

# Canton Coin (Splice Amulet) Audit Scope and Breakdown

Based on the provided audit form and discussions with **W. Eric Saraniecki, Wayne Collier, Jacob McCrum, Kei Oda, and Roman Rohleder** on **January 31, 2025**, we have estimated the following detailed breakdown of the audit scope.

This scope is based on **commit hash 9e0cdb6a99074a9494d98268c6f12b72c491e617**. Any deviations from this commit (e.g., updates, modifications, or refactors) may require a reassessment and potential rescoping of the audit.

## 1. DAML Code

### a. Amulet Code

- **Locations and Sized:**
  - `./daml/splice-amulet/*` 2,207 LOC (DAML)
  - `./daml/splice-util/*`: 60 LOC (DAML)
- **Total Amulet Code:**
  - **Size: 2,267 LOC (DAML)**

### b. Non-Amulet Code

- **Locations and Sizes:**
  - `./daml/splice-dso-governance/*`: **1,395 LOC (DAML)**
  - `./daml/splice-validator-lifecycle/*`: **34 LOC (DAML)**
  - `./daml/splice-wallet/*`: **722 LOC (DAML)**
  - `./daml/splice-wallet-payments/*`: **494 LOC (DAML)**
- **Total Non-Amulet Code:**
  - **Size: 2,745 LOC (DAML)**

### c. Total DAML Code

- **Size: 4,903 LOC (DAML) -> 4,912 LOC (DAML)**
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## 2. SCALA Code

- **Location:**  
`/apps/sv/src/main/scala/org/lfdecentralizedtrust/splice/sv/*`
  - **Size:** 20,328 LOC (SCALA) -> 20,607 LOC (SCALA)
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## Time-Boxed Approach for SCALA

As discussed in the aforementioned meeting, while the **SCALA code is critical** to the project's security, we recognize the **time constraints** of this audit. Therefore, we propose a **time-boxed** approach for the SCALA review, where it will be assessed on a **best-effort basis** within a **one-week timeframe per auditor**, rather than undergoing a **full audit**.

This **time-boxed approach is a compromise agreed upon by both parties**, balancing the need for security review with the project's timeline constraints. It must be explicitly acknowledged that **this approach is not as thorough as a full audit**, and as a result, **some issues may go undetected**.

Additionally, beyond the review itself, extra time is allocated for:

- **Fix review**
  - **Communication (walkthroughs, discussions, etc.)**
  - **Report writing**
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## Additional Considerations

Auditors may require an **initial ramp-up period** to familiarize themselves with DAML and SCALA. However, these **onboarding hours will not be billed**.

Beyond core auditing hours, the following activities are factored into the total time estimation:

- **Project-specific ramp-up**
- **Fix reviews**
- **Additional communication** (code walkthroughs, discussions, etc.)
- **Audit report creation**

As standard practice, **Quantstamp assigns three auditors per audit**, who work independently to maximize the diversity of findings while ensuring high-quality results. While they collaborate on **knowledge sharing and clarifications**, they avoid biasing each other's evaluations.

In addition to the provided codebase, the **following specifications** will be referenced for the DAML code audit:

- <https://docs.dev.sync.global/background/architecture.html#dso-party-requirements-for-cc>
- [https://www.digitalasset.com/hubfs/Canton%20Network%20Files/Documents%20\(whitepapers%2C%20etc...\)/Canton%20Coin%20A%20Canton-Network-native%20payment%20application.pdf](https://www.digitalasset.com/hubfs/Canton%20Network%20Files/Documents%20(whitepapers%2C%20etc...)/Canton%20Coin%20A%20Canton-Network-native%20payment%20application.pdf)

The DAML code will be **verified for adherence to these specifications** as part of the audit. This workload has already been factored into the **project-specific ramp-up and overall audit time**.

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## Final Scope Breakdown

### 1. Amulet + Non-Amulet DAML Code

- Ramp-up
- Audit
- Fix Reviews
- Communications
- Report Writing

**Total DAML Effort:**

We estimate it will take around 8 engineering weeks to complete (where 1 week is 40hrs)

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### 2. Time-Boxed SCALA Review

- Review
- Fix Reviews
- Communications
- Report Writing

**Total SCALA Effort:**

We estimate it will take around 3 engineering weeks to complete

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## **Grand Total (DAML Audit + SCALA Review)**

**We estimate 11 engineering weeks to completion**