

Qyvaria Organic AI - Technical Documentation

Overview

Qyvaria is a comprehensive AI overhaul mod for Crusader Kings III v1.20 "Crozier". It transforms the AI from reactive scripts into a strategic, planning, adaptive opponent that plays like a skilled human player.

Mod Statistics

- **Triggers:** 480
- **Effects:** 397
- **Events:** 131
- **Game Rules:** 13 (all default-on)
- **Versions:** 15 (1.20.1–1.20.15)
- **Men-at-Arms Types:** 12 (7 Bohemian late + 5 Bohemian early)
- **Dynasty Legacies:** 10 (5 Bohemian + 5 Universal)
- **Genetic Traits:** 10 new
- **Decisions:** 3 (apply preset, sleep with partner, sleep with anyone)

Architecture

Central Brain System

The core of Qyvaria is the Central Brain Architecture, which evaluates realm state yearly and selects a primary strategy from 7 priorities:

1. Survival (highest priority)
2. Consolidation
3. Stability
4. Vassalization
5. Expansion
6. Diplomacy
7. Development (lowest priority)

Subsystems (11 Total)

1. Intrigue & Scheme Chains (Calculating only)
2. Heir & Succession Optimization
3. MaA Counters & War Tactics

4. Dread & Tyranny Management
5. Economic Specialization
6. Opponent Modeling & Memory
7. Religious & Cultural Strategy
8. Government Specialization
9. Artifact Management
10. Crusade/Jihad Coordination
11. Central Brain Coordinator

Extended Systems

- **Elite AI Behaviours (v1.20.10):** War chaining, truce-aware expansion, dread economy, CB cost evaluation, succession timing, layered building
- **Grandmaster AI (v1.20.11):** Player-behavior prediction, destabilization, information as currency, truce-timing warfare
- **Diplomacy Expansion (v1.20.12):** Tribute-for-peace, hostages, alliances, marriages, troop requests, gold reserves, genetic optimization, culture/faith unity
- **Military Coordination (v1.20.13):** Army coordination, force concentration, professional priority, peasant buffer, join bigger powers, swear fealty, confederation
- **Raiding Expansion (v1.20.14):** Raiding strategy, coordination, diplomacy, army, settlements, anti-raid defense, vassal punishment, truce exploitation
- **AI Diplomacy Expansion (v1.20.15):** Money to liege, military help, marriage proposals, maximize allies, pursue diplomacy

Performance Optimizations

- Staggered pulse system (monthly/quarterly/yearly)
- Auto-demotion from Calculating to Adaptive when AI count > 300
- NGraphics: SHADER_QUALITY=0, MESH_LOD_BIAS=3.0
- All triggers are save-game compatible (flags clear+reset every pulse)

Game Rules (13 Total)

All default to hardest/most challenging settings:

- Strategic Depth: Adaptive (default)
- All subsystems: On (default)
- Difficulty: Hard (default)
- Challenge systems: On (default)

File Structure

```
Qyvaria/
├── common/
│   ├── defines/qyv_performance_main.txt    # Performance & balance defines
│   ├── decisions/qyv_decisions.txt        # 3 decisions
│   ├── dynasty_perks/qyv_dynasty_perks.txt # 10 dynasty legacies
│   ├── game_rules/qyv_rules.txt           # 13 game rules
│   └── men_at_arms_types/                  # 12 MaA types (7 late + 5 early
Bohemian)
├── on_actions/qyv_on_actions.txt          # Pulse wiring
├── scripted_effects/                      # 397 effects
├── scripted_triggers/                     # 480 triggers
├── traits/qyv_genetic_traits.txt          # 10 genetic traits
├── events/                               # 131 events
├── localization/                          # English localization
└── Notes/                                # Documentation
```

Verification

- All files brace-balanced
- Zero duplicate trigger/effect names
- All on_action event references resolve
- Validation script passes: "All events exist. Mod structure is correct."

Compatibility

- Game Version: 1.20.x
- No dependencies
- Save-game compatible (all state is pulse-reset)
- Compatible with vanilla DLCs, community patches, and most gameplay mods

How It Works

1. **Yearly:** Central Brain evaluates realm state, selects strategy from 7 priorities
2. **Quarterly:** Subsystems coordinate based on active strategy
3. **Monthly:** Fine-grained adjustments, raiding, diplomacy, military
4. **Pulse:** All triggers are evaluated and effects applied based on conditions

Key Design Principles

- Hard does NOT mean strong — it means smart + relentless
- All AI behavior is gated behind game rules for player control
- Tribute-for-peace: AI gives gold to buy peace (ai_will_do = 0 for attacking payers)
- Professional armies are main standing force; peasants are buffer only
- Small nations join bigger powers or form confederations
- Culture/faith unity drives alliance formation

