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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 support@digitalasset.com.

The CN-QS is a Dockerized application and requires Docker Desktop. 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 an incognito browser.

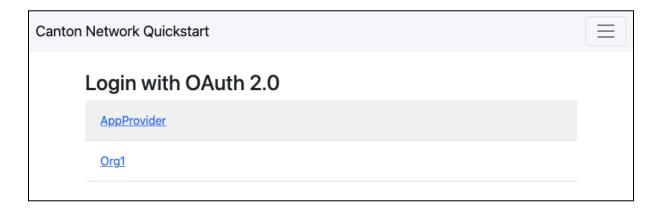
Navigate to:

localhost:3000/login

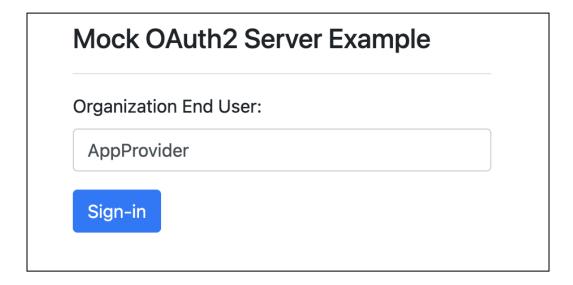
Currently, localhost URLs do not work in Safari. We are working on a solution and apologize for the inconvenience.

Alternatively, in the terminal, from quickstart/run:

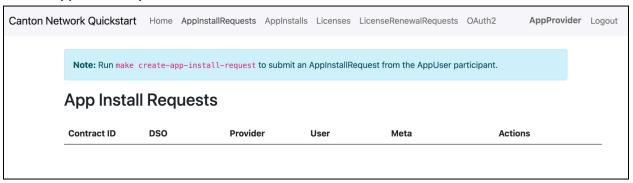
make open-app-ui



Login as the AppProvider.



Select "AppInstallRequests" in the menu.



Open a terminal.

From /quickstart/ run:

make create-app-install-request

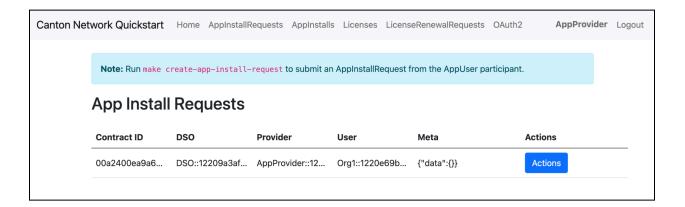
This command creates an App Installation Request on behalf of the Participant.

```
(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" : {
                "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}
```

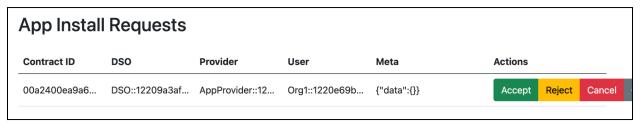
If your machine is not powerful enough to host <code>LocalNet</code> or if the docker containers are not responsive then the response may show a failure with status code 404 or 000. Increasing Docker memory limit to at least 32 GB should allow the <code>LocalNet</code> containers to operate properly.

The install request appears in the list.

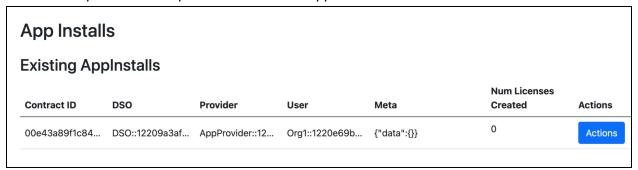
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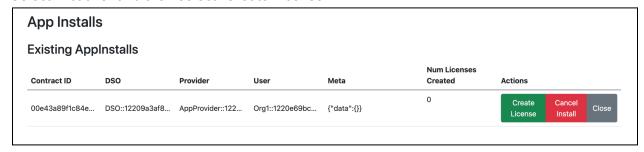
Select "Actions."



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

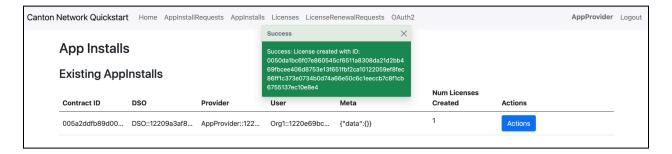


Select "Actions" and then select "Create License."

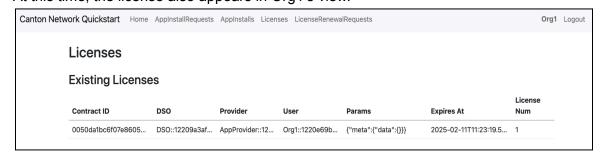


The License is created.

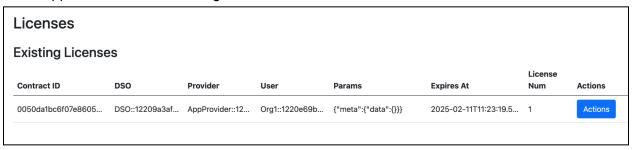
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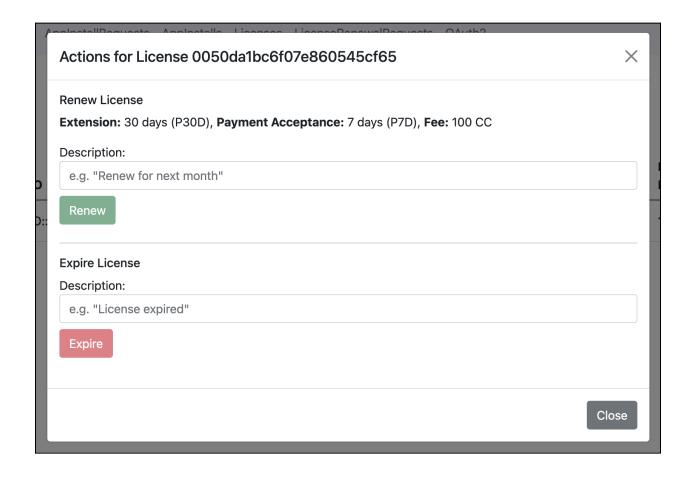
Notice in the screenshot above that the field User is set to "Org1." At this time, the license also appears in Org1's view.



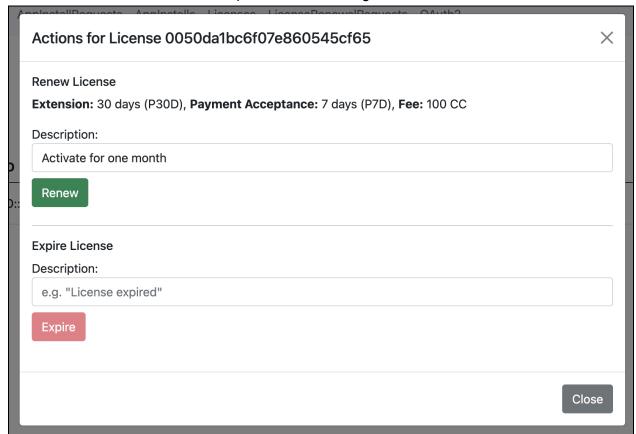
In the AppProvider account, navigate to the Licenses menu and select "Actions."



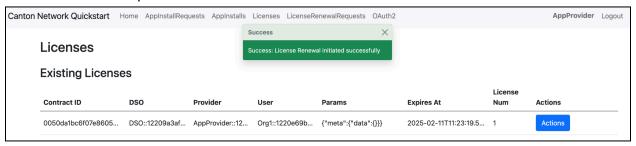
An "Actions for License" modal opens with an option to renew or expire the license. Per the Daml contract, licenses are created in an expired state. To activate the license, it must be renewed.



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



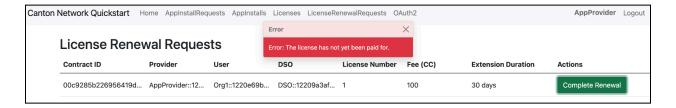
The license renewal process is initiated.



Navigate to the License Renewal Requests menu.



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



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 an Org1 user.



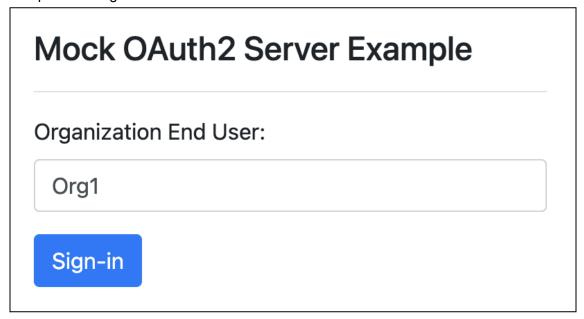
Go to the LicenseRenewealRequests View and click the "Pay" button.



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



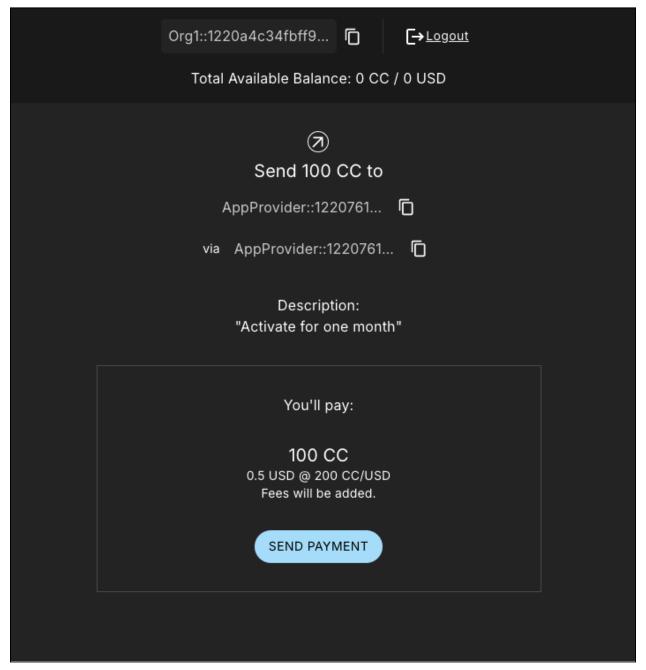
Complete the log in.



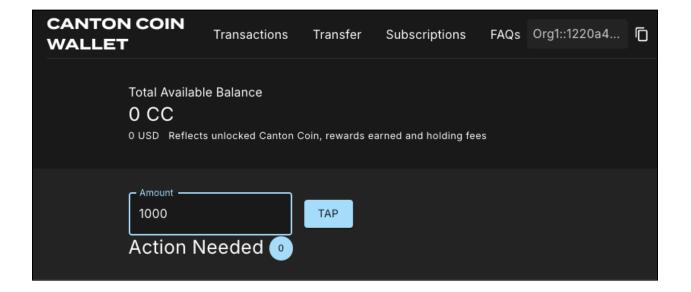
Canton Network Quickstart Project Structure

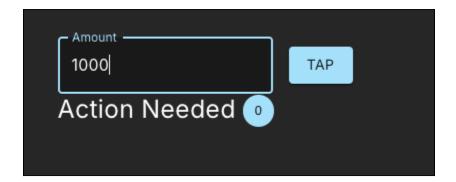
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Logging in directs to a payment view. However, the total available balance is 0 CC. The Renewal fee is 100 CC.



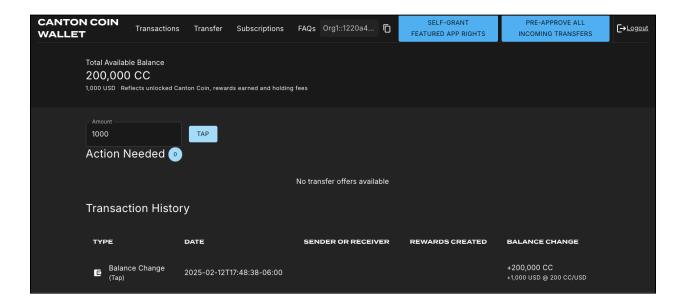
The wallet must be populated with CC in order to fulfill the transaction. Navigate to http://wallet.localhost:2000 to enter the CC Wallet. In CC Wallet, populate the wallet with \$1,000, or the equivalent of 200,000 CC.



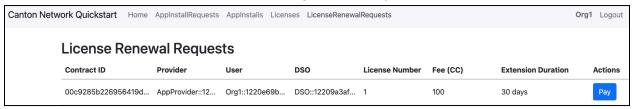


Click "TAP." LocalNet recognizes the update in your wallet's value, as well as the total available CCs in the CN.

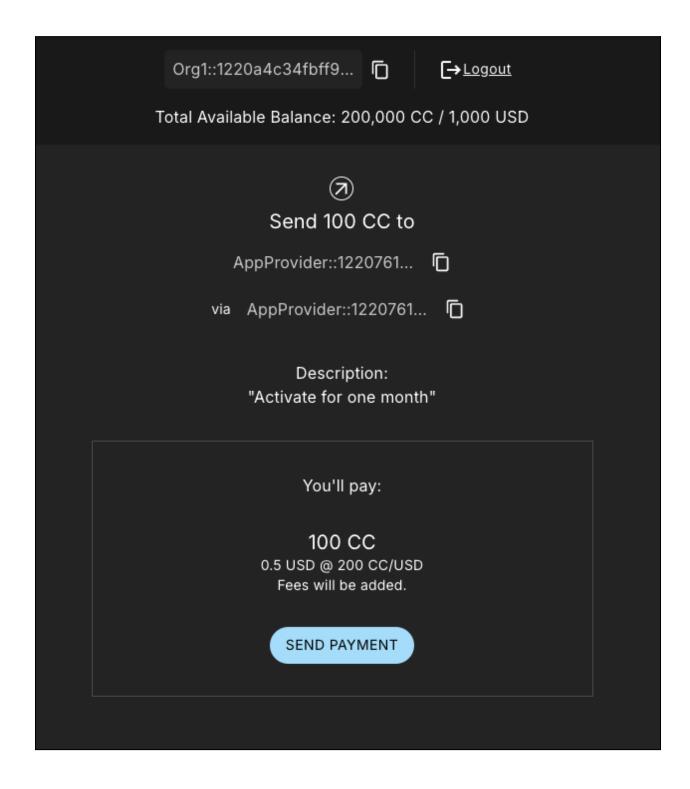
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Return to the License Renewal Request as Org1. Click "Pay".



The CC Wallet balance is now 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.



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

participant.domains

Shows the Participant's domain.

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

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.

| postgres-sp | postgres-splice-app-provider:5432/scribe 6d → f7> active quickstart-licensing:Licensing.License:License | | | | | | | |
|---------------|---|-----------------|--|--|--|--|--|--|
| Created at | Contrac t ID | Contract Key | Payload | | | | | |
| а9 | 000cd68 ca7d2cf 95454b | | dso: DSO::12203a329668884fac6377f41c924df6a11c59f3be909737d27799252930e537c42b user: Org1::12209d2965deec586b4a6d12b80e535bb52407fad54dc2dd88575291780ed5fd9ff4 params: meta: values: provider: AppProvider::12206e5249b12cd9fd05e9b25894c0663b73a18c90baccd7f2d48e7958157b510358 expiresAt: 2025-03-16T21:59:38.403435Z licenseNum: 1 | | | | | |

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

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

| 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.

```
[(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 <code>DevNet</code>.

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 onboarding process</u>.

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.

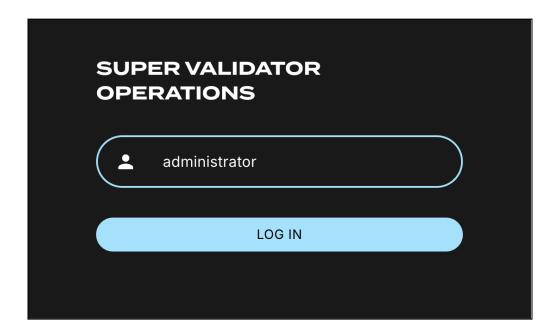
In an incognito browser navigate to localhost:3000/login. Login as the Org1 user and create and archive assets, as before. Logout and do the same as the AppProvider.

SV UIs

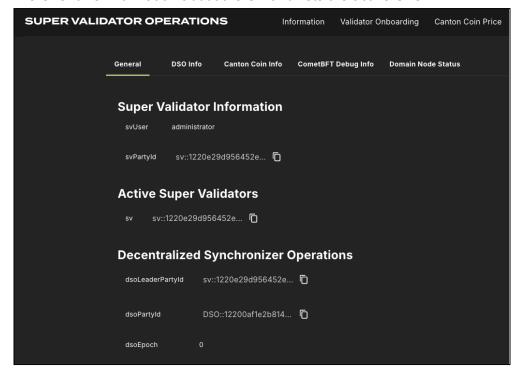
Navigate to http://sv.localhost:4000/ for the Super Validator Web UI. The SV view displays data directly from the validator in a GUI that is straightforward to navigate.

Login as 'administrator'.

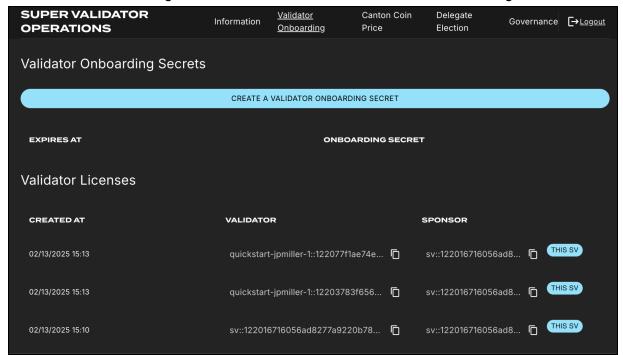
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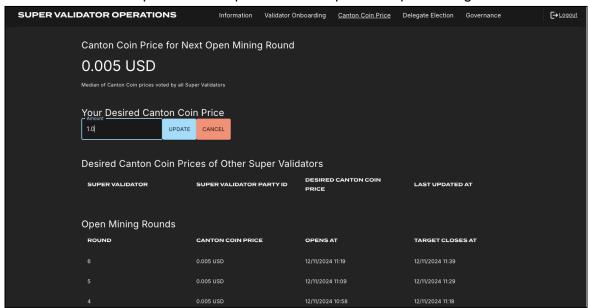
The UI shows information about the SV and lists the active SVs.



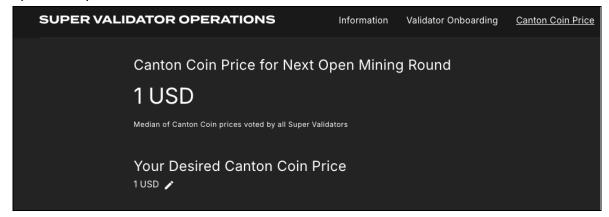
The Validator Onboarding menu allows for the creation of validator onboarding secrets.



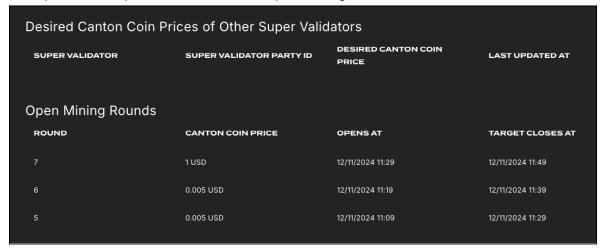
The CC Price menu option has an option to set the price for open mining rounds.



Update the price of the CC.



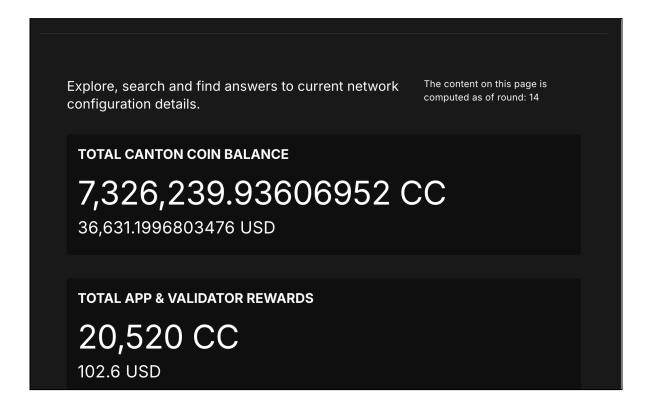
The updated coin price reflects the new open mining rounds.



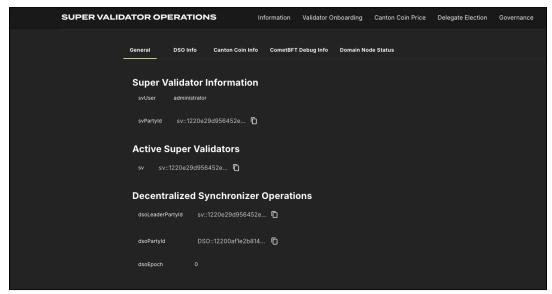
Canton Coin Scan

Navigate to the CC Scan Web UI at http://scan.localhost:4000/.

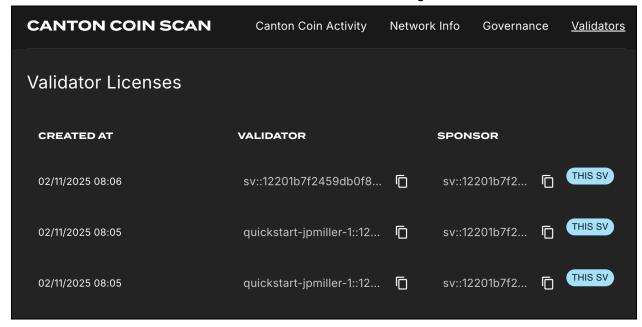
The default activity view shows the total CC balance and the Validator rewards.



Select the Network Info menu to view SV identification.

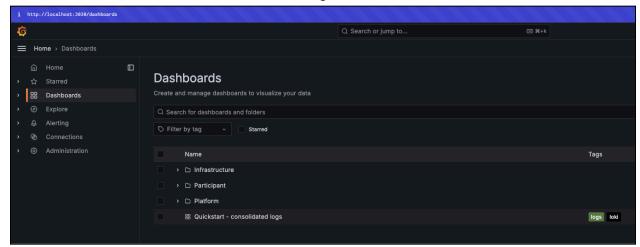


The Validators menu shows that the local validator has been registered with the SV.



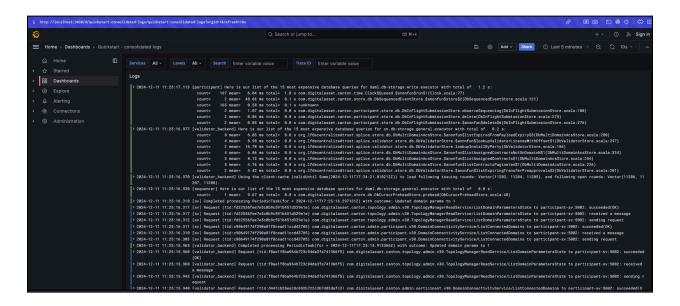
Observability Dashboard

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

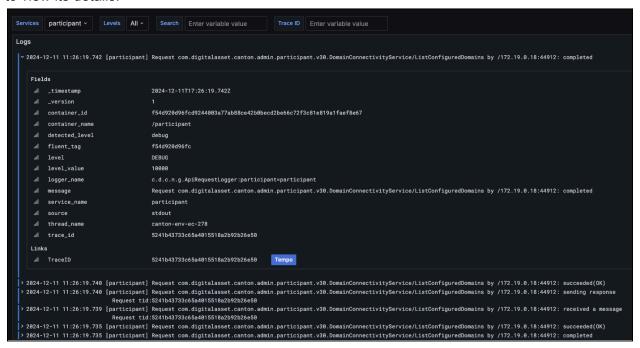


The default view shows a running stream of all services.

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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.