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# **Exploring the Demo**

The CN-QS and its guides are a work-in-progress (WIP). As a result, the CN-QS guides may not accurately reflect the state of the application. If you find errors or other inconsistencies, please contact your representative at Digital Asset.

This section works through a complete business operation within the CN-QS.

# **Prerequisites**

You should have successfully installed the CN-QS before beginning this demonstration.

Access to the <u>CN-Quickstart Github repository</u> and <u>CN Docker repository</u> is needed to successfully pull the Digital Asset artifacts from JFrog Artifactory.

Access to the *Daml-VPN* connection or <u>a SV Node</u> that is whitelisted on the CN is required to connect to <code>DevNet</code>. The GSF publishes a <u>list of SV nodes</u> who have the ability to sponsor a Validator node. To access <code>DevNet</code>, contact your sponsoring SV agent for VPN connection information.

If you need access, email <a href="mailto:support@digitalasset.com">support@digitalasset.com</a>.

The CN-QS is a Dockerized application and requires <a href="Docker Desktop">Docker Desktop</a>. Running CN-QS on LocalNet is resource intensive. It is recommended to allocate 32 GB of memory and 3 GB of Swap memory to properly run the required Docker containers. If you witness unhealthy containers, please consider allocating additional resources, if possible.

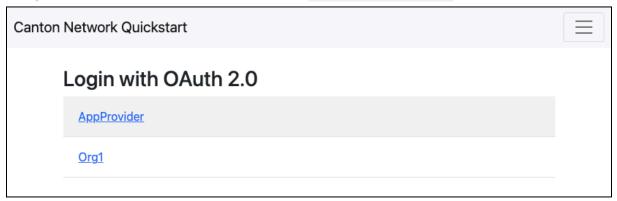
<code>DevNet</code> is not as intensive because the SVs and other <code>LocalNet</code> containers are hosted outside of your local machine.

# Walkthrough

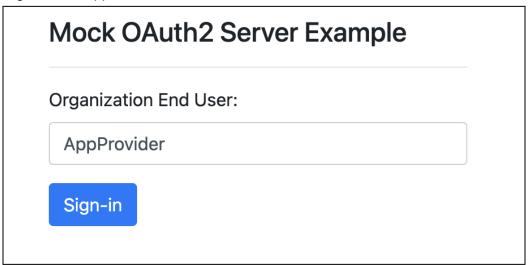
After the QS is installed and running, confirm that you are in the quickstart subdirectory of the CN-QS.

Open a new incognito browser.

Navigate to localhost:3000/login or run make open-app-ui in the terminal.



Login as the AppProvider.



#### Select "AppInstallRequests" in the menu.



#### Open a terminal.

From /quickstart/ run:

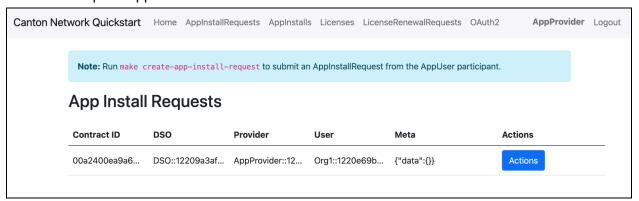
make create-app-install-request

This command creates an App Installation Request on behalf of the Participant.

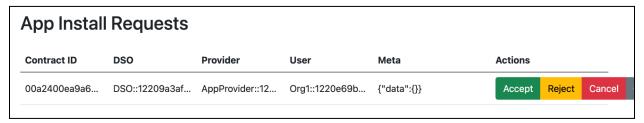
```
(base) quickstart ~ % make create-app-install-request
| docker compose -f docker/app-user-shell/compose.yaml --env-file .env run --rm create-app-install-request
get_token ledger-api-user AppProvider
get_user_party AppProvider participant-app-provider
http://participant-app-provider:7575/v2/users/AppProvider
get_token ledger-api-user Org1
get_user_party Org1 participant-app-user
http://participant-app-user:7575/v2/users/Org1
get_token administrator Org1
http://validator-app-user:5003/api/validator/v0/scan-proxy/dso-party-id
http://participant-app-user:7575/v2/commands/submit-and-wait
 -data-raw {
        "commands" : [
           { "CreateCommand" : {
                 "create_arguments": {
                    "dso": "DSO::12209a3af80af3fa93853be8a8b9f5887055edc3b0a94f4b198f486d08d197784c09",
                    "provider": "AppProvider::1220b3de80de523473aa2ca56745ef1fb29a2203dfd13029e0448336bbcf3
82aaf86",
                    "user": "Org1::1220e69bc6115cd8ed360aa6caafce122c2a24561262c2f6ce6a6070e170e9e8244d",
                    "meta": {"values": []}
        "workflow_id" : "create-app-install-request",
        "application_id": "ledger-api-user",
        "command_id": "create-app-install-request",
        "deduplication_period": { "Empty": {} },
        "act_as": ["Org1::1220e69bc6115cd8ed360aa6caafce122c2a24561262c2f6ce6a6070e170e9e8244d"],
"read_as": ["Org1::1220e69bc6115cd8ed360aa6caafce122c2a24561262c2f6ce6a6070e170e9e8244d"],
        "submission_id": "create-app-install-request",
        "disclosed_contracts": [],
        "domain_id": "",
        "package_id_selection_preference": []
{"update_id": "1220aebcd64fc960c2aeec834d415967899994f21a69ef9cab5639b8521169a0ca67", "completion_offset":81}
```

If your machine is not powerful enough to host <code>LocalNet</code> or if the docker containers are not responsive then the response may show a failure with status code 404 or 000. Increasing Docker memory limit to at least 32 GB should allow the <code>LocalNet</code> containers to operate properly.

#### The install request appears in the list.

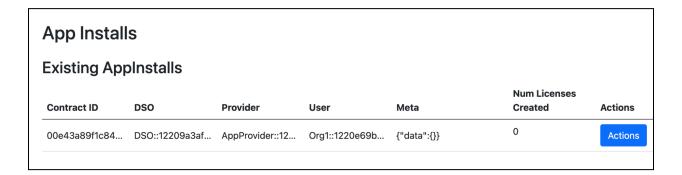


#### Select "Actions."

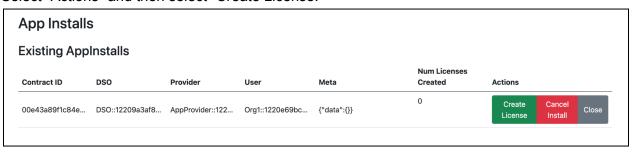


Select "Accept" and the request moves to the "Applinstalls" view.

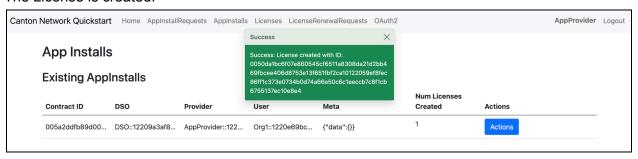
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Select "Actions" and then select "Create License."



#### The License is created.

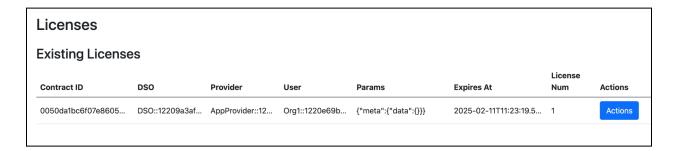


Notice in the screenshot above that the field User is set to "Org1." At this time, the license also appears in Org1's view.

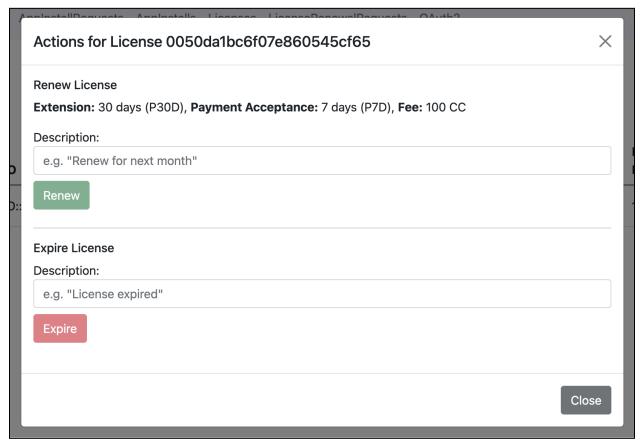


In the AppProvider account, navigate to the Licenses menu and select "Actions."

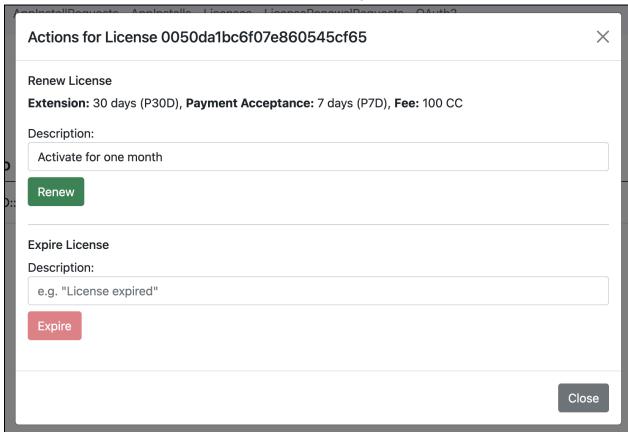
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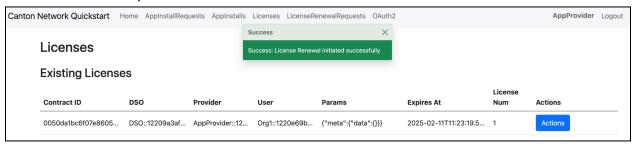
An "Actions for License" modal opens with an option to renew or expire the license. Per the Daml contract, licenses are created in an expired state. To activate the license, it must be renewed.



To renew the license, enter a description then click the green "Renew" button.



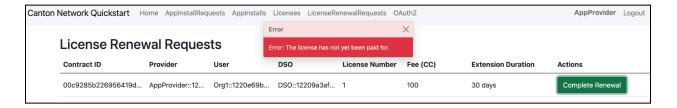
#### The license renewal process is initiated.



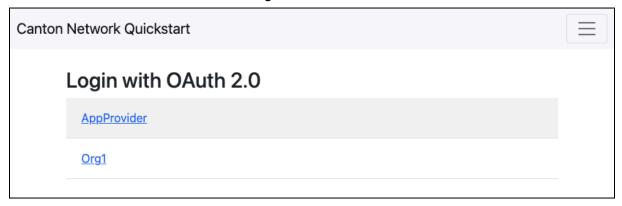
#### Navigate to the License Renewal Requests menu.



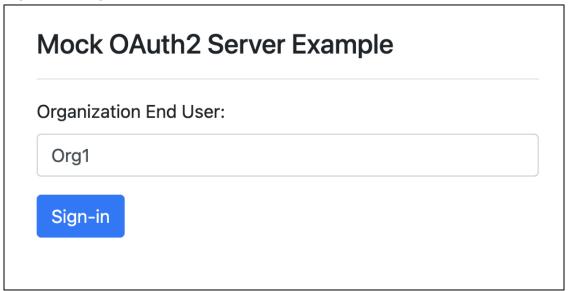
#### Clicking "Complete Renewal" reveals that the license must be paid for in order to be renewed.



Return to localhost: 3000 in an incognito browser.



Login as an Org1 user.



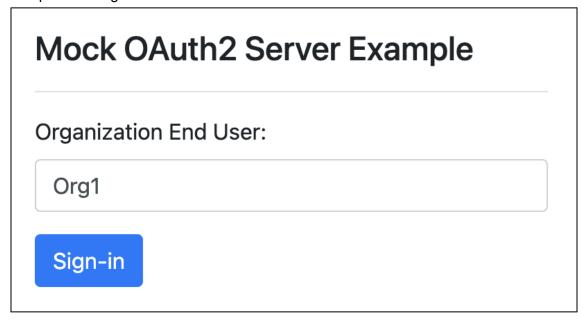
Go to the LicenseRenewealRequests View and click the "Pay" button.



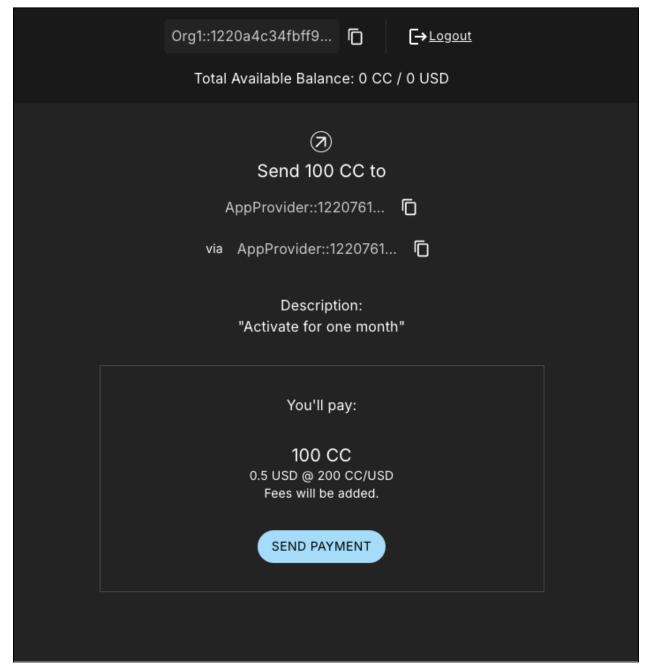
Clicking "Pay" redirects to the Canton Coin (CC) Wallet at wallet.localhost: 2000. Log in with OAUTH2.



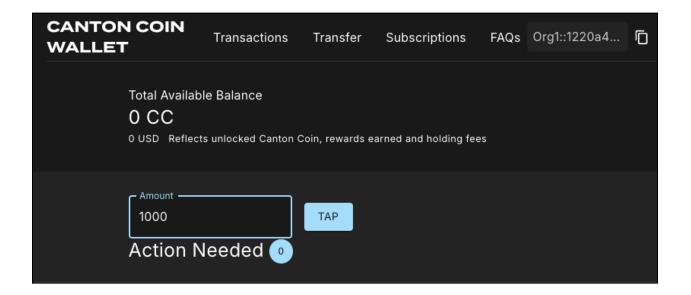
Complete the log in.



Logging in directs to a payment view. However, the total available balance is 0 CC. The Renewal fee is 100 CC.

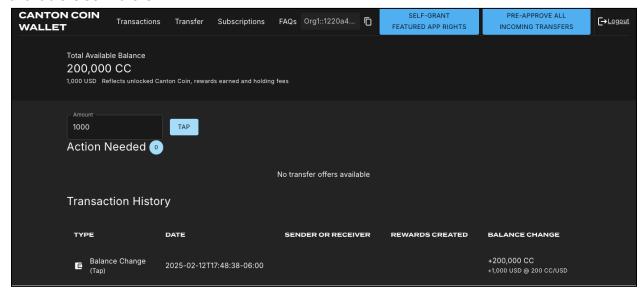


The wallet must be populated with CC in order to fulfill the transaction. Navigate to http://wallet.localhost:2000 to enter the CC Wallet. In CC Wallet, populate the wallet with 1,000 CCs.





Click "TAP." LocalNet recognizes the update in your wallet's value, as well as the total available CCs in the CN.



#### Return to the License Renewal Request as Org1. Click Pay.



The CC Wallet balance is now sufficient to send payment to the Provider.

Org1::1220a4c34fbff9	
Total Available Balance: 200,000 CC / 1,000 USD	
Send 100 CC to  AppProvider::1220761   via AppProvider::1220761   Description:  "Activate for one month"	
You'll pay:  100 CC 0.5 USD @ 200 CC/USD Fees will be added.  SEND PAYMENT	

Return to the AppProvider's License Renewal Requests View.

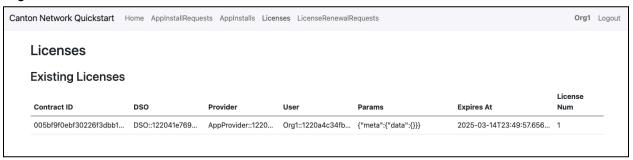
The AppProvider may now Complete the Renewal.



#### Clicking "Complete Renewal" results in a Success.



#### Org1's Licenses view shows the activated license.



Congratulations. You've successfully created and activated a license with a payment transfer!

## Canton Console

The Canton Console connects to the running application ledger. The console allows a developer to bypass the UI to interact with the CN in a more direct manner. For example, in Canton Console you can connect to the Participant to see the location of the Participant and their domain.

Activate the Canton Console in a terminal from the quickstart/directory. Run:

```
make console
```

After the console initiates, run the participant and participant.domains commands, respectively.

participant returns their location in the ledger.
participant.domains shows the Participant's domain.

```
@ participant
res0: com.digitalasset.canton.console.RemoteParticipantReference =
Participant 'participant'

@ participant.domains
res1: participant.domains.type =
com.digitalasset.canton.console.commands.ParticipantAdministration$do
mains$@2da16d31
```

## Daml Shell

The Daml Shell connects to the running PQS database of the application provider's Participant. In the Shell, the assets and their details are available in real time.

Run the following commands to see the data:

active - shows unique identifiers and the asset count

active quickstart-assets: Assets. Main: Asset - shows the asset details

archives quickstart-assets: Assets. Main: Asset - shows any archived assets

Identifier Type C			Count						
Identifier		Туре	Count						
quickstart-assets:Assets.Main:Asset		Template	3						
ostgres-splic	e:5432/scribe	2751 > 279	8> active qu	icksta	rt-assets:	Assets.Main:Asset			
Created at	Contract ID Contract Key		y Pa	Payload					
2759	0075859ff14f2	f2dd776fb			label: Memory Chip owner: Org1::12204cfe9a5034bd36abb0f89b2a2f7cda96ef468b72b0da36e0dd4f08acde7e3d39				
2765	0077e877e2b938f28def				label: Provider Asset owner: AppProvider::12204cfe9a5034bd36abb0f89b2a2f7cda96ef468b72b0da36e0dd4f08acde7e3d39				
2793	008504f64abb6611f510				label: Org Asset owner: Org1::12204cfe9a5034bd36abb0f89b2a2f7cda96ef468b72b0da36e0dd4f08acde7e3d39				
ostgres-splic	e:5432/scribe	2751 > 279	8> archives	quicks	tart-asset	s:Assets.Main:Asset			
Created at	Archived at Contract ID			Con	tract Key	Payload			
2752	2798	007aa1d12	2548af71639.			label: DevNet Asset #1 owner: Org1::12204cfe9a5034bd36abb0f89b2a2f7cda96ef468b72b0da36e0dd4f08acde7e3d3			

## Connect to DevNet

Stop the LocalNet containers to change the connection from LocalNet to DevNet.

In the terminal, run:

```
make stop
make clean-all
```

To edit the connection and observability parameters run:

```
make setup
```

When prompted to enable LocalNet, enter "n". This enables DevNet

Optionally, enter "Y" to enable observability. This starts additional containers which may require more memory for Docker.

```
[(base) quickstart ~ % make setup
Starting setup...
Enable LocalNet? (Y/n): n
  LOCALNET_ENABLED set to 'false'.

Enable Observability? (Y/n): Y
  OBSERVABILITY_ENABLED set to 'true'.
.env.local updated successfully.
```

The application is now connected to DevNet.

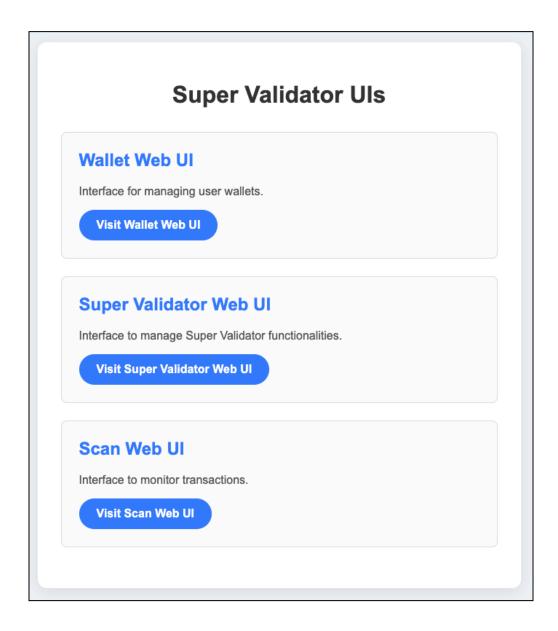
In DevNet mode, you can configure a non-default SPONSOR\_SV\_ADDRESS, SCAN\_ADDRESS and ONBOARDING SECRET URL or ONBOARDING SECRET in the quickstart/.env file.

Connecting to <code>DevNet</code> requires a connection to an <u>approved SV</u>. If your organization provides access to the DAML-VPN, then connect to it to access the Digital Asset-sponsored SV. Your organization may sponsor another CN-approved SV. If this is the case, speak with your administrator for privileged access. Review the DevNet Global Synchronizer documentation to learn more about the <a href="SV onboarding process">SV onboarding process</a>.

In an incognito browser navigate to localhost: 3000/login. Login as the Org1 user and create and archive assets, as before. Logout and do the same as the AppProvider.

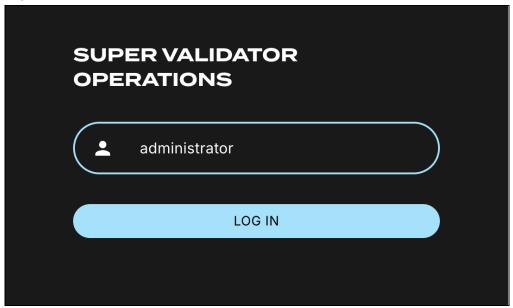
### SV UIs

Navigate to localhost: 4000 for a list of viewable Web UI options. Click "Visit Super Validator Web UI" to view information from the validator.

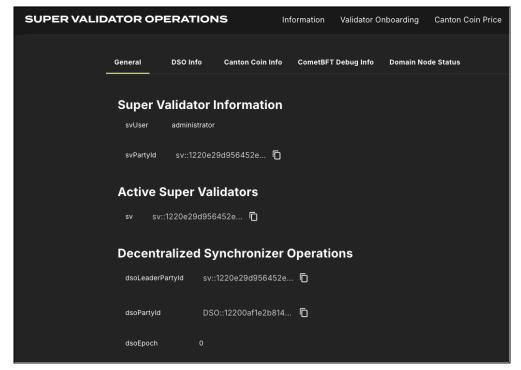


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Login as 'administrator'.

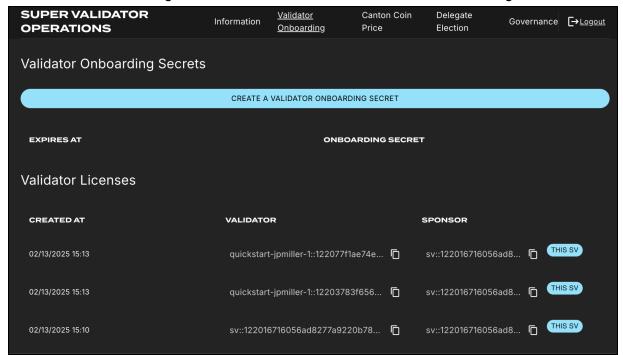


The UI shows information about the SV and lists the active SVs.

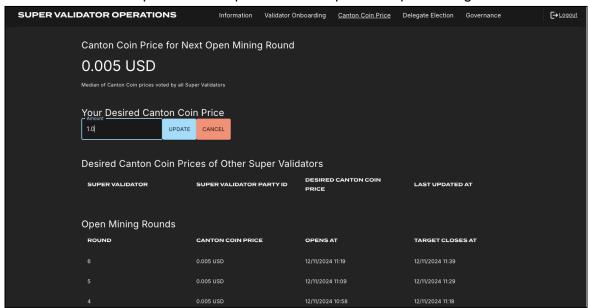


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The Validator Onboarding menu allows for the creation of validator onboarding secrets.

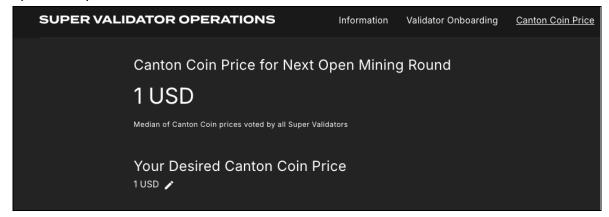


The CC Price menu option has an option to set the price for open mining rounds.

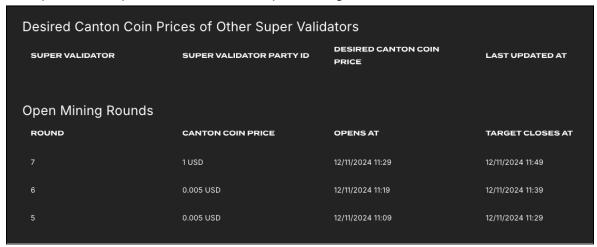


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Update the price of the CC.

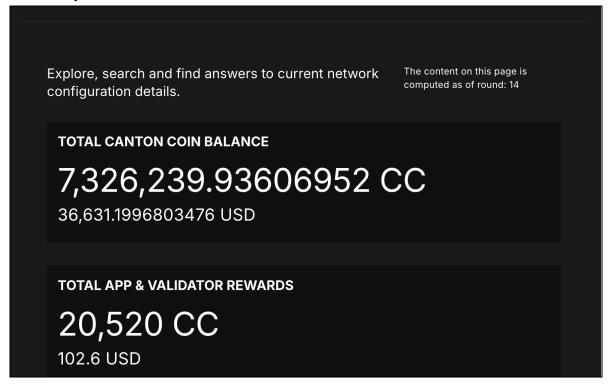


The updated coin price reflects the new open mining rounds.

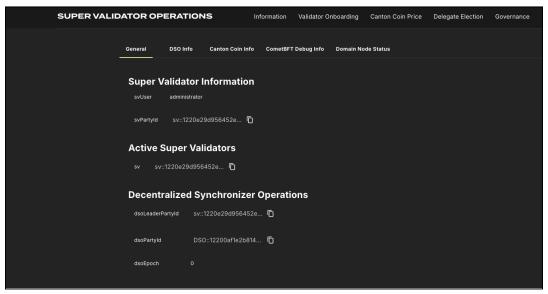


Navigate to the CC Scan Web UI by returning to localhost: 4000 and select "Visit Scan Web UI" or navigate directly to <a href="http://scan.localhost:4000/">http://scan.localhost:4000/</a>.

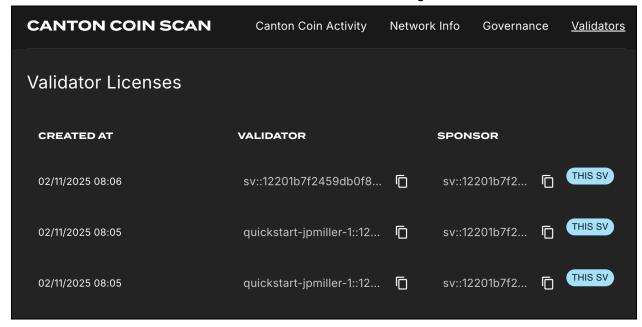
The activity view shows the total CC balance and the Validator rewards.



Select the Network Info menu to view SV identification.

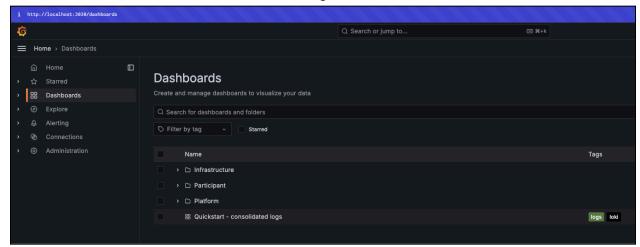


The Validators menu shows that the local validator has been registered with the SV.

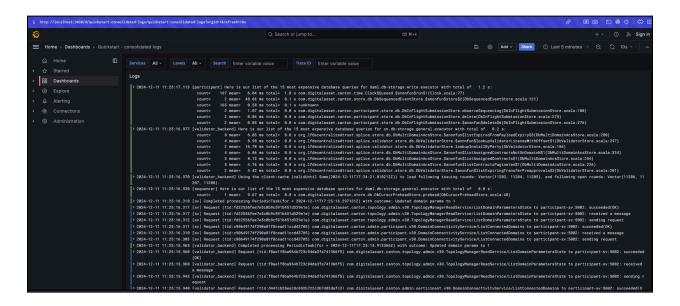


## Observability Dashboard

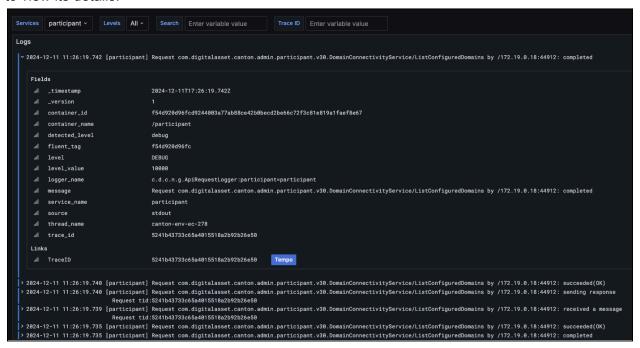
In a web browser, navigate to <a href="http://localhost:3030/dashboards">http://localhost:3030/dashboards</a> to view the observability dashboards. Select "Quickstart - consolidated logs".



The default view shows a running stream of all services.



Change the services filter from "All" to "participant" to view participant logs. Select any log entry to view its details.



# **Next Steps**

You've completed a business operation in the CN-QS and have been introduced to the basics of the Canton Console, Daml Shell, and the SV UIs.

Canton Network Quickstart Project Structure

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Learn more about Daml Shell and the project structure in the Project Structure Guide.