



Permissioned Document Processes

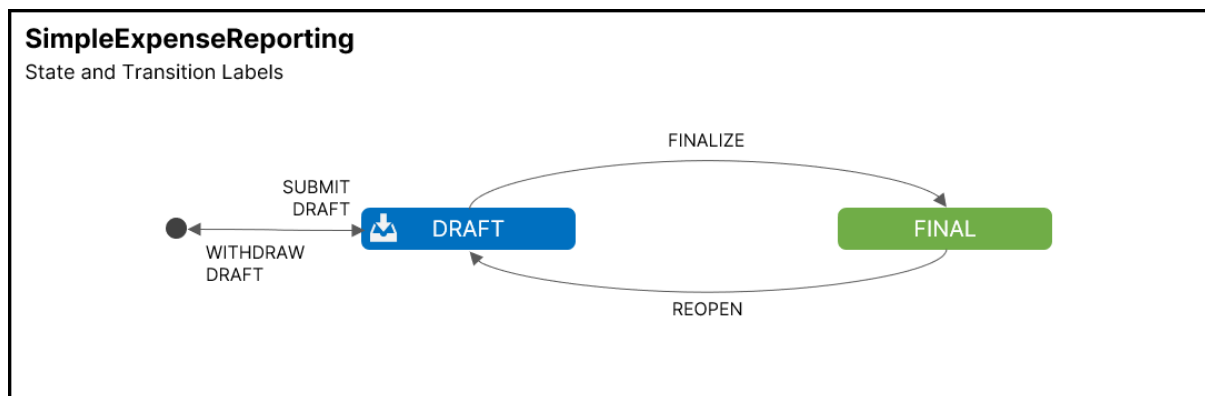
Process Model

Switchboard contains a number of process models that apply to one or more document types, and define the roles that operate on the documents. These process models are state machines with a different set of permissions configured for every defined role in each state.

SimpleExpenseReporting Example

As a first example of a permissioned process, we consider the simplest case of Core Unit Administrators who are uploading their Budget Statements first as a **Draft**, and then later move them to the **Final** state. The process permissions are configured in such a way that, once they're finalized, the Budget Statement documents can no longer be edited.

State Diagram



Note that the black dot in the diagram represents the implicit **External** state, i.e. the state of documents that have not been added to the process yet.

- The diagram indicates that it's possible to move Budget Statements from the (implicit) **External** state into the process, where they enter the **Draft** state first.
- The diagram also indicates that a Budget Statement in the **Draft** state can be withdrawn again from the process, transitioning it back to **External**.

Roles and Permissions

The table below illustrates what the roles and permissions may look like that are configured for this process.

- It indicates that the roles and permissions apply to any document of type **powerhouse/budget-statement**.
- For this example, there is only one role, **Core Unit Administrator**, for which the permissions are configured.

Roles & Permissions			
powerhouse/ budget-statement	Core Unit Administrator		
	EXTERNAL	DRAFT	FINAL
PRC / TO_EXTERNAL	N/A	✓	X
PRC / TO_DRAFT	✓	N/A	✓
PRC / TO_FINAL	X	✓	N/A
DOC / ADD_ACCOUNT	N/A	✓	X
DOC / EDIT_ACCOUNT	N/A	✓	X
DOC / ADD_LINEITEM	N/A	✓	X
	...		

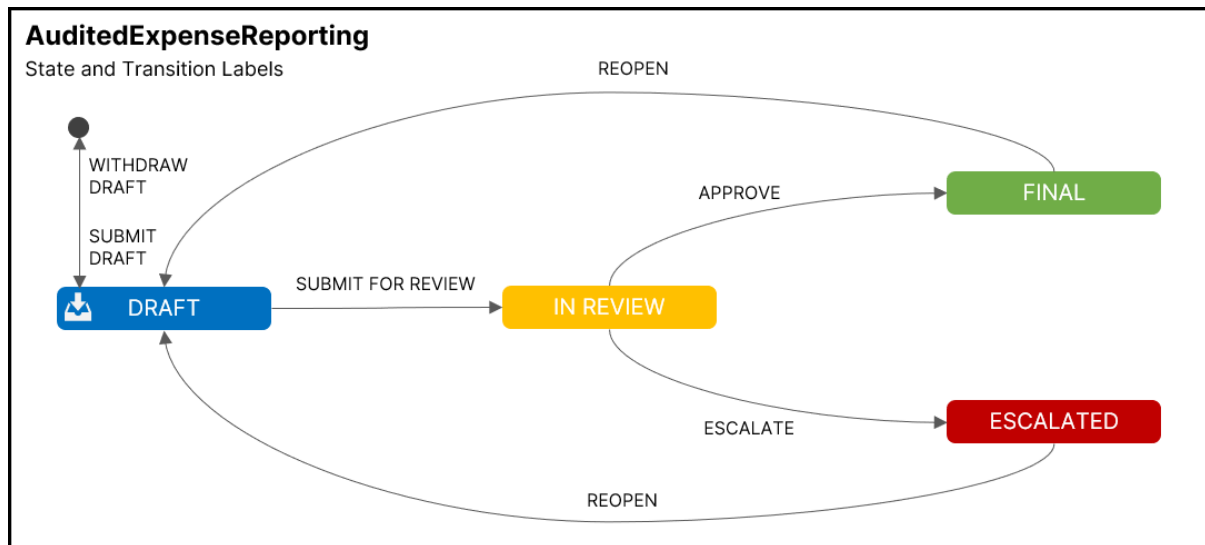
On the left, the table lists a number of permissions that are subdivided in two groups.

- **PRC /** are **Process Permissions** that map to the possible state transitions and defined who can execute them, when.
 - For each state (**External**, **Draft**, and **Final**), there is a **TO_{STATE}** permission that can be assigned.
 - When a document is in the **External** state, Core Unit Administrators:
 - CANNOT transition the document to **External**, as it is already in that state (N/A)
 - CAN transition the document to the **Draft** state, which is how it enters the process.
 - CANNOT transition the document straight to **Final**, because it's not allowed.
 - When a document is in the **Draft** state, Core Unit Administrators:
 - CAN transition the document to the **External** state. This removes the document from the process
 - CANNOT transition the document to **Draft**, as it is already in that state (N/A)
 - CAN transition the document to **Final**
 - Etc.
- **DOC /** are **Document Permissions** that map to the available operations in the document model for Budget Statements. For example, we can see that:
 - **External** documents CANNOT be edited, by definition (N/A)
 - **Draft** documents CAN be edited by Core Unit Administrators since they are authorized for the ADD_ACCOUNT, EDIT_ACCOUNT, ADD_LINEITEM, ... permissions.
 - **Final** documents CANNOT be edited by Core Unit Administrators.

AuditedExpenseReporting Example

A second example builds on the Simple Expense Reporting example, but adds the role of the Core Unit Auditor. This process, also for the **powerhouse/budget-statement** document model, can coexist with the Simple Expense Reporting process at the same time on the same Switchboard instance.

State Diagram



The state diagram is an extension of the previous one. As before, there is an implicit `External` state which indicates documents that have not entered the process.

Roles and Permissions

As for the roles and permissions, the role of Core Unit Auditor is added, and the list of `PRC` permissions is extended with the `TO_{STATE}` permissions of the new states.

powerhouse/ budget-statement	Core Unit Administrator					Core Unit Auditor				
	*	D	R	F	E	*	D	R	F	E
PRC / TO_EXTERNAL	-	✓	X	X	X	-	X	X	X	X
PRC / TO_DRAFT	✓	-	X	✓	X	X	-	X	✓	✓
PRC / TO_IN_REV.	X	✓	-	X	X	X	X	-	X	X
PRC / TO_FINAL	X	X	X	-	X	X	X	✓	-	X
PRC / TO_ESCALAT.	X	X	X	X	-	X	X	✓	X	-
DOC / ADD_ACC.	-	✓	✓	X	X	-	X	S	X	X
DOC / EDIT_ACC.	-	✓	✓	X	X	-	X	S	X	X
DOC / ADD_LINEIT.	-	✓	✓	X	X	-	X	S	X	X
...										

- : NOT APPLICABLE | ✓ : AUTHORIZED | X : FORBIDDEN | S : AUTHORIZED TO SUGGEST

- The states have been abbreviated to * (External), D, R, F and E to fit in the table. For example we can see that the Core Unit Auditor can transition documents from the `In Review` (R) state either `TO_FINAL` or `TO_ESCALATE`.
- The Core Unit Auditor is not authorized to directly conduct any document operations, but auditors may still *suggest changes* (S). The suggested changes will then need to be accepted by a user who has full authority for the relevant permissions; for example: if the Core Unit Auditor *suggests* to add a new account, it will require a user with the full `ADD_ACCOUNT` permission to accept that suggestion. In this case, the Core Unit Administrator has that permission.