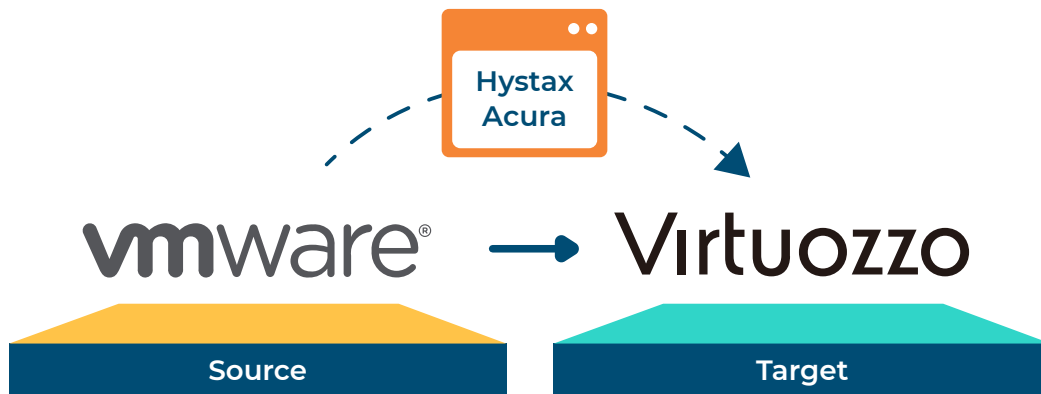


# Hystax Acura | VMware to Virtuoazzo Hybrid Infrastructure migration guide



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## Overview

Hystax is a cloud migration and disaster recovery company focusing on consistent replication of IT workloads and providing real-time migration and Best-In-Class Disaster Recovery.

This guide aims to explain how to migrate modern IT workloads from VMware to Virtuozzo Hybrid Infrastructure using the Hystax Acura migration solution.

To deploy the Hystax Acura solution please refer to the **“Installing Hystax Acura migration solution on Virtuozzo Hybrid Infrastructure”** guide. You check the guide online here <https://hystax.com/cdn/Hystax/Documentation/Integrating-Hystax-Acura-Migration-Solution-with-Virtuozzo-Hybrid-Infrastructure.pdf>

## Migration Process Overview

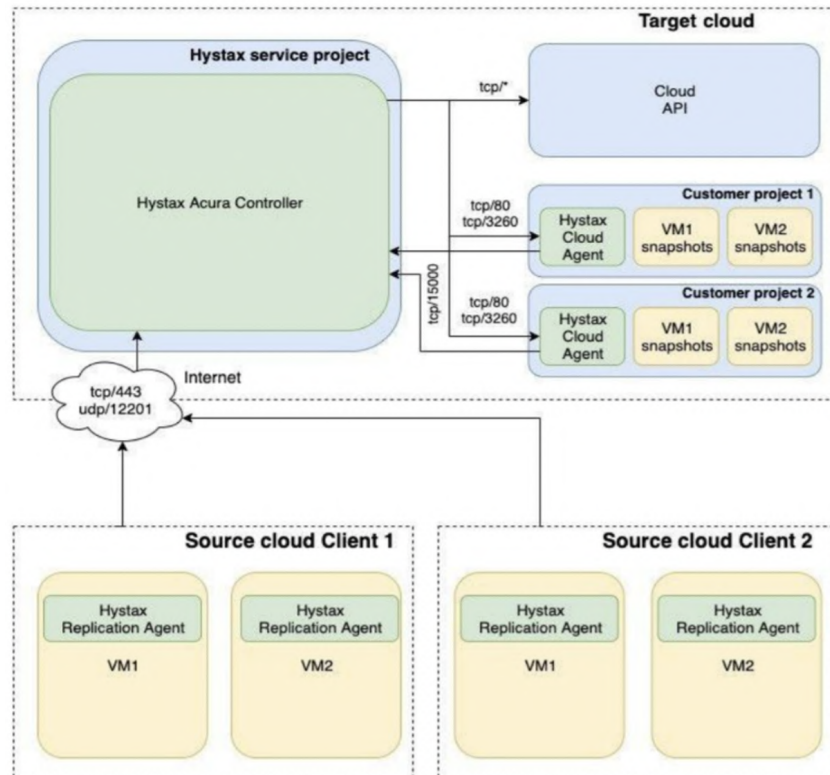
The migration process will be divided in to three sections:

1. Ensure the Virtuozzo Hybrid Infrastructure Platform is ready. Refer to the “Installing Hystax Acura migration solution on Virtuozzo Hybrid Infrastructure” guide and check the following sections:
  - 1.1. Virtuozzo Hybrid Infrastructure Platform resource planning and configuration
  - 1.2. Deploying the Hystax Acura migration solution on the Virtuozzo Hybrid Infrastructure
2. VMware resource planning and configuration
3. Deploying the HVRAgent on the VMware ESXi Hypervisor
4. Simple Test Migration

## VMware resource planning and configuration

In this guide we will be performing a migration from VMware to the Virtuozzo Hybrid Infrastructure Platform. Before we can start with the migration, we need to ensure certain resources are available on the VMware Platform, such as a user with some specific permissions and the HVRAgent (Hystax Replication Agent for VMware) deployed on each of the ESXi Hypervisors. Replication agents are used to replicate the workloads between VMware ESXi Hypervisors (Source Platform) and the Virtuozzo Hybrid Infrastructure Platform (Target Platform/Target Project). From now on we will be referring to the VMware Platform as the Source Platform, and the Target Project or Platform when referring to the Virtuozzo Hybrid Infrastructure Platform.

## Hystax Acura Migration Solution Architectural Overview



Ports needed for the correct agent work:

- vSphere host - tcp/443
- ESXi host(s) - tcp/udp/902
- Send logs to the Acura cluster - udp/12201

Hystax VMware Replication Agent requires the following user permissions in vSphere (Role "VMware Consolidated Backup user" in vCenter):

- Virtual machine - Configuration – Disc Lease
- Virtual machine - Provisioning – Allow read-only disk access
- Virtual machine - Provisioning – Allow virtual machine files upload
- Virtual machine - Snapshot management – Create snapshot
- Virtual machine - Snapshot management – Remove Snapshot

Permission to access CBT is necessary for the correct performance of the application. To enable CBT:

- Virtual machine - Configuration - Disc change tracking

Additionally, it is recommended to include the following global permissions:

- ▶ Global - Disable methods
- ▶ Global - Enable methods
- ▶ Global - Licenses

## Note:

In case of using vCloud, vCenter user requires one extra permission to operate:  
Profile-driven storage > Profile-driven storage view.

Hystax VMware Replication Agent uses VMware snapshots and VMware CBT API in order to create consistent replicas of machines' data.

This implies the following considerations regarding VMware storage:

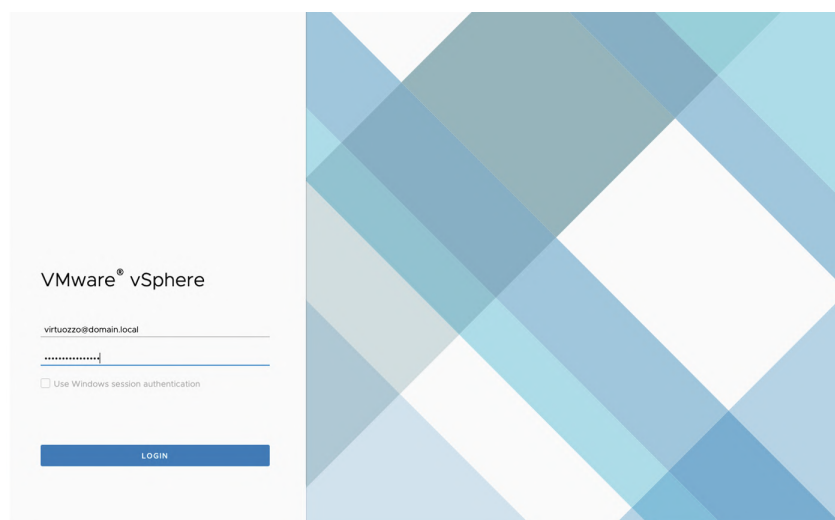
- ▶ VMware snapshots consume storage to retain copy-on-write buffer, so it is recommended to have at least 10% free space available on VMware storage
- ▶ VMware puts additional load on storage while creating snapshots or running machines with existing snapshots

Please consider that storage performance warning thresholds need to be adjusted in order to meet this increased load during replication.

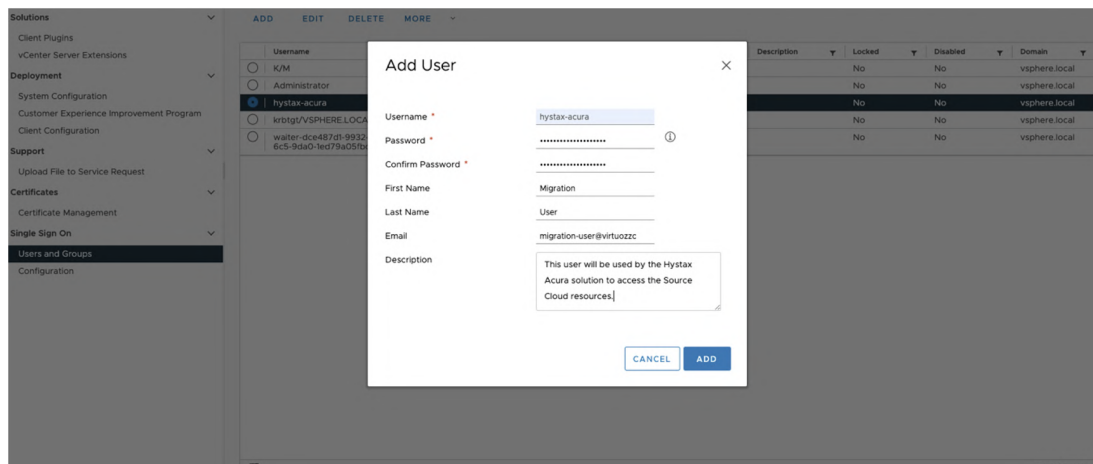
## Attention

The source machine must have VMware Tools installed manually prior to any replication procedures for it to display its network information in the target VMware ESXi correctly.

1. Login to your vCenter.

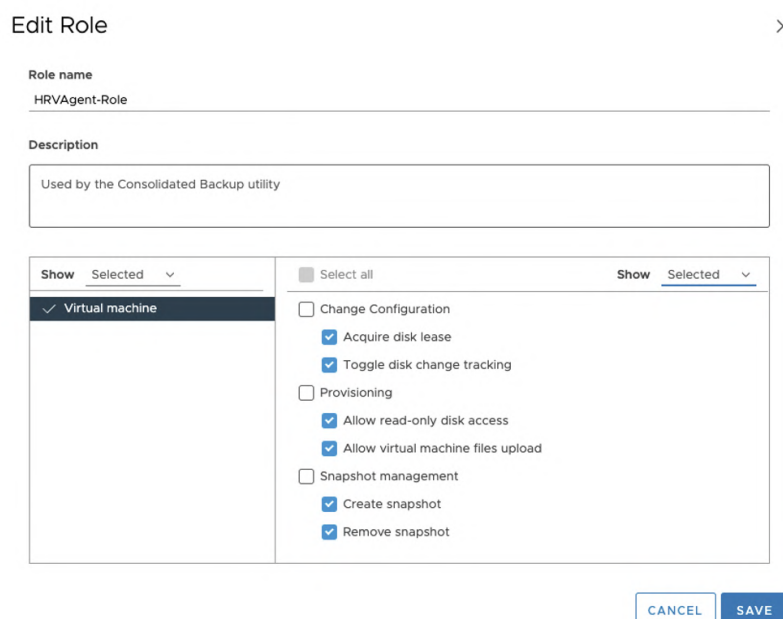


2. Create a user, in this example we will create a user named hystax-user. On your VMware vCenter client go to Administration > Single Sign On > Users and Groups > Domain dropdown (Your domain) ADD.



3. Create a role, we will clone the role VMware Consolidated Backup user and name it Hystax-HVRAgent. On Administration tab, go to Access Control > Roles > VMware Consolidated Backup user > CLONE > Give it a meaningful name and ensure it has the following permissions selected:

- ❑ Virtual machine - Configuration – Disc Lease
- ❑ Virtual machine - Provisioning – Allow read-only disk access
- ❑ Virtual machine - Provisioning – Allow virtual machine files upload
- ❑ Virtual machine - Snapshot management – Create snapshot
- ❑ Virtual machine - Snapshot management – Remove Snapshot
- ❑ Virtual machine - Configuration - Disc change tracking



4. Assign the role to the user. Go to inventory > Permissions > Select the previously created user > Edit > Search for the newly created role and add the role to the user.

Change Role

vmwvc.demo-virtuozzo.com

×

Domain

VSPHERE.LOCAL

User/Group

hystax-acura

Role

HRVAgent-Role

▼

☐ Propagate to children

CANCEL

OK

At this point, the hystax-acura user has the necessary permissions to perform the migrations.

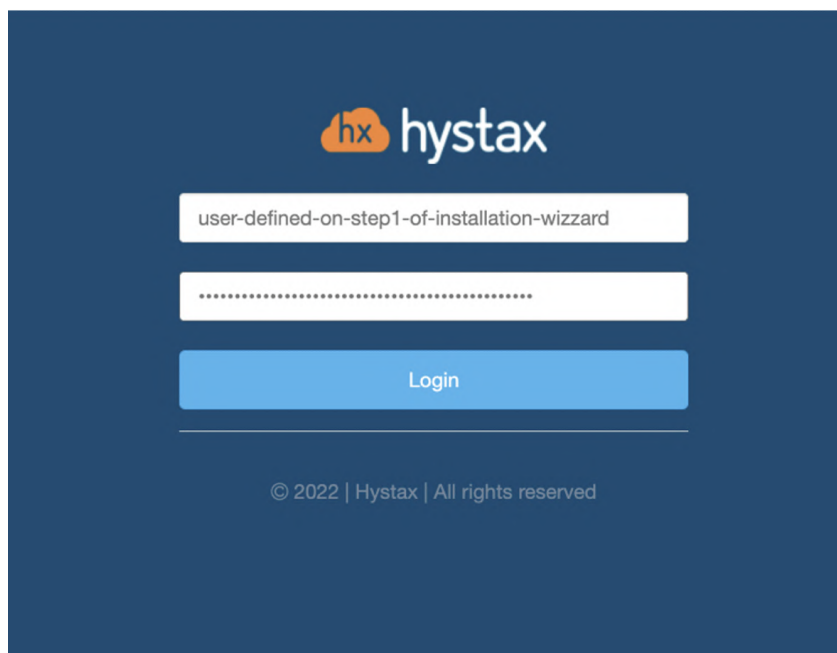
## Deploying the HVRAgent on the VMware ESXi Hypervisor

There are three types of replication agents:

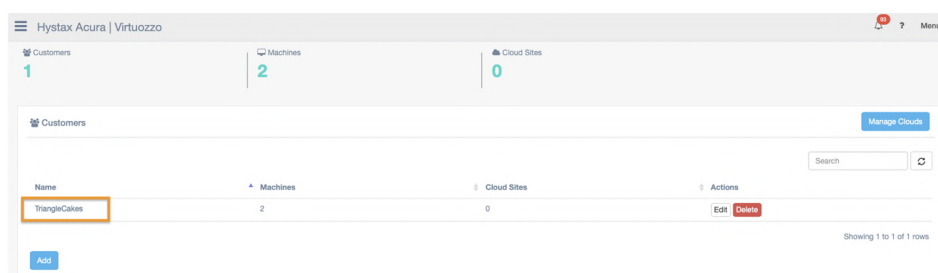
- ▶ **VMware agent** – an external agent to replicate VMware virtual machines without installing any software directly on VMs. Please refer that the agent requires access to VMware CBT API and network access to vCenter or ESXi host is mandatory. **Note that the agent from the same ova template must be deployed to all ESXi hosts where machines need to be protected.**
- ▶ **Windows agent** – an internal agent which can be deployed to any number of customer Windows virtual or physical machines.
- ▶ **Linux agent** – an internal agent which can be deployed to any number of customer Linux virtual or physical machines.

As we are performing a migration from VMware as the Source Cloud Platform, we will be using the VMware Agent. When any of the agents are deployed, the machine with it (or all machines on the same ESXi host where the agent is located) will appear in the Hystax Acura Control Panel under the customer dashboard in the Discovered state.

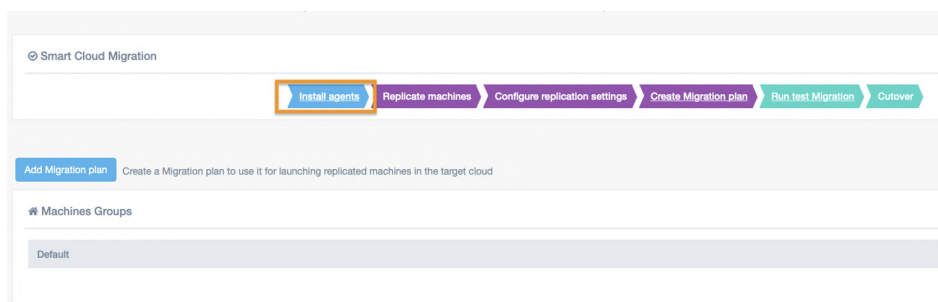
1. Login to the Hystax Acura portal by going to <https://floating-ip-acura-instance>.



2. Click on the customer you wish to perform a migration for, in our example we will be performing the migration from VMware as Source Cloud to a Virtuozzo Hybrid Infrastructure platform. Any time you wish to go back to the main menu click on the Hystax logo on the top left.



3. Click on install agents.






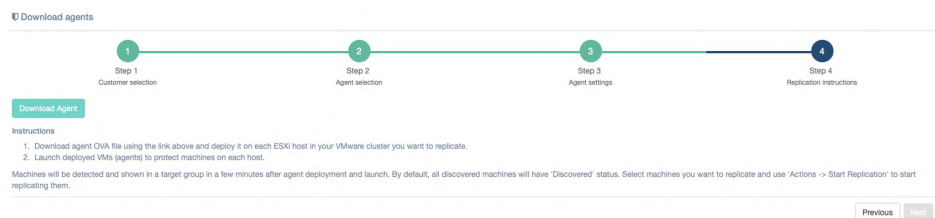
4. Select the VMware agent and click next.



5. You will be asked to provide credentials for the vSphere environment. Provide the credentials created previously.

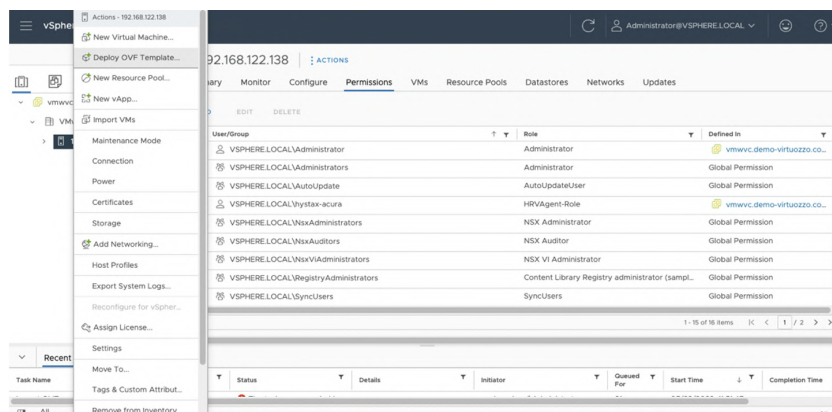


6. Now download the OVA file and deploy it on each ESXi host in your VMware cluster that you want to migrate workloads from.



7. Deploy Agent 1) Use the created from OVF template wizard to deploy the HRVAgent. Right click on the ESXi server you would like to deploy the agent. \*You'll need to repeat this procedure for each ESXi server available that you wish to migrate workloads from.

# Hystax Acura | VMware to Virtuozzo Hybrid Infrastructure migration guide



## 8. Deploy Agent 2) Select upload the OVA file.

Deploy OVF Template

1 Select an OVF template

2 Select a name and folder

3 Select a compute resource

4 Review details

5 Select storage

6 Ready to complete

Select an OVF template

Select an OVF template from remote URL or local file system

Enter a URL to download and install the OVF package from the Internet, or browse to a location accessible from your computer, such as a local hard drive, a network share, or a CD/DVD drive.

☐ URL

☒ Local file

http | https://remoteserver-address/filetoinstall.ovf | .ova

UPLOAD FILES

HVRAgent-VMware-to-VH-606a9b9b-2809-47dc-866f-e66cb66f5ae.ova

CANCEL

NEXT

## 9. Deploy Agent 3) Follow the Deployment wizard and provide the necessary information (compute resource, storage, networks) HVRAgent. The HVRAgent should be able to access the vCenter internal IP.

Deploy OVF Template

1 Select an OVF template

2 Select a name and folder

3 Select a compute resource

4 Review details

5 Select storage

6 Select networks

7 Ready to complete

Ready to complete

Select a compute resource

Resource 192.168.122.138

Select storage

Download size 1.0 GB

Size on disk 53.0 GB

Storage mapping 1

All disks Datastore: datastore1; Format: Thick provision lazy zeroed

Select networks

Network mapping 1

VM Network VM Network

IP allocation settings

IP protocol IPV4

CANCEL

BACK

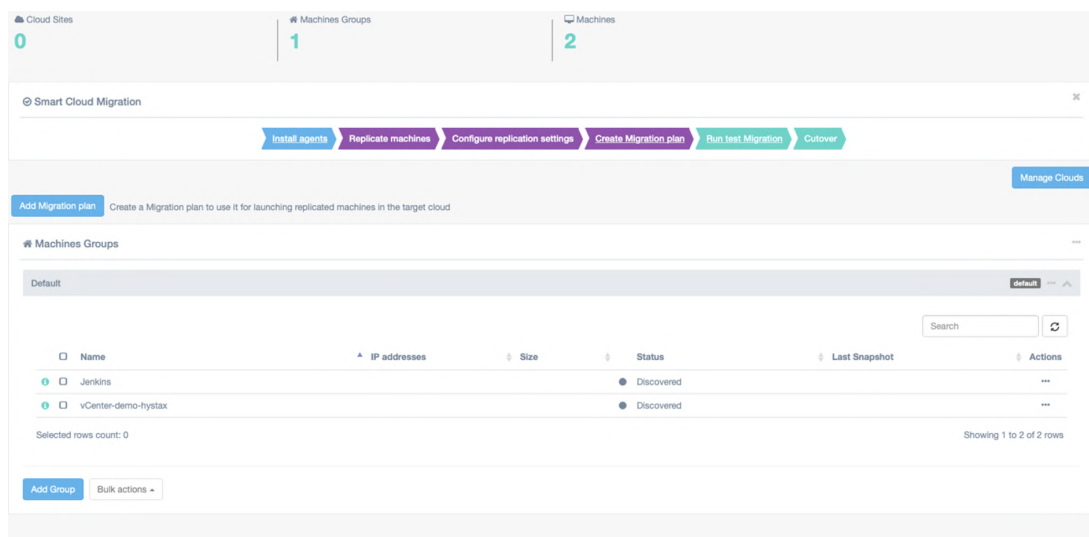
FINISH

10. Once the HVRAgent VM is up, check the console and verify all is correct.

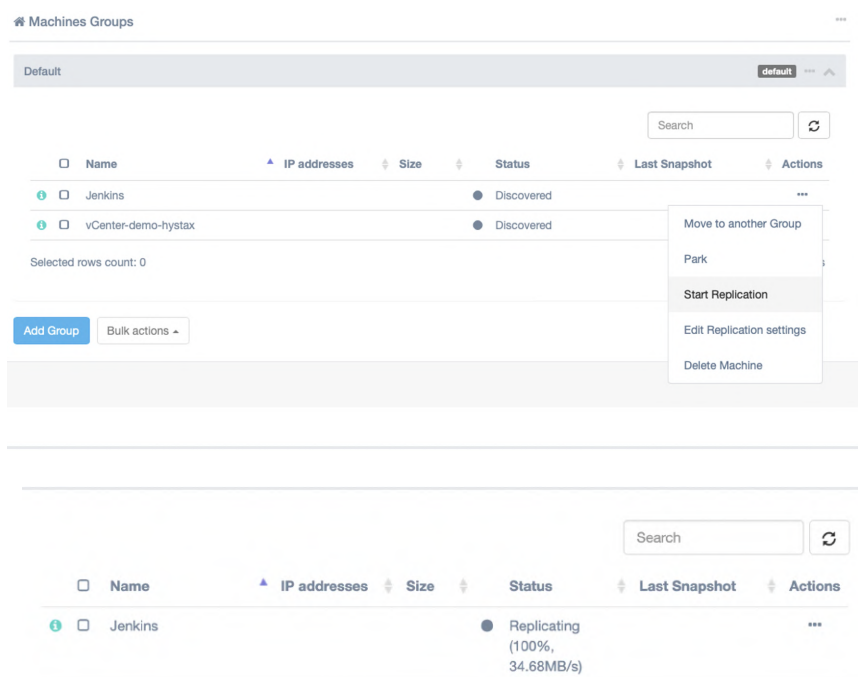
```
Docker status: Ok Image status: Ok Agent status: Ok Connection to VMware: Connected

HVRAgent stopped
Detect base image in progress...
Base image found
Starting HVRAgent in progress...
HVRAgent started
2022-05-23 10:15:01,533:INFO: Hystax Acura VMware machine DR Agent - Version 3.7.245
2022-05-23 10:15:01,534:INFO: Quiesce strategy: QuiesceStrategy.enforce
HVRAgent stopping in progress...
HVRAgent stopped
Detect base image in progress...
Base image found
Starting HVRAgent in progress...
HVRAgent started
2022-05-23 10:16:05,632:INFO: Hystax Acura VMware machine DR Agent - Version 3.7.245
2022-05-23 10:16:05,633:INFO: Quiesce strategy: QuiesceStrategy.enforce
HVRAgent stopping in progress...
HVRAgent stopped
Detect base image in progress...
Base image found
Starting HVRAgent in progress...
HVRAgent started
2022-05-23 10:17:09,969:INFO: Hystax Acura VMware machine DR Agent - Version 3.7.245
2022-05-23 10:17:09,970:INFO: Quiesce strategy: QuiesceStrategy.enforce
```

11. Click on the Hystax logo on the top left and on the customer, you'd like to manage. You will see the machines running on your ESXI server have been discovered.



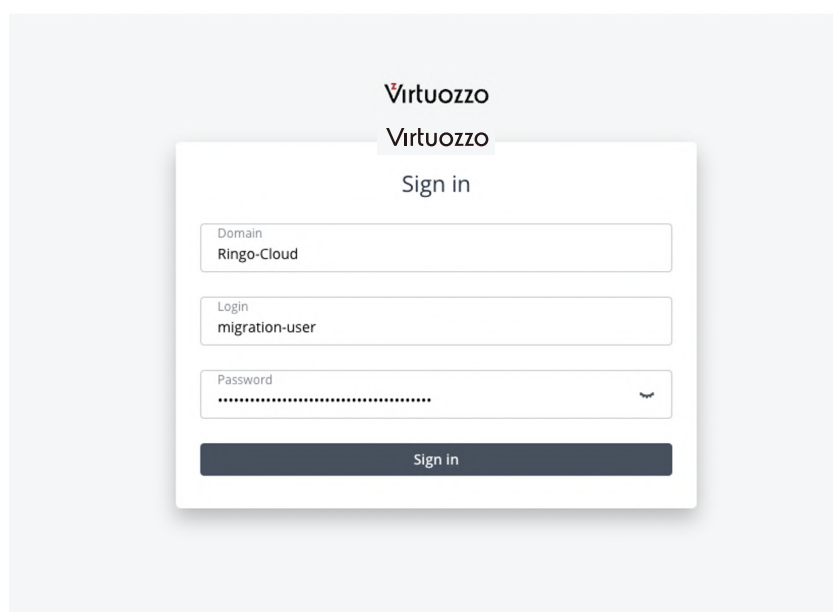
12. Click on start a replication. If everything is correctly configured, the replication of the remote instance will start on your target cloud. The replication will take some time, depending on how much data will be replicated and the connection between your source and target clouds.



13. Wait until the instance is synced.

<input type="checkbox"/>	Name	IP addresses	Size	Status	Last Snapshot	Actions
<input type="checkbox"/>	Jenkins	192.168.122.193	14.9 GB	Synced	05/23/2022 12:27 PM	...

14. While the image is being synced, let's create a target network (the network that will be used by our instance on the replicated target cloud). Go to your VHI self-service portal on "vhi-admin-panel-fqdn:8800" and login to the target project.

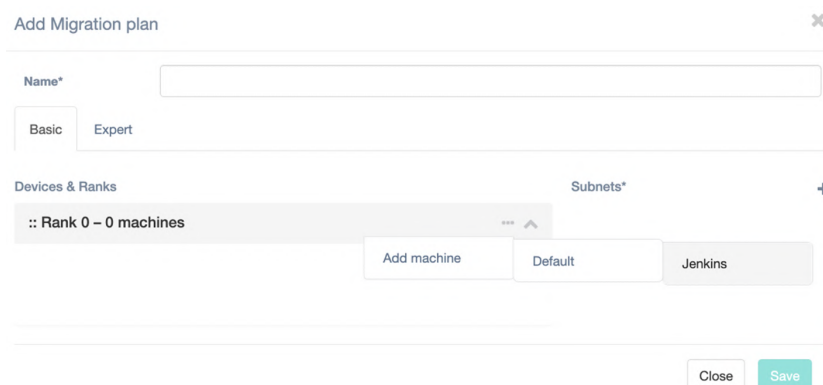


15. Once you've logged in, check the virtual machines tab and you will see that the Acura cloud agent has been deployed automatically.

<input type="checkbox"/>	Name ↑	Status ↓	IP address	vCPUs ↓	RAM ↓	Storage ↓	Volumes	⚙
<input type="checkbox"/>	Target Project1_cloud_agent	Active	192.168.3.54	2	4 GiB	8 GiB	1	...

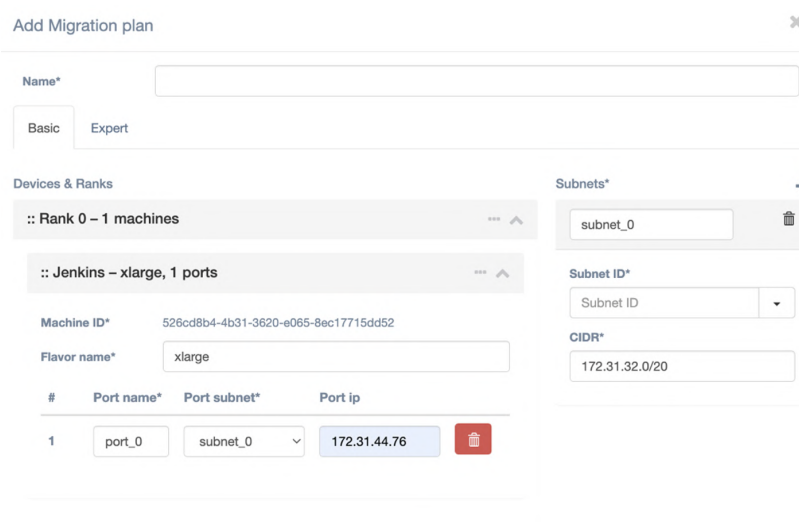
16. Now go networks, create a virtual network and follow the steps. I will create the network using exactly the same CIDR (172.31.32.0/20) as the instance being replicated. You could use any other network CIDR, this is just to show an example of a migration with exactly the same IP address source and remote.

17. Add a migration plan, [step 1](#). Add a machine. Click on the three dots “...” Add machine -> Default -> machine discovered.



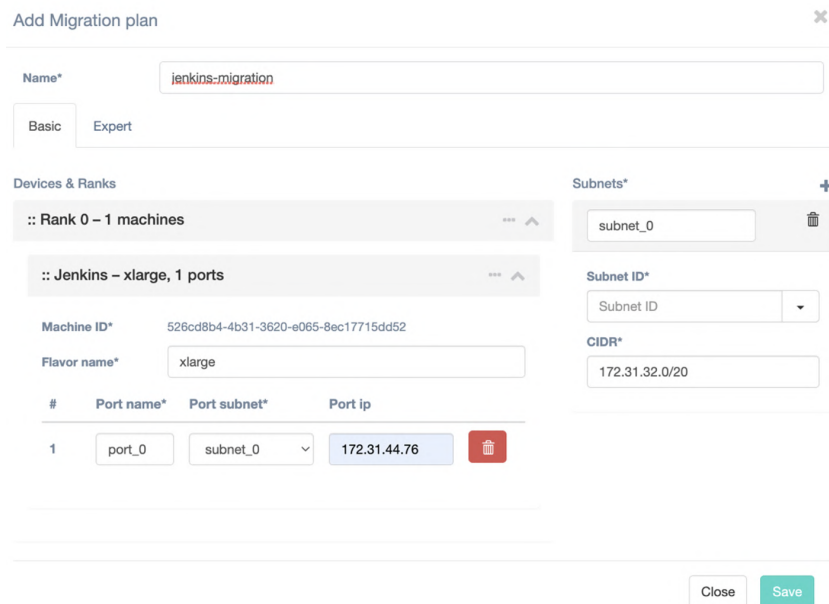
18. Add a migration plan, [step 2](#). Configure the subnets for your new instance. Expand the view for your instance. You will see the information regarding Machine ID, Flavor (important to check the flavor you choose have enough resources for your instance), and Port (network) Also, on the left you'll see the information regarding the network to be used.

**Fig 1.1 available flavors**



# Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

Fig 2.2 Migration Plan config



Add Migration plan

Name\*

Basic Expert

Devices & Ranks

:: Rank 0 - 1 machines

:: Jenkins - xlarge, 1 ports

Machine ID\*

Flavor name\*

#	Port name*	Port subnet*	Port ip
1	<input type="text" value="port_0"/>	<input type="text" value="subnet_0"/>	<input type="text" value="172.31.44.76"/>

Subnets\*

subnet\_0

Subnet ID\*

Subnet ID

CIDR\*

172.31.32.0/20

Close Save

We will replace the Flavor name with one that is available on our cloud. You can check available flavors by going to virtual machines and flavors. Also, we will find the subnet ID for our newly created network and paste it there.

19. Source the information regarding the subnet ID. Login to your Virtuozzo Hybrid Infrastructure Admin panel via SSH.
20. Source the admin-openrc.sh file [root@vhi] #source /etc/kolla/admin-openrc.sh.
21. Run the command openstack network list --insecure and identify the subnet ID.

```
[root@vhi ~]# openstack network list --insecure
```

ID	Name	Subnets
0845987c-9f6b-4f66-b309-a3020c4bbf39	migrated-vm-network	05afbd8d-2293-42b6-a4b7-38e70b5f99a0
2028c210-b2ad-4b0b-abb0-57c18b0f66f3	HA network tenant c7a06cdd102c419d98365448757472b0	1971834b-80ea-404b-a15b-80e372746310
40e0b066-ee47-4c6a-8791-319e0d69d091	vm-network	a70208af-1ece-4234-948b-8aef297a3279
467c893d-f141-4645-86d6-de8e1bced23e	external	70dd8fca-d4b9-4885-84a2-8636792f39cb, ab5e7524-47b5-4d87-8f2a-7e19c5d4e3f3
9fad0052-fc80-4150-9dd5-d0b9daf4b9ce	public	825c3066-3989-4572-946d-02b20268bed9, fc61fa16-508c-4d03-9201-fb724ce6cfb1
cf21ea0f-ee6f-4d7b-af26-3aa8413412af	HA network tenant 15afdf824c534233b036ff3bf9375879	01cc2e76-d9ed-4b6f-b80c-cff069931be4
ec8d6f59-e7ee-4633-a317-1813a3d523e	vm-network	1ca208fd-1158-4648-af21-01ef653c8af0

22. Add the subnet ID\*

Edit migration plan ✕

Name\*

Basic Expert

Devices & Ranks

:: Rank 0 – 1 machines

:: Jenkins – xlarge, 1 ports

Machine ID\*

Flavor name\*

#	Port name*	Port subnet*	Port ip
1	<input type="text" value="port_0"/>	<input type="text" value="subnet_0"/>	<input type="text" value="172.31.44.76"/>

Subnets\*

subnet\_0

Subnet ID\*

CIDR\*

Close Save

23. Add a secondary Port. Add a subnet by clicking the “+” button on the Subnets section we will be adding a floating IP.

Edit migration plan ✕

Name\*

Basic Expert

Devices & Ranks

:: Rank 0 – 1 machines

:: Jenkins – xlarge, 1 ports

Machine ID\*

Flavor name\*

#	Port name*	Port subnet*
1	<input type="text" value="port_0"/>	<input type="text" value="subnet_0"/>

Subnets\*

subnet\_0

Subnet ID\*

CIDR\*

Close Save

24. Click on the Subnet ID\* drop down menu for your new subnet and select the Public IP you wish to use. By leaving the Port IP field blank you are specifying DHCP. Provide a name for the plan and click save.



# Hystax Acura | VMware to Virtuozzo Hybrid Infrastructure migration guide

Edit migration plan

Name\*

jenkins-migration

Basic

Expert

Devices & Ranks

:: Rank 0 – 1 machines

:: Jenkins – xlarge, 2 ports

Machine ID\*

526cd8b4-4b31-3620-e065-8ec17715dd52

Flavor name\*

xlarge

#	Port name*	Port subnet*	Port ip	
1	port_0	subnet_0	172.31.44.76	
2	port_1	----	Port IP	

Subnets\*

subnet\_0

Subnet ID\*

05afbd8d-2293-42b6-a4b7-3

CIDR\*

172.31.32.0/20

public

Subnet ID\*

Subnet ID

(172.31.32.0/20)

fip-service-subnet (169.254.32.0/23)

public (192.168.3.0/24)

Close

Save

Edit migration plan

Name\*

jenkins-migration

Basic

Expert

Devices & Ranks

:: Rank 0 – 1 machines

:: Jenkins – xlarge, 2 ports

Machine ID\*

526cd8b4-4b31-3620-e065-8ec17715dd52

Flavor name\*

xlarge

#	Port name*	Port subnet*	Port ip	
1	port_0	subnet_0	172.31.44.76	
2	port_1	public	Port IP	

Subnets\*

subnet\_0

Subnet ID\*

05afbd8d-2293-42b6-a4b7-3

CIDR\*

172.31.32.0/20

public

Subnet ID\*

fc61fa16-508c-4d03-9201-fb

CIDR\*

192.168.3.0/24

Close

Save

25. Click on run a test migration and select a migration plan.

Virtuozzo hystax

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www.hystax.com



# Hystax Acura | VMware to Virtuozzo Hybrid Infrastructure migration guide

↳ Migrate

1 Step 1 Select Customer

2 Step 2 Select Migration plan

3 Step 3 Setup Cloud Site settings

On this step, select Migration plans, based on which you want to start migration procedure of your infrastructure to Cloud Site. Select one or more plans, also you can create a custom Migration plan in the appropriate field. When all of the above is done, you can move further and click 'Next'.

Select All

☒ Jenkins-migration

Custom Migration Plan

Previous Next Run migration

26. Create a cloud site by giving a name, a cloud site is a way to logically group a migration plan with a snapshot to be used for the migration. Give the Cloud Site a name, select a snapshot and click on run the migration.

1 Step 1 Select Customer

2 Step 2 Select Migration plan

3 Step 3 Setup Cloud Site settings

On this step, specify a name for future Cloud Site, select a snapshot to migrate your business application to and check correctness of all configurations of future Cloud Site. When all of the above is done, click the button "Start" and in several minutes your Cloud Site will be ready for work.

Cloud Site Name

Jenkins-Cloud-Site

Snapshot time

05/23/2022 12:53 PM

Final Migration plan

Machines

Search

Name	IP Address	Flavor	Rank	Subnet
Jenkins	172.31.44.76	xlarge	0	subnet_0, public

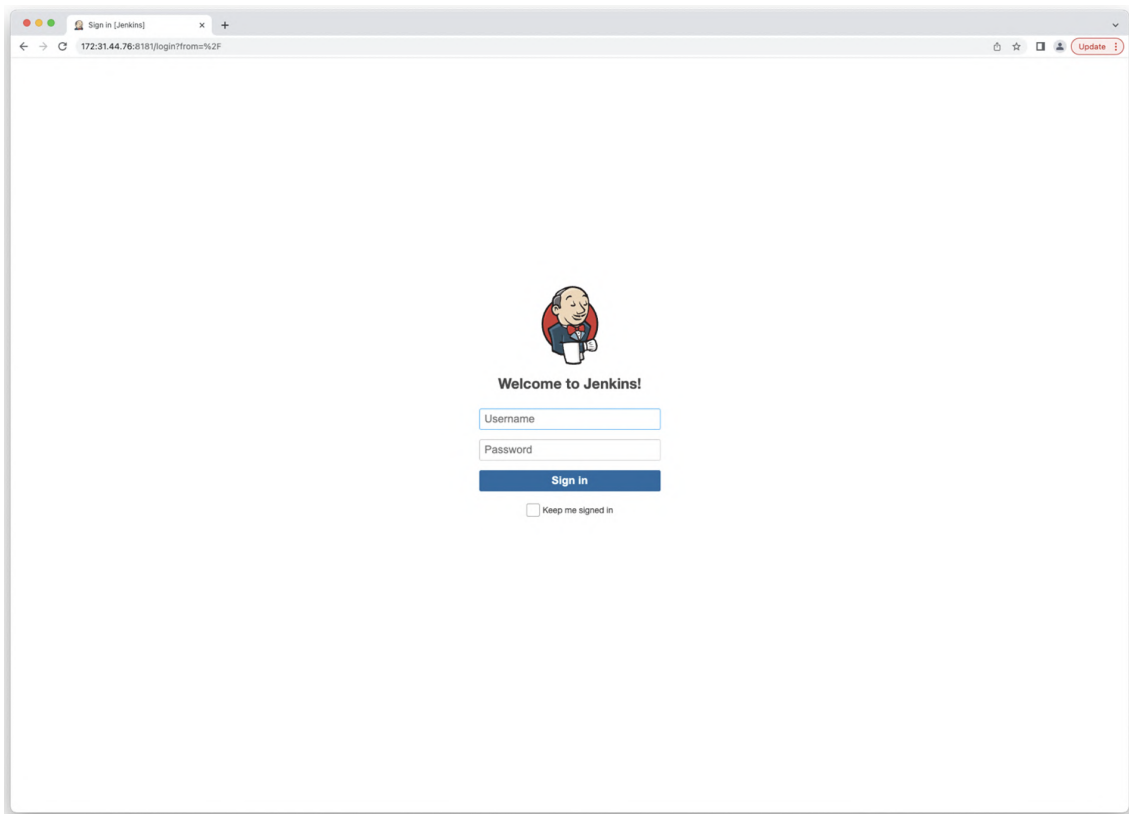
Showing 1 to 1 of 1 rows

Previous Next Run migration


If all went well you will see your replicated instance available on your target cloud. When you are done reviewing the migration test you can delete the resources, by deleting the cloud site, then you can redo the migration, or you could detach.

Virtual machines	<input type="checkbox"/>	Hystax Acura	Active	192.168.100.182	8	25 GiB	50 GiB	...
Network	<input type="checkbox"/>	Jenkins	Active	172.31.44.76, 192.16...	1	512 MiB	0 bytes	...

# Hystax Acura | VMware to Virtuozzo Hybrid Infrastructure migration guide




For the final cutover, just detach Hystax Acura from the migration and Hystax Acura will stop tracking any resources belonging to this migration.

 Machines running  
**1**


jenkins-cloud-site Detach Delete

State: **Running** Project ID: **c57dd14c08bc4d6780ab1787774fd6e8** Snapshot: **05/23/2022 12:56 PM**

 Machines

Name	IP Address	Flavor	Subnet	Snapshot	Status	Actions
Jenkins	192.168.3.56 172.31.44.76	tiny	subnet_0 public	05/23/2022 12:27 PM	Active	-

Showing 1 to 1 of 1 rows

 Cloud Sites

Name	State	Actions
jenkins-cloud-site	Detaching	<span>Edit</span> <span>Delete</span>

Showing 1 to 1 of 1 rows

Now you can manage your resources from VHI as you would normally do.

## Providing access to the Hystax Acura Portal (Migration as a Service) to end users

In order to allow users to manage their migration workloads, we can create a user with project scope from the Hystax Acura web interface.

1. Login to the Hystax Acura Solution web interface and click on the settings tab on the left-hand side. Then click on Roles and click Add.

**Add Role** ✕

**Share role with customers**

☐

**Name**

TriangleCakes Inc.

**Description**

Role project scope for TriangleCakes

**Role owner**

Customer: TriangleCakes

**Settings template**

Customer

Close

Save

2. Assign the necessary permissions to the role. We will provide full access to the TriangleCakes Target cloud.

**Partner Admin**  
Role owner: Virtuozzo  
Settings template: Partner

**TriangleCakes Inc.**  
Role owner: TriangleCakes  
Settings template: Customer

Add

**Active** ☒

**Share role with customers** ☐

**Name\***

TriangleCakes Inc.

**Description**


Role project scope for TriangleCakes

☒ Manage users and roles allocation

- ☒ Edit user info
- ☒ Reset user password
- ☒ Create users
- ☒ Activate users
- ☒ Delete users
- ☒ User assignment
- ☒ Roles assignment to own users
- ☒ View users

☒ Manage Migration plans

- ☒ Edit Migration plan
- ☒ View Migration plans

**Virtuozzo**  **hystax**

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[www.hystax.com](http://www.hystax.com)

3. Now we will add a new user. Click on Users and click Add. Fill in all the information and select the Customer:Customer name as organization.

Add user

Login\*

trianglec-user

Name\*

Anthony

Password\*

.....

Confirm password\*

.....

Organization\*

Customer: TriangleCakes

Close

Save

4. Click on the newly create user in order to assign a role to the user.

Settings

User settings

SMTP settings

Notifications

Users

Roles

On this tab you can add/delete users, add roles assignments for some particular resources, change activity of current users, reset their passwords to new ones and change such user data like name. Please pay your attention that user managements is available only for current hierarchy level and below, so user of one customer cannot see and edit users that belong to another customer or partner.

Acura-admin

self

Organization: Virtuozzo

Anthony

Organization: TriangleCakes

Add

Active

☒

Login

triangle-cakes-user

Name

Anthony

Password

Confirm password

Save

Delete

Assignments

Role	Role scope	Actions
No matching records found		

Add

5. Click add on the Role section and add the role.

Assign role ✕

Assignment role

TriangleCakes Inc.

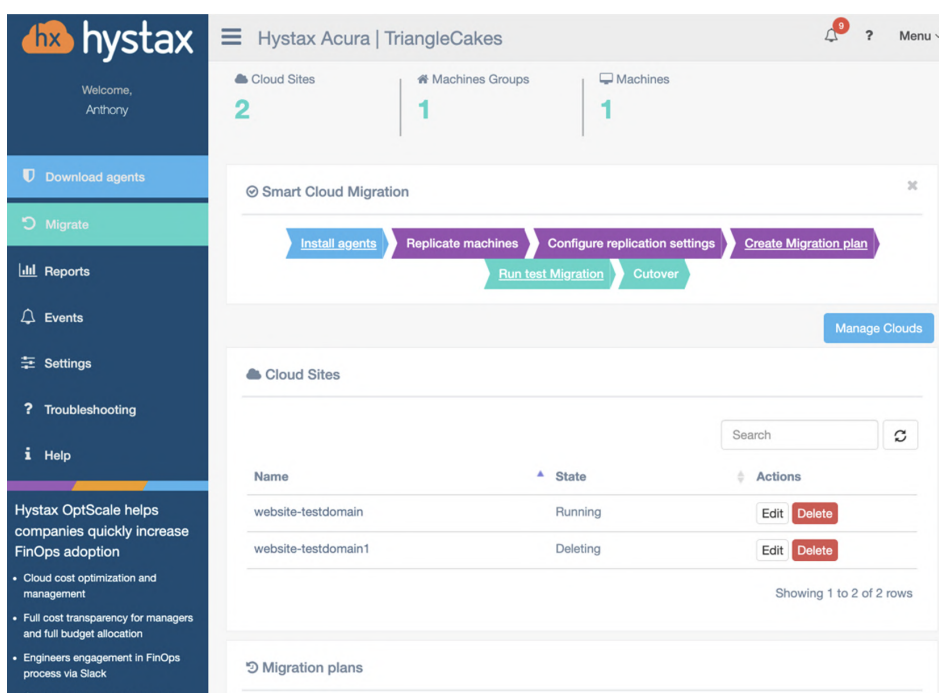
Role scope

Customer: TriangleCakes

Close

Save

The user, at this point, will be able to login to the Hystax Acura web interface and perform and the migration as a Service (self-service migration).



## Troubleshooting

Hystax Acura automatically checks cloud access and the necessary permissions for assuring a successful operation. It provides detailed error messages that describe their potential causes. In case of an error, please check the correctness of the data entered and availability of the necessary permissions.

## Limitations

[https://hystax.com/documentation/dr/solution\\_description.html#hystax-acura-limitations](https://hystax.com/documentation/dr/solution_description.html#hystax-acura-limitations)