

Open**Factory**

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INTEGRATION GUIDE

# ServiceNow Integration

GxP Deployment Lifecycle & Incident Management with ServiceNow

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OpenFactory Enterprise Integration Series

February 2026

**CONFIDENTIAL**

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[openfactory.tech](https://openfactory.tech) | Build. Deploy. Verify.

## Overview

OpenFactory is an open-source, AI-powered platform that manages the complete lifecycle of hardened operating system images in regulated (GxP) environments. Every stage — from recipe creation through continuous runtime monitoring — integrates with ServiceNow to provide enterprise-grade change management, configuration tracking, compliance evidence, and incident response.

This document describes the six-stage deployment lifecycle, the ServiceNow integration points at each stage, and the GxP compliance checkpoints that ensure 21 CFR Part 11, SOC 2, and ISO 27001 auditability throughout.

## Design Motivation

### The Enterprise Integration Gap

Building a hardened OS image is only the beginning. Regulated industries require that every change to production systems is documented, approved, verified, and traceable. The traditional approach — manual change requests, spreadsheet-based CMDB tracking, and disconnected incident management — creates gaps that auditors exploit and that operators struggle to maintain.

OpenFactory closes this gap by treating ServiceNow as a first-class integration partner, not an afterthought. Every lifecycle event generates a corresponding ServiceNow record automatically. The integration is bidirectional: ServiceNow approvals gate deployments, and ServiceNow incidents trigger automated remediation.

### Compliance Drivers

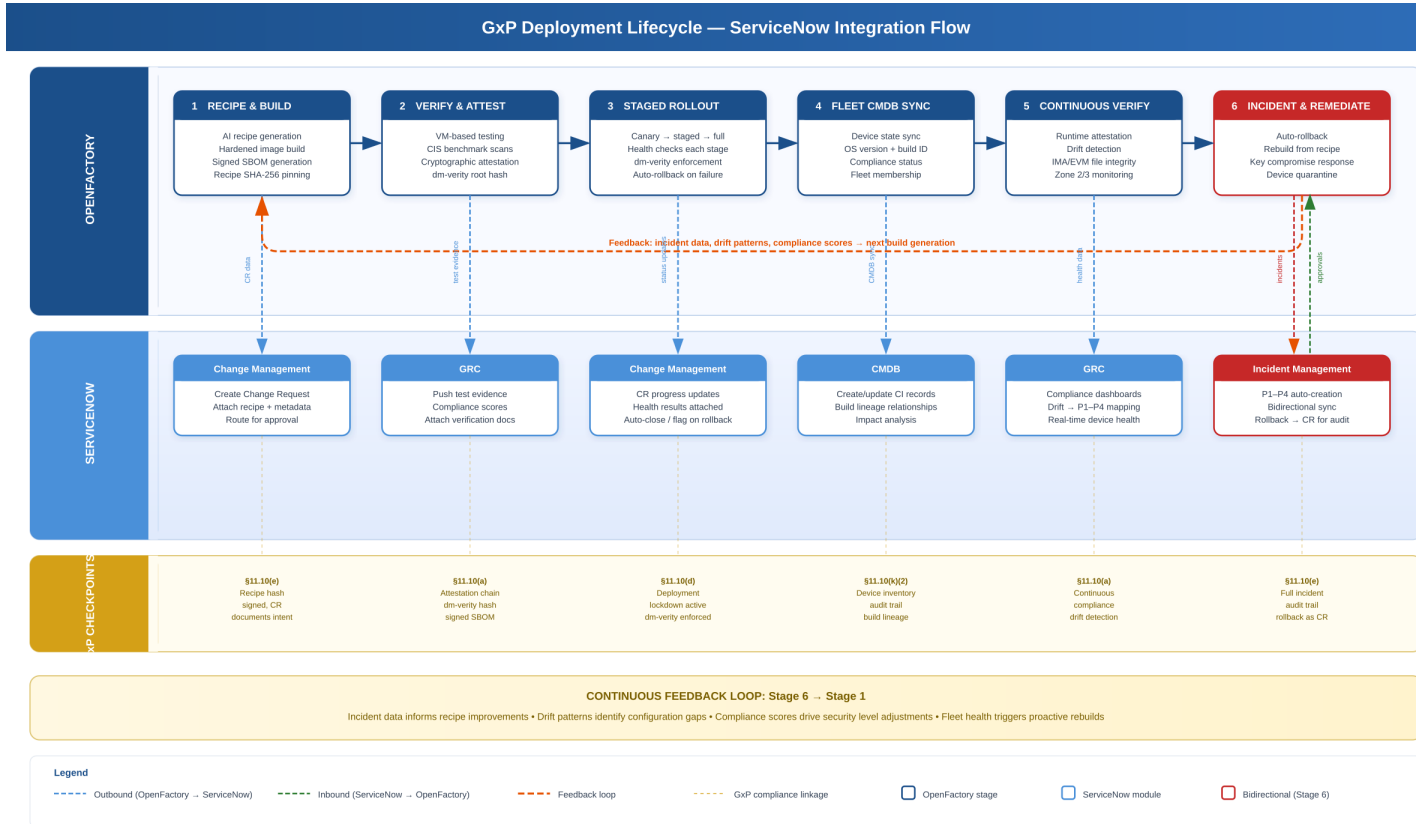
| Standard                | Requirement  | Lifecycle Implication   |
|-------------------------|--|---|
| 21 CFR 11 §11.10(a)     | Validation of systems to ensure accuracy and reliability | Every build is verified in a VM before deployment               |
| 21 CFR 11 §11.10(d)     | Limiting system access to authorized individuals         | Change Request approval gates deployment                        |
| 21 CFR 11 §11.10(e)     | Secure, computer-generated, time-stamped audit trails    | Every lifecycle event logged in both OpenFactory and ServiceNow |
| 21 CFR 11 §11.10(k) (2) | Appropriate controls over systems documentation          | SBOM, verification docs, and attestation reports linked to CRs  |
| SOC 2 CC6.1             | Logical and physical access controls                     | Role-based access, OAuth 2.0 scoped credentials                 |
| SOC 2 CC7.2             | System monitoring for anomalies                          | Continuous verification with drift detection and alerting       |
| SOC 2 CC8.1             | Change management  | Automated CR creation, approval tracking, evidence attachment   |

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|                    |                                  |  |
|--------------------|----------------------------------|--|
| ISO 27001 A.12.1.2 | Change management                | Formal change process with ServiceNow workflow integration |
| ISO 27001 A.14.2.2 | System change control procedures | Build-to-deploy audit trail with CMDB traceability         |

# Deployment Lifecycle

OpenFactory manages six lifecycle stages, each with dedicated ServiceNow integration points and GxP compliance checkpoints.



## Stage 1: Recipe & Build

**OpenFactory Action:** AI recipe generation from natural language, hardened image build with deterministic configuration, signed SBOM generation.

**ServiceNow Module:** Change Management — Change Request auto-created with build metadata including requested features, base image version, requester identity, and risk assessment.

**GxP Checkpoint:** Recipe hash signed and recorded. Build intent fully documented in the Change Request before any build begins. The recipe SHA-256 pins exactly what was requested; the CR provides the approval chain.

**Data Flow:** OpenFactory → ServiceNow (outbound)

## Change Request Fields

| Field             | Value                               |
|-------------------|-------------------------------------|
| Short description | Custom {base} build: {feature_list} |

|               |   |
|---------------|---|
| Category      | Operating System                                  |
| Risk          | Based on security level (minimal/standard/strict) |
| Requested by  | Build requester email                             |
| Justification | Original natural language request                 |
| Attachments   | Recipe JSON, SBOM (on completion)                 |

## Stage 2: Verify & Attest

**OpenFactory Action:** VM-based testing (boot, package, service, compliance, performance), SBOM validation, CIS benchmark scans, GxP compliance audit.

**ServiceNow Module:** Governance, Risk, and Compliance (GRC) — Test evidence pushed including pass/fail results, compliance scores, and verification document with cryptographic attestation chain.

**GxP Checkpoint:** Cryptographic attestation chain established. dm-verity root hash computed and recorded. Every file in the image hashed (SHA-256) and included in the signed verification document. Build log hash signed. Recipe-to-image binding is cryptographically provable.

### Verification Chain

| Artifact              | Hash / Signature      | Purpose                                    |
|-----------------------|-----------------------|--|
| Recipe JSON           | SHA-256               | Pins build intent                          |
| Build log             | SHA-256, signed       | Proves exact build steps                   |
| Squashfs image        | dm-verity root hash   | Block-level integrity                      |
| File manifest         | Per-file SHA-256      | File-level integrity                       |
| SBOM                  | Signed CycloneDX/SPDX | Package inventory                          |
| Verification document | Ed25519 signature     | Binds all hashes to trusted build platform |

### Stage 3: Staged Rollout

**OpenFactory Action:** Canary deployment → staged rollout → full fleet deploy. Health checks at each stage. Automatic rollback on failure with no manual intervention required.

**ServiceNow Module:** Change Management — Change Request updated with rollout progress at each stage. Health check results attached. CR auto-closes on successful full deployment; CR flagged for review on rollback.

**GxP Checkpoint:** Deployment lockdown activated after verification passes. dm-verity enforcement enabled — base image is read-only and block-level verified. Overlay policy engine activated.

#### Rollout Stages

| Stage  | Target     | Pass Criteria                     | Failure Action             |
|--------|------------|-----------------------------------|----------------------------|
| Canary | 1 device   | Boot + health check + 15min soak  | Rollback canary, halt      |
| Staged | 10% fleet  | All health checks pass, no drift  | Rollback staged, halt      |
| Full   | 100% fleet | All health checks pass within SLA | Rollback to previous image |

### Stage 4: Fleet CMDB Sync

**OpenFactory Action:** Device state synchronization — OS version, build ID, fleet membership, compliance status, last attestation timestamp, overlay state.

**ServiceNow Module:** Configuration Management Database (CMDB) — Each deployed device registered as a Configuration Item (CI). Relationships established: base image → custom build → deployed device. Enables impact analysis, dependency tracking, and lifecycle management.

**GxP Checkpoint:** Device inventory audit trail. Every device’s build lineage is traceable — from the recipe that defined it, through the build that produced it, to the deployment that installed it. CMDB provides the authoritative source of truth for “what is running where.”

#### CMDB Configuration Item Mapping

| OpenFactory Field        | ServiceNow Field           | Notes                              |
|--------------------------|----------------------------|------------------------------------|
| device.id                | asset_tag / serial_number  | Unique device identifier           |
| device.os_version        | os_version                 | Current OS build version           |
| device.fleet             | assignment_group           | Maps fleet to ServiceNow group     |
| device.build_recipe      | short_description / custom | Reference to build configuration   |
| device.compliance_status | operational_status         | Compliant / Drifted / Unknown      |
| device.last_verified     | last_discovered            | Timestamp of last compliance check |
| device.distribution      | os (operating system)      | Ubuntu, Debian, Fedora, Elster OS  |
| build.features           | custom attributes          | docker, ssh, hardening, auditd,    |

|                      |                   |                             |
|----------------------|-------------------|-----------------------------|
|                      |                   | etc.                        |
| build.security_level | custom attributes | minimal / standard / strict |

## Stage 5: Continuous Verification

**OpenFactory Action:** Runtime attestation at configurable intervals. Drift detection against build-time baseline. Health checks covering service state, file integrity (IMA/EVM), overlay mutations, and resource utilization.

**ServiceNow Module:** Governance, Risk, and Compliance (GRC) — Compliance dashboards populated with real-time device health. Drift events mapped to ServiceNow priority levels (P1–P4) based on severity and blast radius.

**GxP Checkpoint:** 21 CFR Part 11 continuous compliance. The system continuously proves that deployed devices match their approved build configuration. Any deviation is detected, classified, and reported — maintaining the validated state that regulators require.

### Drift Severity Mapping

| Priority | Drift Type                      | Example  |
|----------|---------------------------------|--|
| P1       | Security-critical file modified | /etc/ssh/sshd_config changed, PAM module replaced          |
| P2       | Service state deviation         | Required service stopped, unauthorized service started     |
| P3       | Configuration drift             | NTP server changed, DNS resolver modified                  |
| P4       | Non-critical overlay write      | Log rotation config changed, user preference file modified |

## Stage 6: Incident & Remediation

**OpenFactory Action:** Automated rollback to last known-good image on critical incidents. Rebuild from original recipe on confirmed compromise. Quarantine affected devices during investigation.

**ServiceNow Module:** Incident Management — Incidents auto-created with severity P1–P4 based on drift classification. Bidirectional sync: ServiceNow incident updates trigger OpenFactory remediation actions. Rollback operations recorded as Change Requests for audit trail.

**GxP Checkpoint:** Full incident audit trail from detection through resolution. Every rollback is recorded as a formal change. The remediation action, its justification, affected devices, and outcome are all documented in ServiceNow — providing the complete audit trail regulators require for deviation management.

### Incident Priority Matrix

| Priority      | Criteria  | Respond | Resolve | Automation                                    |
|---------------|---|---------|---------|---|
| P1 — Critical | Security file tampered, key compromise, dm-verity failure | 15 min  | 4 hours | Auto-rollback, auto-quarantine, auto-incident |
| P2 — High     | Required service stopped, unauthorized                    | 30 min  | 8 hours | Auto-incident, alert escalation               |

|             |  |          |          |                                   |
|-------------|--|----------|----------|-----------------------------------|
|             | service, attestation failure                           |          |          |                                   |
| P3 — Medium | Configuration drift, non-critical compliance deviation | 4 hours  | 48 hours | Auto-incident creation            |
| P4 — Low    | Non-critical overlay change, informational drift       | 24 hours | 1 week   | Logged, batched into daily report |

### Automated Remediation Actions

| Trigger                 | OpenFactory Action                         | ServiceNow Record                     |
|-------------------------|--|---------------------------------------|
| dm-verity failure       | Quarantine device, rebuild from recipe     | P1 incident + CR for rebuild          |
| Critical file tampered  | Rollback to last known-good image          | P1 incident + CR for rollback         |
| Required service down   | Restart service, escalate if restart fails | P2 incident                           |
| Configuration drift     | Log drift, apply remediation policy        | P3 incident                           |
| Key compromise detected | Revoke key, quarantine builds, rebuild     | P1 incident + CRs for affected builds |
| Attestation timeout     | Re-probe device, escalate if unreachable   | P2 incident                           |

### Bidirectional Sync Detail

**OpenFactory → ServiceNow:** Incident creation with severity, affected device, build ID, and evidence. Work notes updated with remediation progress. Resolution recorded with rollback/rebuild details.

**ServiceNow → OpenFactory (via webhook):** CR approval unblocks gated deployments. Incident assignment notifies responsible engineers. Remediation instructions trigger specific actions (rollback, rebuild, quarantine). Incident closure updates device status in fleet manager.

## Key Compromise Response

Key compromise is a distinct class of failure from attestation drift. While drift detects when a deployed system’s runtime state diverges from its build-time configuration, a compromised signing key means the build-time configuration itself may be fraudulent. A compromised build signing key means the verification document — the root of the trust chain — cannot be trusted. Attestation that cross-references a fraudulent verification document produces confident-looking results for a tampered system.

OpenFactory’s key compromise response operates through four phases, each generating specific ServiceNow records to maintain the complete audit trail required for GxP compliance.

### Phase 1: Contain (≤ 1 Hour)

**Objective:** Stop the compromised key from being used for new operations.

- Revoke the compromised key in the vault — immediately prevents new signatures
- Publish revocation to fleet; rotate secrets for short-lived keys; publish CRL/OCSP for long-lived keys
- Halt all builds signed with the compromised key and mark as quarantined
- Isolate the compromised component — take build worker offline or revoke device certificate

### ServiceNow Records Created

| Record Type                | Content   | Purpose  |
|----------------------------|---|--|
| P1 Incident                | Key compromise detected: key ID, key type, suspected compromise window, initial blast radius estimate | Triggers incident response workflow, pages on-call team                                      |
| Change Request (Emergency) | Emergency key revocation: key ID, revocation timestamp, affected services                             | Documents the revocation action for audit trail; bypasses standard CR approval for emergency |
| CMDB CI Update             | All devices with builds signed by the compromised key marked as “Quarantined”                         | Operational status change visible fleet-wide for impact analysis                             |

### Phase 2: Assess (1–4 Hours)

**Objective:** Determine the blast radius — which artifacts, devices, and time window are affected.

- Identify the compromise window via vault audit logs
- Enumerate all artifacts (ISOs, verification documents) signed during the window
- Enumerate all devices running builds from the compromised window
- Cross-reference with runtime attestation for IMA mismatches and unexpected services

### Severity Classification by Key Type

| Compromised Key | Severity | Affected Scope |
|-----------------|----------|----------------|
|-----------------|----------|----------------|

|                            |          |   |
|----------------------------|----------|---|
| Root signing key           | Critical | All subordinate keys must be rotated. Full re-build required.               |
| Build platform signing key | High     | All verification documents in the compromise window                         |
| Release signing key        | High     | All ISOs distributed during the compromise window                           |
| Device attestation key     | Medium   | Single device. Re-provision the device.                                     |
| JWT session secret         | High     | All active sessions. Force re-authentication.                               |
| Fernet encryption key      | High     | ServiceNow credentials decryptable — rotate all SN OAuth tokens immediately |
| SSH host key               | Low      | Single device. Regenerate host keys.  |
| LUKS passphrase            | High     | All devices sharing the passphrase. Full disk decryption risk.              |
| Git deploy key             | High     | Attacker may have modified build-iso repos                                  |

### ServiceNow Records Updated

| Record Type             | Content  | Purpose  |
|-------------------------|--|--|
| P1 Incident (update)    | Blast radius enumeration: count of affected artifacts, count of affected devices, compromise window timestamps | Work notes capture assessment findings as they develop |
| GRC Compliance Item     | Affected compliance frameworks: 21 CFR 11 §11.10(d) authority controls, SOC 2 CC7.2 anomaly monitoring         | Documents which compliance controls are impacted       |
| CMDB Relationship Query | Impact analysis: “Runs on” relationships from compromised build CIs to all deployed devices                    | Determines which devices need remediation              |

### Phase 3: Remediate (4–48 Hours)

**Objective:** Replace the compromised key, re-sign or re-build affected artifacts, and update the fleet.

1. Generate a new key with metadata linking to the incident ID
2. Re-sign affected artifacts if confirmed untampered — re-hash from stored ISO, compare, re-sign with new key
3. Re-build tampered artifacts — retrieve original recipe, execute new build, sign new verification document
4. Push fleet updates — updated verification documents for good builds; OTA updates for tampered builds
5. Rotate all dependent keys if root signing key was compromised

### ServiceNow Records Created

| Record Type         | Content                             | Purpose                               |
|---------------------|-------------------------------------|---------------------------------------|
| Change Request (per | Rebuild triggered by incident INC#: | Links each remediation rebuild to the |

|                               |  |   |
|-------------------------------|--|---|
| rebuild)                      | original recipe, new build ID, new signing key version   | originating incident for audit trail                          |
| Change Request (key rotation) | Key rotation: old key ID revoked, new key ID generated, rotation scope                               | Documents cryptographic key lifecycle change                  |
| CMDB CI Updates               | Affected device CIs updated with new build ID, new verification document hash, status → “Remediated” | Tracks fleet convergence to known-good state                  |
| GRC Evidence                  | Re-verification results: new attestation chain for rebuilt artifacts                                 | Compliance evidence that remediation restored validated state |

### Phase 4: Recover (24–72 Hours)

**Objective:** Verify fleet convergence to known-good state and complete the incident.

1. Trigger fleet-wide attestation — 99% convergence within 24 hours, 100% within 72 hours
2. Confirm CRL/OCSP includes the revoked key
3. Post-incident review: root cause analysis, detection timeline, response timeline
4. Update key policies based on lessons learned

### ServiceNow Records Closed

| Record Type              | Content   | Purpose   |
|--------------------------|---|---|
| P1 Incident (resolve)    | Resolution: fleet convergence confirmed, root cause identified, policy changes enacted    | Closes the incident with full remediation evidence              |
| All associated CRs       | Close notes: linked rebuilds completed, key rotations verified, fleet attestation passing | Closes the audit trail for each remediation action              |
| GRC Post-Incident Report | Lessons learned, updated key management policies, revised rotation schedules              | Feeds back into compliance framework for continuous improvement |
| CMDB CI Updates          | All affected devices: status → “Compliant”, new verification document linked              | Fleet returned to known-good baseline                           |

## Zone 2 Overlay Change Response

OpenFactory’s Persistent Overlay architecture separates the immutable base image (Zone 1) from the device’s persistent configuration (Zone 2) and ephemeral runtime state (Zone 3). Zone 2 contains the device’s accumulated identity: network configuration, TLS certificates, SSH host keys, calibration data, and audit logs. Because Zone 2 persists across base image updates and is protected by deployment lockdown, any unauthorized change to Zone 2 is a significant security event that generates specific ServiceNow records.

### Zone Architecture Summary

| Zone                       | Storage              | Lifecycle                     | Contents                                     |
|----------------------------|----------------------|-------------------------------|--|
| Zone 1: Immutable Base     | SquashFS (read-only) | Replaced atomically on update | Kernel, libs, binaries, default configs      |
| Zone 2: Persistent Overlay | ext4 (read-write)    | Preserved across base updates | Network config, certs, calibration, logs     |
| Zone 3: Ephemeral Overlay  | tmpfs or ext4        | Wiped on base update          | Caches, temp files, PID files, runtime state |

### Unauthorized Zone 2 Modification

When a device is in the Locked state, Zone 2 is mounted read-only and monitored by a daemon that validates integrity against a sealed lockdown reference. Any modification attempt — whether from a compromised process, an operator bypassing fleet authorization, or a direct block device write — is detected by both file-level monitoring (fanotify) and periodic hash-level verification.

### ServiceNow Integration

| Trigger  | ServiceNow Action  | Priority   |
|--|--|--|
| Zone 2 hash mismatch (daemon detects modification) | P1 Incident created: device ID, sealed hash vs. current hash, timestamp, process ID of writer if available | P1 — Critical: locked overlay tampered                 |
| Write attempt to read-only Zone 2 in deny mode     | P2 Incident created: device ID, blocked path, process attempting write, operation type                     | P2 — High: attempted unauthorized modification         |
| New executable detected in Zone 2                  | P1 Incident created: device ID, file path, file hash, Zone 2 manifest violation (no binaries permitted)    | P1 — Critical: Zone 2 governance prohibits executables |
| Zone 2 file outside manifest                       | P3 Incident created: device ID, unexpected path, anomaly classification                                    | P3 — Medium: unrecognized configuration file           |

## Zone 2 Constraint Violations

Beyond path-level governance, Zone 2 values are validated against a constraint manifest. An IP address in the wrong subnet, a certificate that has expired, or GPS coordinates outside the expected deployment region are all policy violations that flow into ServiceNow.

### ServiceNow Integration

| Constraint Violation                      | ServiceNow Action  | Priority      |
|---|--|---------------|
| Network address outside permitted subnet  | P2 Incident: device may be on wrong network segment; assignment_group set to network ops | P2 — High     |
| TLS certificate expired or invalid issuer | P2 Incident: device identity compromised; CMDB CI updated with "Cert Expired" flag       | P2 — High     |
| GPS coordinates outside installation zone | P1 Incident: device may have been physically relocated without authorization             | P1 — Critical |
| Hostname format violation                 | P3 Incident: non-conforming hostname; flags potential misconfiguration                   | P3 — Medium   |
| Department code not in allowed set        | P3 Incident: device assigned to unknown department                                       | P3 — Medium   |
| Certificate key usage flags mismatch      | P2 Incident: certificate does not meet key usage requirements                            | P2 — High     |

## Zone 2 Migration Failures

When a base image update triggers the overlay migration service, Zone 2 is prepared for compatibility with the new base through five phases: whiteout resolution, schema migration, path relocation, anomaly detection, and integrity check. If any phase fails, Zone 2 is restored from its pre-migration snapshot and the failure is reported.

### ServiceNow Integration

| Migration Event  | ServiceNow Action  | Details  |
|--|--|--|
| Whiteout conflict: stale whiteout hides new base content | P2 Incident + CR update: migration halted, snapshot restored, CR flagged for review                              | Whiteout from previous admin action hides required config in new base version        |
| Schema migration transform failure                       | P2 Incident: config file in Zone 2 cannot be migrated to new schema; device held on old base version             | Migration manifest declared a transform, but the existing config cannot be converted |
| Anomaly detection: unexpected binary in Zone 2           | P1 Incident: binary found in persistent overlay violates Zone 2 governance; migration halted, device quarantined | Zone 2 should never contain executables; their presence suggests tampering           |
| Integrity check failure:                                 | P2 Incident: device identity may   | New base version introduced a  |

|  |  |  |
|--|--|--|
| certificate chain broken after migration     | be invalid post-migration; re-provisioning required  | new CA requirement that existing device certs do not chain to                            |
| Post-boot validation failure after migration | P2 Incident + automatic rollback: Zone 2 restored from snapshot, previous base image reactivated, CR updated with rollback details | Device booted on new base but constraint validation failed; automatic recovery triggered |
| Successful migration                         | CR updated: migration phases completed, constraint validation passed, new lockdown seal written                                    | Normal path — no incident; CR progresses through rollout stages                          |

## Lockdown State Transitions

Zone 2 lockdown state changes are tracked in ServiceNow to maintain the audit trail. Each transition is logged to ensure regulators can verify that devices spent the vast majority of their operational life in the Locked state.

| State Transition   | Zone 2 Access | Monitoring Mode | ServiceNow Record   |
|--------------------|---------------|-----------------|---|
| Locked → Migration | Read-write    | Audit mode      | CR updated: migration window opened, snapshot taken                                       |
| Migration → Locked | Read-only     | Deny mode       | CR updated: migration complete, new seal written, lockdown restored                       |
| Locked → Unlocked  | Read-write    | Audit mode      | Emergency CR: unlock authorized by fleet command, justification required, operator logged |
| Unlocked → Locked  | Read-only     | Deny mode       | CR closed: re-provisioning complete, new combined SBOM sealed, lockdown restored          |

## Continuous Lifecycle

The lifecycle is not linear — it is a continuous loop. Stage 6 feeds back into Stage 1:

- **Incident data** informs recipe improvements for the next build generation
- **Drift patterns** identify configuration gaps that should be addressed in build-time hooks
- **Compliance scores** drive security level adjustments in future recipes
- **Fleet health trends** trigger proactive rebuild cycles before degradation reaches incident threshold

## Integration Architecture

### Three-Component Design

The OpenFactory–ServiceNow integration uses a three-component architecture for durable, auditable data exchange:

| Component               | Responsibility  |
|-------------------------|---|
| <b>Event Router</b>     | Captures build, deploy, and compliance events from OpenFactory and routes them to the appropriate ServiceNow API endpoint (Change, CMDB, GRC, or Incident). Event classification determines the target module.                          |
| <b>Sync Queue</b>       | Durable message queue with retry logic and dead-letter handling. Ensures no event is lost even during ServiceNow maintenance windows. Failed deliveries retried with exponential backoff. Dead-lettered events trigger operator alerts. |
| <b>Webhook Receiver</b> | Bidirectional endpoint receiving ServiceNow callbacks — CR approvals, incident updates, remediation instructions — and triggers corresponding OpenFactory actions (gate builds on approval, execute rollback on incident).              |

### Authentication

- OAuth 2.0 Client Credentials flow for all outbound API calls
- Scoped credentials — each integration point uses the minimum ServiceNow role required
- Access tokens are short-lived (30 minutes) and automatically refreshed
- Client secrets encrypted at rest (Fernet AES-128-CBC + HMAC-SHA256)
- All integration events logged to an immutable audit trail

### ServiceNow API Endpoints

| Lifecycle Stage    | Operation       | Method | Table / Resource                       |
|--------------------|-----------------|--------|--|
| 1. Recipe & Build  | Create CR       | POST   | /api/now/table/change_request          |
| 2. Verify & Attest | Attach evidence | POST   | /api/now/table/change_request/{sys_id} |
| 3. Staged Rollout  | Update CR       | PATCH  | /api/now/table/change_request/{sys_id} |

|                      |                     |            |                                      |
|----------------------|---------------------|------------|--------------------------------------|
| 4. Fleet CMDB Sync   | Create/update CI    | POST/PATCH | /api/now/table/cmdb_ci_os_image      |
| 4. Fleet CMDB Sync   | Create relationship | POST       | /api/now/table/cmdb_rel_ci           |
| 5. Continuous Verify | Push compliance     | POST       | /api/now/table/sn_grc_item           |
| 6. Incident          | Create incident     | POST       | /api/now/table/incident              |
| 6. Incident          | Webhook callback    | POST       | OpenFactory /api/webhooks/servicenow |

## GxP Compliance Summary

### Compliance Checkpoints by Stage

| Stage                | Checkpoint   | Regulation             |
|----------------------|--|------------------------|
| 1. Recipe & Build    | Recipe hash signed, build intent documented in CR              | 21 CFR 11 §11.10(e)    |
| 2. Verify & Attest   | Cryptographic attestation chain, dm-verity hash, signed SBOM   | 21 CFR 11 §11.10(a)    |
| 3. Staged Rollout    | Deployment lockdown, dm-verity enforced, overlay policy active | 21 CFR 11 §11.10(d)    |
| 4. Fleet CMDB Sync   | Device inventory audit trail, build lineage traceable          | 21 CFR 11 §11.10(k)(2) |
| 5. Continuous Verify | Continuous compliance, drift detection                         | 21 CFR 11 §11.10(a)    |
| 6. Incident & Remed. | Full incident audit trail, rollback as change records          | 21 CFR 11 §11.10(e)    |

### Integrity Maturity Model

The lifecycle supports six levels of increasing integrity assurance:

| Level | Name               | What It Proves   |
|-------|--------------------|--|
| L1    | Package audit      | SBOM generation and package verification — you know what is installed              |
| L2    | Image signing      | Cryptographic signatures on build artifacts — you know who built it                |
| L3    | Runtime verify     | dm-verity base layer verification at boot — you know it has not been tampered with |
| L4    | Overlay governance | Policy-enforced overlay writes with audit trail — you know what changed and why    |
| L5    | Attestation        | Continuous runtime integrity reporting — you know the current state                |
| L6    | Hardware root      | TPM-backed measured boot and sealed secrets — hardware-rooted proof                |

### Implementation Timeline

A typical OpenFactory–ServiceNow integration deployment follows a phased approach spanning 4–8 weeks.

| Phase         | Duration  | Activities  |
|---------------|-----------|---|
| Discovery     | Week 1    | Review ServiceNow instance config, define use cases (which events create incidents vs. CRs), identify CMDB schema customizations, confirm compliance standards in scope |
| Configuration | Weeks 2–3 | OAuth app creation, field mapping setup, business rule creation for inbound webhooks, fleet-to-assignment-group mapping, GRC module configuration                       |
| Testing       | Weeks 4–5 | End-to-end testing with ServiceNow developer instance: simulate deployments, drift detection, rollbacks, bidirectional status sync, and GxP audit trail validation      |

|              |           |  |
|--------------|-----------|--|
| Go-Live      | Week 6    | Production deployment, monitoring dashboard config, runbook handoff, initial CMDB sync of all managed devices, GRC baseline population |
| Optimization | Weeks 7–8 | Performance tuning, additional field mappings, compliance report customization, incident response drill, feedback incorporation        |

## Support & SLAs

Integration support is included with the OpenFactory Enterprise tier:

- **P1 (integration down):** 1-hour response, 4-hour resolution target
- **P2 (degraded sync):** 4-hour response, 1-business-day resolution target
- **P3 (configuration help):** 1-business-day response
- Dedicated integration support channel via Slack or email
- Quarterly integration health reviews and optimization recommendations
- Access to OpenFactory's open-source integration codebase for self-service customization

## Next Steps

To begin the OpenFactory–ServiceNow integration process:

6. Schedule a discovery call with the OpenFactory integration team to review your ServiceNow environment and fleet management requirements
7. Provision a free ServiceNow Personal Developer Instance at [developer.servicenow.com](https://developer.servicenow.com) for testing
8. Identify stakeholders from your ServiceNow administration team and your fleet operations team
9. Prepare a list of device fleets, compliance standards in scope (GxP, SOC 2, ISO 27001), and desired field mappings
10. Review your ServiceNow instance's API rate limits and adjust if necessary for fleet-scale sync volumes

*For questions or to get started, contact your OpenFactory account manager or book a demo at [openfactory.tech/book-demo](https://openfactory.tech/book-demo)*