

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

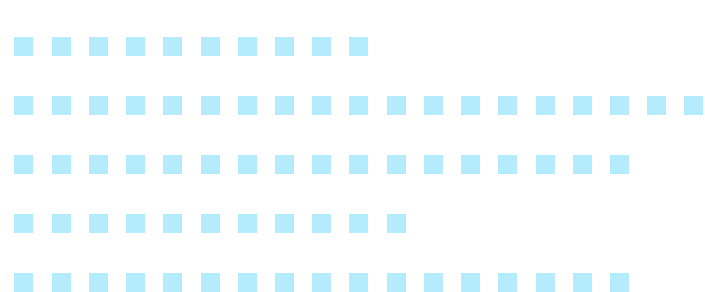
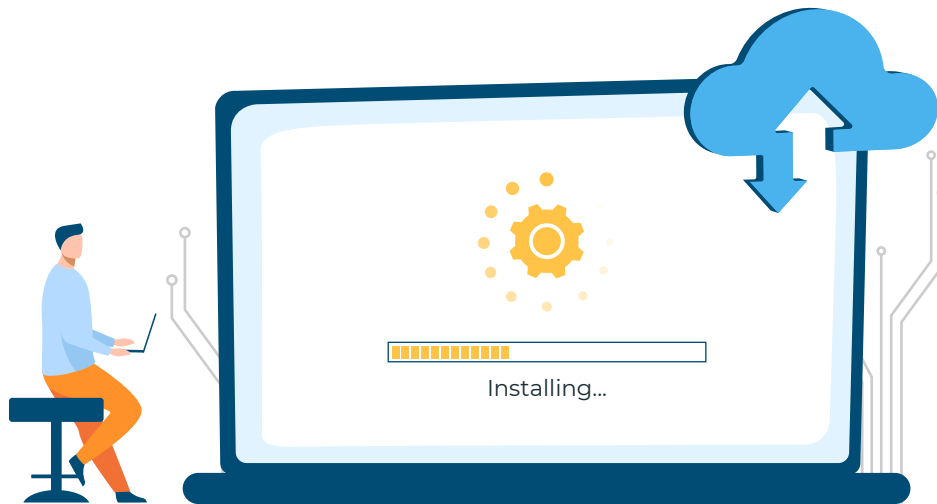


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Overview

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.

To deploy the Hystax Acura solution, a customer needs to request Hystax (migrations@virtuozzo.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 on request – contact your account manager or email migrations@virtuozzo.com
- ▶ Hystax Acura Solution License. Provided on request – contact your account manager or email migrations@virtuozzo.com
- ▶ 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
- ▶ 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

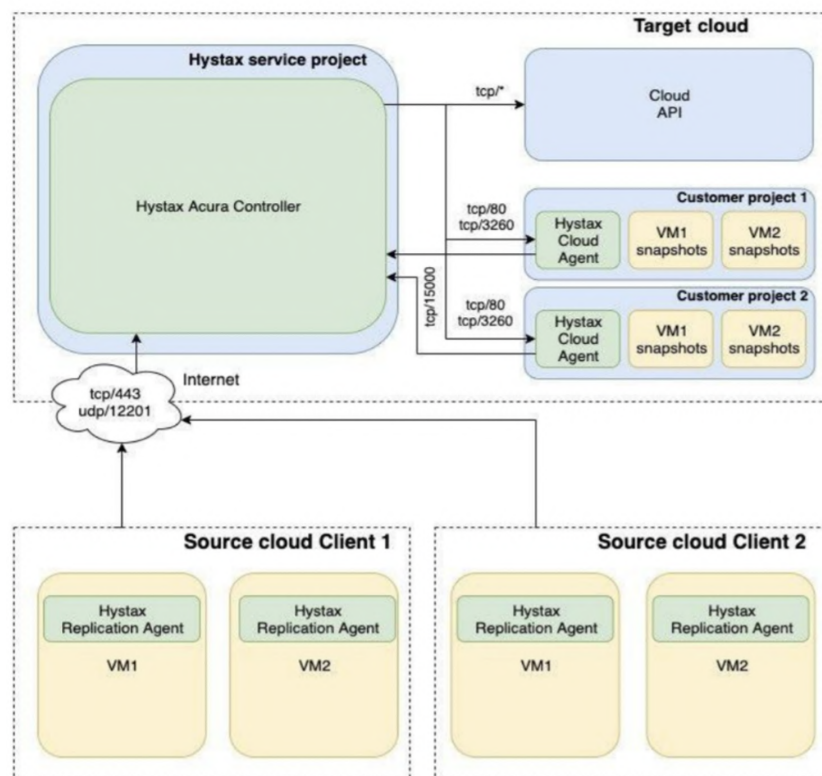
The installation process will be divided into three sections:

1. Virtuozzo Hybrid Infrastructure Platform resources planning and configuration
2. Deploying the Hystax Acura Solution on Virtuozzo Hybrid Infrastructure Platform
3. Simple Test Migration

Virtuozzo Hybrid Infrastructure Platform resource planning and configuration

Before starting with 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 on our Virtuozzo Hybrid Infrastructure Platform. The information gathered, will be used to deploy the Hystax Acura solution.

Hystax Acura Migration Solution Architectural Overview



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

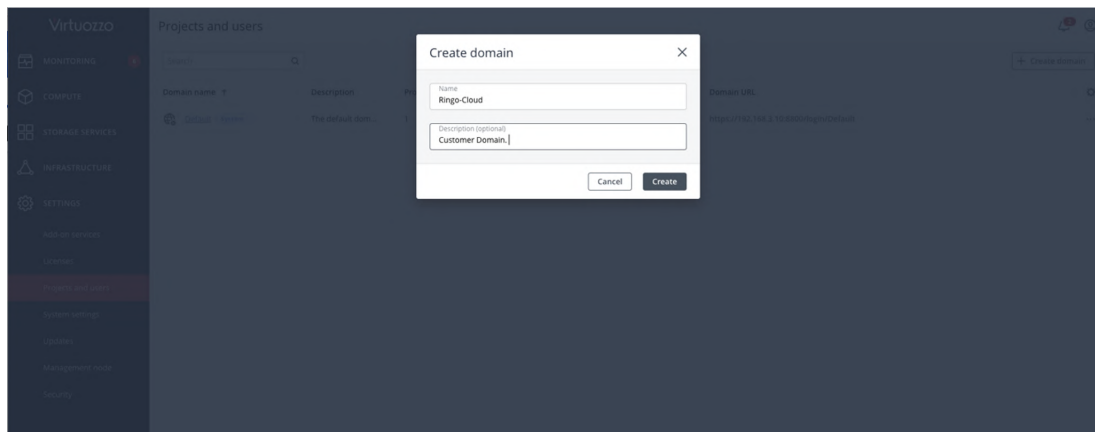
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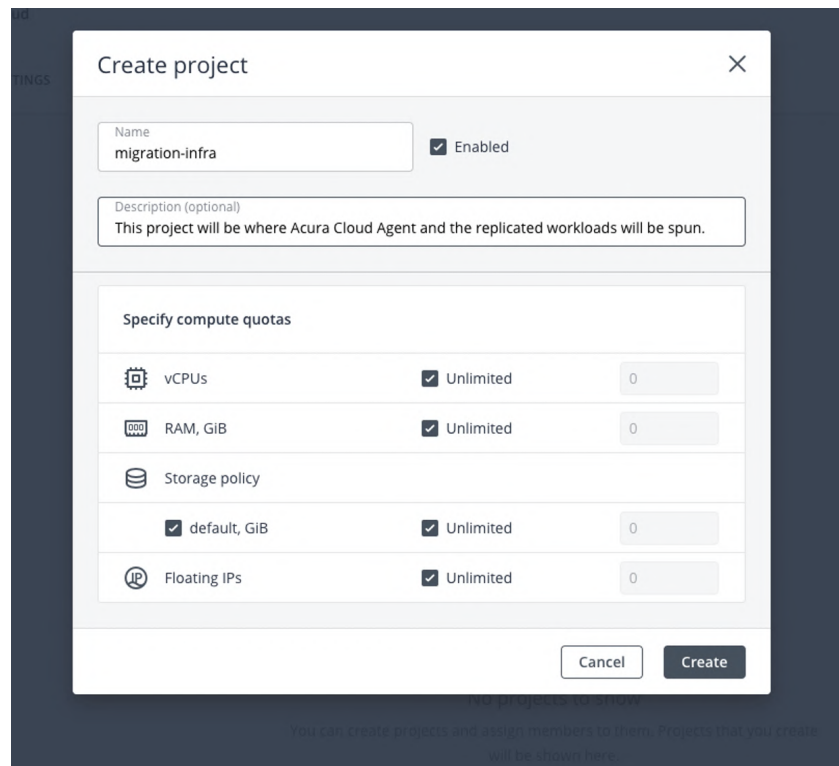
- ▶ A customer domain, we will name it Ringo-Cloud for the purpose of this example. This domain will be where our customer's projects will be created. We will refer to this domain as the **target project domain**. If you already have a domain configured that you wish to use to create your customer's 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 the 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 Solution 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.

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

1. Create a Domain, log in to your Virtuozzo Hybrid Infrastructure Platform Admin Panel, go to Projects and Users and click on Create Domain. This is only necessary if your customer does not have an organization domain already.



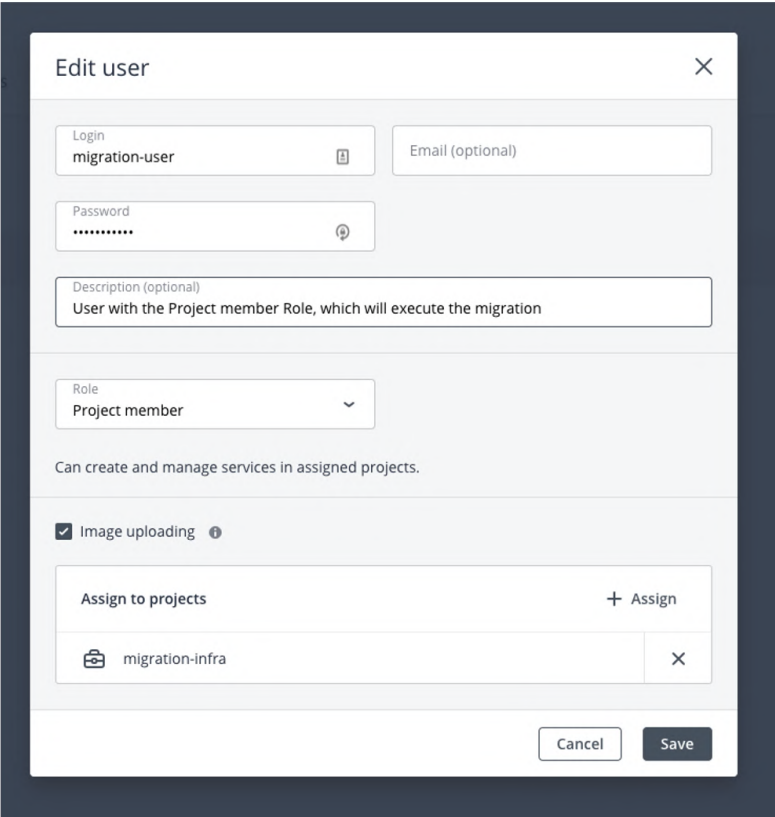
2. Now create a new Project inside the domain that you have just created (or existing customer domain). Click on the name of the Domain, then on Projects and click on +Create project, in this example we have created a project with unlimited resources.



Remember you need to account for the following resources when creating the projects:

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

- 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 on Domain Users then on +Create user. Allow the user to upload images.

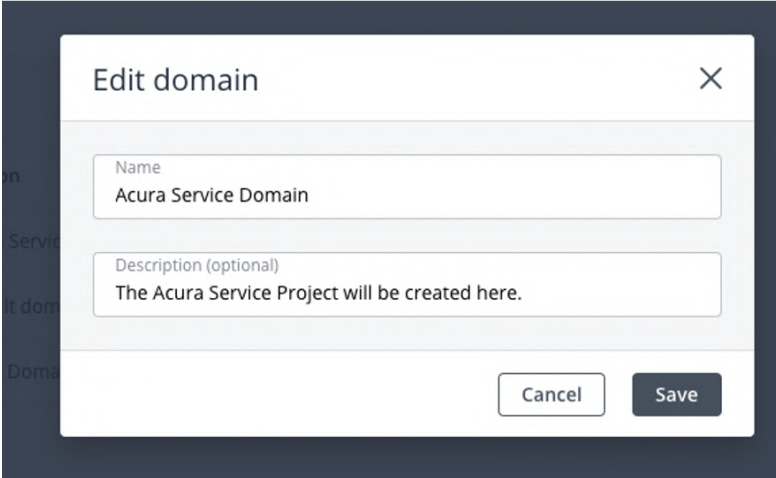


The screenshot shows the 'Edit user' dialog box. It contains the following fields and options:

- Login:** migration-user
- Password:** [masked]
- Email (optional):** [empty]
- Description (optional):** User with the Project member Role, which will execute the migration
- Role:** Project member (dropdown menu)
- Can create and manage services in assigned projects:** [checked]
- Image uploading:** [checked]
- Assign to projects:** migration-infra (with a '+ Assign' button)
- Buttons:** Cancel, Save

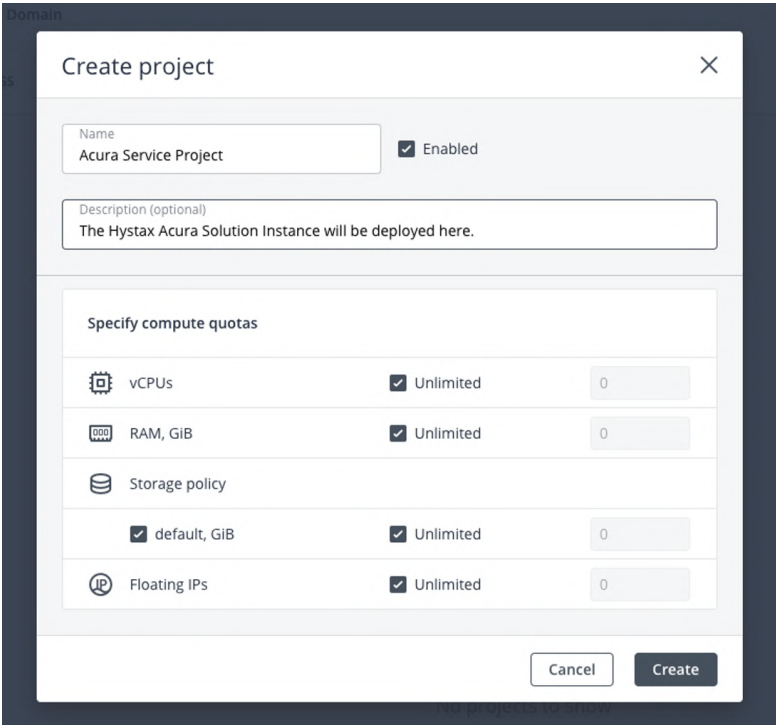
4. Create a Domain and a Project where the Hystax Acura Solution instance will be deployed. Remember this project will be the **Acura Service Project**. When the Hystax Acura Solution is deployed you will be able to manage multiple tenants from this single instance. This is the reason why having a dedicated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

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure







Dialog box titled "Edit domain" with a close button (X). It contains two input fields: "Name" with the value "Acura Service Domain" and "Description (optional)" with the value "The Acura Service Project will be created here." At the bottom right are "Cancel" and "Save" buttons.

Now click on the Acura Service Domain > Projects > + Create Project. This project will be the service project. We will use it to deploy the Hystax Acura Solution Instance.



Dialog box titled "Create project" with a close button (X). It contains two input fields: "Name" with the value "Acura Service Project" and "Description (optional)" with the value "The Hystax Acura Solution Instance will be deployed here." Below these is a section "Specify compute quotas" with four rows, each with a checkbox, a label, and a value field:

| Icon | Label | Checkbox | Value |
|---|----------------|--|-------|
|  | vCPUs | <input checked="" type="checkbox"/> Unlimited | 0 |
|  | RAM, GiB | <input checked="" type="checkbox"/> Unlimited | 0 |
|  | Storage policy | <input checked="" type="checkbox"/> default, GiB | 0 |
|  | Floating IPs | <input checked="" type="checkbox"/> Unlimited | 0 |

At the bottom right are "Cancel" and "Create" buttons.

5. Now create a user. This user will be used to login later into the Acura Service Project in order to deploy the Hystax Acura Solution instance. Don't forget to assign the user to the Acura Service Project.

Go to Projects and Users > Click on the Acura Service Domain > +Create User. Assign the user to the Acura Service Project with the role of Project Member.

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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

×

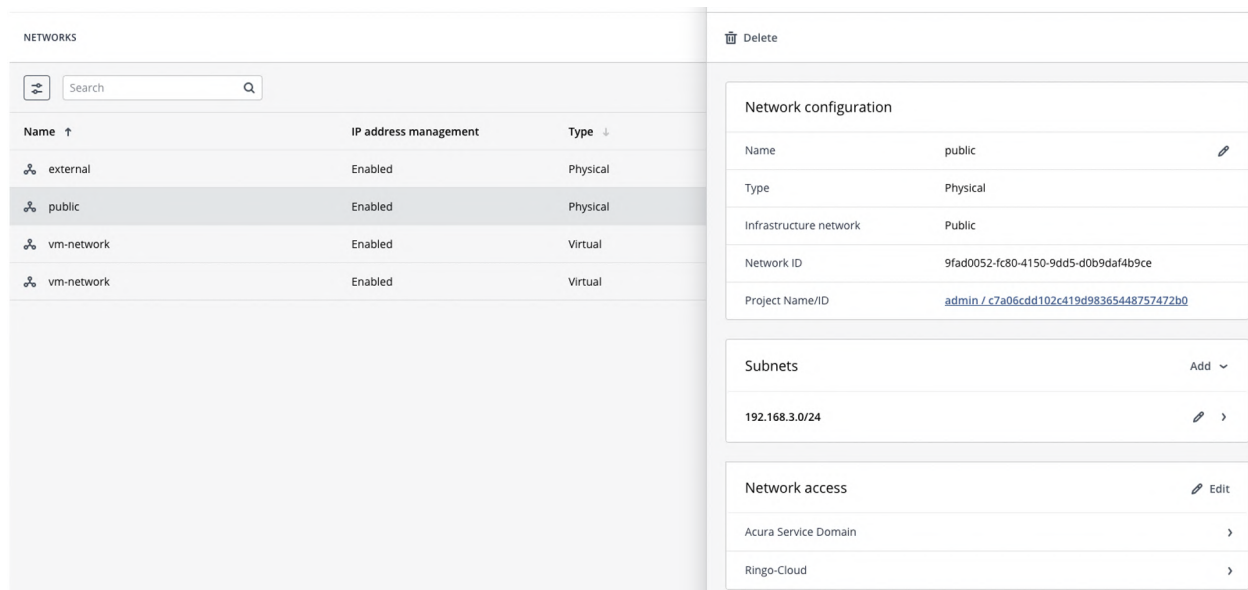
Cancel

Create

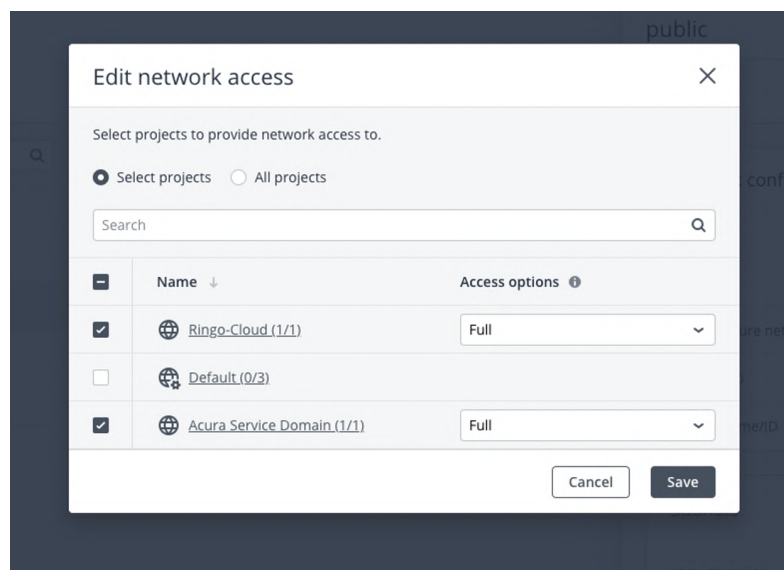
6. At this point, our Acura Service and the Target Projects are ready but there is a missing configuration related to the network, the **Hystax service network**. Later in this guide, we will deploy the Hystax Acura Instance. This instance will communicate with the Acura Cloud Agent instance through 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. Login to your Virtuozzo Hybrid Infrastructure Admin Panel and click on the network on the left-hand navigation panel. Identify the external network you wish to use (for this example we will use a network named public) and click on top of it, you'll see a new panel on the left, find the network access section and click edit.

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8. Now enable the network on the Service Domain and the 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 server and upload the image to the Acura Service Project.

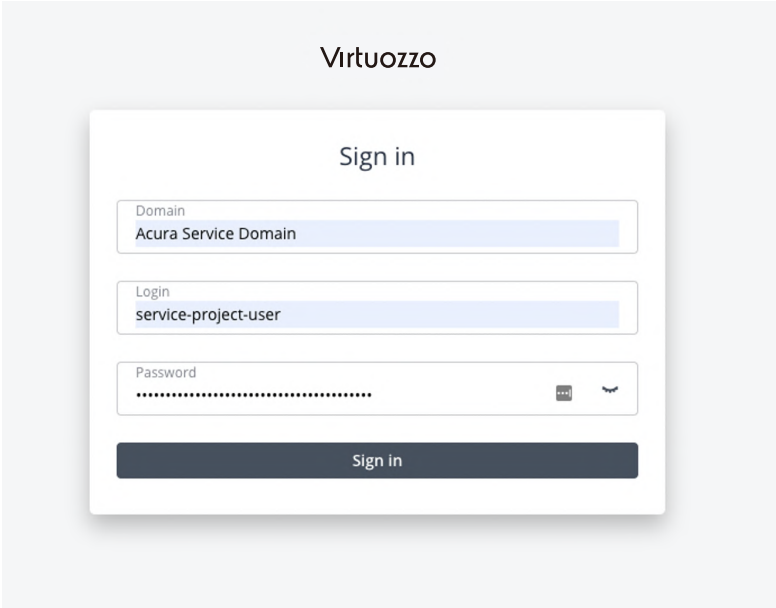
1. SSH in to your Virtuozzo Hybrid Infrastructure Admin panel compute node.
2. Source your admin credentials:
 - 2.1) `su - vstoradmin`
 - 2.2) `kolla-ansible post-deploy ; exit`
 - 2.3) `source /etc/kolla/admin-openrc.sh`
3. `wget https://xx-hystax-imagexx-acura.tar.gz`

4. `tar -xvf xx-hystax-image-xx-acura.tar.gz`
5. `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 name_of_the_hystax_service_project`

Deploying the Hystax Acura Solution on Virtuozzo Hybrid Infrastructure Platform

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 Acura Instance. We will then have the necessary resources to deploy the Hystax Acura migration Solution and assign a Floating IP to the instance.

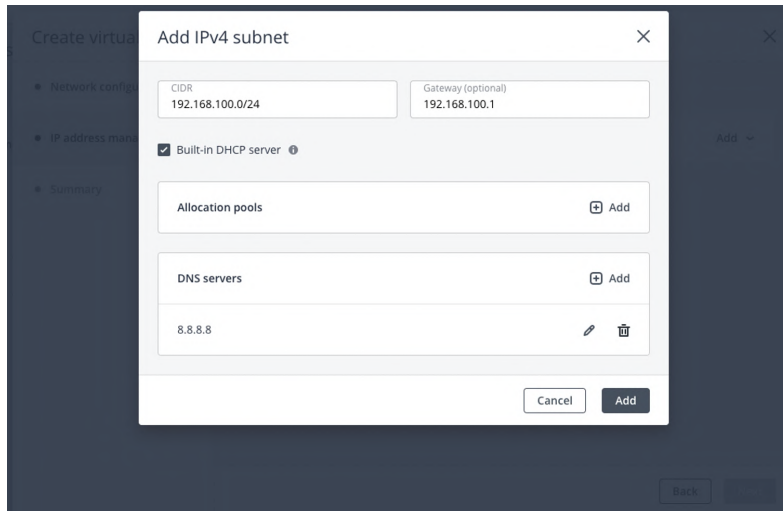
10. Login to the Acura Service project from the self-service portal using the URL <https://fqdn:8800>



The image shows a screenshot of the Virtuozzo self-service portal's sign-in interface. The page has a light gray background with the 'Virtuozzo' logo at the top center. Below the logo is a white rectangular sign-in form. The form has a title 'Sign in' and three input fields: 'Domain' with the value 'Acura Service Domain', 'Login' with the value 'service-project-user', and 'Password' with masked characters. There are icons for password visibility and a 'Forgot password' link. A dark gray 'Sign in' button is at the bottom of the form.

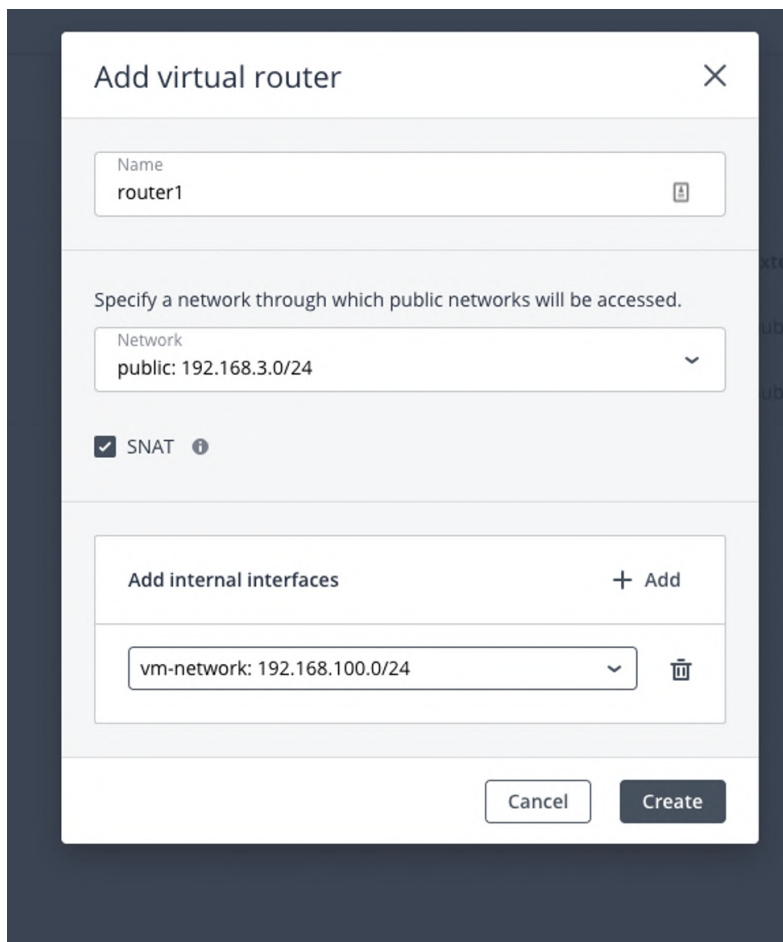
11. Create a Network. This will be a virtual network, which later will be attached to the Hystax Acura Solution instance. Networks > Create Virtual Network. We will name this network vm-network in this example.

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The screenshot shows the 'Add IPv4 subnet' dialog box. It has a sidebar on the left with 'Network config', 'IP address management', and 'Summary'. The main area contains fields for 'CIDR' (192.168.100.0/24) and 'Gateway (optional)' (192.168.100.1). There is a checked checkbox for 'Built-in DHCP server'. Below are sections for 'Allocation pools' and 'DNS servers' (with 8.8.8.8 listed). At the bottom are 'Cancel' and 'Add' buttons.

12. Create a Router. This router will Allow us to provide SNAT (Outbound access) to the Hystax Acura Solution instance. Please note how we connect the physical external network named “public” with the newly created virtual network named vm-network.

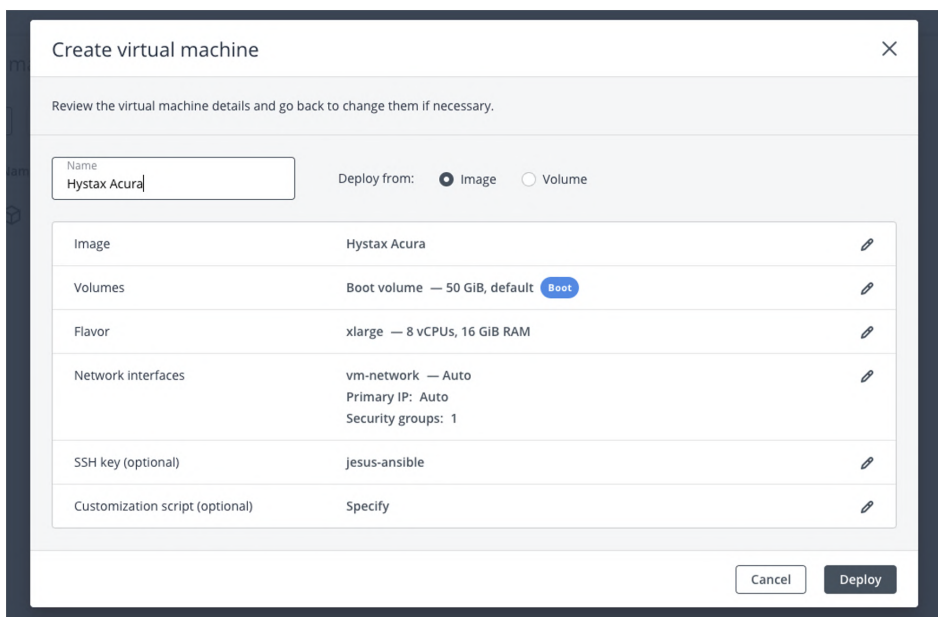


The screenshot shows the 'Add virtual router' dialog box. It has a sidebar on the left with 'Network config', 'IP address management', and 'Summary'. The main area contains a 'Name' field with 'router1'. Below is a section 'Specify a network through which public networks will be accessed.' with a 'Network' dropdown showing 'public: 192.168.3.0/24'. There is a checked checkbox for 'SNAT'. Below is a section 'Add internal interfaces' with a dropdown showing 'vm-network: 192.168.100.0/24'. At the bottom are 'Cancel' and 'Create' buttons.

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

- ▶ 8 vCPUs, 16 GB RAM, 100 GB disk (Xlarge flavour).
- ▶ Image Hystax_Acura_VA_MGR_Virtuozzo_X_XXX
- ▶ Use the Default Security Group.
- ▶ Image Hystax_Acura_VA_MGR_Virtuozzo_X_XX
- ▶ Add a network interface, in this case we will add the vm-network to this instance.
- ▶ Add your SSH key pair to the instance.



Note: Adding a key pair is highly recommended to provide you with SSH access to the machine. Although 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 Acura instance.

It takes from 10 to 20 minutes for the services to start and the Web UI to become available.

14. Assigning a floating IP to the newly created Hystax Acura instance. Logged to the self-service portal <https://your-fqdn-vhi.com:8800>. And login to the Acura Service domain using the user defined for this domain. Go to Floating IPs, click on add. *Note that we are using Private IPs, but in a real scenario this should be a Public IP.

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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

15. **Troubleshooting tip:** The web UI for the Hystax Acura Solution instance, will take from 10 to 20 minutes to bring all the services up. Hystax Acura uses Kubernetes to manage the services inside the instance. If 20 minutes later you still have no access to the web UI, SSH in to the Acura instance and check the status of the services. SSH with the user “user” and execute the command **kubectl get pods** (This command will gather information about pod(services) status). When you see all the pods in Running status (except for four that will be in completed status) the web UI will be available.

```
user@hystax-acura:~$ kubectl get pods
```

| NAME | READY | STATUS | RESTARTS | AGE |
|---|-------|-----------|----------|------|
| acp-587cbff8c5-4rzsm | 2/2 | Running | 8 | 376d |
| auth-7b96ff9c69-kjv4b | 1/1 | Running | 5 | 376d |
| baget-c59c55f88-nsr69 | 1/1 | Running | 5 | 376d |
| cabrio-69c6db77bf-ndgq8 | 1/1 | Running | 5 | 376d |
| cashier-5cccd49d7d-56d22 | 1/1 | Running | 5 | 376d |
| cleanelkdb-1651354200-d8ghf | 0/1 | Completed | 0 | 11m |
| cloud-agent-6b5f58c9fc-hq4j7 | 1/1 | Running | 5 | 376d |
| doc-6fd6b7566c-95qvq | 1/1 | Running | 4 | 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 |

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If 20 minutes later, instead of getting the pod status you get a connection refused message, please contact us.

16. Open a web browser and go to `https://<ip_address of the machine>/`. 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.

17. **Step 1:** Enter the organization name, you can enter here your company name, this step creates the login user and the 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 the Hystax Acura Control Panel and managing the system. If there are any errors, the system will notify you.

The image shows the Hystax Setup Wizard interface. At the top, there is a progress bar with four steps: Step 1 (Admin user creation), Step 2 (SMTP configuration), Step 3 (Target cloud configuration), and Step 4 (Log in). Step 1 is currently active. Below the progress bar, the text reads: "Please provide your organization name and Hystax Control Panel administrator user credentials to be created." There are four input fields: "Organization*" (containing "Virtuozzo"), "Admin user login*" (containing "migration-user"), "Password*" (masked with dots), and "Confirm password*" (masked with dots). Each field has a question mark icon to its right. A "Next" button is located at the bottom right of the form. At the bottom of the page, there are links for "Hystax Support Portal", "Terms of use", and "Help", along with the copyright notice "© 2022 | Hystax | All rights reserved".

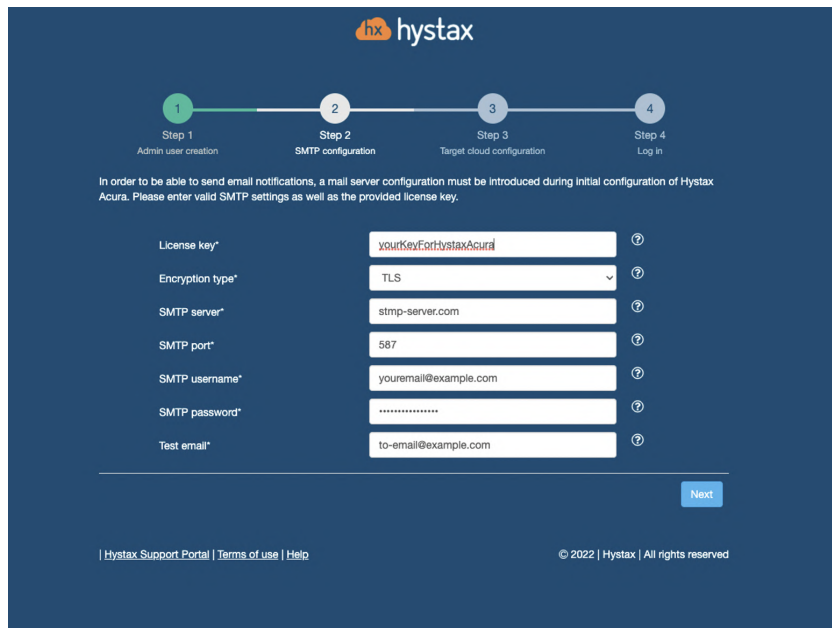
18. **Step 2:** Fill in your Hystax License key that was supposed to be shared with you in advance as well as the settings for accessing your mail server, which will be used to send notifications from Acura and generate periodic reports.

Note: 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.), please find its settings online. In case of a private SMTP server, contact your network administrator for further details.

A sample notification will be sent to the specified "Test email" to verify the functionality when you click "Next".

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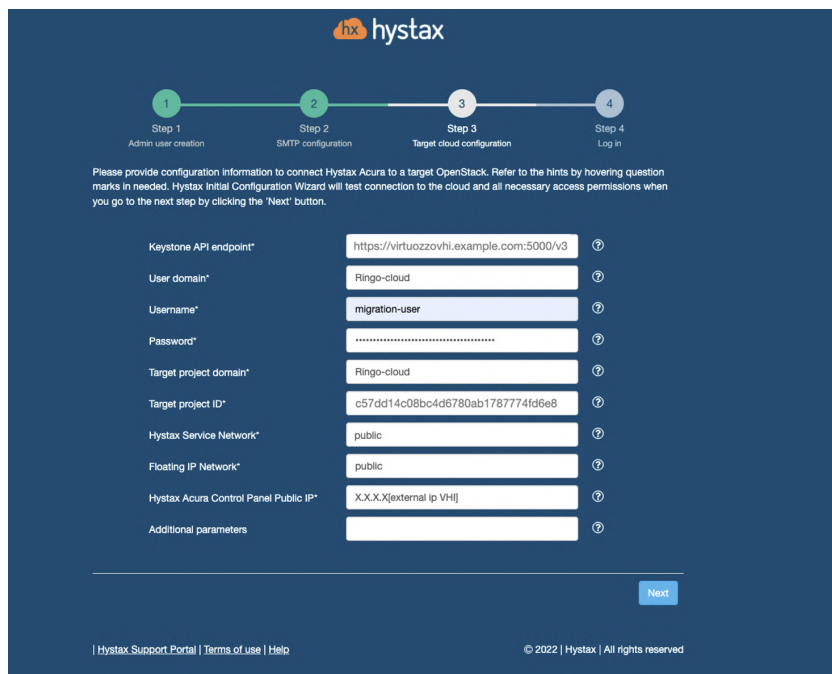


The screenshot shows the Hystax Setup Wizard at Step 2: SMTP configuration. The progress bar at the top indicates four steps: Step 1 (Admin user creation), Step 2 (SMTP configuration), Step 3 (Target cloud configuration), and Step 4 (Log in). Below the progress bar, a message states: "In order to be 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." The form contains the following fields:

| Field | Value | Hint |
|------------------|-----------------------|------|
| License key* | yourKeyForHystaxAcura | ? |
| Encryption type* | TLS | ? |
| SMTP server* | smtp-server.com | ? |
| SMTP port* | 587 | ? |
| SMTP username* | youremail@example.com | ? |
| SMTP password* | ***** | ? |
| Test email* | to-email@example.com | ? |

A "Next" button is located at the bottom right of the form. At the bottom of the page, there are links for "Hystax Support Portal", "Terms of use", and "Help", and a copyright notice: "© 2022 | Hystax | All rights reserved".

19. **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.



The screenshot shows the Hystax Setup Wizard at Step 3: Target cloud configuration. The progress bar at the top indicates four steps: Step 1 (Admin user creation), Step 2 (SMTP configuration), Step 3 (Target cloud configuration), and Step 4 (Log in). Below the progress bar, a message states: "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." The form contains the following fields:

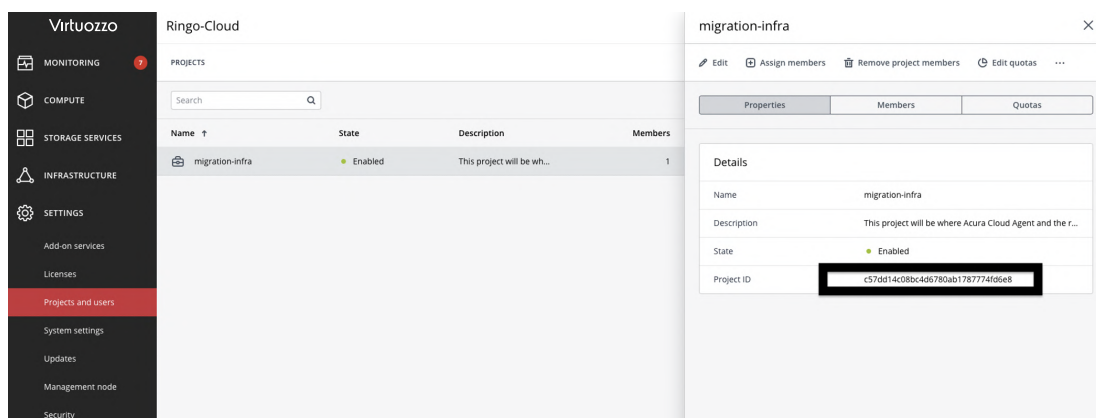
| Field | Value | Hint |
|---------------------------------------|--|------|
| Keystone API endpoint* | https://virtuozzovh1.example.com:5000/v3 | ? |
| User domain* | Ringo-cloud | ? |
| Username* | migration-user | ? |
| Password* | ***** | ? |
| Target project domain* | Ringo-cloud | ? |
| Target project ID* | c57dd14c08bc4d6780ab1787774fd6e8 | ? |
| Hystax Service Network* | public | ? |
| Floating IP Network* | public | ? |
| Hystax Acura Control Panel Public IP* | X.X.X.X[external ip VHI] | ? |
| Additional parameters | | ? |

A "Next" button is located at the bottom right of the form. At the bottom of the page, there are links for "Hystax Support Portal", "Terms of use", and "Help", and a copyright notice: "© 2022 | Hystax | All rights reserved".

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Step 3 of the configuration wizard goal, is to configure what we refer to as target cloud. We are configuring 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 listening on port 5000 ([make sure the compute API traffic type is on the public network](#)) will be used to authenticate for authentication.
- ▶ **User Domain**, this field refers to the domain name the user is part of. Remember in our example, the domain for our customer is **Ringo-Cloud** then we created the project named **migration-infra** and a user **migration-user** which was assigned to the project and belongs to the Ringo-Cloud domain.
- ▶ **Username**, the user we created an associated to the target project migration-infra as Project Member. In this case the user is **migration-user**.
- ▶ **Target Project Domain**, this is the customer domain, the same as the **User Domain** and is the domain where we created the project. In our example the name is **Ringo-Cloud**.
- ▶ **Target Project ID**, the UID for the project migration-project. The **Target project ID* id**, can be found by logging in to your Virtuozzo Hybrid Infrastructure Admin Panel > Projects and Users > Click on the Domain > Click on the Target Project and the ID will be visible on the left-hand side sliding panel that will appear.



- ▶ **Hystax Service Network**, Network that will be used for Hystax Cloud Agent machines. Should be the same or routable to the network in which a Hystax Acura instance is located. In our case we have already prepared a physical external network type named **public** for this purpose in previous steps.
- ▶ **Floating IP network**, this is the name of the network you wish to use to provide floating IPs to your migrated instances. In our case is the same physical external network named **public**.

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure



- **Hystax Acura Control Panel Public IP**, Public IP that will be used to access the Hystax Control Panel via web browser and by replication agents.
- **Additional Parameters** add additional parameters to customize integration.

Example information gathering form:

| Field | Description | Example |
|------------------------|--|-------------------------------------|
| Keystone API Endpoint | VHI Keystone Auth URL | http://fqdn-vhi-admin-panel:5000/v3 |
| User Domain | User domain name to access VHI | Ringo-Cloud |
| Username | Username to access VHI Project | migration-user |
| Password | Password to access VHI | password |
| Target Project Domain | Target VHI project domain name | Ringo-Cloud |
| Target Project ID* | Target VHI 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 |

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

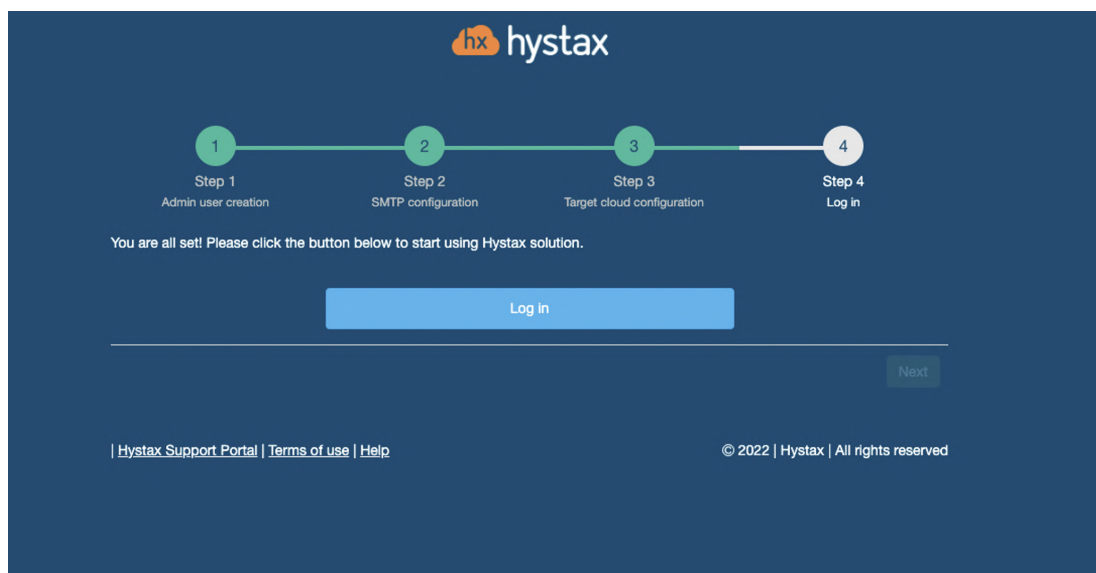
| | | |
|---|--|---|
| Hystax Acura Control Panel Public IP | Public IP that will be used to access the Hystax Control Panel via web browser and by replication agents | Public IP |
| Additional Parameters | p2v - Sets type of Physical to Virtual to integration (Virtuozzo) Extends cloud site timeout (adds support for virtuozzo cinder (vstorage)) | <code>{" p2v_type": "virtuozzo", "cloud_site_timeout_min": 2880}</code> |

The specified Virtuozzo Hybrid Infrastructure Platform 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” which include all of the above.

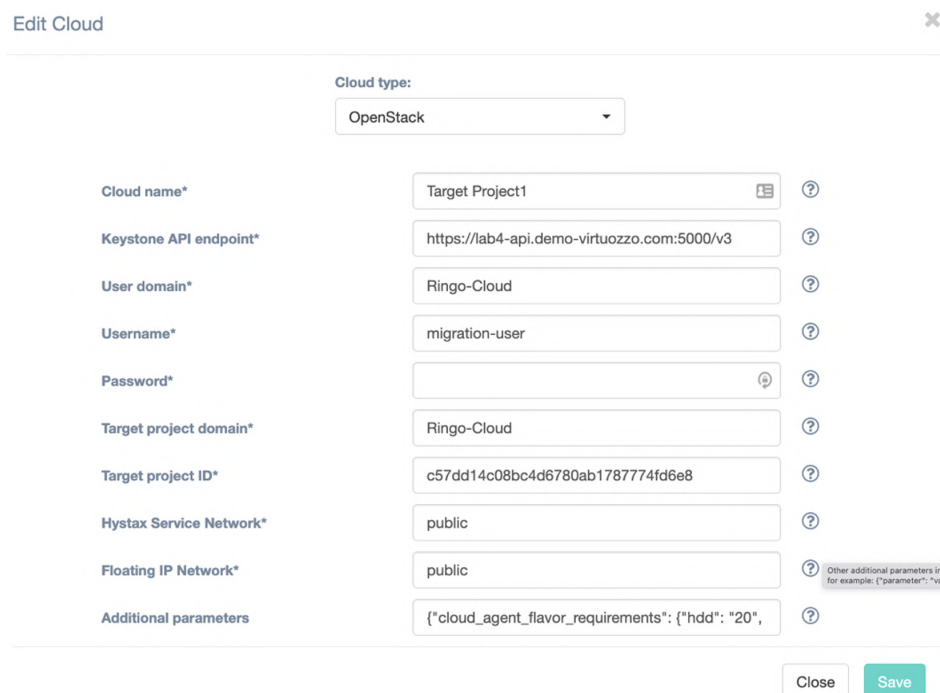
20. **Step 4:** Installation is complete, and you can now log in to the system using credentials entered in the previous step.



Perform a Test Migration

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

- **Cloud/Target Clouds** on the Hystax Acura portal are objects that contain information about things like, where should workloads be migrated? What user and password Hystax Acura must be used authenticate via Keystone API? What is the URL for the Keystone API? Which is the service network? Basically, all the information provided on step 3 of the installation wizard is used to populate this Hystax Acura entity. Once you login for the first time you will see this resource by clicking on the “Manage Clouds” button. You can add more “Cloud/Target Clouds” to manage more migration projects on Virtuozzo Hybrid Infrastructure Platform.



- **Customers** are entities that we create which logically associate a customer with migrated instances, migration plans, cloud sites, 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 project) as long as the user defined on 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.

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure



Edit customer ✕

Active ☒

Company Name*

Contact Email*

Contact Phone

Address

Cloud

Target project ID ?

- **Machine Groups** are ways to group instances, you could 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 e.g., what network should be the new replicated instance part of? What flavor should be used to create 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 could even define how to orchestrate the migration, by defining for example what instance should start first and what instance should wait until the other instance is up.

Test Migration

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

The image shows a login screen for the Hystax portal. It has a dark blue background. At the top is the Hystax logo (orange 'hx' icon and the word 'hystax'). Below the logo is a white input field containing the text 'user-defined-on-step1-of-installation-wizzard'. Underneath that is another white input field filled with dots, representing a password. Below the password field is a blue button with the word 'Login' in white. At the bottom of the screen, there is a small copyright notice: '© 2022 | Hystax | All rights reserved'.

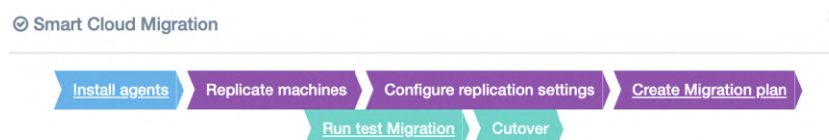
Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure



2. Add a customer. Click on the Hystax logo on the top left and you'll see the Add button to add a customer click that button. Fill in the information relevant to your customer. Click Save.

A screenshot of the 'Add customer' form in the Hystax interface. The form is titled 'Add customer' with a close button (X) in the top right corner. It contains several input fields: 'Active' with a checked checkbox, 'Company Name*' with the value 'TriangleCakes', 'Contact Email*' with the value 'jesus.bustos@virtuozzo.com', 'Contact Phone' (empty), 'Address' (empty), 'Cloud' with a dropdown menu showing 'Target Project1', 'Target project ID' with the value 'b57dd14c08bc4d6780ab1787774fd6e8' and a help icon (?), 'Use custom replication agent settings' with an unchecked checkbox, and 'Additional parameters' (empty) with a help icon (?). At the bottom right, there are 'Close' and 'Save' buttons.

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 the test migration.



4. Click on install agents, choose the install agent you wish to deploy on the source remote instance, that you wish to replicate. In our example I will be migrating an Ubuntu 16 web server instance, hosted currently on amazon EC2. I will click on the Linux agent to select it and then next. If the migration was from VMware, I would be able to install a HRVAgent image on each ESXi Hypervisor to perform the migration. For more detailed information on VMware to VHI please check the “VMware to VHI migration Guide”.

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

Download agents

1

2

3

4

Step 1

Step 2

Step 3

Step 4

Customer selection

Agent selection

Agent settings

Replication instructions

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

 VMWARE

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

 WINDOWS

 LINUX

Previous

Next

5. Select the machine group, in our example this will be the default group, then 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 could choose Snapshot driver deployment type (pre-built). If you have any issues building the drivers, please contact us.

Download agents

1

2

3

4

Step 1

Step 2

Step 3

Step 4

Customer selection

Agent selection

Agent settings

Replication instructions

Machines group

Default

Select target Linux distribution

Debian/Ubuntu (.deb package)

Snapshot driver deployment type

DKMS (the driver is built during agent installation)

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

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

Download agents

1

2

3

4

Step 1

Step 2

Step 3

Step 4

Customer selection

Agent selection

Agent settings

Replication instructions

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 on the Hystax logo on the top left. You will see now the customer and the machine count will be 1.

Customers Manage Clouds

Search

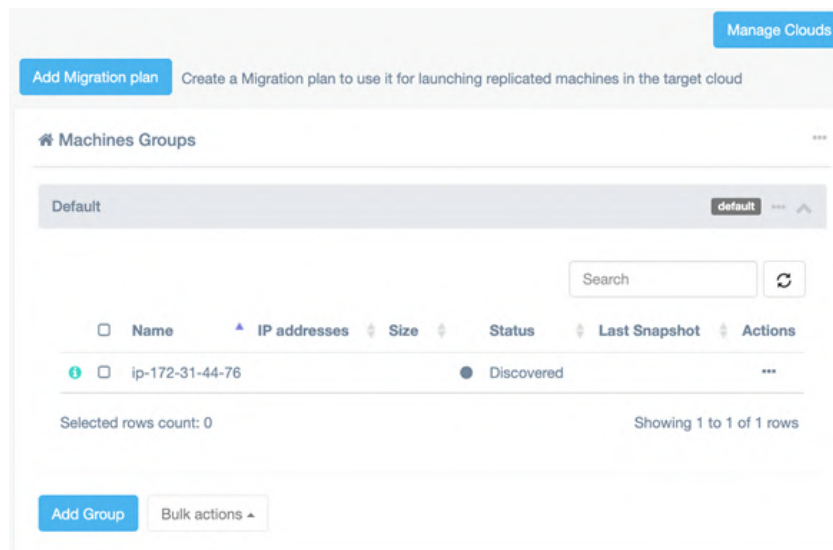
| Name | Machines | Cloud Sites | Actions |
|---------------|----------|-------------|------------------------|
| TriangleCakes | 1 | 0 | <div>Edit Delete</div> |

Showing 1 to 1 of 1 rows

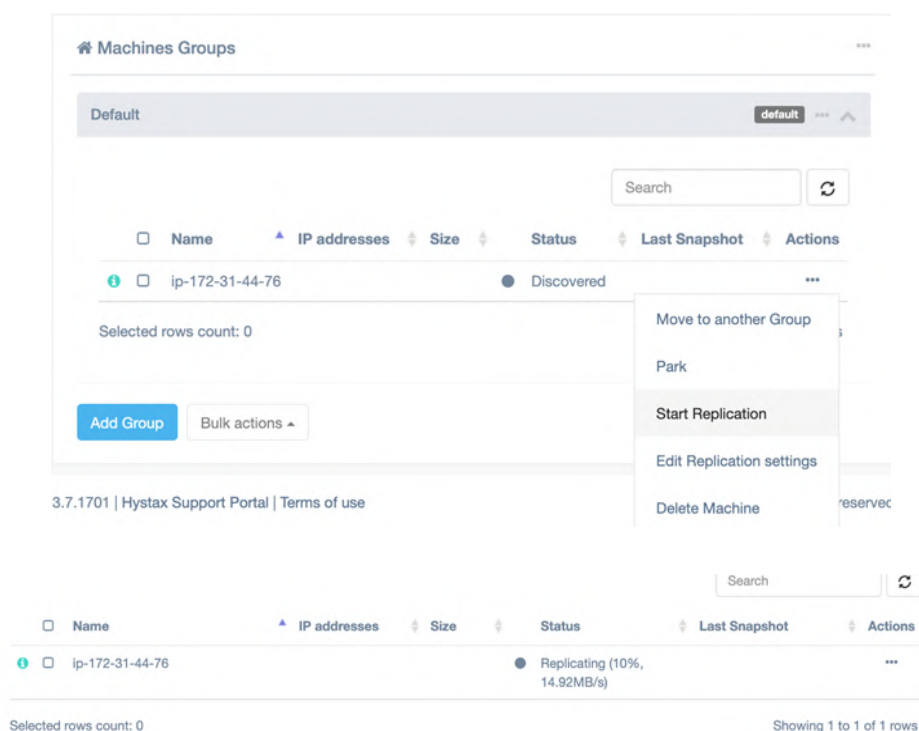
Add

8. Click on the name of the customer and you'll see the new instance.

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure




9. 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.



Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

10. Wait until the instance is synced.

| <div>Search </div> | | | | | | |
|---|-----------------|--------------|--------|--------|---------------------|---------|
| <input type="checkbox"/> | Name | IP addresses | Size | Status | Last Snapshot | Actions |
| <input checked="" 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, 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.

Virtuozzo

Sign in

Domain


Ringo-Cloud

Login

migration-user


Password

.....



Sign in

12. 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 | ... |

13. Now go networks, create 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.

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

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

Add Migration plan ✕

Name*

Basic Expert

Devices & Ranks Subnets* +

:: Rank 0 – 0 machines ...

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

15. 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, and Port (network). Also, on the left you'll see the information regarding 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*

| # | 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

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.

16. Source the information regarding the subnet ID. Login to your Virtuozzo Hybrid Infrastructure Admin panel via SSH.

17. Source the admin-openrc.sh file [root@vhi] #source /etc/kolla/admin-openrc.sh

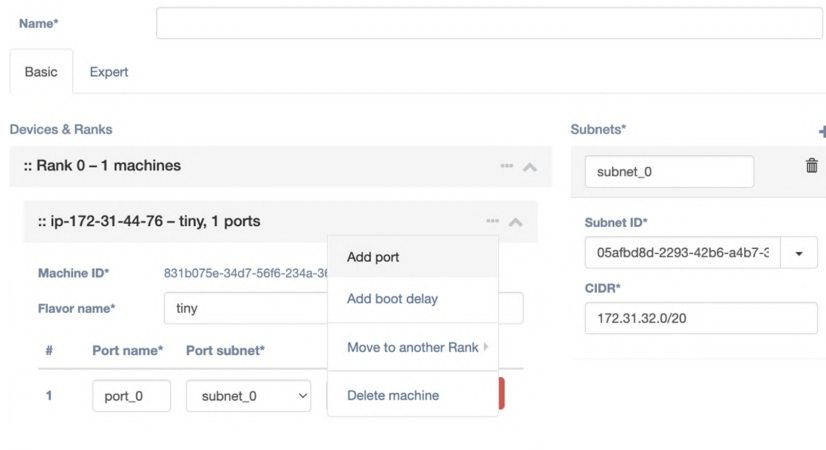
18. Run the command `openstack network list --insecure` and identify the subnet ID.

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

| ID | Name | Subnets |
|--------------------------------------|--|--------------------------------------|
| 0845987c-9f6b-4f66-b309-a3020c4bbf39 | migrated-vm-network | 05afbd8d-2293-42b6-a4b7-38e70bb5fb90 |
| 2028c210-b2ad-4bdb-abb0-57c18b0f66f3 | HA network tenant c7a06cdd102c419d98365448757472b0 | 1971e34b-808a-4040-b150-40e372746310 |
| 40e0bd06-ee47-4c6a-8791-3f9e0d09d091 | vm-network | a70288af-1ecc-4234-940b-8aef297a3279 |
| 467c893d-f141-46a5-86d6-d8a1bcead23e | external | 70dd6fca-64b9-4885-84a2-8630792f39cb |
| 9fad0052-fc80-4150-9dd5-d089daf4b9ce | public | 825c3066-3989-4572-946d-02b20268bed9 |
| 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 |

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

19. Add a secondary Port. Add a subnet by clicking the “+” button on the Subnets section.



Name*

Basic Expert

Devices & Ranks

:: Rank 0 – 1 machines

:: ip-172-31-44-76 – tiny, 1 ports

Machine ID* 831b075e-34d7-56f6-234a-3f

Flavor name* tiny

Port name* Port subnet*

1 port_0 subnet_0

Subnets*

subnet_0

Subnet ID* 05afbd8d-2293-42b6-a4b7-2

CIDR* 172.31.32.0/20

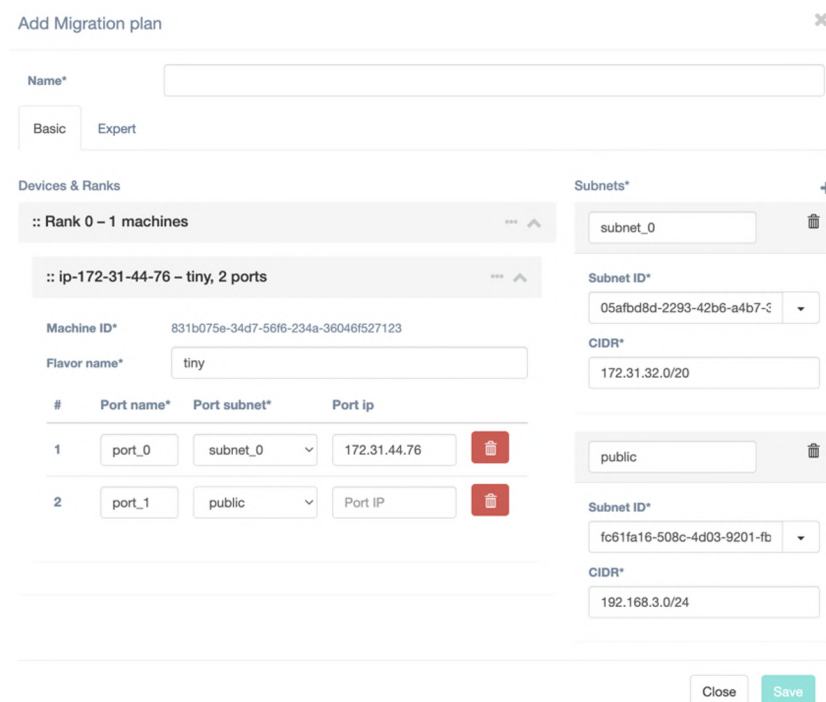
Add port

Add boot delay

Move to another Rank

Delete machine

20. 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.



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* tiny

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-a4b7-2

CIDR* 172.31.32.0/20

public

Subnet ID* fc61fa16-508c-4d03-9201-fb

CIDR* 192.168.3.0/24

Close Save

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

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

Migrate

Step 1 Select Customer Step 2 Select Migration plan 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

☒ webservice-migration

Custom Migration Plan

Previous Next Run migration

22. 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.

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 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.

Machines running

1

website-testdomain

Detach Delete

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

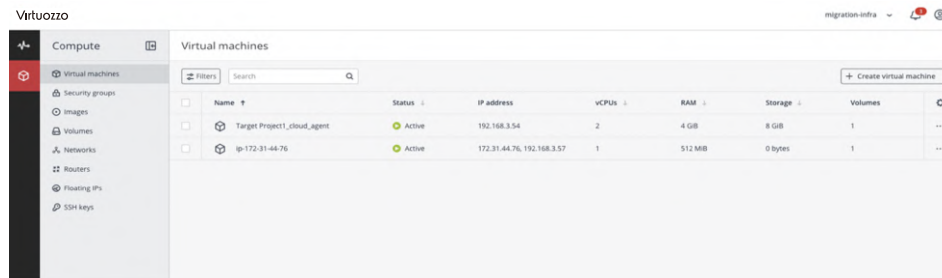
Machines

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

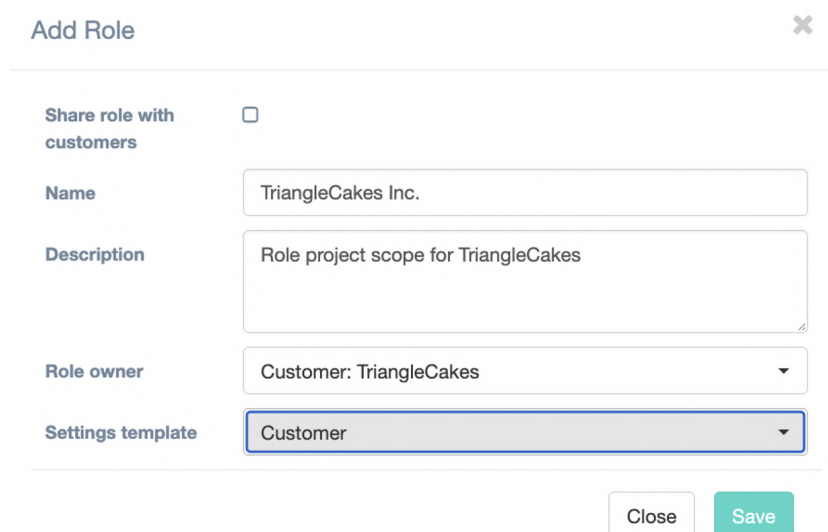
Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure



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 [Close]

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.

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

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
- ☒ Add Migration plans

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.

Integrating Hystax Acura Migration Solution with Virtuozzo Hybrid Infrastructure

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 the migration as a Service (self-service migration).

 hystax

Welcome, Anthony

Download agents

Migrate

Reports

Events

Settings

Troubleshooting

Help

Hystax OptScale helps companies quickly increase FinOps adoption

- Cloud cost optimization and management
- Full cost transparency for managers and full budget allocation

Hystax Acura | TriangleCakes

Cloud Sites 2 Machines Groups 1 Machines 1

Smart Cloud Migration

Install agents Replicate machines Configure replication settings Create Migration plan

Run test Migration Cutover

Manage Clouds

Cloud Sites

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

Showing 1 to 2 of 2 rows

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