

ZYL Token Contract Features

1. Standard Compliance

- EIP-2612 ([permit](#)) for gasless approvals
- EIP-3009 ([transferWithAuthorization](#)) for off-chain signatures

2. Minting and Burning Controls:

- **Mint** tokens first time are to be hard-capped at 1 billion tokens in supply.
- **Burning** able tokens.

3. Access Controls

- Pause transfers
- Upgrade the contract (if applicable)

4. Pause Mechanism (Circuit Breaker)

Add a [pause\(\)](#) and [unpause\(\)](#) function, controlled by an admin role, to halt all token transfers during emergencies.

5. Upgradeable Contract Structure

Use the **UUPS** or **Transparent Proxy** pattern:

- Add features maybe later (e.g., staking, yield, or bridge logic)
- Fix bugs without redeploying the token

6. Blacklisting (Governance)

Add blacklist capability to restrict malicious or flagged addresses from transferring tokens.

7. Fee Mechanisms

- **Transfer tax** (e.g., burn, treasury, or LP fee)

8. Vesting/Locking Hooks

Add support for:

- **Token locking contracts** for team, investors, and rewards
- Predefined **vesting schedules** if locks are native

9. Bridging Support (Cross-Chain Ready)

- Support bridging logic (wrapped token mapping, mint/burn bridges)
 - Track cross-chain minting/burning events for transparency
- This allows you to support multi-chain deployments later without breaking core logic.

10. Event Logging for All Actions

Emit events for all key actions (transfer, mint, burn, pause, role changes) to support indexers, explorers, and data analytics tools.

11. ETH Receiver Function (Clarification)

Receiving ETH is fine, but you may want to log it or set conditions (e.g., prevent accidental sends).

12. Token Recovery (Admin-only Emergency)

Allow the owner (or DAO) to rescue tokens accidentally sent to the contract: Prevents permanent loss of user funds due to mis-sends.

13. Multi-Sig Governance for Admin Actions

Instead of a single **owner** or role. Use Gnosis Safe or add a multisig layer for pausing, or tax changes

14. Gasless Meta-Transactions Support (via Trusted Forwarder)

- Adding **ERC2771Context** or a compatible interface
- Enables integration with Biconomy or custom relayers