Not enabled
- Ephemeral OS disk: N/A

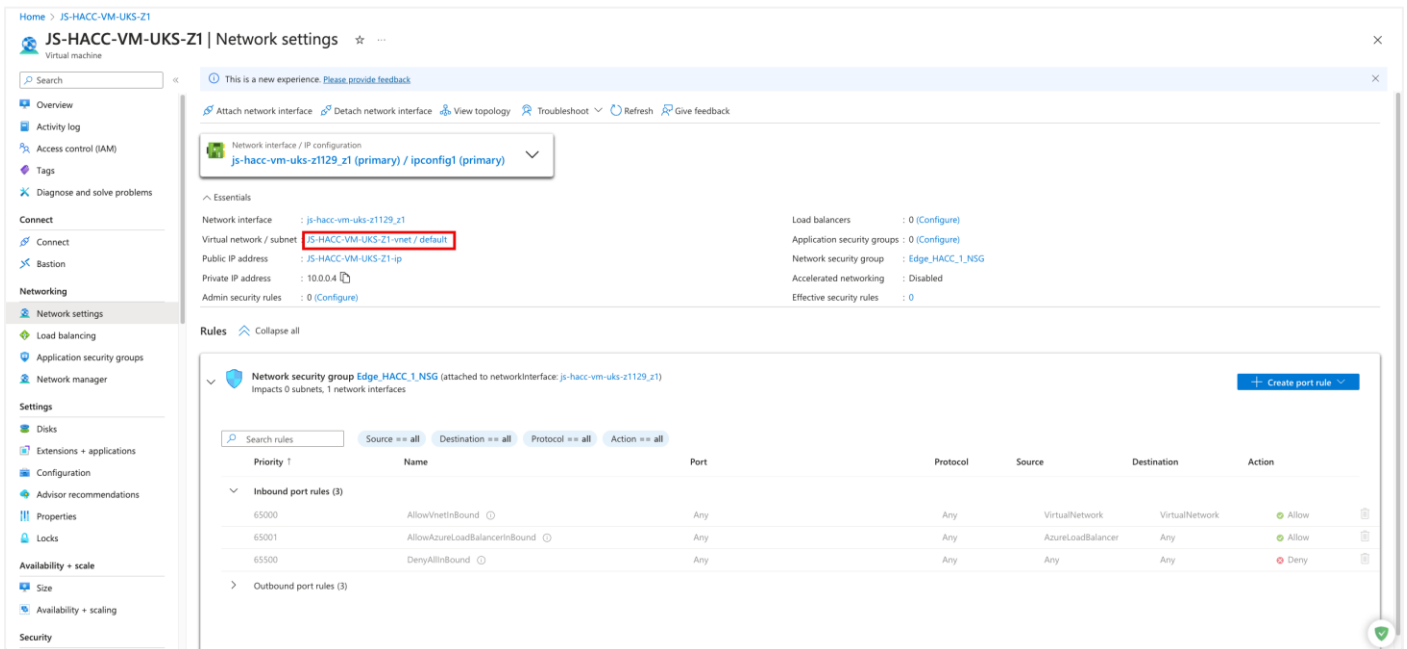
The first stage of configuring the VM for use with HACC is Networking. The first thing we will do is to add a new subnet and an additional network interface (NIC).

- Click the Networking link highlighted above.
- This will take us to the Networking page.

HA Cloud Connector

Installation & Configuration Guide

Adding a Subnet



- Click on the Virtual Network/subnet link highlighted.
- You will now be presented with the Add Subnet page shown below.

Add subnet

Name *

HACC_1_Secondary ✓

Subnet address range * ⓘ

10.0.1.0/24

10.0.1.0 - 10.0.1.255 (251 + 5 Azure reserved addresses)

☐ Add IPv6 address space ⓘ

NAT gateway ⓘ

None

Network security group

Edge_HACC_1_NSG

Route table

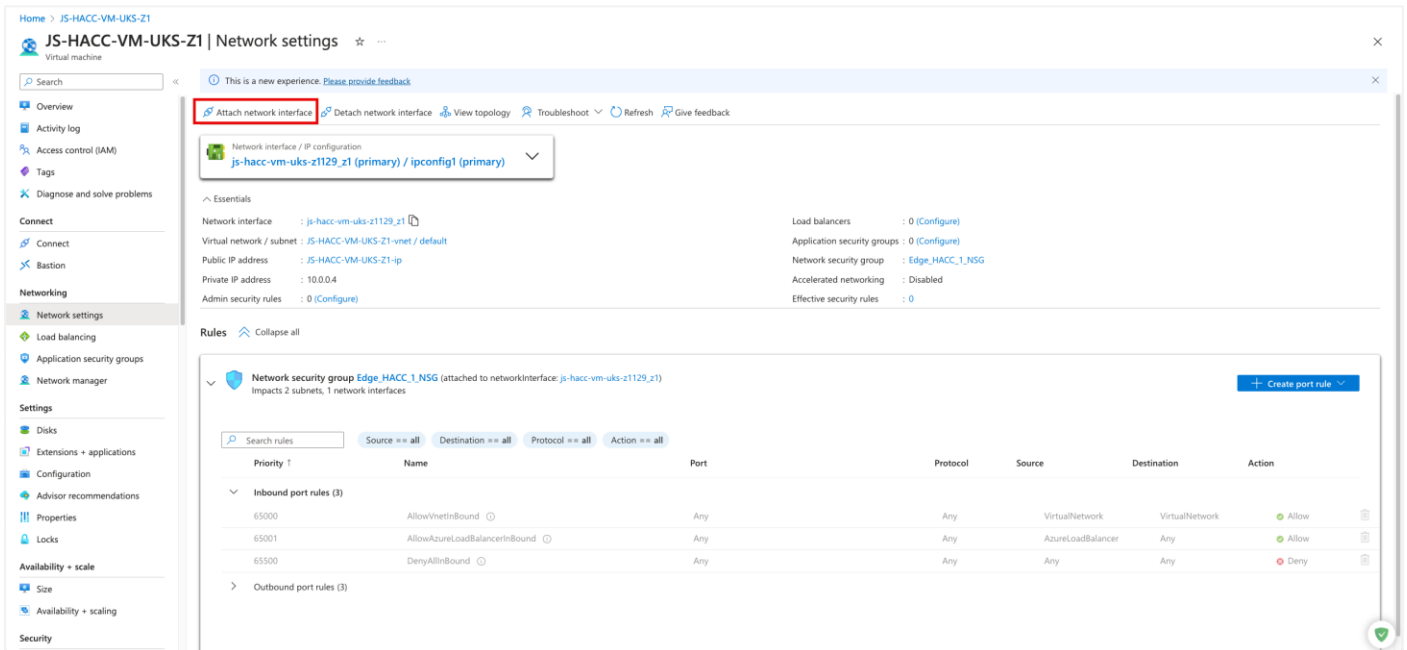
None

Save Cancel Give feedback

- Fill out the field shown in the image above.
- Remember the subnet should be a new one, and it is this subnet that we will use for the Elastic IP and user access to the applications.
- Choose the appropriate Network security Group.
- Once done click Save.

Attach a Network Interface to new Subnet

The next thing to do is to attach a new NIC to the new subnet.



- Click the Attach Network Interface link indicated in the image above.
- Click the Create and attach network interface link below the drop down that appears.
- You will see the following page

Home > JS-HACC-VM-UKS-Z1 | Network settings >

Create network interface

Name *

HACC_VM1_NIC2 ✓

Virtual network

JS-HACC-VM-UKS-Z1-vnet

Subnet *

HACC_1_Secondary (10.0.1.0/24) ✓

NIC network security group

☐ None

☒ Basic

☐ Advanced

Public inbound ports *

☒ None

☐ Allow selected ports

Select inbound ports

Select one or more ports

All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

Private IP address assignment

☐ Dynamic ☒ Static

Private IP address *

10.0.1.100 ✓

☐ Private IP address (IPv6)

Accelerated networking

☐ Disabled ☐ Enabled

Create

HA Cloud Connector

Installation & Configuration Guide

- Add a name for the NIC you are creating.
- Choose the new Subnet from the dropdown menu.
- Make it a Static Private IP address.
- Add an IP address making sure it is in the new subnet.
- Click Create.

Creating a Public IP Address

The Public IP address that we will create is going to serve as the Elastic IP Address we will use for high availability.

- From the home page of the portal click Create a Resource.
- Select Networking in the left panel, or type Public IP Addresses in the search.
- You will see the following page (split into two halves for clarity).

Microsoft Azure

Home > Create a resource >

Create public IP address

Basics Tags Review + create

Create a public IP address. Associate it with a virtual machine or other Azure resources. Internet resources communicate to Azure resources through a public IP address. [Learn more](#).

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription ⓘ * Edgenexus Azure

Resource group ⓘ * Edge_HACC_1 [Create new](#)

Instance details

Region ⓘ * (Europe) UK South [Deploy to an edge zone](#)

Configuration details

Name * HACC_UKS_ElasticIP

IP Version ⓘ * ☒ IPv4 ☐ IPv6

SKU ⓘ * ☒ Standard ☐ Basic

- Choose the Resource Group. We have chosen the group that VM1 was created in.
- Choose the Region.
- Specify a name for this Elastic IP. Essential that this is be done properly so it is recognizable in the HACC application configuration.
- Choose IP V4 for the IP Version, and Standard for the SKU.

HA Cloud Connector

Installation & Configuration Guide

Availability zone * ⓘ Zone-redundant ▼

Tier * ⓘ
☒ Regional
☐ Global

IP address assignment

Static IPs are assigned at the time the resource is created and released when the resource is deleted. Dynamic IPs are assigned when associating the IP to a resource and is released when you stop, restart, or delete a resource. Dynamic is only available for Basic SKU. [Learn more](#) ⓘ

IP address assignment * ⓘ
☐ Dynamic
☒ Static

Routing preference * ⓘ
☒ Microsoft network
☐ Internet

Idle timeout (minutes) * ⓘ 4

DNS name label ⓘ
hacc
.uksouth.cloudapp.azure.com

Previous Next Review + create

- Leave the Availability Zone as redundant.
- Leave the Tier as Regional.
- Choose Static as the IP address assignment.
- Choose the Routing Preference as Microsoft Network.
- Provide an appropriate DNS name for the Elastic IP address. We have chosen HACC for convenience, but this may be something more relevant to your deployment.
- Click Review & Create.
- You will see the result looking like the following image.

Home > **PublicIPAddress-ARM | Overview** ⓘ ...

Deployment

Search < Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name : PublicIPAddress-ARM
Subscription : Edgenexus Azure
Resource group : Edge_HACC_1

Start time : 2/21/2024, 11:46:09 AM
Correlation ID : 6b87b437-2384-4a44-a14d-727a1e5ae690

Deployment details

Resource	Type	Status	Operation details
✓ HACC_UKS_ElasticIP	Public IP address	OK	Operation details

NOTE: You need to associate the Public IP with ADC1-NIC2 initially, after which the HACC app will handle this automatically.

Important Information Required to Deploy HACC

We are almost there now and will be ready to deploy the HA Cloud Connector in Azure.

Checklist

1. App Registration
2. Resource Group
3. Access Control IAM Roles
4. Two Virtual Machines with EdgeADC OS Image created
5. Additional subnet added
6. Network Interface attached to new subnet
7. Public IP address created

Information required to proceed

- a. Azure Subscription ID
- b. Directory Tenant ID (found on the HACC App page)
- c. Application Client ID (found on the HACC App page)
- d. App Secret (Noted down earlier when creating the Application Registration)

NOTE: If you failed to store the App Secret, you will need to delete the App Registration and redo it.

Configuring the EdgeADC

There are a number of items that need to be configured on the ADC for the HACC app to work.

Configuring the ADC networking

By default when the ADC is created it is populated and configured to use the eth0 network interface. We will need to add the new network interface we created earlier and prepare a virtual service for use.

Below you will find the Networking page of the EdgeADC.

EDGE NEXUS

IP-Services Network

NAVIGATION

- Services
- Library
- View
- System
 - Clustering
 - Date & Time
 - Email Events
 - History
 - Licence
 - Logging
 - Network
 - Power
 - Security
 - SNMP
 - Users
- Advanced
- Help

Network

Basic Setup

Name: EADC

IPv4 Gateway: 10.0.0.1

IPv6 Gateway:

DNS Server 1: 168.63.129.16

DNS Server 2:

Update

Adapter Details

Add Adapter Remove Adapter

Adapter	VLAN	IP Address	Subnet Mask	Gateway	RP Filter	Description	Web Console	REST
eth0		10.0.0.4	255.255.255.0	10.0.0.1	<input checked="" type="checkbox"/>	Green side	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
eth1		10.0.1.100	255.255.255.0	10.0.1.1	<input type="checkbox"/>	Red Side	<input type="checkbox"/>	<input type="checkbox"/>

Interfaces

Remove

ETH Type	Status	Speed	Duplex	Bonding
eth0	<input checked="" type="checkbox"/>	auto	auto	none
eth1	<input checked="" type="checkbox"/>	auto	auto	none

Bonding

Add Remove

[Timed licence 14 days left]

We have already added eth1 as you can see, but the process is extremely simple.

- Click Add Adapter
- You will see a new line placed under eth0 in the Adapter Details section.
- By default the new line will state eth0, but you can use the dropdown menu to select eth1.
- Once you have done that, you can provide the IP Address that was provided by Azure for this network interface. In our case, its 10.0.1.100.
- Provide the appropriate netmask and the Gateway IP address. The Gateway IP address normally ends with 1 and as you can see its 10.0.1.1 in our example.
- Click Update and the networking layer of the ADC will restart.
- You will also need to enter the specific Gateway IP address for eth0.
- If the Ethernet interface connects successfully, you will see its icon show Green in the Interfaces section.

Defining the Virtual Services

The screenshot displays the EdgeNexus IP-Services configuration interface. The top navigation bar includes 'GUI Status', 'Home', 'Help', and a user profile 'azureuser'. The left sidebar shows 'NAVIGATION' with 'Services' expanded, containing 'App Store' and 'IP-Services'. The main content area is titled 'Virtual Services' and features a search bar and action buttons: 'Copy Service', 'Add Service', and 'Remove Service'. Below this is a table of virtual services:

Mode	VIP	VS	Enabled	IP Address	SubNet Mask / Prefix	Port	Service Name	Service Type
Stand-alone			<input checked="" type="checkbox"/>	10.0.1.100	255.255.255.0	443	HTTPS offload	HTTP(S)
Stand-alone			<input checked="" type="checkbox"/>	10.0.1.100	255.255.255.0	80	HTTPS offload	HTTP(S)
Stand-alone			<input checked="" type="checkbox"/>	10.0.0.4	255.255.255.0	80	Monitoring NIC	HTTP(S)

Below the virtual services table is the 'Real Servers' section, which includes tabs for 'Server', 'Basic', 'Advanced', and 'flightPATH'. The 'Server' tab is active, showing a 'Group Name' of 'Server Group' and action buttons: 'Copy Server', 'Add Server', and 'Remove Server'. A table of real servers is displayed:

Status	Activity	Address	Port	Weight	Calculated Weight	Notes	ID
	Online	webserver/loadbalancer/software	80	100	100		

The bottom of the interface shows a status bar with the text '[Timed licence 14 days left]'.

In our example we have two virtual IP addresses, VIP1 and VIP2.

VIP1 (10.0.1.100) is the main ingress VIP, and is the one used to access the application and the Elastic IP. It is also the IP address of eth1 (Azure VM NIC2).

The second VIP IP address is the Private IP address for eth0 (Azure VM NIC1) of the Virtual Machine, and one that Azure has allocated. This is used to administer the EdgeADC using the public IP allocated to it by Azure (10.0.0.4) and is also the Monitoring VIP used by the HACC to test the application's real server for availability.

Both VIPs in our example point to the same real server, meaning that if either the server fails, or the VIP fails, the HACC will initiate a failover.

Installing the HA Cloud Connector

Before we can begin configuration and use, we need to first obtain the HACC app, install it, make it operational and then configure. You may find that it is already installed and ready to be made operational depending on the version of ADC you have deployed.

Important

The HA Cloud Connector must be installed on both ADCs you have spun up in the selected region. Each must be configured individually to talk to the Cloud Provider API to switch the Elastic IP when needed.

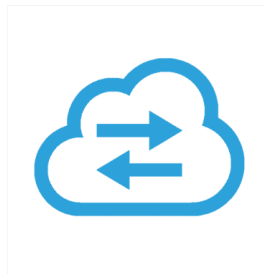
Obtaining the HA Cloud Connector

As with every Edgenexus App, the HA Cloud Connector is available through the App Store and is free of cost to download, and some are even free to use.

At this point, you have two options: Using the App Store from within the EdgeADC or directly downloading the App from the App Store and then uploading it to the EdgeADC.

Downloading and importing the App using the EdgeADC

- The first option is to log in using your App Store credentials inside the EdgeADC. The integrated App Store interface is available using Services > App Store.
- This method will allow you to make the purchase, and then you will find it available within the Purchased Apps section in Library > Apps.
- The HA Cloud Connector App looks something like the one shown below.



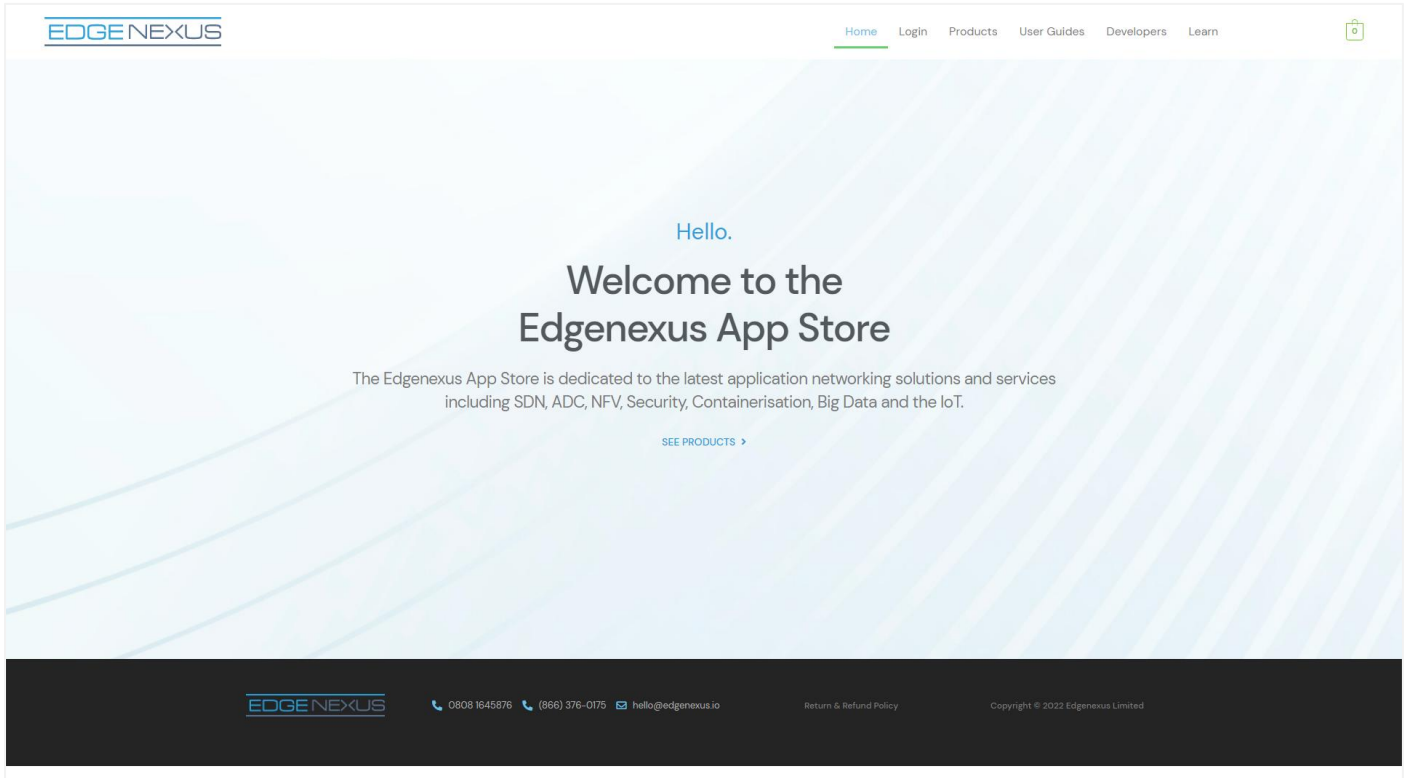
- From the Library > Apps > Downloaded Apps section, locate the HA Cloud Connector App and then deploy it to the EdgeADC by clicking the Deploy button.
- Once deployed, it will be available in the Library > Add-Ons tab

Download and import the App using direct download

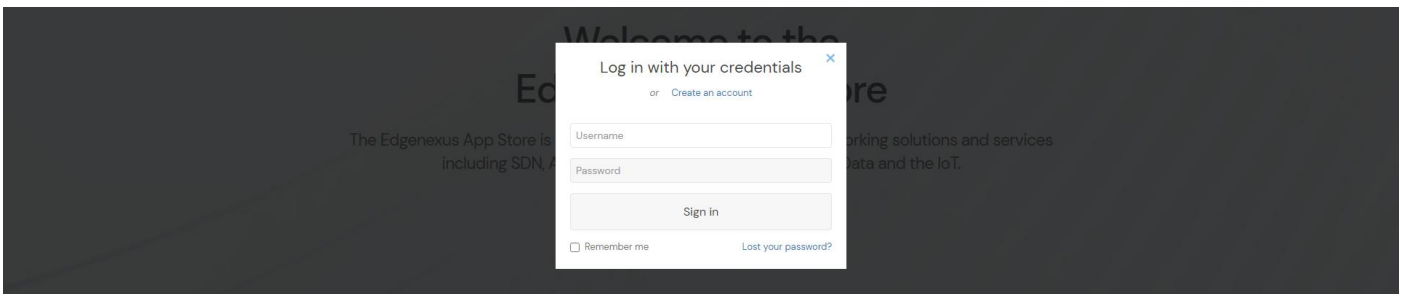
- The first thing to do is to register for access to the Edgenexus App Store. This process is done by using a browser and navigating to <https://appstore.edgenexus.io>.

HA Cloud Connector

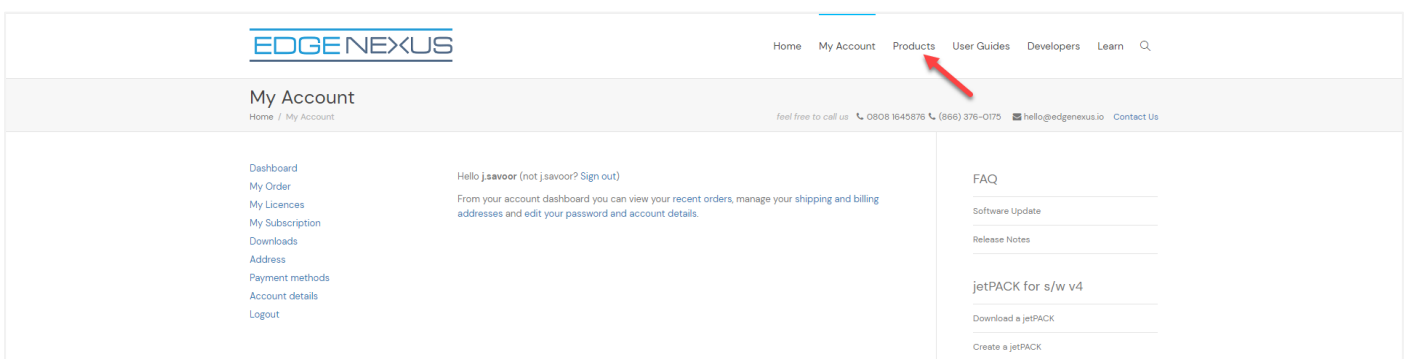
Installation & Configuration Guide



- Click on the login link located in the menu.
- Click on Create an Account, or log in using your account credentials.



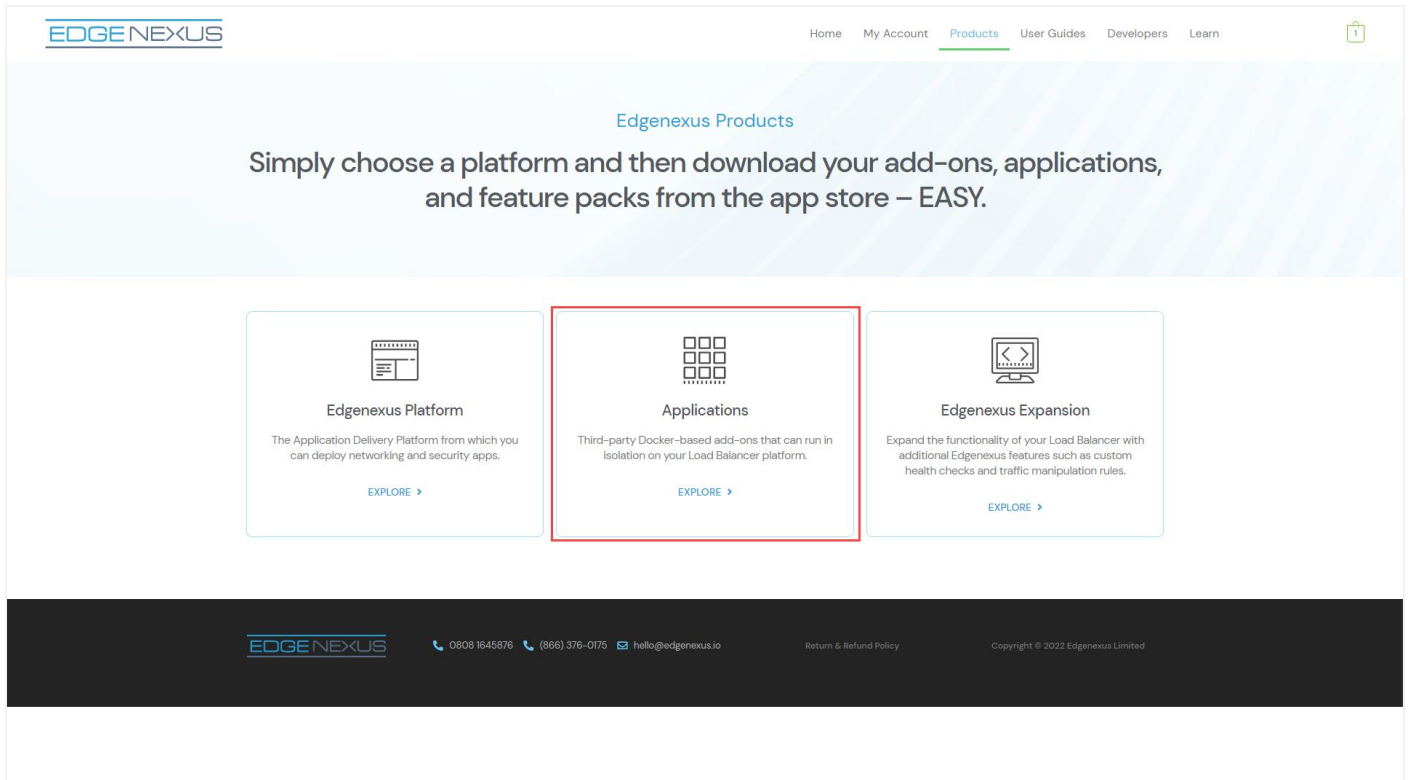
- Once you have logged in, please click on the Products link located in the menu.



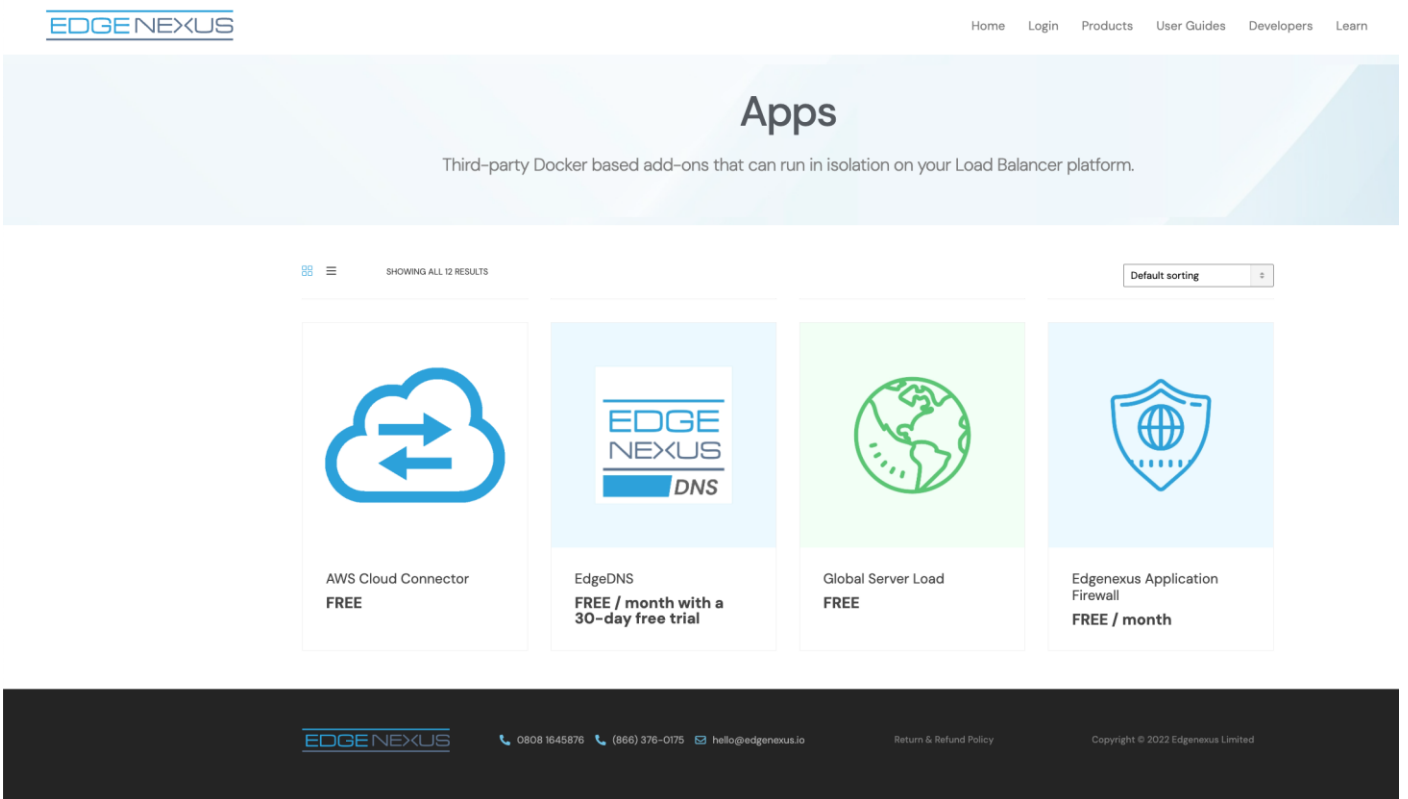
- Next, click on Applications.

HA Cloud Connector

Installation & Configuration Guide



- This action will take you to the Applications page, where you can download the HA Cloud Connector. An example of the Applications page is shown below.
- Within the applications page, you can browse for and order the App.



- The HA Cloud Connector app is free of cost, but you will still need to follow the route of making a purchase.

HA Cloud Connector

Installation & Configuration Guide

Please make sure you save it without altering the filename.

Please also ensure that there is no (1) or something similar in the filename, indicating a second download, etc.

- With the file downloaded, navigate to Advanced > Software of the EdgeADC GUI using your browser.

The screenshot shows the EdgeNexus Software page. The top navigation bar includes 'IP-Services', 'Network', and 'Software'. The left sidebar has 'NAVIGATION' with options like 'Services', 'Library', 'View', 'System', 'Advanced', 'Configuration', 'Global Settings', 'Protocol', 'Software', and 'Troubleshooting'. The main content area is titled 'Software' and contains sections for 'Software Details', 'Download From Cloud', and 'Upload Software'. The 'Software Details' section shows user information and a 'Refresh To View Available Software' button. The 'Download From Cloud' section is a table with columns for Code Name, Release Date, Version, Build, Release Notes, and Notes. The 'Upload Software' section includes a 'Browse' button and 'Upload Apps And Software' and 'Upload And Apply Software' buttons. A green status bar at the bottom indicates a successful connection to Cloud Services Manager.

Code Name	Release Date	Version	Build	Release Notes	Notes
ALB-X Version 4.2.6	2020-Apr-15	4.2.6	1826	Click here for release notes. This is our latest release 4.2.6. This APP will only w	
ALB-X Version 4.2.4 Safe Rollback	2022-Aug-05	4.2.4	jetNEXUS	Use this safe 1764 roll-back, not s	Use this safe 1764 roll-back, not software stored o
OWASP Core Rule Set 3.3.4 Update for Edgenexus Ap	2023-Feb-09	3.3.4_20.01.2023	Edgenexus	The OWASP CRS is a set of web a	The OWASP CRS is a set of web application firew
ADC Version 4.2.10 Software Update	2023-Oct-27	4.2.10	1961	Release notes	EdgeADC version 4.2.10 software update Offline C

- There are several sections within the Software page, but we need the Upload Software section.
- First, click the Browse button and find the HA Cloud Connector App you downloaded.
- Next, click the Upload Apps and Software button.
- The App will be shown in the Downloaded Apps section of Library > Apps.
- From the Library > Apps > Downloaded Apps section, locate the HA Cloud Connector App and then deploy it to the EdgeADC by clicking the Deploy button.
- Once deployed, it will be available in the Library > Add-Ons tab

Making the App Operational

When an App is downloaded and deployed, it is yet to be operational. Normally, the App has to be given an IP address in the same subnet as the EdgeADC and ports through which it needs to be accessible. But in the case of the HACC application, we need to provide it with the IP address of the eth0 network interface.

- Navigate to Library > Add-Ons and locate the HA Cloud Connector App.
- It should look something like the image below.

The screenshot shows the HACC Add-On configuration page. It includes a status icon (cloud with arrows) and a play button. The configuration details are as follows:

Field	Value
Container Name	HACC
External IP	10.0.0.4
External Port	5005/tcp
Parent Image	HA-Cloud-Connector-Edgenexi
Internal IP	172.31.0.1
Started At	2024-02-22T11:28:58
Stopped At	

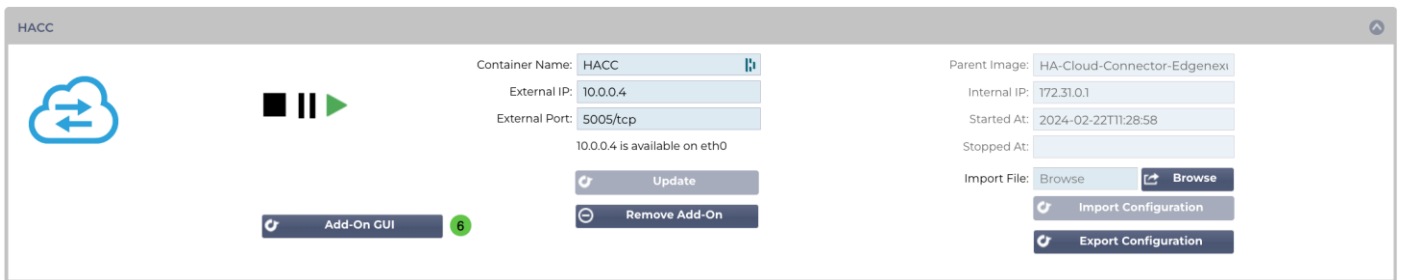
Buttons include 'Add-On GUI', 'Update', 'Remove Add-On', 'Import File', 'Browse', 'Import Configuration', and 'Export Configuration'. A note states '10.0.0.4 is available on eth0'.

- Give the Add-On a name ① – the EdgeADC's internal DNS system uses this to refer to the App when needed.

HA Cloud Connector

Installation & Configuration Guide

- Enter the value for the External IP ②. This value should equal the Private IP given to NIC1 of the cloud VM instance.
- Enter a value of **5005/tcp** for the External Port ③.
- Once you have done this, click the Update button ④ to initialize the App.
- Click the PLAY icon ⑤ above to activate the App into an operational state.
- Once operational, it will look like the following image and be listed in the Services section as an embedded App.



- Note the Add-On GUI ⑥ button to launch the App GUI and the Pause App and Stop App buttons. Clicking the Add-On GUI button will open the App management screen in another browser tab.

Note: You will need to do this on the HA Cloud Connector on each ADC.

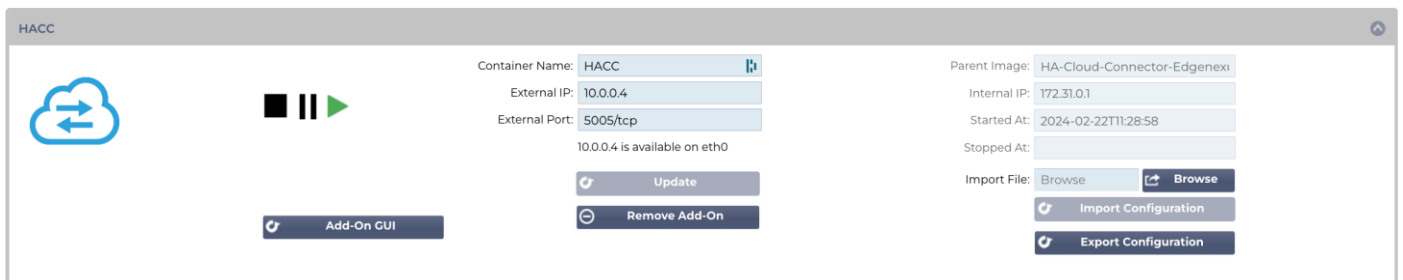
Configuring the HA Cloud Connector for Azure

Logging onto the HA Cloud Connector Console

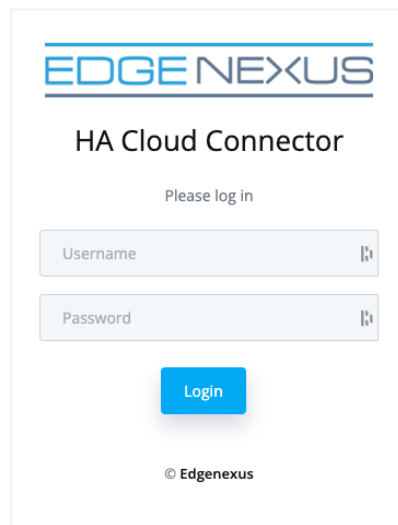
The first step is to log in and access the management console.

To do this, access the Add-ons section of the ADC using the navigation panel. It can be found in the Library section.

Locate the HA Cloud Connector App that you deployed. If the fields are blank, you have yet to operationalize the App. See the section Making the App Operational in the last chapter.



Click the Add-On GUI button to launch the console login page.

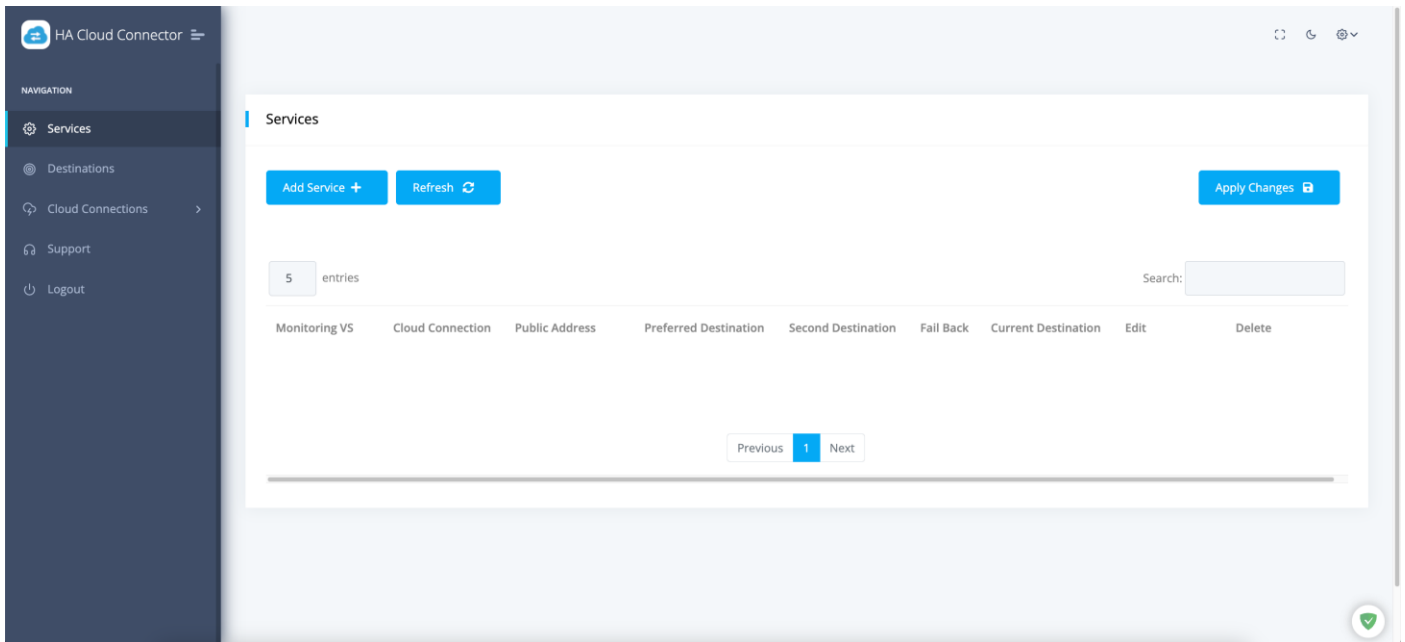


The default credentials are **admin/admin** for the username and password. You may change this later within the console if you wish.

HA Cloud Connector

Installation & Configuration Guide

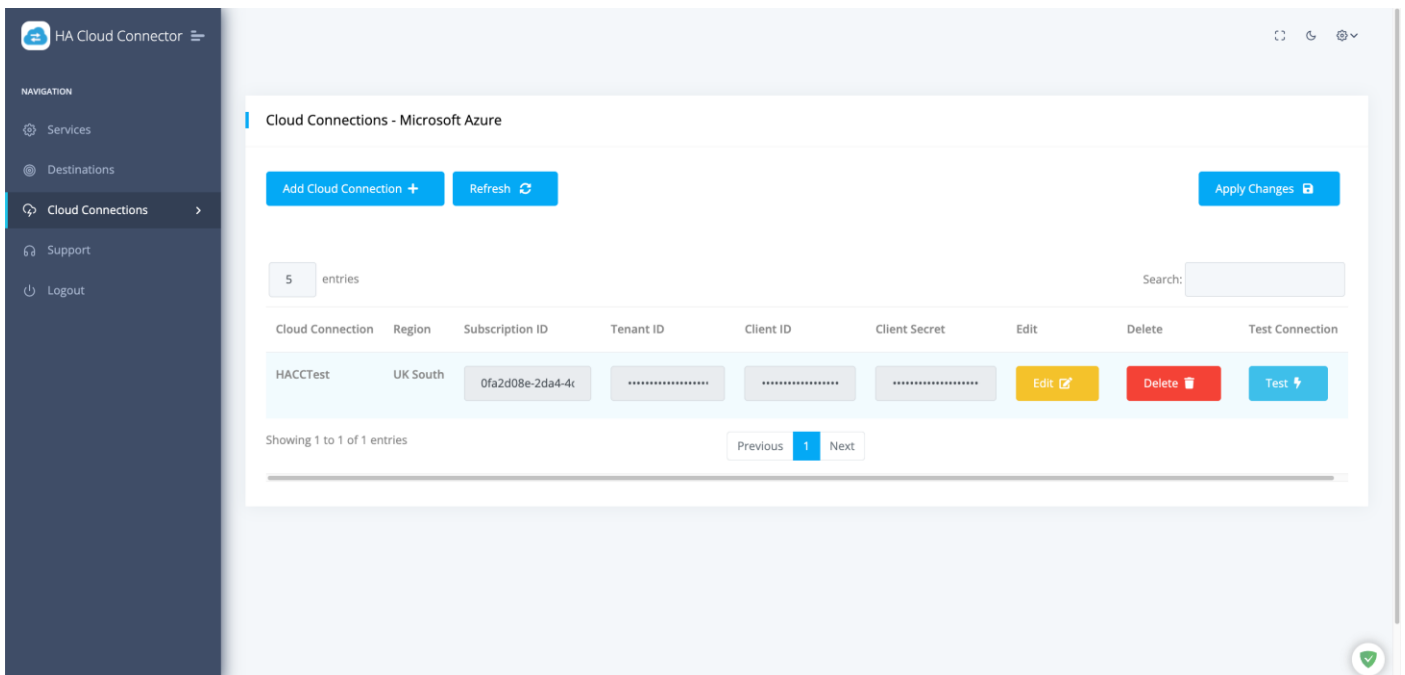
The Cloud Connector Main Page



Once logged into the HA Cloud Connector, you will be presented with the main or Home page. It is from this page that you will perform the configuration of the HA Cloud Connector.

The first step in configuring the HA Cloud Connector is to define the Cloud Connection. The information you provide will give the HA Cloud Connector access to your Cloud environment, particularly the Elastic IP it will need to manipulate.

Defining Cloud Connections



- Click the Cloud Connections option in the Navigation bar on the left of the page and expand it.
- Select Microsoft Azure.
- To add your Cloud Connection, please click the Add Cloud Connection button.

HA Cloud Connector

Installation & Configuration Guide

- You will now see a blank field line that you need to fill in.

Cloud Connection	Region	Subscription ID	Tenant ID	Client ID	Client Secret	Edit	Delete	Test Connection
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<button>Save</button>	<button>Cancel</button>	<button>Test</button>

- Add a value for the Cloud Connection name. This can be anything you wish, and in our case we have shown it as HACCTest.
- Add the Azure Region in which your VMs are located.
- Add your Azure Subscription ID. You can find this in your VM Overview page.

Essentials

Resource group (move) : [JS-HACC-VM-UKS-Z1_GROUP](#)

Status : Running

Location : UK South (Zone 1)

Subscription (move) : [Edgenexus Azure](#)

Subscription ID : 0fa2d0a3

Availability zone : 1

Tags (edit) : VM_Name : JS_HACC_VM_UKS_Z1

Operating system : Linux (centos 8.8)

Size : Standard B2ms (2 vcpus, 8 GiB memory)

Public IP address : 20.32

Virtual network/subnet : [JS-HACC-VM-UKS-Z1-vnet/default](#)

DNS name : [Not configured](#)

Health state : -

- Next, add the Tenant ID (found in your HACC App Registration overview)

Home > App registrations >

Edgenexus HA Cloud Connector

Search

Delete Endpoints Preview features

Overview

Quickstart

Integration assistant

Manage

Branding & properties

Authentication

Certificates & secrets

Token configuration

API permissions

Expose an API

App roles

Owners

Roles and administrators

Manifest

Support + Troubleshooting

Troubleshooting

New support request

Essentials

Display name : [Edgenexus HA Cloud Connector](#)

Application (client) ID : 9fe4b09

Object ID : d502a1f

Directory (tenant) ID : 4dee1d0a

Supported account types : [My organization only](#)

Client credentials : [0 certificate, 1 secret](#)

Redirect URIs : [Add a Redirect URI](#)

Application ID URI : [Add an Application ID URI](#)

Managed application in L... : [Edgenexus HA Cloud Connector](#)

Get Started

Documentation

Build your application with the Microsoft identity platform

The Microsoft identity platform is an authentication service, open-source libraries, and application management tools. You can create modern, standards-based authentication solutions, access and protect APIs, and add sign-in for your users and customers. [Learn more](#)

Sign in users in 5 minutes

Configure for your organization

- Next, enter the Client ID (found in your HACC App Registration overview)

HA Cloud Connector

Installation & Configuration Guide

Home > App registrations > Edgenexus HA Cloud Connector

Search

Overview

Quickstart

Integration assistant

Manage

Branding & properties

Authentication

Certificates & secrets

Token configuration

API permissions

Expose an API

App roles

Owners

Roles and administrators

Manifest

Support + Troubleshooting

Troubleshooting

New support request

Essentials

Display name : Edgenexus HA Cloud Connector

Application (client) ID : 9fe4b1b1-1b09-4b1f-8d50-2a1f1d0a1d0a

Object ID : d501d0a1f1d0a1d0a1d0a1d0a1d0a1d0a

Directory (tenant) ID : f4ee1d0a1d0a1d0a1d0a1d0a1d0a1d0a

Supported account types : My organization only

Client credentials : 0 certificate_1_secret

Redirect URIs : Add a Redirect URI

Application ID URI : Add an Application ID URI

Managed application in L... : Edgenexus HA Cloud Connector

Starting June 30th, 2020 we will no longer add any new features to Azure Active Directory Authentication Library (ADAL) and Azure Active Directory Graph. We will continue to provide technical support and security updates but we will no longer provide feature updates. Applications will need to be upgraded to Microsoft Authentication Library (MSAL) and Microsoft Graph. [Learn more](#)

Get Started Documentation

Build your application with the Microsoft identity platform

The Microsoft identity platform is an authentication service, open-source libraries, and application management tools. You can create modern, standards-based authentication solutions, access and protect APIs, and add sign-in for your users and customers. [Learn more](#)

Sign in users in 5 minutes

Configure for your organization

- Finally, we have to enter the Client Secret. As you recall, we defined this when creating the App Registration and you should have noted this down.

Microsoft Azure

Search resources, services, and docs (G+)

Home > edgenexus Limited > App registrations > Edgenexus HA Cloud Connector

Edgenexus HA Cloud Connector | Certificates & secrets

Search

Got feedback?

Overview

Quickstart

Integration assistant

Manage

Branding & properties

Authentication

Certificates & secrets

Token configuration

API permissions

Expose an API

App roles

Owners

Roles and administrators

Manifest

Support + Troubleshooting

Troubleshooting

New support request

Credentials enable confidential applications to identify themselves to the authentication service when receiving tokens at a web addressable location (using an HTTPS scheme). For a higher level of assurance, we recommend using a certificate (instead of a client secret) as a credential.

Application registration certificates, secrets and federated credentials can be found in the tabs below.

Certificates (0) Client secrets (1) Federated credentials (0)

A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.

+ New client secret

Description	Expires	Value	Secret ID
HACC-Secret-21-FEB-24	2/20/2026	jp*****	80a*****47be

- You finally have to Save and then Apply the changes.
- Next click the Test button to check it works. If an error is shown, check all the settings entered.
- If you see the following error when you perform the test, please check the Role Assignments you defined earlier.

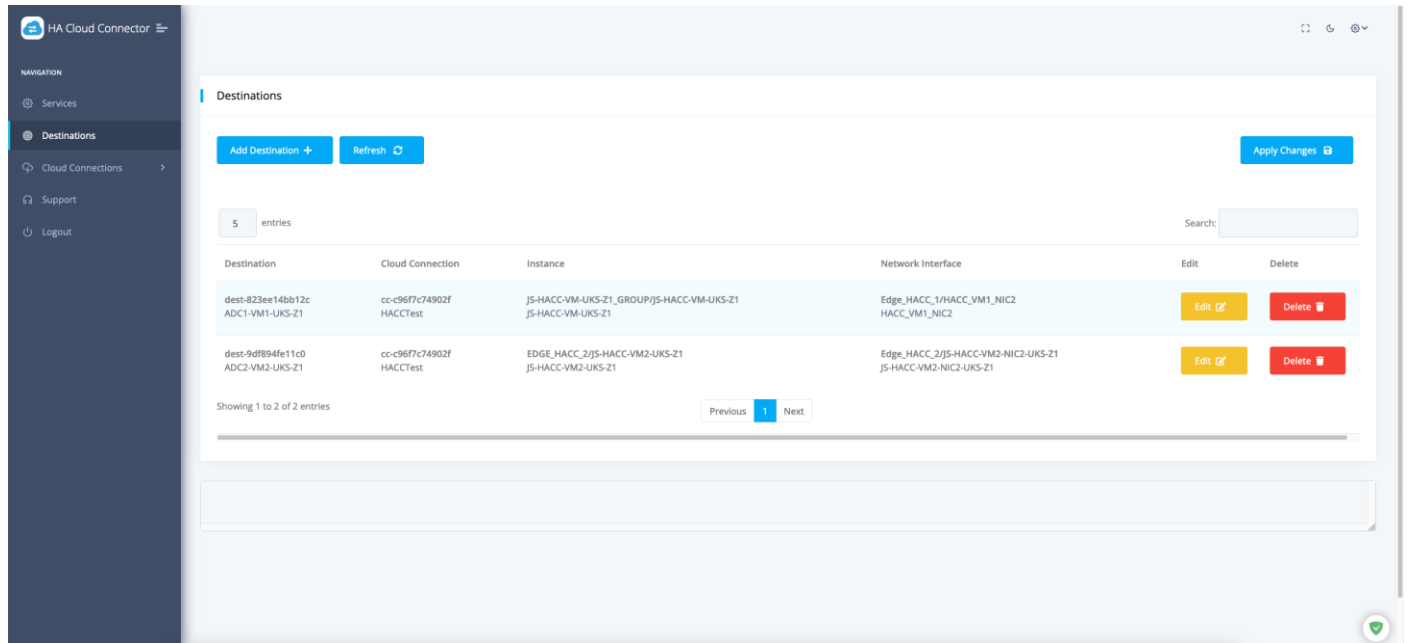
Connection Test

Connection failed. Cloud: failed to initialise cloud API: Azure: Compute API access check failed. Make sure the app has been assigned an appropriate role..

Close

Defining Destinations for HA

The next stage is to add the destinations to which the Elastic IP will be directed in case of failure of a service or ADC.



- Click Add Destination
- You will be presented with a blank field entry line comprising a number of dropdown menus.

Destination	Cloud Connection	Instance	Network Interface	Edit	Delete
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="Save"/>	<input type="button" value="Cancel"/>

- In the Destination field, enter a descriptive value. We have used ADC1-VM1-UKS-Z1, but you can use whatever you wish.
- Next click the Cloud Connection menu and select the Cloud Connection you defined.
- Next click the Instance dropdown menu and select VM1.
- Next click on the Network Interface field, and select NIC2 on VM1.
- Click Save.

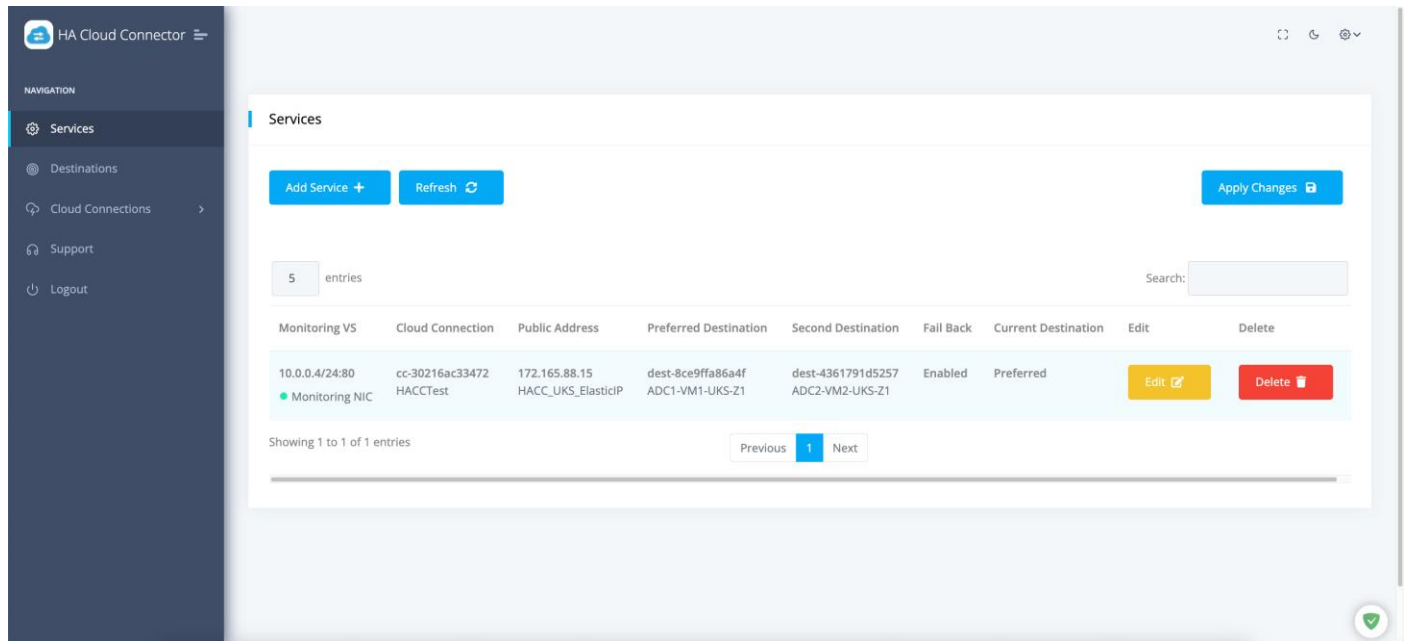
For the second definition we will repeat the above steps.

- Click Add Destination
- You will be presented with a blank field entry line comprising a number of dropdown menus.
- In the Destination field, enter a descriptive value. We have used ADC2-VM2-UKS-Z1, but you can use whatever you wish.
- Next click the Cloud Connection menu and select the Cloud Connection you defined.
- Next click the Instance dropdown menu and select VM2.
- Next click on the Network Interface field and select NIC2 on VM2.
- Click Save.

Once you have done, click the Apply Changes button.

Defining Services to be Monitored

One of the key elements of the HA Cloud Connector is its ability to monitor the virtual services that are running on the ADC. In order to do this, we have defined a monitoring service using the eth0 network interface IP.



- Click Add Service
- A blank field line is presented for entry.

Monitoring VS	Cloud Connection	Public Address	Preferred Destination	Second Destination	Fail Back	Edit	Delete
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="D"/>	<input type="button" value="Save"/>	<input type="button" value="Cancel"/>

- Click the Monitoring VS menu and select the VIP you defined as the Monitoring VIP. This is the one that used the eth0 IP address of the ADC.
- Select the Cloud Connection.
- Select the Elastic Public IP address you created.
- Select VM1 as the Primary Destination.
- Select VM2 as the Secondary Destination.
- In the Failback field, select Enable if you want to have the HACC App failback to the Primary when the issue has been fixed, or Disable if you would like the connection to be retained on ADC2, making that the Primary.
- Click Save.

Repeat this on the HACC App on ADC 2.

NOTE: Please make sure that both Preferred and Secondary Destinations are the same on ADC 1 and ADC 2.

And that is it! HA Cloud Connector has been configured.

Testing the HA Cloud Connector for Azure

Testing the HA Cloud Connector is very simple. Just follow the procedure below.

1. Navigate to the Overview page of the Public IP you created (Elastic IP).

HACC_UKS_ElasticIP
Public IP address

Search

Associate Dissociate Delete Move Refresh Open in mobile Give feedback

Overview

Activity log
Access control (IAM)
Tags
Settings
Configuration
Properties
Locks

Essentials

Resource group (move) : [Edge_HACC_1](#)
Location (move) : UK South
Subscription (move) : [Edgenexus Azure](#)
Subscription ID : 0fa2d08e-2da4-4ca1-852b-7e5400d140a3

SKU : Standard
Tier : Regional
IP address : 10.0.0.1
DNS name : hacc.uksouth.cloudapp.azure.com
Associated to : **HACC_VM1_NIC2**
Virtual machine : **JS-HACC-VM-UKS-Z1**
Routing preference : Microsoft network

- Note that the IP is associated with eth1 (NIC2) of VM1.
- Now, go to the IP Services page of ADC1.
- Click on the Monitoring VIP.
- In the lower Real Servers section, change the port to something other than the working port.

EDGE NEXUS IP-Services

GUI Status Home Help azureuser

Virtual Services

Search Copy Service Add Service Remove Service

Mode	VIP	VS	Enabled	IP Address	SubNet Mask / Prefix	Port	Service Name	Service Type
Stand-alone				10.0.1.100	255.255.255.0	443	HTTPS offload	HTTP(S)
Stand-alone				10.0.1.100	255.255.255.0	80	HTTPS offload	HTTP(S)
Stand-alone				10.0.0.4	255.255.255.0	80	Monitoring NIC	HTTP(S)

Real Servers

Server Basic Advanced flightPATH

Group Name: Server Group Copy Server Add Server Remove Server

Status	Activity	Address	Port	Weight	Calculated Weight	Notes	ID
Online		webserver1.loadbalancer.software	80	100	100		

[Timed licence 14 days left]

- This makes the service status turn RED as the VIP is no longer communicating with the Real Server.

HA Cloud Connector

Installation & Configuration Guide

The screenshot shows the Edgenexus IP-Services interface. The top navigation bar includes 'GUI Status', 'Home', 'Help', and a user dropdown 'azureuser'. The left sidebar contains 'NAVIGATION' with options like 'Services', 'Library', 'Add-Ons', 'Apps', 'Authentication', 'Cache', 'flightPATH', 'Real Server Monitors', 'SSL Certificates', and 'Widget'. The main content area is divided into two sections: 'Virtual Services' and 'Real Servers'.

Virtual Services Table:

Mode	VIP	VS	Enabled	IP Address	SubNet Mask / Prefix	Port	Service Name	Service Type
Stand-alone	10.0.1.100	255.255.255.0	443	10.0.1.100	255.255.255.0	80	HTTPS offload	HTTP(S)
Stand-alone	10.0.0.4	255.255.255.0	80	10.0.0.4	255.255.255.0	80	Monitoring NIC	HTTP(S)

Real Servers Table:

Status	Activity	Address	Port	Weight	Calculated Weight	Notes	ID
Online	Online	webserverloadbalancer.software	79	100	100		

- Now go back to the Overview page for the Public IP.
- Check the Association for the NIC and VM (see below).

The screenshot shows the Azure portal page for the 'HACC_UKS_ElasticIP' resource. The page includes a search bar, navigation links (Associate, Dissociate, Delete, Move, Refresh, Open in mobile, Give feedback), and a sidebar with 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Settings', 'Configuration', 'Properties', and 'Locks'.

Essentials Section:

Property	Value
Resource group	Edge_HACC_1
Location	UK South
Subscription	Edgenexus Azure
Subscription ID	0fa2d08e-2da4-4ca1-852b-7e5400d140a3
SKU	Standard
Tier	Regional
IP address	172.165.88.15
DNS name	hacc.uksouth.cloudapp.azure.com
Associated to	JS-HACC-VM2-NIC2-UKS-Z1
Virtual machine	JS-HACC-VM2-UKS-Z1
Routing preference	Microsoft network

- You can also check the Services page in the HACC application.

Monitoring VS	Cloud Connection	Public Address	Preferred Destination	Second Destination	Fail Back	Current Destination	Edit	Delete
10.0.0.4/24:80 Monitoring NIC	cc-30216ac33472 HACCTest	172.165.88.15 HACC_UKS_ElasticIP	dest-8ce9ffa86a4f ADC1-VM1-UKS-Z1	dest-4361791d5257 ADC2-VM2-UKS-Z1	Enabled	Second	<button>Edit</button>	<button>Delete</button>

- Traffic is now going to ADC2 on VM2.
- Reverse the port change we made back to the original, and services will switch back to ADC1 on VM1 if you have enabled the Failback option in the Services configuration page.

Technical Support

Contacting Support

The HA Cloud Connector App is provided with full email-based support. We always attempt to provide support for free Apps within 4 UK working hours.

Please get in touch with support@edgenexus.io and explain your requirements with a full description. It would also help us greatly if you could provide us with the logs from the ADC and HA Cloud Connector App.

The logs from the ADC that are required are:

1. Support files – found in [Advanced > Troubleshooting > Support Files](#)
2. System Logs – found in [View > Logs > Download System Logs](#)

The HA Cloud Connector App configuration is located in the ADC and can be found in [Add-Ons > App > Export Configuration](#).

