# Module 15 – Deployment Blueprint & Reference Execution Stack

Module ID: DEPLOY-BLUEPRINT-015

Version: 4.1 (Revised CTO Edition)

Layer: Operational Stack & Sovereign Control

Status: RELEASE

Dependencies: Module 00, Module 13

## 0. Purpose & Enforcement Point

This module defines the sovereign deployment blueprint and reference execution stack (RES) for MaxOneOpen v4.1. It ensures that the system can be independently instantiated, controlled, and reproduced without external vendor dependencies. The blueprint defines exact module structure, capsule anchors, interface bindings, and execution preconditions.

## 1. Deployment Blueprint Structure & Capsule Anchor Format

Each deployment instance is defined via a `Deployment Capsule (DC)`:  
`{ blueprint\_id, module\_set[], ledger\_anchor\_hash, exec\_stack\_version, trust\_zone\_map, signature\_block, deployment\_time }`  
The blueprint includes:  
- full module linkage  
- capsule type inventory  
- system trust zone alignment  
- node class declarations (execution, relay, audit, control)

## 2. Reference Execution Stack (RES) Logic & Requirements

The RES provides a sovereign runtime scaffold with:  
- capsule-aware runtime container engine  
- relay-isolated communication layer  
- sandboxed execution environment  
- audit-layer integration stack  
Each component must:  
- enforce capsule schema integrity  
- bind identity/session to runtime enforcement layer  
- produce runtime capsules linked to LedgerSync

## 3. Sovereign Control Parameters & Deployment Proof

The blueprint must include:  
- root trust anchor verification logic  
- blueprint capsule signature check on startup  
- mandatory rollback capsule trace path  
- runtime node integrity proof (`NODE\_ATTEST()` capsule)  
These prove the instance is legitimate, verifiable, and recoverable.

## 4. Ledger Integration & Deployment Trace Chain

All deployment events are committed via Module 13 as:  
- `Deployment Capsule`  
- `Node Attestation Capsule`  
- `Runtime Proof Capsule`  
These form the deployment trace chain. Every runtime execution must reference its originating blueprint capsule.

## 5. Intermodular Control & Stack Anchoring

This module links to:  
- Module 01 (Execution Control) for runtime integration  
- Module 06 (Manifest Engine) for module declaration  
- Module 07 (Sandbox) for environment enforcement  
- Module 09 (Messaging) for relay stack interface  
- Module 13 (LedgerSync) for trace and rollback anchor linkage  
- Module 14 (Audit) for deployment trace review

## CTO Validation Matrix

Module 15 (CTO Edition) guarantees the following verifiable conditions:  
- Every deployment is blueprint-capsuled and cryptographically verifiable: YES  
- Sovereign execution stack is fully defined, runtime-bound and vendor-free: YES  
- Runtime behavior is capsule-traced and rollback-capable: YES  
- All nodes are trust-attested and integrity-sealed: YES  
- Deployment lineage is audit-traceable and anchored in LedgerSync: YES