

Virtuozzo

Virtuozzo Hybrid Infrastructure 5.1

Integration Guide for Hystax Acura

5/30/2022

Table of contents

- Overview** 3
- Installation requirements** 4
- Installation steps** 5
 - Virtuozzo Hybrid Infrastructure resource planning and configuration 5
 - Deploying the Hystax Acura solution on Virtuozzo Hybrid Infrastructure 14
 - Performing a test migration 24
- Providing access to the Hystax Acura portal** 36
- Troubleshooting** 40
- Limitations** 41

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.

To deploy the Hystax Acura solution, a customer needs to request Hystax (info@hystax.com) for the golden image of the solution and follow the steps described in this document.

Installation requirements

- Virtuozzo Hybrid Infrastructure version 4.7.1 (50)
- Golden image with Hystax Acura (provided by request)
- A Hystax Acura solution license (provided by request)
- Resources to launch a virtual machine with 8 vCPUs, 16 GB RAM, 100 GB disk created from the Hystax Acura golden image
- Resources to launch a VM with 2 vCPUs, 4 GB RAM, 20 GB disk for the Hystax Cloud Agent created in each target / failover Virtuozzo Hybrid Infrastructure project
- An SMTP server with TLS/SSL encryption.
- Security groups allowing the following traffic:
 - Hystax Acura host:
 - Ingress – TCP 443
 - Ingress – TCP 4443
 - Ingress – UDP 12201
 - Hystax Cloud Agent (spawned automatically in the target project):
 - Ingress – TCP 80
 - Ingress – TCP 3260

Installation steps

The installation process will be divided into three sections:

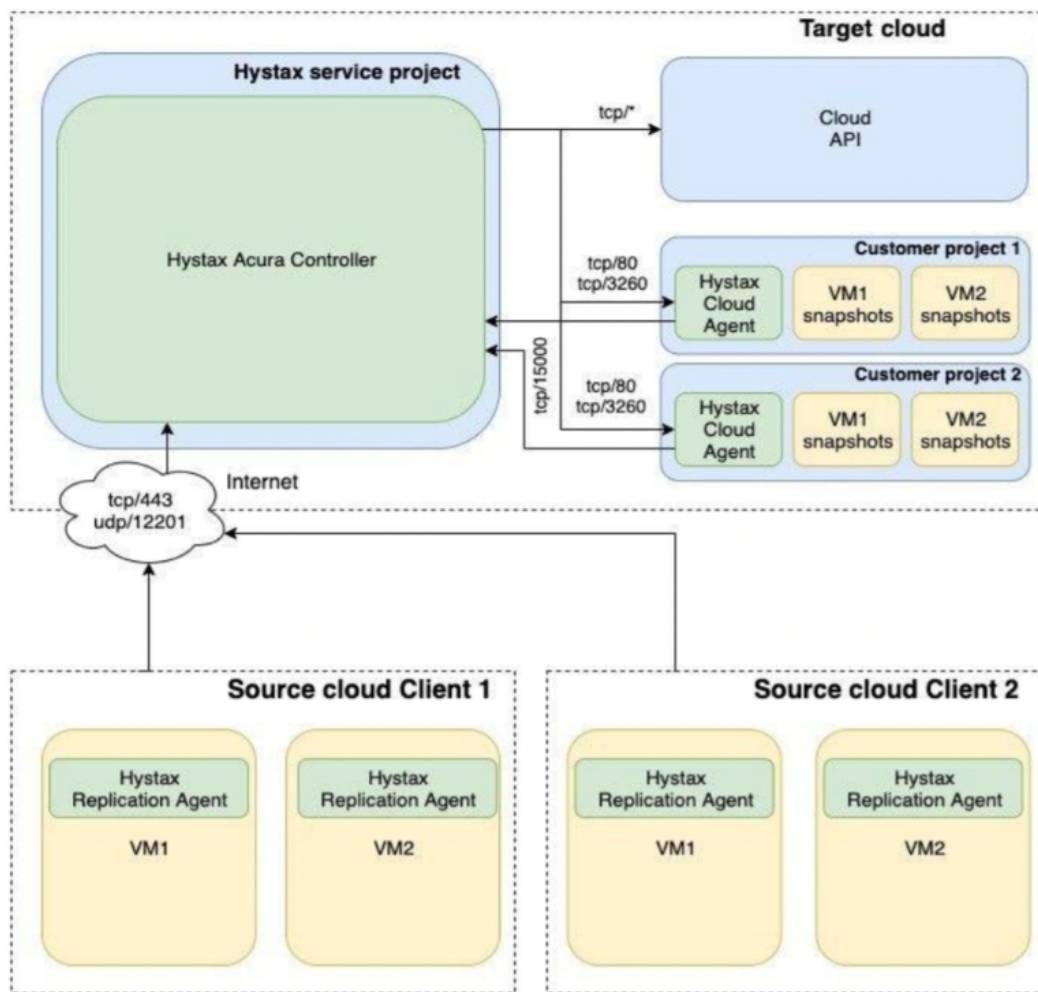
1. Virtuozzo Hybrid Infrastructure resource planning and configuration.
2. Deploying the Hystax Acura solution on Virtuozzo Hybrid Infrastructure.
3. Performing a test migration.

Virtuozzo Hybrid Infrastructure resource planning and configuration	5
Deploying the Hystax Acura solution on Virtuozzo Hybrid Infrastructure	14
Performing a test migration	24

Virtuozzo Hybrid Infrastructure resource planning and configuration

Before starting the deployment of the Hystax Acura migration solution, we need to review the solution architecture, gather information, and verify that we have the necessary resources available in Virtuozzo Hybrid Infrastructure. The information gathered, will be used to deploy the Hystax Acura solution.

Architecture overview of the Hystax Acura migration solution



We need to verify that the following resources exist in Virtuozzo Hybrid Infrastructure. If the resources do not exist, we will need to create them:

- A customer domain, we will name it **Ringo-Cloud** for the purpose of this example. This domain will be where our customer's projects will be created. We will refer to this domain as the target project domain. If you already have a domain configured that you wish to use to create your customer's projects on, please use it. A domain is a container for projects and users that have roles assigned to them.
- A project to host the migrated infrastructure, we will name the project **migration-infra** for the purpose of this example. This project will live inside the domain created on the previous step. We will refer to this project as the target project or target cloud. This project will be where replicated workloads will be spun, also the Acura Cloud Agent (an instance automatically deployed by the Hystax Acura solution, which job is to forward replication data and write it to a storage volume on the target project) instance will be created here. A project is a container of virtual objects with set virtual resource constraints, such as virtual CPU, RAM, storage, and floating IP addresses, as well as assigned users. Each project is also known as a tenant. We will also be creating a network, a virtual network and a router for this project.

- A user who will execute the migration, we will name this user **migration-user**. The user will have the necessary access rights defined by the role assigned, to perform the migration tasks. We will use this to fill the username field when configuring the Hystax Acura migration solution appliance. A role defines all of the actions that a user may execute, at the level of the entire infrastructure, a specific domain, or a single project. The user will be assigned the **Project member** role, and will have single project scope.
 - A domain and project which will host the Hystax Acura migration solution (Hystax Acura Controller), we will refer to this project as the Hystax service project. The domain that has been used in previous steps can be used to create this service project. The Hystax Acura Migration instance will be deployed on this project. This way the instance will be isolated. This isolation is relevant, as when configuring the Hystax Acura instance in the next section, we will need to define which network is used by the instance in order to communicate with the Acura Cloud Agent instance, which is spun on every customer project. We have two choices; we can define the network attached to the Hystax Acura instance, in order to do this, we need to create a RBAC rule using the OpenStack command line to share the network with every project we wish to communicate. The other option is to use an external physical network, which can be made shareable with any project via the Web UI interface. We will use a physical external network type to establish this communication in this example.
1. Create a domain. To do it, log in to your Virtuozzo Hybrid Infrastructure admin panel, go to **Projects and Users** and click **Create domain**. This is only necessary if your customer does not have an existing organization domain.

The screenshot shows a 'Create domain' dialog box. The title is 'Create domain' with a close button 'X' in the top right corner. There are two input fields: the first is labeled 'Name' and contains the text 'Ringo-Cloud'; the second is labeled 'Description (optional)' and contains the text 'Customer Domain'. At the bottom of the dialog, there are two buttons: 'Cancel' and 'Create'.

2. Create a new project inside the domain that you have just created (or existing customer domain). Click on the name of the domain, then click **Projects** and **+ Create project**. In this example, we have created a project with unlimited resources.

Create project



Name	<input type="checkbox"/> Enabled
migration-infra	
Description (optional)	
This project will be where Acura Cloud Agent and the replicated workloads will be spun.	
Specify compute quotas	
vCPUs	<input checked="" type="checkbox"/> Unlimited <input type="text" value="0"/>
RAM, GiB	<input checked="" type="checkbox"/> Unlimited <input type="text" value="0"/>
Storage policy	
<input checked="" type="checkbox"/> default, GiB	<input checked="" type="checkbox"/> Unlimited <input type="text" value="0"/>
Floating IPs	<input checked="" type="checkbox"/> Unlimited <input type="text" value="0"/>

Cancel

Create

Remember to account for the following resources when creating projects:

- Service project: resources to launch a virtual machine with 8 vCPUs, 16 GB RAM, 100 GB disk created from the Hystax Acura Golden image
 - Target project: resources to launch a VM with 2 vCPUs, 4 GB RAM, 20 GB disk for the Hystax Cloud Agent created in each target / failover Virtuozzo Hybrid Infrastructure project. Also, any replicated workloads will be deployed here.
3. Create a project user and assign it to the migration project. Click **Domain users**, and then click **+ Create user**. Allow the user to upload images.

Edit user
✕

Login
 migration-user 🔑

Email (optional)

Password
 🔑

Description (optional)
 User with the Project member Role, which will execute the migration

Role
 Project member ▼

Can create and manage services in assigned projects.

Image uploading ℹ️

Assign to projects
+ Assign

📁 migration-infra	✕
-------------------	---

Cancel

Save

4. Create a domain and a project where the Hystax Acura instance will be deployed. Remember this project will be **Acura Service Project**. When the Hystax Acura instance is deployed you will be able to manage multiple tenants from this single instance. This is the reason why having dedicated domain a project helps to organize resources. In Virtuozzo Hybrid Infrastructure, go to **Projects and users** in the left-hand side navigation menu, and then click **Create domain**.

Edit domain



Name
Acura Service Domain

Description (optional)
The Acura Service Project will be created here.

Cancel

Save

Now, click **Acura Service Domain > Projects > + Create project**. This project will be the service project. We will use it to deploy the Hystax Acura instance.

Create project



Name
Acura Service Project Enabled

Description (optional)
The Hystax Acura Solution Instance will be deployed here.

Specify compute quotas

vCPUs	<input checked="" type="checkbox"/> Unlimited	<input type="text" value="0"/>
RAM, GiB	<input checked="" type="checkbox"/> Unlimited	<input type="text" value="0"/>
Storage policy		
<input checked="" type="checkbox"/> default, GiB	<input checked="" type="checkbox"/> Unlimited	<input type="text" value="0"/>
Floating IPs	<input checked="" type="checkbox"/> Unlimited	<input type="text" value="0"/>

5. Create a user. This user will be used to log in to **Acura Service Project** later in order to deploy the Hystax Acura instance. Do not forget to assign the user to **Acura Service Project**.
Go to **Projects and users**, click **Acura Service Domain**, and then click **+ Create user**. Assign the user to **Acura Service Project** with the **Project member** role.

Create user ✕

Login
 service-project-user

Email (optional)

Password

Description (optional)
 We will use this user to login to the Acura Service Project and deploy the Acura Instance

Role
 Project member

Can create and manage services in assigned projects.

Image uploading ⓘ

Assign to projects
+ Assign

Acura Service Project	✕
-----------------------	---

Cancel
Create

6. At this point, our Acura Service and the target projects are ready but there is a missing configuration related to the network, the Hystax service network. Later in this guide, we will deploy the Hystax Acura instance. This instance will communicate with the Acura Cloud Agent instance through an external physical network which will be made available on both projects. We will use the same physical network to simplify the configuration. The only requisite when choosing the network to use for the Hystax service network is that the network should be routable from the Acura Cloud Agent instance network to the network in which the Hystax Acura instance is located.
7. Log in to your Virtuozzo Hybrid Infrastructure admin panel and click **Compute > Network** in the left-hand navigation menu. Identify the external network you wish to use (in this example we will use a network named **public**) and click it. Find the **Network access** section in the panel that will open on the left, and then click **Edit**.

8. Enable the network for the **Acura Service Domain** and **Ringo-Cloud** domain as we only have one project on each. The access will be inherited by the project.

9. Download the Hystax Acura image to your admin panel and upload the image to **Acura Service Project**:
 - a. Log in to your Virtuozzo Hybrid Infrastructure admin panel compute node via SSH.
 - b. Source your admin credentials:

```
su - vstoradmin
kolla-ansible post-deploy ; exit
source /etc/kolla/admin-openrc.sh
```

- c. Download the Hystax Acura image:

```
wget https://xx-hystax-imagexx-acura.tar.gz
```

- d. Extract the archive:

```
tar -xvf xx-hystax-imagexx-acura.tar.gz
```

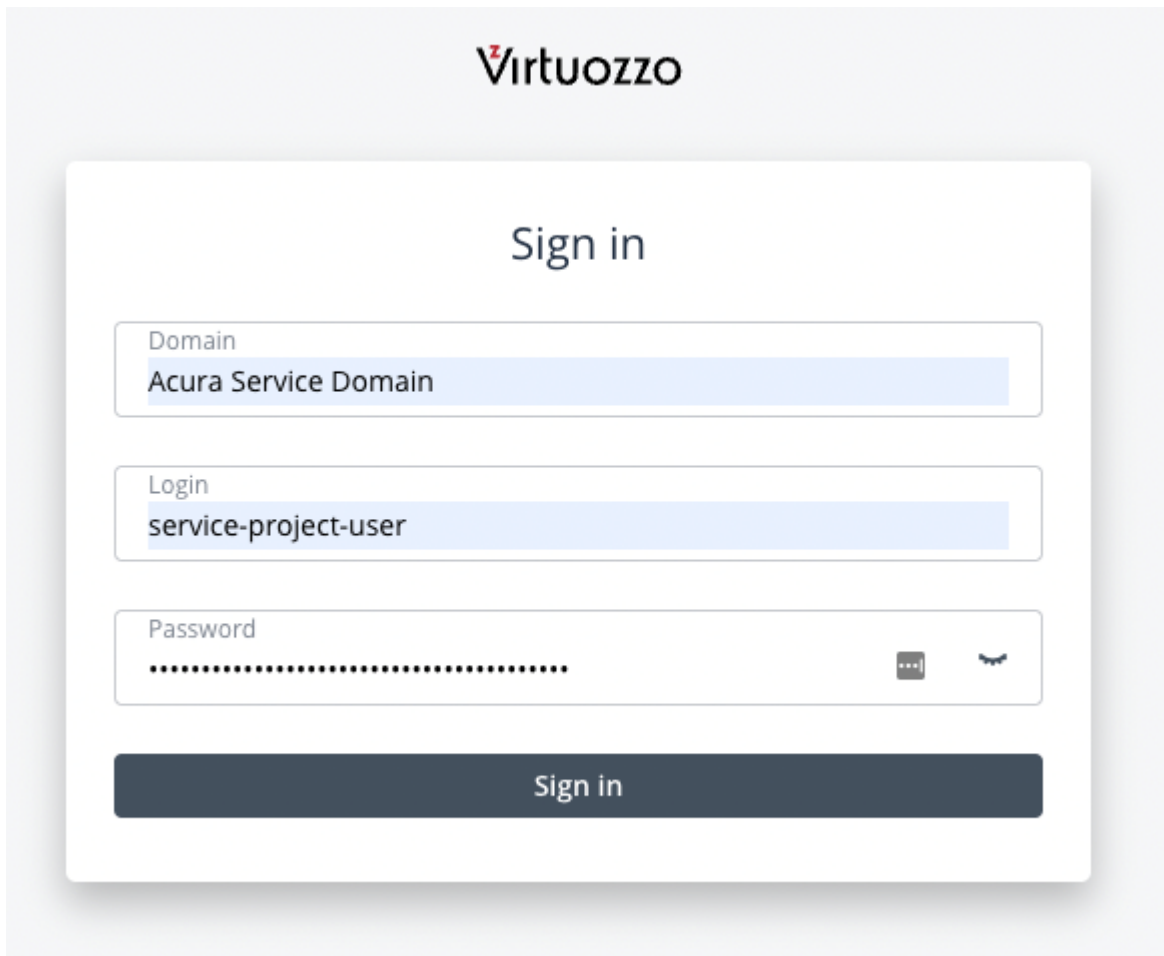
- e. Upload the **Hystax Acura** image to **Acura Service Project**:

```
openstack --insecure image create "Hystax Acura" --disk-format raw --container-
format bare \
--file Hystax_Acura_VA_MGR_Virtuozzo_3_7_1701-release_3_7_ --project "Acura
Service Project"
```

Deploying the Hystax Acura solution on Virtuozzo Hybrid Infrastructure

At this stage, we will log in to our **Acura Service Project**, create an overlay network and a router, which will be configured to enable SNAT for the Hystax Acura instance. We will then have the necessary resources to deploy the Hystax Acura migration solution and assign a floating IP to the instance.

1. Log in to **Acura Service Project** from the self-service portal by using the URL **https://fqdn:8800**.



Virtuozzo

Sign in

Domain
Acura Service Domain

Login
service-project-user

Password
.....

Sign in



2. Create a network. This will be a virtual network, which later will be attached to the Hystax Acura instance. Go to **Networks** and click **Create virtual network**. In this example, we will name this network **vm-network**.

Add IPv4 subnet ✕

CIDR 192.168.100.0/24	Gateway (optional) 192.168.100.1
--------------------------	-------------------------------------

Built-in DHCP server ⓘ

Allocation pools	+ Add
------------------	-------

DNS servers	+ Add
8.8.8.8	 

Cancel Add

3. Create a router. This router will provide SNAT (outbound access) to the Hystax Acura instance. Connect the physical external network **public** with the newly created virtual network **vm-network**.

Add virtual router ✕

Name
router1 🔒

Specify a network through which public networks will be accessed.

Network
public: 192.168.3.0/24 ▼

SNAT ℹ️

Add internal interfaces + Add

vm-network: 192.168.100.0/24 ▼ 🗑️

Cancel
Create

4. Deploy an instance by using the downloaded Hystax Acura golden image. Remember to attach a key pair, this will grant you access to the Hystax Acura instance. Create the instance with the following info:

- The **Hystax Acura** image
- A 100 GiB disk
- The **xlarge** flavor with 8 vCPUs and 16 GiB RAM
- A network interface connected to **vm-network**
- The **default** security group
- Your SSH key pair

Create virtual machine
✕

Review the virtual machine details and go back to change them if necessary.

Name
 Hystax Acura

Deploy from: Image Volume

Image	Hystax Acura ✎
Volumes	Boot volume — 50 GiB, default Boot ✎
Flavor	xlarge — 8 vCPUs, 16 GiB RAM ✎
Network interfaces	vm-network — Auto Primary IP: Auto Security groups: 1 ✎
SSH key (optional)	jesus-ansible ✎
Customization script (optional)	Specify ✎

Cancel
Deploy

Note

Adding a key pair is highly recommended to provide you with SSH access to the instance. Although the Hystax Engineering team will be able to perform maintenance checks and troubleshooting (as long as the network is reachable and your security groups allow the corresponding traffic), it is better to have your own means of accessing the Hystax Acura instance.

- Assign a floating IP to the newly created Hystax Acura instance. Go to **Floating IPs** and click **Add floating IP**. Note that we are using private IP addresses, but in a real scenario this should be a public IP address.

Add floating IP address



Select a network to pick a floating IP address from.

Network
public: 192.168.3.0/24

Select a private IP address of a VM or a load balancer to assign to the floating IP address.

Hystax Acura

IP address
(Primary) 192.168.100.182

Cancel

Add

6. Wait for 10–20 minutes for the services to start and the web UI to become available.

Troubleshooting tip: Hystax Acura uses Kubernetes to manage the services inside the instance. If after 20 minutes you still have no access to the web UI, access the Hystax Acura instance via SSH the user user and check the services status with the command `kubectl get pods`. When you see all the pods with the status `Running` (except for the four pods that will have the status `Completed`), the web UI will be available.

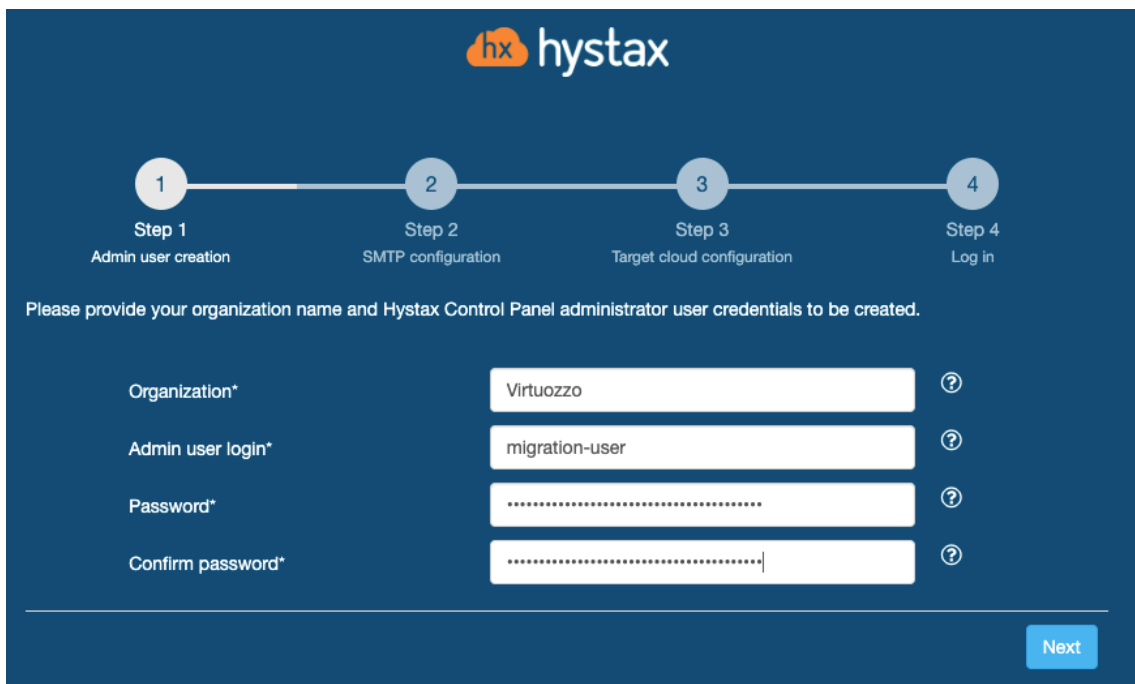
```

user@hystax-apura:~$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
acp-587cbff8c5-4rzsm                2/2    Running   8           376d
auth-7b96ff9c69-kjv4b               1/1    Running   5           376d
bagest-c59c55f88-nsr69              1/1    Running   5           376d
cabrio-69c6db77bf-ndgq8             1/1    Running   5           376d
cashier-5cccd49d7d-56d22            1/1    Running   5           376d
cleaneikdb-1651354200-d8ghf         0/1    Completed 0           11m
cloud-agent-6b5f58c9fc-hq4j7       1/1    Running   4           376d
doc-6fd6b7566c-95qvq               1/1    Running   5           376d
elk-0                                 1/1    Running   6           376d
elm-6fdd56f897-p5qcd                1/1    Running   5           376d
error-pages-5d8bdbb685-6kdkr        1/1    Running   6           376d
etcd-6f849cc4cb-mx8c8              1/1    Running   5           376d
etcd-backup-1651320000-mv9g5        0/1    Completed 0           9h
grafana-684fcd5d87-p9mqv            2/2    Running   10          376d
heatapi-7df748c6b7-hncf2            1/1    Running   5           376d
heatengine-67f7f56b86-csxgl         2/2    Running   9           376d
heraldapi-5bc9d998f8-4bjxd          1/1    Running   5           376d
heraldengine-5f74f9ff8c-d87p5       1/1    Running   6           376d
heraldengine-5f74f9ff8c-mn7kj       1/1    Running   6           376d
imageuploader-0                     1/1    Running   5           376d
influxdb-0                           1/1    Running   5           376d
initial-config-nginx-ingress-controller-gthfl 1/1    Running   9           376d
initial-config-nginx-ingress-default-backend-585c974b8d-v9j8x 1/1    Running   5           376d
initialconfig-0                      1/1    Running   4           376d

```

If after 20 minutes, instead of getting the pod status, you get the message Connection refused, contact the support team.

7. Open a web browser and go to https://<instance_ip_address>/. You will be redirected to the Hystax Setup Wizard. After you perform all the steps, the installation will be complete, and you will be able to start using Hystax Acura.
 - a. **Step 1:** Enter the **Organization** name, you can enter here your company name, this step creates the login user and password and associates it to whatever organization name you wish to provide. Add the **Admin user login** and **Password**. This will be the user account for logging in to Hystax Acura Control Panel and managing the system. If there are any errors, the system will notify you.



- b. **Step 2:** Specify your Hystax **License key** that was supposed to be shared with you in advance. Also, fill in the settings for accessing your mail server that will be used to send notifications from Acura and generate periodic reports.

Note

An SMTP server with TLS/SSL encryption is required to proceed with the deployment.

If you prefer a public SMTP server associated with your email address (gmail, yahoo etc.), you can find its settings online. If it is a private SMTP server, contact your network administrator for further details.

After you click **Next**, a sample notification will be sent to the specified **Test email** to verify the functionality.

hx hystax

1 Step 1 Admin user creation

2 Step 2 SMTP configuration

3 Step 3 Target cloud configuration

4 Step 4 Log in

In order to be able to send email notifications, a mail server configuration must be introduced during initial configuration of Hystax Acura. Please enter valid SMTP settings as well as the provided license key.

License key*	<input type="text" value="yourKeyForHystaxAcura"/>	?
Encryption type*	<input type="text" value="TLS"/>	?
SMTP server*	<input type="text" value="smtp-server.com"/>	?
SMTP port*	<input type="text" value="587"/>	?
SMTP username*	<input type="text" value="youremail@example.com"/>	?
SMTP password*	<input type="text" value="....."/>	?
Test email*	<input type="text" value="to-email@example.com"/>	?

Next

- c. **Step 3:** Fill in all the fields by providing cloud configuration details. Use question mark icons to get hints on the fields. After you click **Next**, the Setup Wizard will validate the entered data and notify you in case of an error.

hx hystax

1 Step 1 Admin user creation
 2 Step 2 SMTP configuration
 3 Step 3 Target cloud configuration
 4 Step 4 Log in

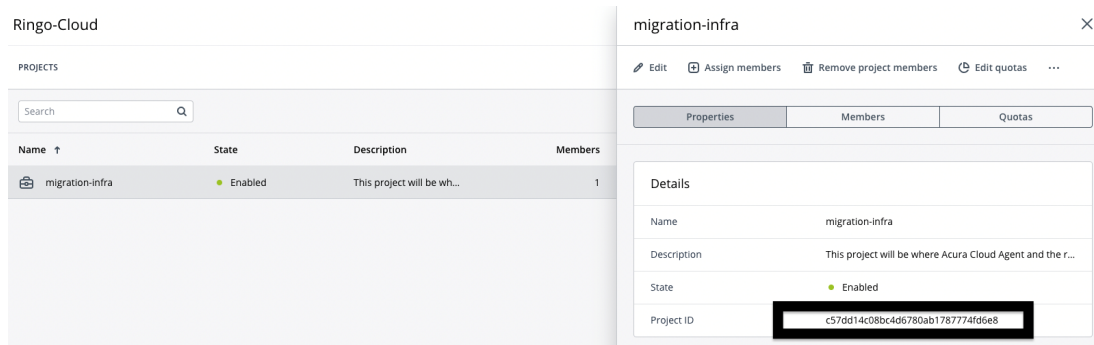
Please provide configuration information to connect Hystax Acura to a target OpenStack. Refer to the hints by hovering question marks in needed. Hystax Initial Configuration Wizard will test connection to the cloud and all necessary access permissions when you go to the next step by clicking the 'Next' button.

Keystone API endpoint*	https://virtuozzovhi.example.com:5000/v3	?
User domain*	Ringo-cloud	?
Username*	migration-user	?
Password*	?
Target project domain*	Ringo-cloud	?
Target project ID*	c57dd14c08bc4d6780ab1787774fd6e8	?
Hystax Service Network*	public	?
Floating IP Network*	public	?
Hystax Acura Control Panel Public IP*	X.X.X[external ip VHI]	?
Additional parameters		?

[Next](#)

On Step 3, we configure what we refer to as the target cloud, that is our customer target project where the replicated workloads will be migrated to.

- The **Keystone API endpoint** URL is the FQDN of your Virtuozzo Hybrid Infrastructure admin panel that listens on port 5000 (make sure the **Compute API** traffic type is assigned to the public network) and will be used for authentication.
- The **User domain** field refers to the domain name the user is part of. In our example, the domain for our customer is **Ringo-Cloud**, then we created the project **migration-infra** and the user **migration-user**, which was assigned to the project and belongs to the **Ringo-Cloud** domain.
- **Username** is the user that we created and associated to the target project **migration-infra** as a project member. In this case, the user is **migration-user**.
- **Target project domain** is the customer domain, the same as in the **User domain** field, and is the domain where we created the project. In our example, the name is **Ringo-Cloud**.
- **Target project ID** is the UID for the project **migration-project**. The target project ID can be found in your Virtuozzo Hybrid Infrastructure admin panel on the project panel.



- **Hystax Service Network** is the network that will be used for Hystax Cloud Agent machines. It should be the same or routable to the network where the Hystax Acura instance belongs to. In our case, it is the physical external network **public**.
- **Floating IP Network** is the network you wish to use to provide floating IP addresses to your migrated instances. In our case, it is the physical external network **public**.
- **Hystax Acura Control Panel Public IP** is the public IP address that will be used to access the Hystax Acura Control Panel via a web browser and by replication agents.

Example information:

Field	Description	Example
Keystone API Endpoint	Virtuozzo Hybrid Infrastructure Keystone Auth URL	http://fqdn-vhi-admin-panel:5000/v3
User domain	User domain name to access Virtuozzo Hybrid Infrastructure	Ringo-Cloud
Username	Username to access the Virtuozzo Hybrid Infrastructure project	migration-user
Password	Password to access Virtuozzo Hybrid Infrastructure	password
Target project domain	Target project domain name	Ringo-Cloud
Target project ID	Target project ID where replicated workloads will be spun up	c57dd14c08bc4d6780ab1787774fd6e8
Hystax Service Network	Network that will be used for Hystax Cloud Agent machines	public
Floating IP Network	External network that will be used to attach floating IPs to migrated machines	public
Hystax Acura Control	Public IP that will be used to access the Hystax Acura Control Panel via a web	Public IP

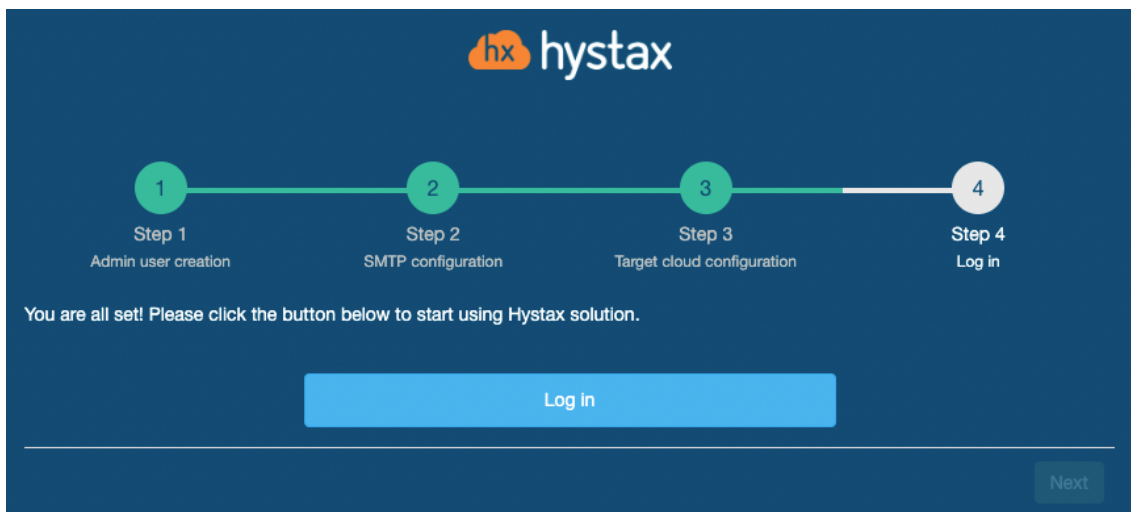
Field	Description	Example
Panel Public IP	browser and by replication agents	

The specified Virtuozzo Hybrid Infrastructure user should have the following rights for Hystax Acura to operate correctly:

- Import image
- Launch instance
- Create volume
- Attach volume to instance
- Detach volume from instance
- Create volume snapshot
- Create volume from snapshot
- Remove snapshot
- Remove volume
- Manage networks

The user we created had the assigned role **Project member** that include all of the above rights.

- d. **Step 4:** The installation is complete, and you can now log in to the system by using the credentials from the previous step.



Performing a test migration

In this section, we will perform a test migration. Let's first define specific Hystax Acura concepts before starting the test migration.

- **Clouds/Target clouds** on the Hystax Acura portal are objects that contain information where workloads to be migrated, which user and password to use for authentication via the Keystone API, what URL is for the Keystone API, which network is the service one, etc. Basically, all the

information provided on Step 3 of the installation wizard is used to populate this Hystax Acura entity. Once you log in for the first time, you will see this resource by clicking **Manage Clouds**. You can add more clouds/target clouds to manage more migration projects in Virtuozzo Hybrid Infrastructure.

Edit Cloud



Cloud type: OpenStack

Cloud name*	Target Project1	?
Keystone API endpoint*	https://lab4-api.demo-virtuozzo.com:5000/v3	?
User domain*	Ringo-Cloud	?
Username*	migration-user	?
Password*		?
Target project domain*	Ringo-Cloud	?
Target project ID*	c57dd14c08bc4d6780ab1787774fd6e8	?
Hystax Service Network*	public	?
Floating IP Network*	public	? Other additional parameters in JT for example: {"parameter": "value"}
Additional parameters	{"cloud_agent_flavor_requirements": {"hdd": "20",	?

Close Save

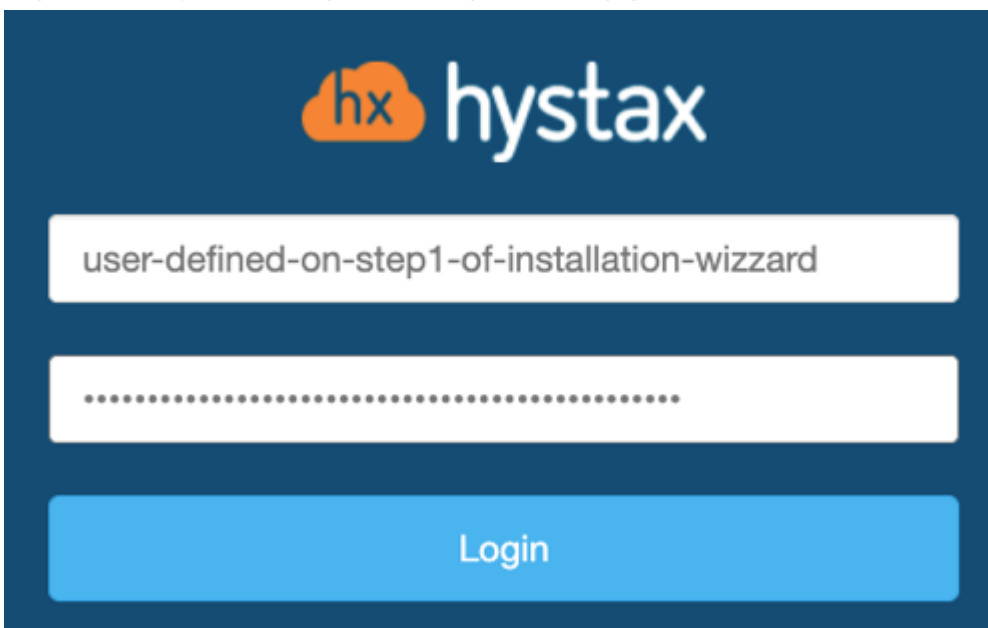
- **Customers** are entities that we create and logically associate with migrated instances, migration plans, cloud sites, the cloud/target cloud and target project ID. We will select this **Customer** entity in order to start a migration. You can create multiple customers that belong to different projects (target projects) as long as the user defined in the cloud/target cloud is a project member. This is the first configuration resource you will need to create in order to start planning the migration. Note that in this case the target project ID is the same as the one defined in the original cloud/target cloud.

Active	<input checked="" type="checkbox"/>
Company Name*	<input type="text" value="TriangleCakes"/>
Contact Email*	<input type="text" value="jesus.bustos@virtuozzo.com"/>
Contact Phone	<input type="text"/>
Address	<input type="text"/>
Cloud	<input type="text" value="Target Project1"/>
Target project ID	<input type="text" value="c57dd14c08bc4d6780ab1787774fd6e8"/> ?

- **Machine groups** are a way to group instances. You can create a machine group for Windows instances, another machine group for Linux instances, etc. There is a default group and will be the one we will use in this example.
- **Migration plans** are a way to define what the migrated instance will look like when migrated. For example, what network the new replicated instance will belong to, or what flavor to use for creating the new instance (flavors define how much RAM and CPU should be assigned to the new instance). If we migrate more than one instance, we can even define how to orchestrate the migration by defining, for example, what instance will start first and what instance will wait until the other instance is up.

To perform a test migration, do the following:

1. Log in to the Hystax Acura portal at <https://floating-ip-acura-instance>.



2. Add a customer. Click the Hystax logo on the top left, and then click **Add** to add a customer. Fill in the information relevant to your customer. Click **Save**.

Add customer ✕

Active

Company Name*

Contact Email*

Contact Phone

Address

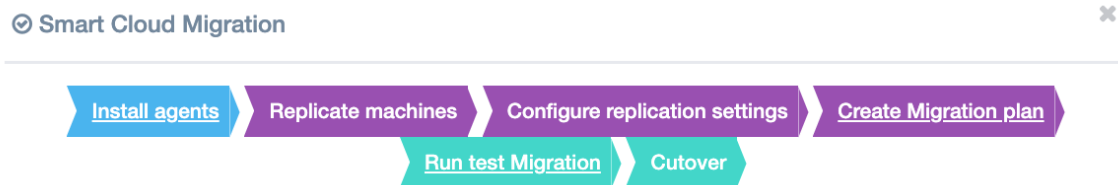
Cloud

Target project ID ?

Use custom replication agent settings

Additional parameters ?

3. The new customer will be available after creation. Click on the customer and review the smart migration wizard. We will follow these steps to run a test migration.



4. Click **Install agents**, choose the install agent to deploy on the source remote instance that you wish to replicate. In our example, we will be migrating an Ubuntu 16 web server instance, hosted currently in Amazon EC2. To do it, select the Linux agent, and then click **Next**. If you migrated from VMware, it would be possible to install the HRVAgent image on each ESXi Hypervisor to perform the migration. For more details on the migration from VMware to Virtuozzo Hybrid Infrastructure, refer to the Hystax Acura Migration Guide for VMware.

Download agents



On this step, select an agent type, which will replicate the machines. When all of the above is done, you can move further and click 'Next'.

External agents are deployed on a hypervisor level and can operate with multiple VMs.



Internal agents are deployed into VMs/bare metal machines, therefore, do not rely on hypervisors/storage.



Previous Next

5. Select the machine group, in our example, this is the **Default** group. Then, select the target Linux distribution (**Debian/Ubuntu**). Check the supported kernel list. If the kernel of your instance is not supported, then you need to build the drivers and use the DKMS as the snapshot driver deployment type. In this example, we will follow this path. Otherwise, you can choose **Snapshot driver deployment type (pre-built)**. If you have any issues building the drivers, contact the support team.

Download agents



On this step, select a group, where replicated machines will be automatically added to. When all of the above is done, you can move further and click 'Next'.

Machines group

Default

Select target Linux distribution

Debian/Ubuntu (.deb package)

Snapshot driver deployment type

DKMS (the driver is built during agent installation)

The DKMS driver package will build the driver on installation. It has a broad Linux kernel support and will rebuild the driver on kernel updates. It requires DKMS, build tools and kernel headers to be installed on the machine. Use DKMS package for machines that are frequently updated or not supported by the pre-built package.

Previous Next

6. Follow the steps provided by the Hystax Acura wizard, and then copy and paste the instructions in order to install the agent on the instance that will be replicated.

Download agents

Download Agent

Instructions

1. Install DKMS and build requirements on the machine (superuser privileges required):
 - For Ubuntu/Debian machines: `apt-get update && apt-get install dkms perl make gcc libelf-dev`
2. Install Linux header files for current kernel and future updates. Use the following commands for stock kernels (superuser privileges required):
 - For Ubuntu machines: `apt-get update && apt-get install linux-headers-$(uname -r) linux-headers-generic`
 - For Debian machines: `apt-get update && apt-get install linux-headers-$(uname -r) linux-headers-amd64`
3. Download a deb/rpm agent installer package file using the link above or copy the command below to run it in a terminal.
`wget --output-document=hlragent.deb --no-check-certificate 'https://5.9.176.19/linux_agent/606a9b9b-2809-47dc-866f-e66cb666f5ae/3712465f-93a7-4fc8-929d-5de9c944f78d?dist_type=deb&platform=x64&driver_type=dkms'`
4. Copy the package to the Linux machine you would like to migrate. Use deb package for Ubuntu/Debian machines and rpm package for RHEL/CentOS machines.
5. Install the agent using the following commands (superuser privileges required):
 - For Ubuntu/Debian machines: `dpkg -i /path_to_installer_package`
 - For RHEL/CentOS machines: `rpm -i /path_to_installer_package`

The machine will be registered and shown in a target group in a few minutes after agent installation. By default, the discovered machine will have 'Discovered' status. To start migration, select the machine and use 'Actions -> Start Replication'.

[Previous](#) [Next](#)

7. Click the Hystax logo on the top left to see the new customer, the machine count will be 1.

Customers [Manage Clouds](#)

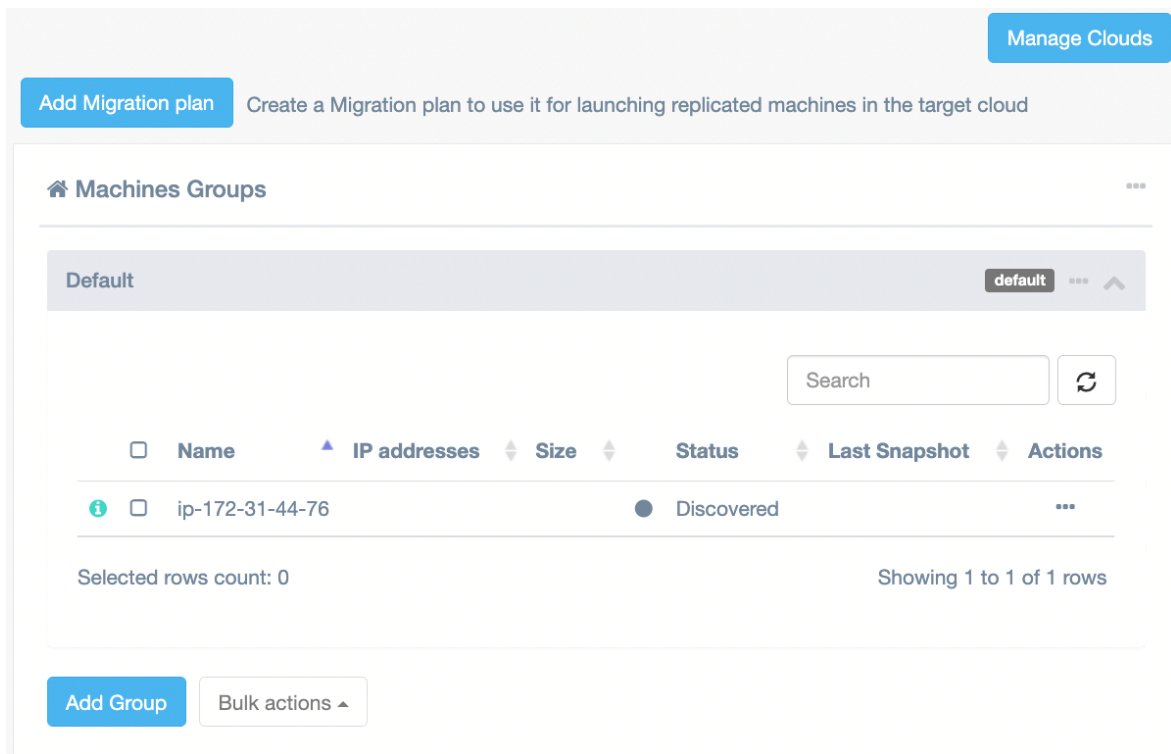
Search [Refresh](#)

Name	Machines	Cloud Sites	Actions
TriangleCakes	1	0	Edit Delete

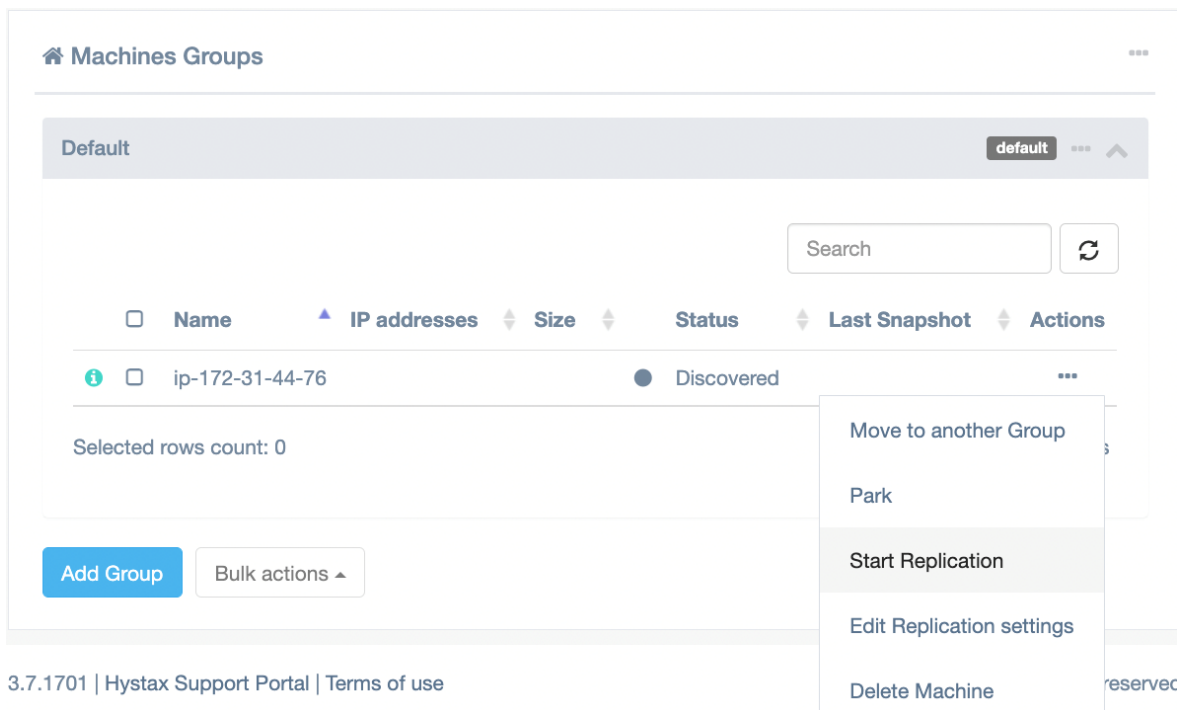
Showing 1 to 1 of 1 rows

[Add](#)

8. Click the customer name to see the new instance.



- Click the ellipsis icon **...**, and then click **Start replication**. If everything is correctly configured, replication of the remote instance will start in your target cloud. The replication will take some time, depending on how much data is to be replicated and the connection between your source and target clouds.



<input type="checkbox"/>	Name	IP addresses	Size	Status	Last Snapshot	Actions
<input type="checkbox"/>	ip-172-31-44-76			Replicating (10%, 14.92MB/s)		...

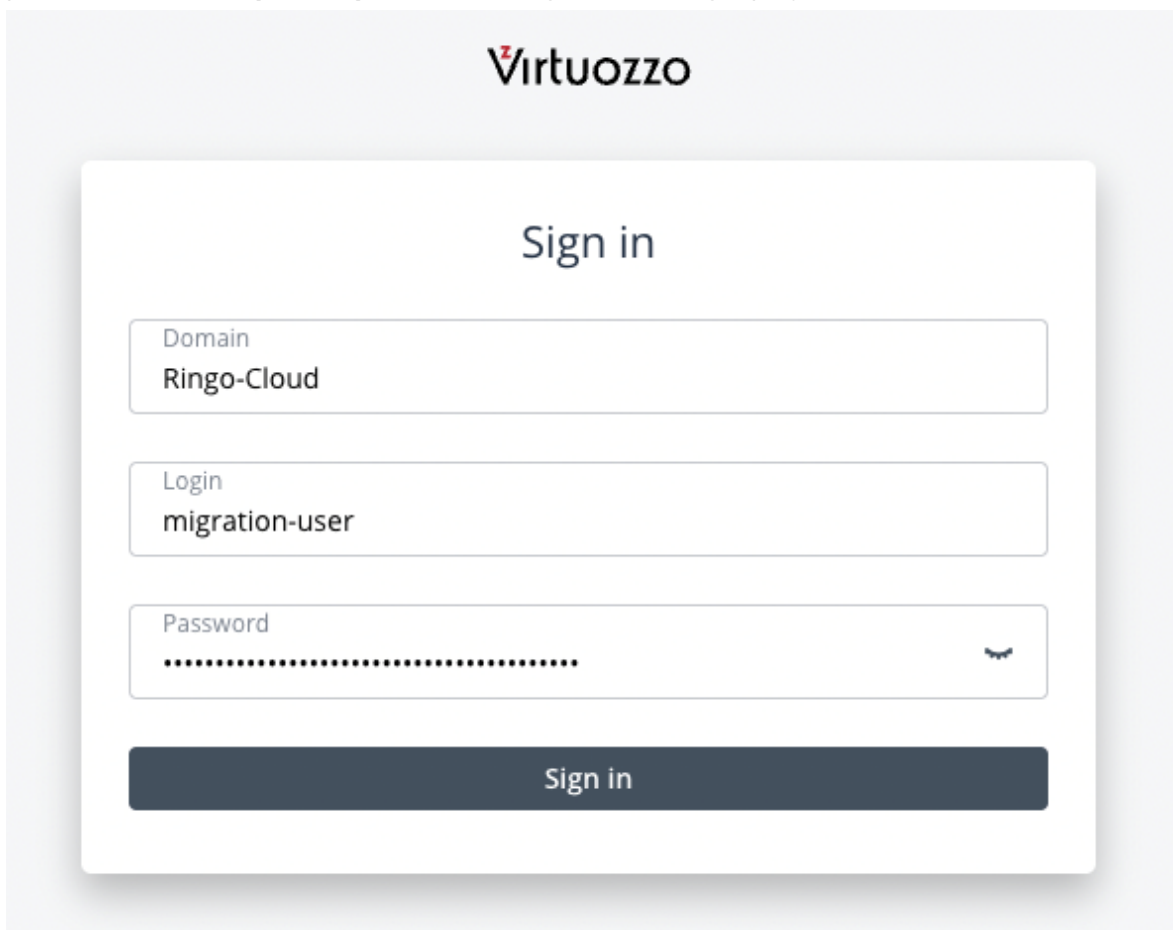
Selected rows count: 0 Showing 1 to 1 of 1 rows

10. Wait until the instance is synced.

<input type="checkbox"/>	Name	IP addresses	Size	Status	Last Snapshot	Actions
<input type="checkbox"/>	ip-172-31-44-76	172.31.44.76	8.0 GB	Synced	05/01/2022 10:45 PM	...

Selected rows count: 0 Showing 1 to 1 of 1 rows

11. While the image is being synced, create a target network (the network that will be used by our instance in the replicated target cloud). Go to your Virtuozzo Hybrid Infrastructure self-service portal at **vhi-admin-panel-fqdn:8800** and log in to the target project.



12. On the **Virtual machines** tab, check 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	...

- Go to **Networks**, click **Create virtual network** and follow the steps. We will create the network by using exactly the same CIDR (172.31.32.0/20) as the instance being replicated, to show an example of a migration with exactly the same IP address source and remote. You can use any other network CIDR.
- Add a migration plan. On step 1, add a machine. Click the ellipsis icon ..., then click **Add machine** > **Default** > the machine discovered.

Add Migration plan ✕

Name*

Basic Expert

Devices & Ranks Subnets* +

:: Rank 0 – 0 machines ... ▼

Add machine Default ip-172-31-44-76

Close Save

- Add a migration plan. On step 2, configure the subnets for your new instance. Expand the view for your instance. You will see the information on the machine ID, flavor, and port (network). Also, on the left you will see the information on the network to be used.

Add Migration plan ✕

Name*

Basic Expert

Devices & Ranks Subnets* +

:: Rank 0 – 1 machines ... ▲

:: ip-172-31-44-76 – m1.medium, 1 ports ... ▲

Machine ID* 831b075e-34d7-56f6-234a-36046f527123

Flavor name* m1.medium

#	Port name*	Port subnet*	Port ip	
1	port_0	subnet_0	172.31.44.76	

Subnet ID*

Subnet ID* ▼

CIDR*

Close Save

We will replace the flavor name with one that is available in 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.

16. Source the information on the subnet ID:

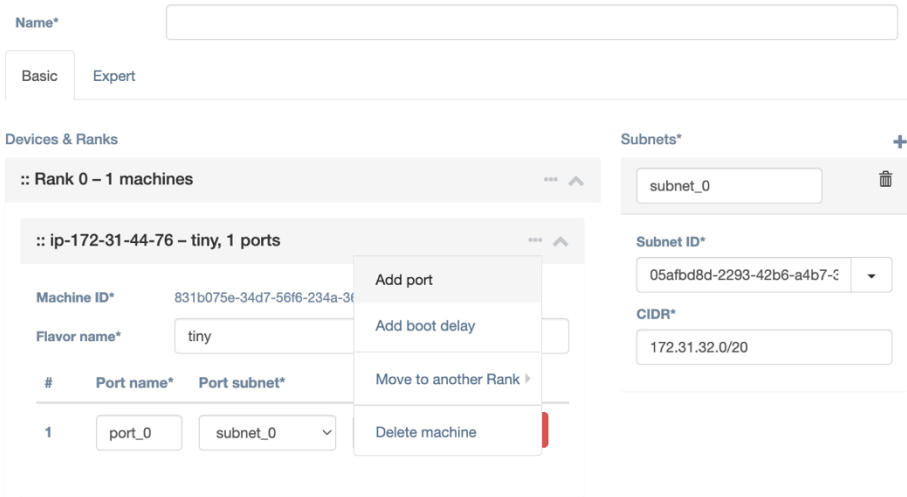
- a. Log in to your Virtuozzo Hybrid Infrastructure admin panel via SSH.
- b. Source the admin-openrc.sh file:

```
# source /etc/kolla/admin-openrc.sh
```

c. Run the command `openstack network list --insecure` and identify the subnet ID:

```
[root@~]# openstack network list --insecure
+-----+-----+-----+-----+
| ID | Name | Subnets |
+-----+-----+-----+-----+
| 0845987c-9f6b-4f66-b309-d3020c4bbf39 | migrated-vm-network | 05afbd8d-2293-42b6-a4b7-38e70b5709d0 |
| 2028c210-b2ad-4bdb-abb-c-57c1809f66f3 | HA network tenant c7a06cdd102c419d98365448757472b0 | 1972c349-888a-408a-808a-408a-408a72740080 |
| 40e0b4b6-ee47-4c8e-8791-3f9e0d6d691 | vm-network | 670208af-1ece-4234-948b-8ae7297a3279 |
| 467c893d-f141-4645-86d6-de8e1bced23e | external | 70dd6fca-d4b9-4885-84a2-8636792f39cb, ab5e7524-47b5-4d87-8f2a-7e19c5d4e3f3 |
| 9fad0052-fc80-4150-9dd5-d0b9daf4b9ce | public | 825c3066-3989-4572-946d-02b20268bed9, fc61fa16-508c-4d03-9201-fbf24ce6cfb1 |
| cf21ea0f-ee6f-4d7b-af26-3aa8413412af | HA network tenant 15afdf824c534233b036ff3bf9375879 | 01cc2e76-d9ed-4b6f-b80c-cff069931be4 |
| ec8d6f59-e7ee-4633-a317-18134a3d523e | vm-network | 1ca208fd-1158-4648-af21-01ef653c8af0 |
+-----+-----+-----+-----+
```

17. Add a secondary port. Add a subnet by clicking **+** in the **Subnets** section.



18. Click the **Subnet ID*** drop-down menu of your new subnet, and then select the public IP address you wish to use. If you leave the **Port IP** field blank, the IP address will be allocated via DHCP. Provide a name for the plan and click **Save**.

Add Migration plan ✕

Name*

Basic Expert

Devices & Ranks

:: Rank 0 – 1 machines ⋮ ^

:: ip-172-31-44-76 – tiny, 2 ports ⋮ ^

Machine ID* 831b075e-34d7-56f6-234a-36046f527123

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"/>	<input type="button" value="✕"/>
2	<input type="text" value="port_1"/>	<input type="text" value="public"/>	<input type="text" value="Port IP"/>	<input type="button" value="✕"/>

Subnets*

Subnet ID*

CIDR*

Subnet ID*

CIDR*

19. Click **Run test migration** and select the migration plan.

↳ Migrate

1 ————— 2 ————— 3
 Step 1 ————— Step 2 ————— Step 3
 Select Customer ————— Select Migration plan ————— 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

webservers-migration

Custom Migration Plan

20. Create a cloud site. A cloud site is a way to logically group a migration plan with a snapshot to be used for the migration. Specify the cloud site name, select a snapshot, and click **Run migration**.

Cloud Site Name
website-testdomain

Snapshot time
05/01/2022 11:21 PM

Final Migration plan

Machines

Search

Name	IP Address	Flavor	Rank	Subnet
ip-172-31-44-76	172.31.44.76	tiny	0	subnet_0

Showing 1 to 1 of 1 rows

Previous Next Run migration

If the test migration is successful, you will see your replicated instance available in your target cloud. When you are done reviewing the test migration, you can delete the resources by deleting the cloud site.

Machines running
1

website-testdomain Detach Delete

State: **Running** Project ID: c57dd14c08bc4d6780ab1787774fd6e8 Snapshot: 05/01/2022 11:55 PM

Machines

Search

Name	IP Address	Flavor	Subnet	Snapshot	Status	Actions
ip-172-31-44-76	172.31.44.76 192.168.3.57	tiny	subnet_0 public	05/01/2022 10:45 PM	Active	-

Showing 1 to 1 of 1 rows

Virtual machines

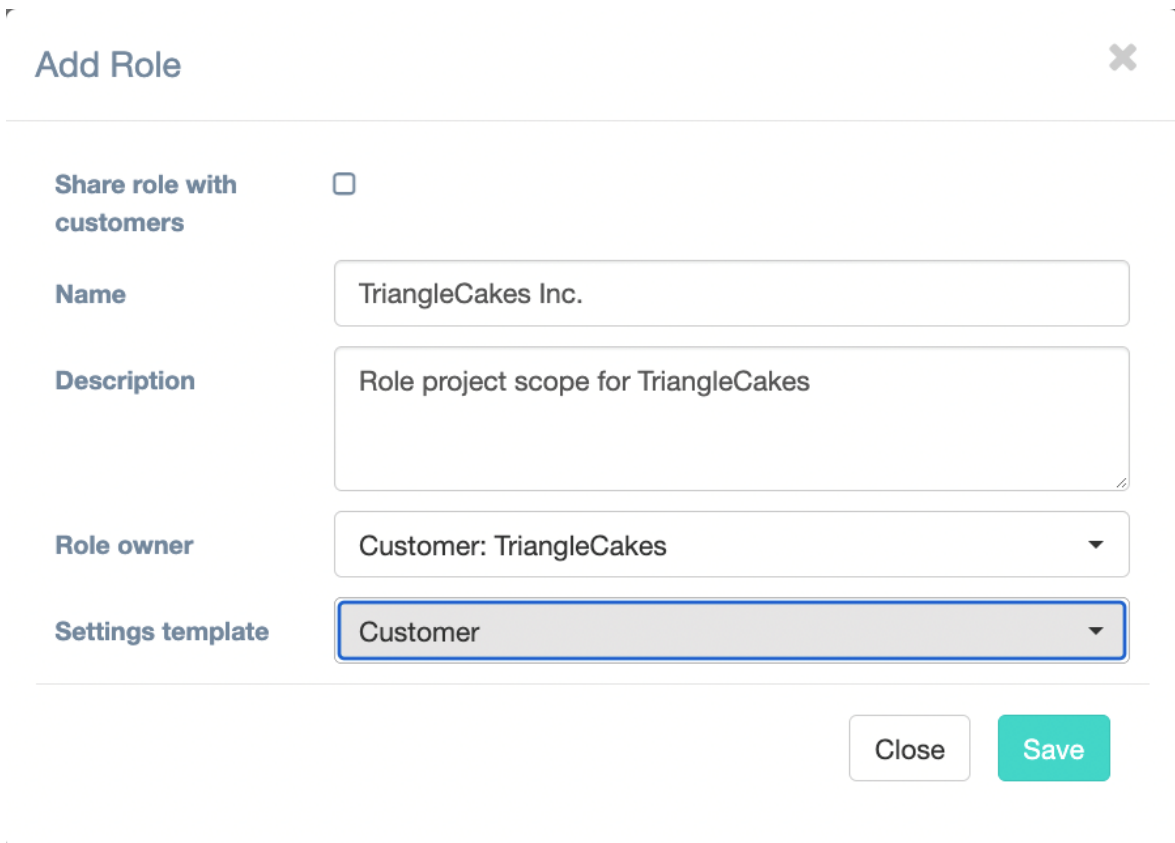
Filters Search + Create virtual machine

Name	Status	IP address	vCPUs	RAM	Storage	Volumes
Target Project1_cloud_agent	Active	192.168.3.54	2	4 GiB	8 GiB	1
ip-172-31-44-76	Active	172.31.44.76, 192.168.3.57	1	512 MiB	0 bytes	1

Providing access to the Hystax Acura portal

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. Log in to the Hystax Acura solution web interface and click **Settings** on the left-hand side. Click **Roles**, and then 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*

Description

- 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
 - Add Migration plans
 - Delete Migration plans

3. Add a user. Click **Users**, and then click **Add**. Fill in all the information and select the **Customer:Customer** name in **Organization**.

Add user



Login*	<input type="text" value="trianglec-user"/>
Name*	<input type="text" value="Anthony"/>
Password*	<input type="password" value="....."/>
Confirm password*	<input type="password" value="....."/>
Organization*	<input type="text" value="Customer: TriangleCakes"/>

Close

Save

4. Click the newly created user to assign a role.

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 Active
Organization: Virtuozzo

Anthony Active
Organization: TriangleCakes

Add

Save Delete

Assignments

Role	Role scope	Actions
No matching records found		

Add

5. Click **Add** in the **Role** section and add the role.

Assign role



Assignment role

TriangleCakes Inc.

Role scope

Customer: TriangleCakes

Close

Save

The user, at this point, is able to log in to the Hystax Acura web interface and perform Migration as a Service (self-service migration).

The screenshot displays the Hystax Acura web interface for the user 'TriangleCakes'. The interface includes a sidebar with navigation options like 'Download agents', 'Migrate', 'Reports', 'Events', 'Settings', 'Troubleshooting', and 'Help'. The main content area shows a 'Smart Cloud Migration' progress bar with steps: 'Install agents', 'Replicate machines', 'Configure replication settings', 'Create Migration plan', 'Run test Migration', and 'Cutover'. Below this, there is a 'Cloud Sites' table with the following data:

Name	State	Actions
website-testdomain	Running	Edit Delete
website-testdomain1	Deleting	Edit Delete

The table also includes a search bar and a refresh icon. At the bottom of the table, it says 'Showing 1 to 2 of 2 rows'. Below the table, there is a section for 'Migration plans'.

Troubleshooting

Hystax Acura automatically checks cloud access and the necessary permissions for assuring successful operation. It provides detailed error messages that describe their potential causes.

In case of an error, check the correctness of the entered data and availability of the necessary permissions.

Limitations

The Hystax Acura limitations are listed in the [official documentation](#).