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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 25 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 an incognito browser.

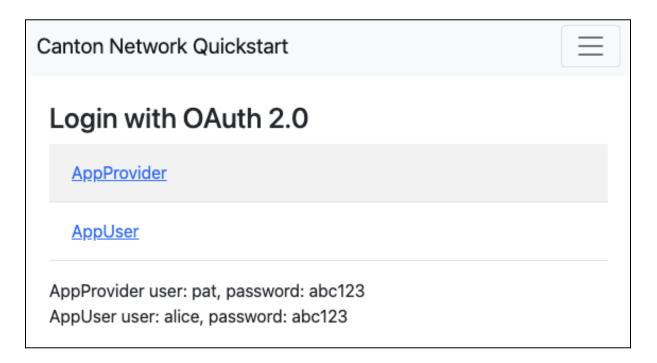
Navigate to:

localhost:3000/login

Currently, localhost URLs do not work in Safari. We are working on a solution and apologize for the inconvenience.

Alternatively, in the terminal, from quickstart/run:

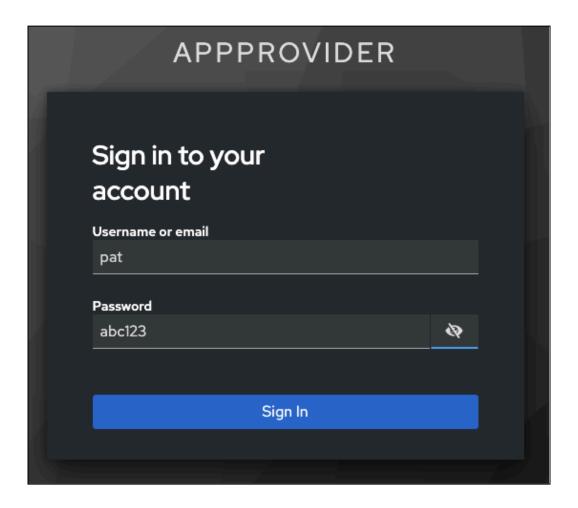
make open-app-ui



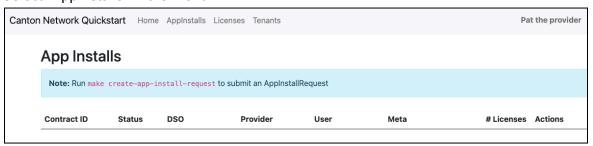
Make note that the AppProvider's username is "pat" and the password is "abc123" (all lowercase).

Login as the AppProvider.

Fill in the login credentials: username: pat, password: abc123



### Select "AppInstalls" 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" : {
                "template_id": "#quickstart-licensing:Licensing.AppInstall:AppInstallRequest",
                "create_arguments": {
                    "dso": "DSO::12209a3af80af3fa93853be8a8b9f5887055edc3b0a94f4b198f486d08d197784c09",
                    "provider": "AppProvider::1220b3de80de523473aa2ca56745ef1fb29a2203dfd13029e0448336bbcf3
82aaf86",
                    "user": "Org1::1220e69bc6115cd8ed360aa6caafce122c2a24561262c2f6ce6a6070e170e9e8244d",
                    "meta": {"values": []}
           }
           1
        "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 25 GB should allow the <code>LocalNet</code> containers to operate properly.

```
[(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 || true
[+] Building 0.0s (0/0) docker:desktop-linux
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_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://varticipant-app-user:5593/api/validator/v0/scan-proxy/dso-party-id
Request failed with HTTP status code 404
Response body: The requested resource could not be found.
```

Return to the browser.

The install request appears in the list. Click "Accept".

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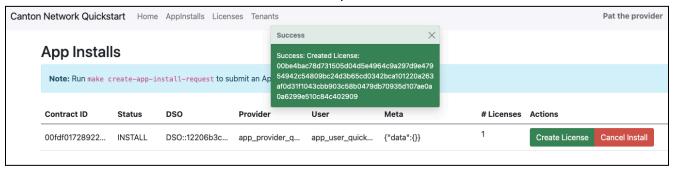


The AppInstallRequest is Accepted. The actions update to create or cancel the license.



### Click "Create License".

The license is created and the "# Licenses" field is updated.



In the AppProvider, "Pat the provider's," account, navigate to the **Licenses** menu and select "Actions."

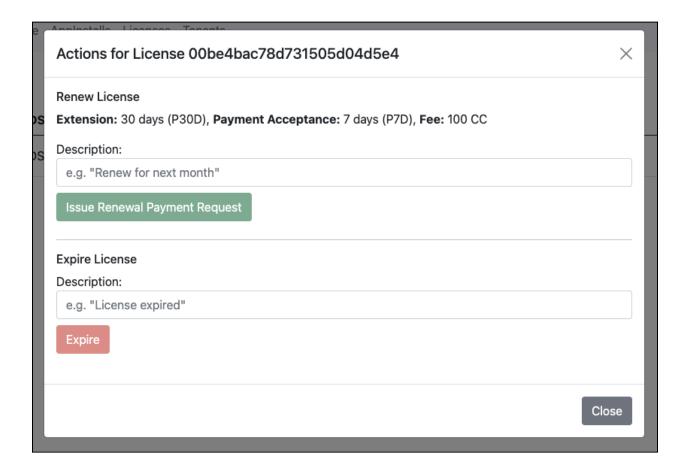


An "Actions for License" modal opens with an option to renew or expire the license. Per the Daml contract, licenses are created in an expired state. To activate the license, it must be renewed.

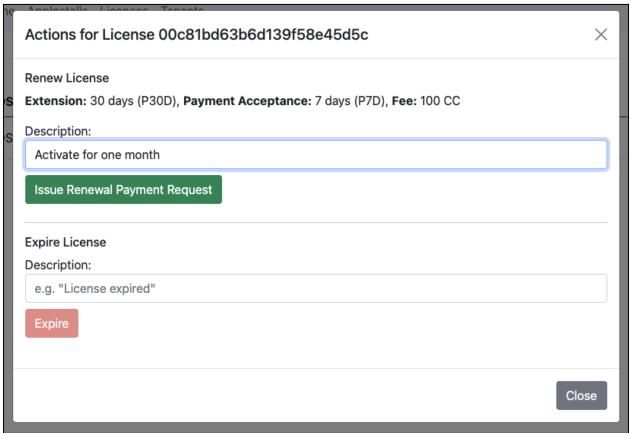
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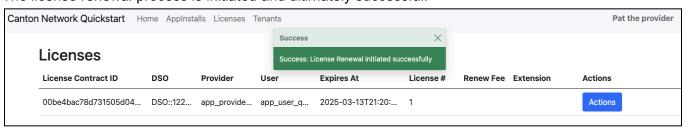
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To renew the license, enter a description then click the green "Issue Renewal Payment Request" button.



The license renewal process is initiated and ultimately successful.



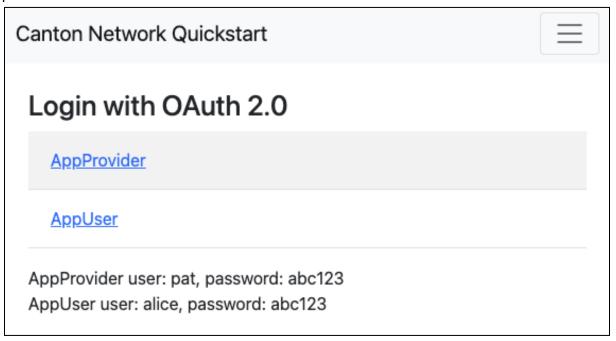
The license is now available for a 30-day extension for a flat fee of \$100 CC.



Pat the provider has done as much as they are able until Alice pays the renewal fee.

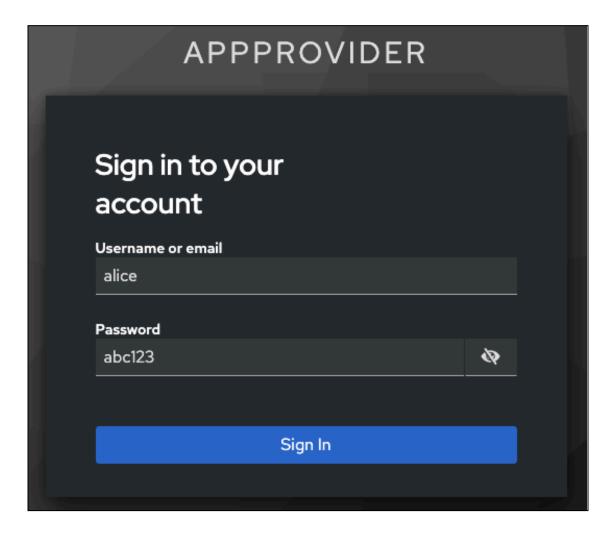
For the next step we recommend opening a separate browser in incognito mode. Each user, AppProvider, and Org1, should be logged into separate browsers for most consistent results. For example, if you logged into AppProvider using Chrome, you would use Firefox when logging into Org1.

Navigate to http://localhost:3000/login using a separate browser in incognito or private mode.



Login as Appuser alice.

Note that AppUser's username is "alice" and the password is "abc123".



Go to the **Licenses** View and click the "Pay renewal" button.

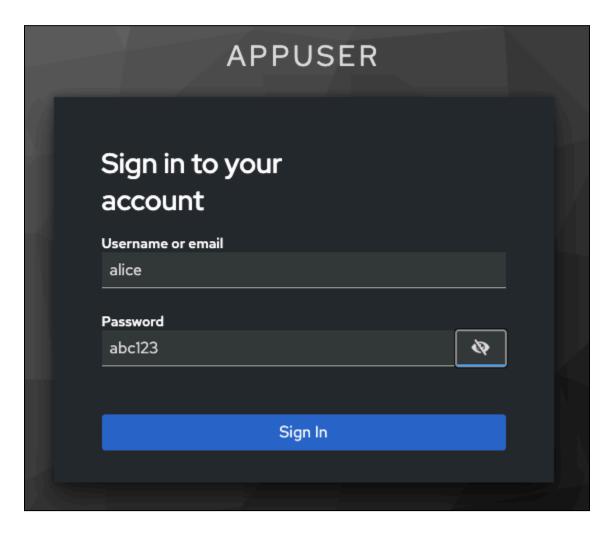


Click on the Pay Renewal button. This navigates to the Canton Coin Wallet log in. Click "LOG IN WITH OAUTH2".

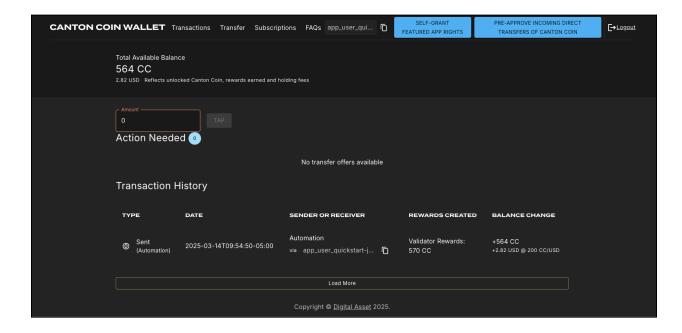
If you have any issues with log in, navigate directly to <a href="http://wallet.localhost:2000/">http://wallet.localhost:2000/</a>.



This navigates to a keycloak login. Enter the same username and password as before.

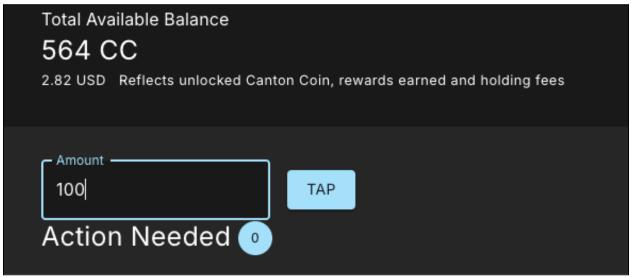


Signing in directs to the Canton Coin Wallet.

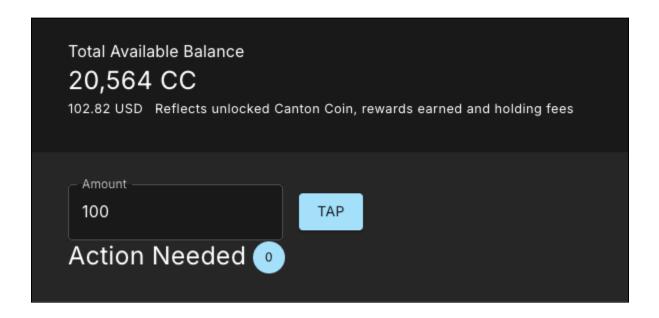


The wallet must be populated with CC in order to fulfill the transaction.

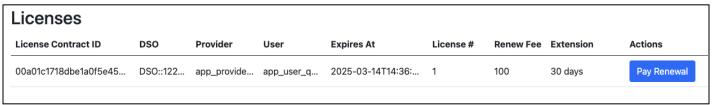
In CC Wallet, populate the wallet with \$100 USD, or the equivalent of 20,000 CC.



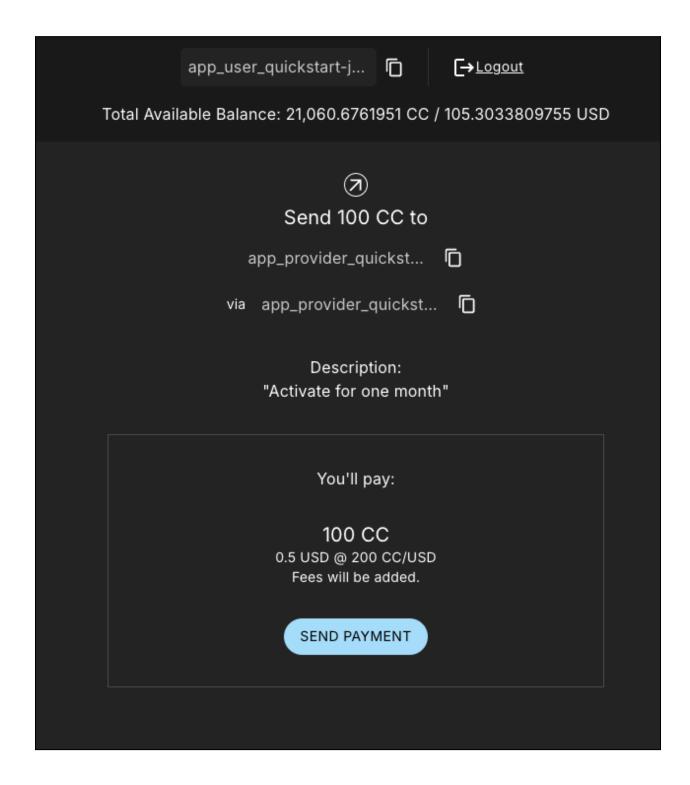
The wallet was prepopulated with 564 CC so it now contains 20,564 CC.



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



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



Return to the AppProvider's License Renewal Requests View.

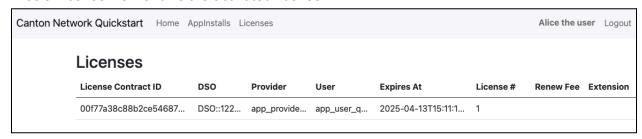
The AppProvider may now Complete the Renewal.



Clicking "Complete Renewal" results in a Success.



Alice's License 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.

The app provider and the app user each have their own console. To activate the app provider's Canton Console in a terminal from the quickstart/ directory. Run:

make console-app-provider

Open the participant's Canton Console with

make console-app-user

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

participant

Returns their location in the ledger.

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

participant.domains

Shows the Participant's synchronizer.

```
[@ participant.domains
res1: participant.domains.type = com.digitalasset.canton.console.commands.ParticipantAdministration$domains$@4f4c3934
```

participant.health.ping(participant)

Runs a health ping. The ping makes a round trip through the CN blockchain. Pinging yourself validates communication throughout the entire network.

```
[@ participant.health.ping(participant)
res0: Duration = 4979 milliseconds
```

# 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 shell from quickstart/ in the terminal with:

make shell

Run the following commands to see the data:

active

Shows unique identifiers and the asset count

postgres-splice-app-provider:5432/scribe> active							
Identifier	Туре	Count					
quickstart-licensing:Licensing.AppInstall:AppInstall	Template	1					
quickstart-licensing:Licensing.License:License	Template	1					
splice-amulet:Splice.Amulet:Amulet	Template	1					
splice-amulet:Splice.Amulet:ValidatorRight	Template	1					
splice-wallet:Splice.Wallet.Install:WalletAppInstall	Template	1					

active quickstart-licensing:Licensing.License:License List the license details.

Created	Contrac	Contract	Payload
at	t ID	Key	
a9	000cd68 ca7d2cf 95454b		dso: DSO::12203a329668884fac6377f41c924df6a11c59f3be909737d27799252930e537c42b user: Org1::12209d2965deec586b4a6d12b80e535bb52407fad54dc2dd88575291780ed5fd9ff4 params:     meta:     values:     provider: AppProvider::12206e5249b12cd9fd05e9b25894c0663b73a18c90baccd7f2d48e7958157b510358     expiresAt: 2025-03-16T21:59:38.4034352 licenseNum: 1

active quickstart-licensing:Licensing.License:LicenseRenewalRequest Displays license renewal request details.

archives quickstart-licensing:Licensing.AppInstall:AppInstallRequest Shows any archived license(s).

[p	postgres-splice-app-provider:5432/scribe 6d > f7> archives quickstart-licensing:Licensing.AppInstall:AppInstallRequest							
	Created at	Archive d at	Contrac t ID	Contract Key	Payload			
	6f	75	00e906b 2720a9b 7965a3		dso: DSO::12203a329668884fac6377f41c924df6a11c59f3be909737d27799252930e537c42b meta: values: user: Org1::12209d2965deec586b4a6d12b80e535bb52407fad54dc2dd88575291780ed5fd9ff4 provider: AppProvider::12206e5249b12cd9fd05e9b25894c0663b73a18c90baccd7f2d48e7958157b510358			

# 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.

You may leave the party hint as the default value by tapping 'return' on the keyboard.

```
[(base) quickstart ~ % make setup
Starting local environment setup tool...
./gradlew configureProfiles --no-daemon --console=plain --quiet
Enable LocalNet? (Y/n): n
   LOCALNET_ENABLED set to 'false'.

Enable Observability? (Y/n): Y
   OBSERVABILITY_ENABLED set to 'true'.

Specify a party hint (this will identify the participant in the network) [quickstart-____-1]:
   PARTY_HINT set to 'quickstart-__-1'.

.env.local updated successfully.
(base) quickstart ~ %
```

Running make setup regenerates .env.local but preserves the contents of the .env file settings.

The application is now connected to DevNet.

# Important: Migration ID for DevNet Connections

When connecting to <code>DevNet</code>, verify that the <code>MIGRATION\_ID</code> value in <code>.env</code> matches the current network migration ID for your <code>DevNet</code> Super Validator.

Check the current migration ID at <a href="https://sync.global/sv-network/">https://sync.global/sv-network/</a> under the GSF DevNet information section.

For example, if the Super Validator Node Information shows the migration\_id value as "0" then update MIGRATION ID to "0" in your .env.

# GSF DevNet Super Validator Node Information { "network": "devnet", "sv": { "migration\_id": 0, "version": "0.3.15" }, "synchronizer": { "active": { "chain\_id\_suffix": "5", "migration\_id": 0, "version": "0.3.15" }, "legacy": null, "staging": null } }

### In .env:

```
ONBOARDING_SECRET_URL=https://sv.sv-1.dev.global.canton.network.digitalasset.co
m/api/sv/v0/devnet/onboard/validator/prepare
MIGRATION_ID=0
APP_PROVIDER_VALIDATOR_PARTICIPANT_ADDRESS=participant-app-provider
APP_USER_VALIDATOR_PARTICIPANT_ADDRESS=participant-app-user
```

# Configuring Non-Default DevNet Sponsors

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 DevNet 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 <u>CN-approved SV</u>. If this is the case, speak with your administrator for privileged access.

Review the DevNet Global Synchronizer documentation to learn more about the <u>SV</u> onboarding process.

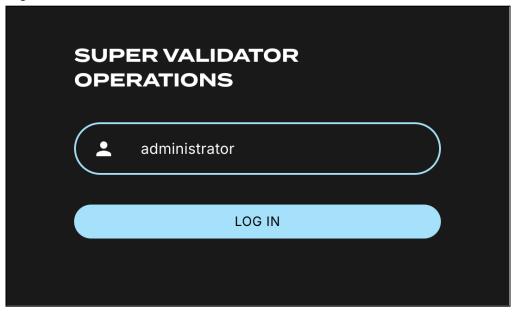
If you run into errors when making <code>DevNet</code> operations, double check that the <code>DevNet</code> VPN is active. <code>DevNet</code> VPNs may timeout, especially if left unattended for extended periods of time.

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.

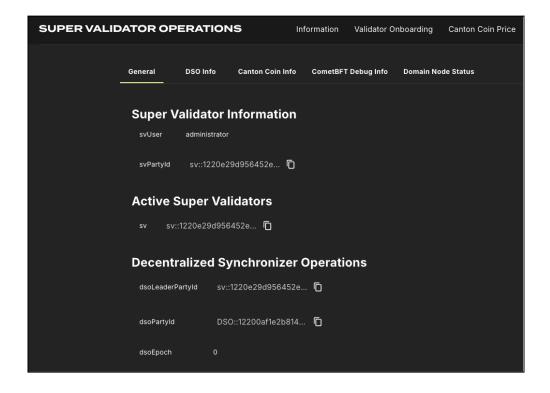
# SV UIs

Navigate to http://sv.localhost:4000/ for the Super Validator Web UI. The SV view displays data directly from the validator in a GUI that is straightforward to navigate.

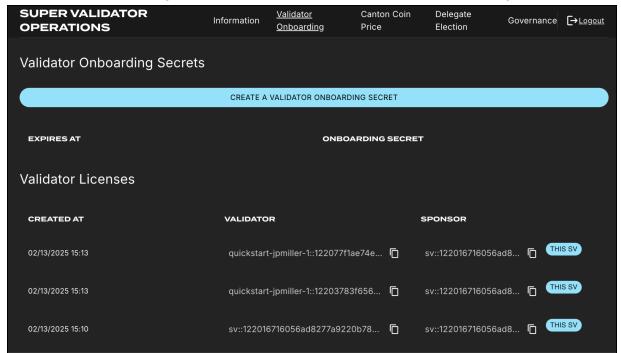
Login as 'administrator'.



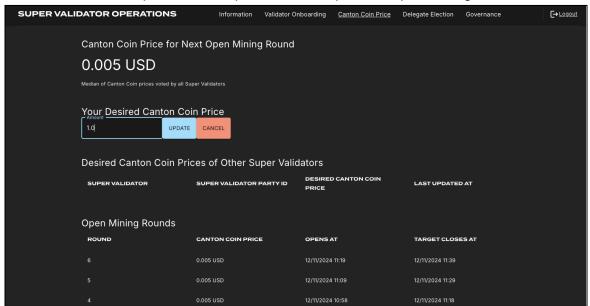
The UI shows information about the SV and lists the active SVs.



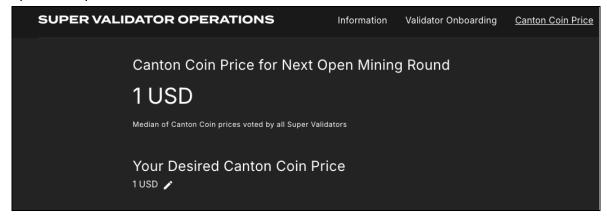
The Validator Onboarding menu allows for the creation of validator onboarding secrets.



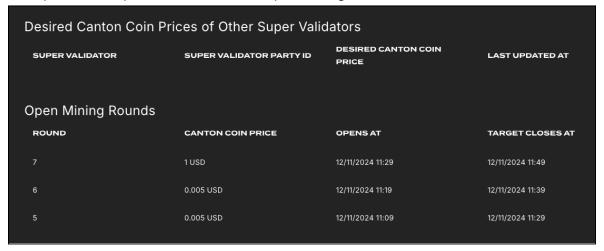
The CC Price menu option has an option to set the price for open mining rounds.



Update the price of the CC.



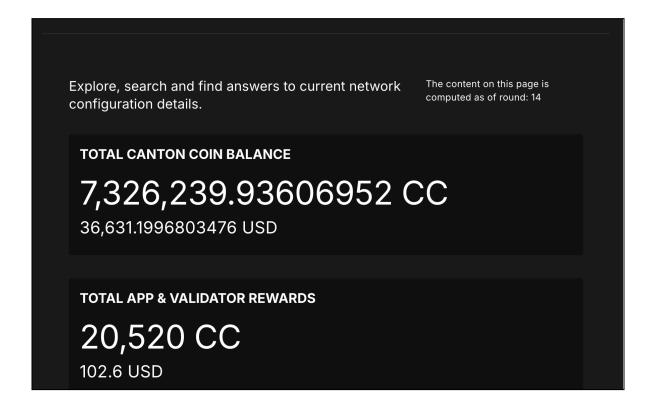
The updated coin price reflects the new open mining rounds.



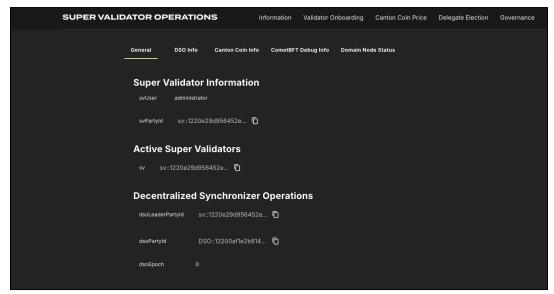
### Canton Coin Scan

Navigate to the CC Scan Web UI at <a href="http://scan.localhost:4000/">http://scan.localhost:4000/</a>.

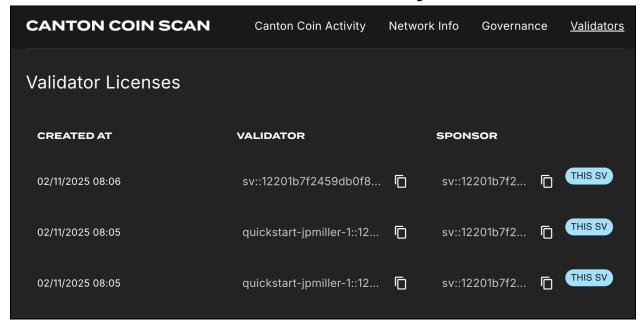
The default activity view shows the total CC balance and the Validator rewards.



Select the Network Info menu to view SV identification.

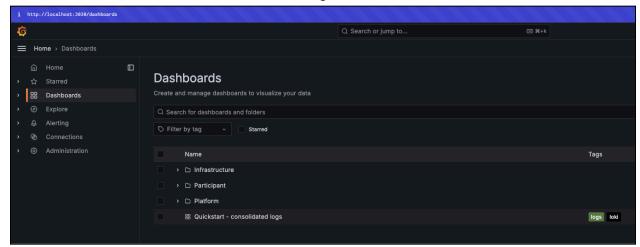


The Validators menu shows that the local validator has been registered with the SV.



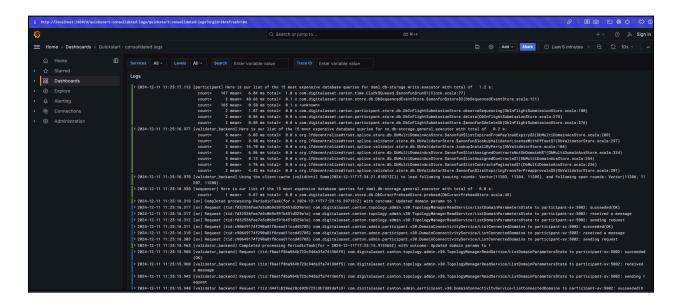
# Observability Dashboard

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".

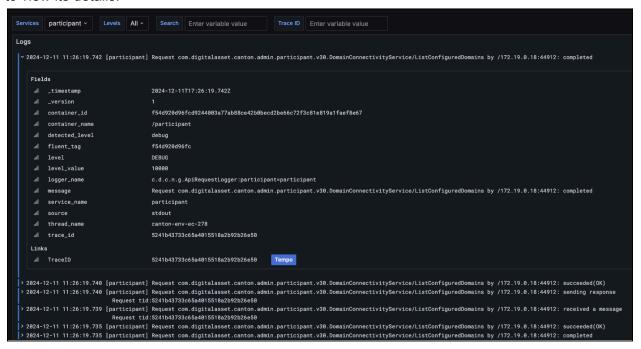


The default view shows a running stream of all services.

**∧** daml Digital ∧sset



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.

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