Credential Vault: User Registration & Update Blockchain Flow (1A & 2A Focus)

An open architectural challenge led by Abhishek Kumar? April 2025

PHASED FLOW OVERVIEW

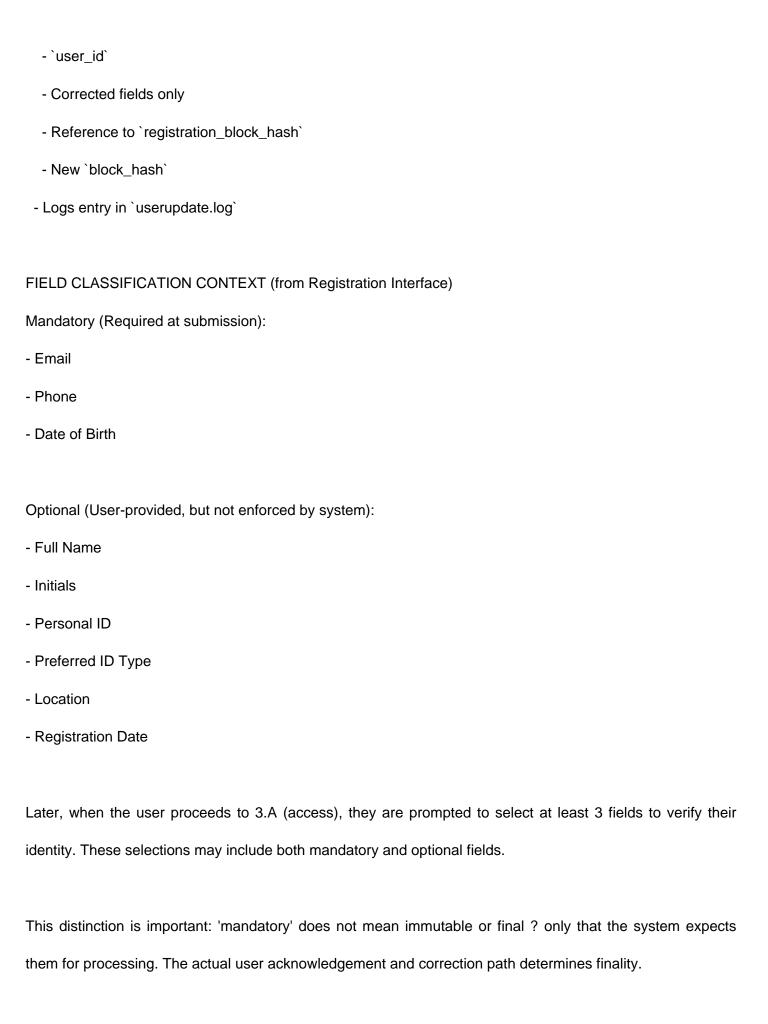
USER ACTIONS & BLOCKCHAIN EVENTS:

1A: User Registration

- User provides required and optional information.
- System verifies `mandatory fields`: Email, Phone, DOB.
- System optionally stores `optional fields`: Full Name, Initials, Location, etc.
- System generates:
 - `registration` block with:
 - Block timestamp (UTC)
 - Global `blockchain index`
 - `user_id`
 - Encrypted/hashed data split into `mandatory` and `optional`
 - `previous_hash` (genesis = "0")
 - `block_hash` (SHA-256 of the block)
 - Logs entry in `userregister.log`

2A: User Update

- User selects "Update Info" after registration.
- Provides correction(s) or additions.
- System validates update and generates:
 - `update` block with:
 - Timestamp (UTC)



BLOCK STRUCTURES

1. Registration Block (1A)
{sample JSON}
2. Update Block (2A)
{sample JSON}
TIMESTAMP & SEQUENCING STRATEGY
- Use datetime.utcnow().isoformat() to generate timestamp for every block.
- Each block has:
- index (global blockchain index)
- previous_hash (ensures order integrity)
- Internal user_id reference to identify user-specific chains.
USER JOURNEY SNAPSHOT
[Registration Block (1A)]
???????????????
?
(optional updates)?
?
[Update Block (2A)]
LOGGING SCHEME
Log File Description
userregister.log Captures initial registration events
userupdate.log Tracks corrections/updates to user data

NEXT STEPS

- Implement register_user() and update_user_info() methods.
- Add validation rules for mandatory fields before block generation.
- Auto-log block creation events.
- Prepare the system to later branch into 3.A (Access) after full 1A/2A logic is locked.

Status:

- ? Actively working on Phase 1 and 2 of user identity blockchain framework (1A and 2A).
- ? 3.A (Access & Smart Contract) deferred until after full 1A/2A implementation.

Now Open for Public Comments:

This architectural challenge is part of an open-source review to improve user identity finalization logic in blockchain systems. Contributions and proposals are welcome.

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Project: CredentialVault

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