

# Securaa SdIc Process

SECURAA Security Documentation

## SECURAA Complete Secure SDLC Process Documentation

### Comprehensive Secure SDLC for SECURAA SOAR Platform

#### Document Control

Attribute	Value
Document Title	SECURAA Complete Secure SDLC Process
Document ID	SECURAA-SDLC-MASTER-001
Version	2.0
Date	November 13, 2025
Classification	Customer-Facing - Confidential
Owner	Engineering Team
Status	Published

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## Executive Summary

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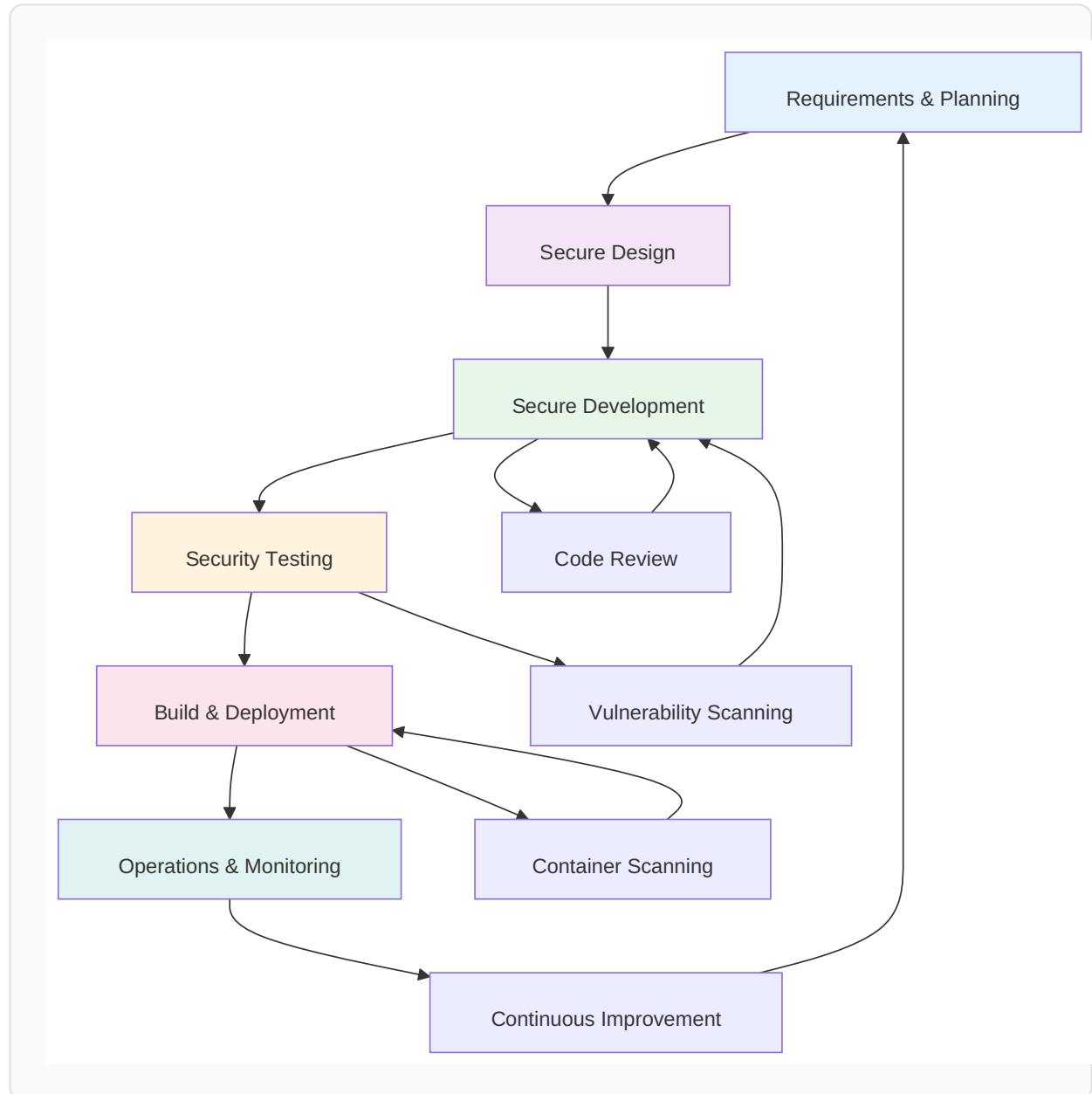
This document describes the complete Secure Software Development Lifecycle (SDLC) implemented for the SECURAA Security Orchestration, Automation and Response (SOAR) platform. The SDLC integrates security at every phase from requirements gathering through production operations.

## Platform Overview

**SECURAA** is an enterprise SOAR platform with:

- **30+ Microservices** in the zona\_services repository
- **300+ Third-Party Integrations** in the integrations repository
- **9 Primary Repositories** managed via AWS CodeCommit
- **Containerized Deployment** using Docker and AWS ECR
- **AWS Infrastructure** with CodeBuild, ECR, IAM, CloudWatch

## SDLC Workflow



## Technology Stack

### Programming Languages

Language	Purpose	Version	Files/Services
Go	Backend microservices - APIs, Batch processing, integrations	1.17+	30+ services in zona_services, zona_batch, integrations

Language	Purpose	Version	Files/Services
<b>HTML/CSS/ JavaScript/ React</b>	Frontend UI	React 18.2+	zonareact repository
<b>Python</b>	Utils	3.8+	securaa_pylib, custom_python-utils, custom_python-utils-trial
<b>Shell</b>	Build automation, deployment	Bash	build_securaa scripts

## Infrastructure Components

### AWS Services in Use:

- **AWS CodeCommit** - Git repositories (9 repositories)
- **AWS CodeBuild** - CI/CD pipeline automation
- **Amazon ECR** - Docker image registry (xxxxxx.dkr.ecr.us-east-2.amazonaws.com)
- **Amazon EC2** - Application hosting
- **AWS IAM** - Access control and permissions
- **AWS CloudWatch** - Logging and monitoring
- **AWS Secrets Manager** - Credential storage

### Databases:

- **MongoDB 7.0** - Primary database (mssp\_core database)
- **Redis** - Secondary/Cache-Only database
- **InfluxDB** - Monitoring Dashboard's Time-series metrics

### Container Platform:

- **Docker** - Containerization
- **AWS ECR** - Image registry
- **Docker Compose** - Local development

---

# Repository Structure

SECURAA's codebase is organized across 9 specialized repositories in AWS CodeCommit:

## 1. build\_securaa Repository

**Purpose:** Build automation and deployment

**Key Components:**

```
build_securaa/
├── build_securaa.sh          # Main build orchestration script
├── aws_codebuild/
│   ├── Core_BuildSpec.yaml    # Core services build (zona_services, zona_batch)
│   ├── Wrapper_BuildSpec.yaml # Integration services build
│   └── UI_BuildSpec.yaml      # Frontend build
└── core_scripts/
    ├── functions_aws.sh        # AWS-specific build functions
    ├── functions.sh            # General build functions
    ├── securaa_ecr_login.sh    # ECR authentication
    └── docker_ecr_login.sh     # Docker ECR login
├── deployment_scripts/       # Deployment automation
└── pkg/                      # RPM package specifications
    └── securaa/                # Core application code
```

**Build Options** (from build\_securaa.sh):

- -i Make core Docker images
- -w Make wrapper (integration) images
- -u Make UI build
- -r Make RPM packages
- -a Binary and zip export
- -c Checkout all repos
- -s Scan repositories
- -b Make batch images

**Build Process:**

```
./build_securaa.sh "-vi" $dev_image rpm_mssp_complete 0001 $dev_image
```

## 2. zona\_services Repository

**Purpose:** Core microservices (30+ services)

**Service Categories:**

```
zona_services/
├── zona_user/                      # User management service
├── zona_integrations/              # Integration orchestration
├── zona_siem/                     # Incidents related services
├── zona_playbook/                  # Playbook execution engine
├── zona_querybuilder/              # Query builder service
├── zona_custom/                   # Custom utilities
├── zona_custom_utils/              # Custom utility functions
├── zona_apis_manager/              # API management
├── zona_sshclient/                 # SSH client service
├── zona_pdf/                      # PDF generation service
├── zona_primary_server_health_check/ # Primary Machine Health monitoring service from Secondary
└── zona_sia_apis/                  # SIA API services
```

Each service is independently deployable as a Docker container.

## 3. securaa Repository

**Purpose:** Common functions/library used for Integrations

**Components:**

- API endpoints
- Business logic layer
- Database operations
- Common utilities

## 4. securaa\_lib Repository

**Purpose:** Shared library for core application

**Key Features:**

- **Encryption/Decryption:** AES-256-CBC encryption implementation
- **JWT Token Management:** Token generation and validation
- **Cryptographic Operations:** Secure crypto functions
- **Authentication Helpers:** Common auth utilities

## 5. zona\_batch Repository

**Purpose:** Background batch processing jobs

**Batch Services:**

```
zona_batch/
└── core_process_batch/          # Core data processing
└── csam_connector/            # CSAM integration batch
└── auto_purge_batch/          # Data retention enforcement
└── report_batch/              # Report generation
└── sbot/                      # Security bot automation
└── sla_breach_monitor_batch/  # SLA monitoring
```

## 6. integrations Repository

**Purpose:** Third-party system integrations (300+ integrations)

**Integration Categories:**

- **SIEM Platforms:** Splunk, QRadar, LogRhythm, ArcSight
- **Threat Intelligence:** VirusTotal, AlienVault, ThreatConnect
- **Ticketing Systems:** ServiceNow, Jira, Remedy
- **EDR/Endpoint:** CrowdStrike, Carbon Black, SentinelOne
- **Cloud Security:** AWS Security Hub, Azure Sentinel, GCP SCC
- **Network Security:** Palo Alto, Cisco, Fortinet, Checkpoint
- **Email Security:** Proofpoint, Mimecast, Microsoft 365
- **Identity:** Active Directory, Okta, Azure AD

**Integration Structure:**

```
integrations/
└── zona_splunk/
└── zona_qradar/
└── zona_servicenow/
└── zona_virustotal/
└── zona_crowdstrike/
└── zona_aws_securityhub/
└── ... (300+ integration modules)
```

## 7. zonareact Repository

**Purpose:** Frontend React application

## **Technology:**

- React 18.2+
- Redux for state management
- Material-UI components
- Chart visualizations
- Real-time updates via WebSockets

## **Features:**

- User interface and dashboards
- Case management UI
- Playbook designer
- Custom widgets
- Report generation UI

## **8. securaa\_db Repository**

**Purpose:** Database schemas and migrations

### **Contents:**

- MongoDB collection schemas
- Database initialization scripts
- Migration scripts
- Seed data for development
- Database versioning

**Primary Database:** mssp\_core (MongoDB)

## **9. securaa\_pylib Repository**

**Purpose:** Python utility libraries

### **Components:**

- Python utilities for custom integrations
  - Data processing libraries
  - Helper functions for playbooks
-

# Phase 1: Requirements & Planning

---

## Objective

Define requirements, assess risks, and model threats before development begins.

## Requirements Gathering

Document requirements for each feature:

```
security_requirements:  
    authentication:  
        - Authentication method (JWT, OAuth, API Key)  
        - Session management requirements  
        - MFA requirements for sensitive operations  
  
    authorization:  
        - Role definitions  
        - Permission model  
        - Resource access controls  
  
    data_protection:  
        - Sensitive data identification  
        - Encryption requirements (AES-256-CBC as per securaa_lib)  
        - Data classification levels  
        - Retention and deletion policies  
  
    input_validation:  
        - Input validation rules  
        - Data type and format requirements  
        - Size limits  
        - Sanitization requirements  
  
    audit_logging:  
        - Security events to log  
        - Log retention period (CloudWatch)  
        - Log format requirements  
        - SIEM integration requirements
```

# Phase 2: Secure Design

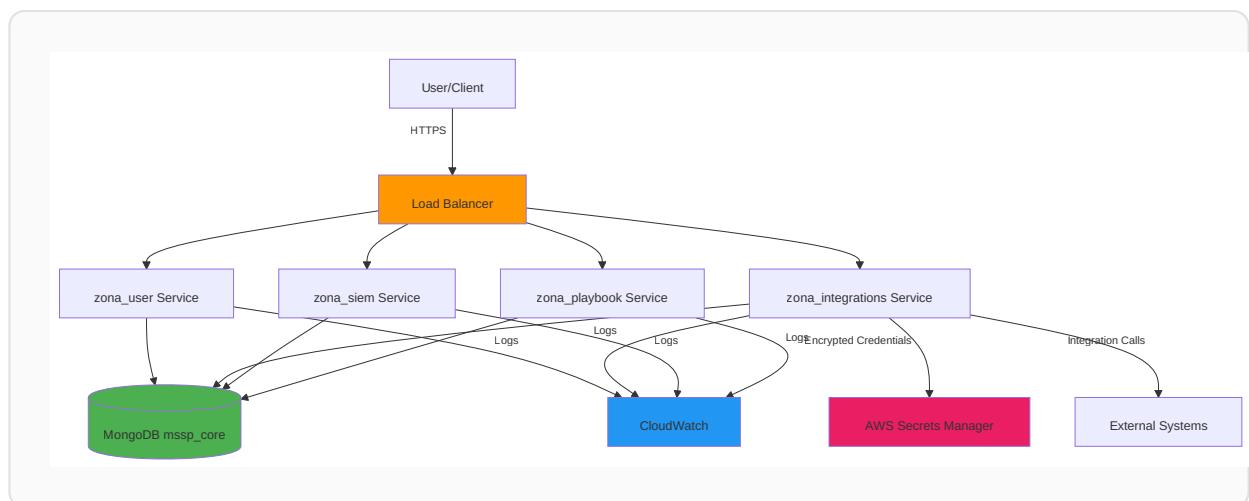
## Objective

Translate requirements into technical architecture with built-in security controls.

## Activities

### 2.1 Architecture Design

#### Microservices Architecture (Simplified):



### 2.2 Security Controls Design

#### Authentication Design:

```
authentication:  
  primary_method: JWT  
  algorithm: HS256  
  token_expiry: 3600 seconds  
  refresh_token_expiry: 604800 seconds # 7 days  
  secret_storage: AWS Secrets Manager  
  
  api_key_method:  
    format: "securaa_api_[32_char_random]"  
    storage: Hashed with bcrypt  
  
  mfa:  
    methods: [TOTP, SMS, Email]  
    required_for: Administrative operations
```

## Authorization Design:

```
authorization:
  model: Role-Based Access Control (RBAC)
  roles:
    - admin:
        - Full system access
        - User management
        - Configuration changes

    - analyst:
        - Case management
        - Integration execution
        - Report access

    - viewer:
        - Read-only access
        - Report viewing
```

## Data Protection Design:

```
encryption:
  at_rest:
    algorithm: AES-256-CBC
    implementation: securaa_lib.CredentialsEncryptV2()
    key_storage: AWS Secrets Manager

  encrypted_fields:
    - integration_credentials
    - api_tokens
    - user_passwords

  in_transit:
    protocol: TLS 1.2+
    certificate_provider: AWS Certificate Manager
    enforce_https: true
```

## 2.3 Database Security Design

### MongoDB Configuration:

```
mongodb:
  database: mssp_core
  authentication:
    enabled: true
    mechanism: SCRAM-SHA-256
```

```
authorization:
  role_based: true
users:
  - securaa_app: readWrite access
  - securaa_READONLY: read access

network:
  bind_ip: Private subnet only
  port: 27017

collections:
  - integrations
  - cases
  - playbooks
  - users
  - audit_logs
```

## 2.4 AWS Infrastructure Design

### VPC Architecture:

```
vpc:
  cidr: 10.0.0.0/16

  subnets:
    public:
      cidr: 10.0.1.0/24
    components:
      - Application Load Balancer
      - NAT Gateway

    private:
      cidr: 10.0.2.0/24
    components:
      - EC2 instances (zona_services)
      - Application containers

  database:
    cidr: 10.0.3.0/24
    components:
      - MongoDB cluster
      - PostgreSQL
```

### Security Groups:

```
security_groups:
  alb_sg:
```

```

 inbound:
  - port: 443, source: 0.0.0.0/0 (HTTPS)
  - port: 80, source: 0.0.0.0/0 (HTTP redirect)
outbound:
  - port: 8080, destination: app_sg

app_sg:
 inbound:
  - port: 8080, source: alb_sg
  - port: 22, source: bastion_sg (SSH)
outbound:
  - port: 27017, destination: db_sg (MongoDB)
  - port: 443, destination: 0.0.0.0/0 (External APIs)

db_sg:
 inbound:
  - port: 27017, source: app_sg (MongoDB)
outbound: []

```

## IAM Roles and Policies:

```

iam_roles:
SecuraaCodeBuildRole:
  purpose: AWS CodeBuild service role
  permissions:
    - ecr:GetAuthorizationToken
    - ecr:BatchCheckLayerAvailability
    - ecr:PutImage
    - ecr:InitiateLayerUpload
    - ecr:UploadLayerPart
    - ecr:CompleteLayerUpload
    - s3:GetObject
    - s3:PutObject (securaa-artifacts bucket)
    - logs>CreateLogGroup
    - logs>CreateLogStream
    - logs:PutLogEvents
    - secretsmanager:GetSecretValue (securaa/* secrets)

SecuraaEC2AppRole:
  purpose: EC2 application instances
  permissions:
    - ecr:GetAuthorizationToken
    - ecr:BatchGetImage
    - ecr:GetDownloadUrlForLayer
    - secretsmanager:GetSecretValue (securaa/prod/*)
    - logs>CreateLogGroup
    - logs>CreateLogStream

```

- logs:PutLogEvents
- cloudwatch:PutMetricData

## Deliverables

- Architecture diagrams (component, data flow, network)
- Security controls specification
- Database security design
- API security specifications
- Infrastructure security design
- IAM policies and roles
- Security design review approval

---

## Phase 3: Secure Development

---

### Objective

Implement secure code following secure coding standards with Git workflow on AWS CodeCommit.

### Activities

#### 3.1 AWS CodeCommit Setup

##### Repository Access:

```
codecommit_repositories:  
  - build_securaa  
  - zona_services  
  - securaa  
  - securaa_lib  
  - zona_batch  
  - integrations  
  - zonareact  
  - securaa_db  
  - securaa_pylib
```

```

authentication:
  methods:
    - HTTPS with Git credentials
    - SSH keys
    - AWS CLI with IAM credentials

iam_policy:
  read_permissions:
    - codecommit:GetRepository
    - codecommit:GetBranch
    - codecommit:GitPull

  write_permissions:
    - codecommit:GitPush
    - codecommit>CreateBranch
    - codecommit:CreatePullRequest

  admin_permissions:
    - codecommit:MergePullRequest (requires reviewer role)

```

### Branch Protection:

```

protected_branches:
  main:
    require_pull_request: true
    required_approvals: 2
    restrict_push: true

  release:
    require_pull_request: true
    required_approvals: 1
    require_status_checks: true

  dev:
    require_pull_request: true
    required_approvals: 1

```

### 3.2 Branching Strategy

```

branch_naming:
  feature: "feature/[JIRA-ID]-short-description"
  bugfix: "bugfix/[JIRA-ID]-short-description"
  hotfix: "hotfix/[JIRA-ID]-short-description"
  release: "release/v[version]"

workflow:

```

```
1: Create feature branch from dev
2: Implement feature
3: Dev unit testing & security testing
4: Push to CodeCommit
5: Create pull request
6: Code review
7: Merge to dev
8: Integration testing
9: QA team testing
10: Merge to release branch post final load testing
```

### 3.3 Code Review Process

#### Pull Request Template:

```
## Description
[JIRA-ID]: Brief description

## Security Considerations
- [ ] No hardcoded credentials
- [ ] Input validation implemented
- [ ] Using securaa_lib for encryption
- [ ] Proper error handling
- [ ] Security events logged
- [ ] Authentication/authorization enforced

## Testing
- [ ] Manual testing completed
- [ ] Security tests included

## Security Scan Results
- [ ] GoSec: Pass
- [ ] Dependency scan: Pass

## Reviewers
@security-team @team-lead
```

#### Code Review Checklist:

- Authentication implemented correctly
- Authorization checks present
- Input validation comprehensive
- Sensitive data encrypted using securaa\_lib

- Error messages don't expose details
- No credentials in code
- Logging doesn't contain PII
- Manual tests cover security scenarios
- Code follows SECURAA standards

## Deliverables

- Code in feature branch
  - Security tests
  - Pull request created
  - Code review completed
  - Approved by 2 seniors
  - Merged to dev branch
- 

## Phase 4: Security Testing

### Objective

Validate security controls through automated and manual security testing.

### Activities

#### 4.1 Static Application Security Testing (SAST)

##### GoSec Configuration:

```
# .gosec.yml
{
  "global": {
    "nosec": false,
    "show-ignored": true,
```

```
        "confidence": "medium",
        "severity": "medium"
    },
    "rules": {
        "G101": "Look for hardcoded credentials",
        "G104": "Audit errors not checked",
        "G201": "SQL query construction using string building",
        "G401": "Detect MD5 usage",
        "G501": "Import blocklist: crypto/md5"
    }
}
```

### Run GoSec:

```
# Install
go install github.com/securego/gosec/v2/cmd/gosec@latest

# Run scan
gosec -fmt=json -out=gosec-report.json ./...

# Check for critical issues
gosec -severity=high ./...
```

## 4.2 Dependency Vulnerability Scanning

### govulncheck for Go:

```
# Install
go install golang.org/x/vuln/cmd/govulncheck@latest

# Run vulnerability check
govulncheck ./...
```

## 4.4 Container Security Scanning

### AWS ECR for Docker Image scan

## Deliverables

- GoSec scan completed & Security reports generated
- Critical/High issues resolved
- Dependency scans completed
-

Container scans completed

- 

Security test approval

---

## Phase 5: Build & Deployment

### Objective

Build secure artifacts and deploy to production using AWS CodeBuild and ECR.

### Activities

#### 5.1 AWS CodeBuild Configuration

**Core\_BuildSpec.yaml** (Actual configuration from repository):

```
version: 0.2

phases:
  pre_build:
    commands:
      - echo CODEBUILD_SRC_DIR - $CODEBUILD_SRC_DIR
      - cd ..
      - pwd
      - wget --no-check-certificate https://xxxxxx/code_dependency/github.com.zip
      - wget --no-check-certificate https://xxxxxx/code_dependency/gopkg.in.zip
      - ls
      - unzip github.com.zip
      - unzip gopkg.in.zip
      - echo "After Unzipping"
      - ls
      - pwd

  build:
    commands:
      - export GO111MODULE=on
      - export TAG_IMAGE=$dev_image
      - echo $TAG_IMAGE
      - go env
      - cd build_securaa
      - echo "Below are the build_securaa folders"
      - ls
      - echo "Entering in Core Script Folder"
      - cd core_scripts/
      - ls
```

```

- chmod 777 *
- ls -l
- sudo ./securaa_ecr_login.sh
- pwd
- ls
- cd ../
- chmod 777 build_securaa.sh
- export app=aws
- echo "The value of app is $app"
- ls -l
- echo $GOPATH
- echo $GOROOT
- ./build_securaa.sh "-vi" $dev_image rpm_mssp_complete 0001 $dev_image

```

### **Wrapper\_BuildSpec.yaml** (Integration services):

```

version: 0.2

phases:
  pre_build:
    commands:
      - echo CODEBUILD_SRC_DIR - $CODEBUILD_SRC_DIR
      - cd ..
      - pwd
      - wget --no-check-certificate https://xxxxxx/code_dependency/github.com.zip
      - wget --no-check-certificate https://xxxxxx/code_dependency/gopkg.in.zip
      - ls
      - unzip github.com.zip
      - unzip gopkg.in.zip
      - echo "After Unzipping"
      - ls
      - pwd

  build:
    commands:
      - export G0111MODULE=on
      - export TAG_IMAGE=$dev_image
      - echo $TAG_IMAGE
      - go env
      - cd build_securaa
      - echo "Below are the build_securaa folders"
      - ls
      - echo "Entering in Core Script Folder"
      - cd core_scripts/
      - ls
      - chmod 777 *
      - ls -l
      - sudo ./securaa_ecr_login.sh
      - pwd

```

```
- ls
- cd ../
- chmod 777 build_securaa.sh
- export app=aws
- echo "The value of app is $app"
- ls -l
- echo $GOPATH
- echo $GOROOT
- ./build_securaa.sh "-vw" $dev_image rpm_mssp_complete 0001 $dev_image
```

## 5.2 Build Process

**build\_securaa.sh Options** (from repository):

```
# Build core services and push to ECR
./build_securaa.sh "-vi" [TAG_IMAGE] rpm_mssp_complete [BUILD_NUMBER] [TAG_IMAGE]

# Build integration services
./build_securaa.sh "-vw" [TAG_IMAGE] rpm_mssp_complete [BUILD_NUMBER] [TAG_IMAGE]

# Build UI
./build_securaa.sh "-vu" [TAG_IMAGE] rpm_mssp_complete [BUILD_NUMBER] [TAG_IMAGE]

# Options:
# -v Verbose mode
# -i Make core images (zona_services, zona_batch)
# -w Make wrapper images (integrations)
# -u Make UI build (zonareact)
# -r Make RPM packages
# -a Binary and zip export
# -c Checkout all repos
# -s Scan repositories
# -b Make batch images
```

**Build Functions** (from functions\_aws.sh):

- `build_push_images()` - Build and push core service images
- `build_push_wrapper_images()` - Build and push integration images
- `make_ecr_login()` - Authenticate to AWS ECR
- `ui_build()` - Build React frontend

## 5.3 AWS ECR Configuration

**ECR Registry:**

```
xxxxxx.dkr.ecr.us-east-2.amazonaws.com
```

### ECR Repositories:

- securaa/zona\_user
- securaa/zona\_integrations
- securaa/zona\_siem
- securaa/zona\_playbook
- securaa/zona\_batch
- securaa/zonareact
- ... (one per service)

### ECR Security Features:

```
ecr_configuration:  
  image_scanning:  
    scan_on_push: true  
    severity_threshold: HIGH  
  
  encryption:  
    type: KMS  
    kms_key: securaa-ecr-key  
  
  image_tag_mutability: IMMUTABLE  
  
  lifecycle_policy:  
    - Keep last 10 production images  
    - Remove untagged images after 7 days
```

### ECR Authentication:

```
#!/bin/bash  
# From securaa_ecr_login.sh  
  
aws ecr get-login-password --region us-east-2 | \  
  docker login --username AWS --password-stdin \  
  xxxx.dkr.ecr.us-east-2.amazonaws.com
```

## 5.4 Container Security

### Secure Dockerfile Pattern:

```

# Multi-stage build
FROM golang:1.17-alpine AS builder

# Create non-root user
RUN addgroup -S appgroup && adduser -S appuser -G appgroup

WORKDIR /app
COPY go.mod go.sum .
RUN go mod download && go mod verify

COPY ../../Downloads .
RUN CGO_ENABLED=0 GOOS=linux go build -o main .

# Final stage - minimal image
FROM alpine:3.18

# Install security updates
RUN apk --no-cache add ca-certificates && \
    apk --no-cache upgrade

# Create non-root user
RUN addgroup -S appgroup && adduser -S appuser -G appgroup
USER appuser

WORKDIR /home/appuser
COPY --from=builder --chown=appuser:appgroup /app/main .

EXPOSE 8080

HEALTHCHECK --interval=30s --timeout=3s \
CMD wget --no-verbose --tries=1 --spider http://localhost:8080/health || exit 1

CMD ["/main"]

```

## 5.5 Deployment Automation

### Deployment Process:

```

deployment_flow:
  1_build:
    - CodeBuild triggered on daily basis for nightly builds
    - Dependencies downloaded from securaa repo public link
    - Go modules vendored (GO111MODULE=on)
    - Services built
    - Docker images created

  2_scan:
    - Container images scanned

```

```
- Vulnerabilities checked  
- Scan results reviewed  
  
3_push:  
- Images tagged with build number  
- Push to ECR registry  
- Image signing  
  
4_deploy_on_nightly:  
- Update EC2 instances  
- Pull new images from ECR  
- Rolling deployment  
- Health checks  
  
5_verify:  
- Service health checks  
- Integration tests  
- Monitoring validation
```

## Deliverables

- CodeBuild project configured
  - Build scripts tested
  - Docker images built
  - Container scans passed
  - Images pushed to ECR
  - Deployment successful
  - Health checks passing
- 

## Phase 6: Operations & Monitoring

---

### Objective

Monitor the development systems and track overall server resource utilization.

## Activities

### 6.1 CloudWatch Metrics

#### Application Metrics:

```
metrics:  
  authentication:  
    - AuthenticationSuccess (count)  
    - AuthenticationFailure (count)  
    - AuthenticationLatency (milliseconds)  
  
  api:  
    - APIRequestCount (count)  
    - API4xxErrors (count)  
    - API5xxErrors (count)  
    - APILatency (milliseconds)  
  
  integrations:  
    - IntegrationExecutions (count)  
    - IntegrationFailures (count)  
    - IntegrationLatency (milliseconds)  
  
  system:  
    - CPUUtilization (percent)  
    - MemoryUtilization (percent)  
    - DiskUtilization (percent)
```

### 6.2 Alerting Configuration

#### CloudWatch Alarms:

```
alarms:  
  high_authentication_failures:  
    metric: ResourceUtilization  
    threshold: 50  
    period: 300 # 5 minutes  
    comparison: GreaterThanThreshold  
    action: SNS notification to engineering team  
  
  critical_api_errors:  
    metric: API5xxErrors  
    threshold: 100  
    period: 300  
    evaluation_periods: 2  
    action: SNS notification to ops team
```

```
unauthorized_access:
  metric: API403Errors
  threshold: 30
  period: 300
  action: SNS notification to engineering team
```

## Deliverables

- CloudWatch logging configured
  - Metrics dashboards created
  - Alarms configured
- 

## Phase 7: CI/CD Security Pipeline

### Objective

Integrate automated security checks throughout the CI/CD pipeline.

### Activities

#### 7.1 Security Gates

##### Gate Configuration:

```
security_gates:
  gate_1_sast:
    name: "Static Analysis"
    fail_on_finding: false
    tools: [gosec]
    criteria:
      max_critical: 0
      max_high: 10
    action: "Fail build if criteria not met"

  gate_2_dependencies:
    name: "Dependency Vulnerabilities"
    fail_on_finding: false
    tools: [govulncheck]
    criteria:
      max_critical_cvss: 0 # No CVSS >= 9.0
      max_high_cvss: 5       # Max 5 with CVSS >= 7.0
```

```

action: "Fail build if critical vulnerabilities"

gate_3_container:
  name: "Container Security"
  fail_on_finding: false
  tools: [trivy]
  criteria:
    max_critical: 0
    max_high: 5
  action: "Block ECR push"

```

## Security Tools Reference

### Tools Used in SDLC

Tool	Purpose	Phase	Implementation
<b>GoSec</b>	Go SAST	Development, Testing	gosec ./...
<b>govulncheck</b>	Go vulnerability check	Testing	govulncheck ./...
<b>AWS CodeBuild</b>	CI/CD	Build	BuildSpec files
<b>AWS ECR</b>	Container registry	Build, Deploy	ECR API
<b>CloudWatch</b>	Logging, Monitoring	Operations	AWS SDK

### Security Tool Installation

```

# Go security tools
go install github.com/securego/gosec/v2/cmd/gosec@latest
go install golang.org/x/vuln/cmd/govulncheck@latest

```

# Roles & Responsibilities

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## Development Team

- Follow secure coding standards
- Write security-focused unit tests
- Participate in code reviews
- Address security findings promptly
- Use securaa\_lib for encryption

## Senior Engineering Team

- Define security requirements
- Review security architecture
- Approve production deployments

## DevOps Team

- Maintain CI/CD pipeline (CodeBuild)
- Manage AWS infrastructure
- Configure security tools
- Monitor system health
- Manage ECR and deployments

## QA Team

- Execute test cases
- Perform SAST scanning
- Validate security requirements
- Document security issues

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## Summary

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This document provides a comprehensive overview of the SECURAA Secure SDLC process, covering all phases from requirements gathering through production operations. The SDLC integrates security at every stage using:

- **AWS Infrastructure:** CodeCommit, CodeBuild, ECR, IAM, CloudWatch

- **Security Tools:** GoSec, govulncheck
- **Secure Coding:** securaa\_lib encryption, input validation, secure error handling
- **Automated Security:** CodeBuild security scans, container scanning
- **Comprehensive Monitoring:** CloudWatch logging, metrics, alerting

## Key Artifacts

### Repositories:

1. build\_securaa - Build automation
2. zona\_services - 30+ microservices
3. securaa - Common functions/library used for Integrations
4. securaa\_lib - Shared library for core application
5. zona\_batch - Batch processing
6. integrations - 300+ integrations
7. zonareact - React frontend
8. securaa\_db - Database schemas
9. securaa\_pylib - Python utilities

### Build System:

- Core\_BuildSpec.yaml - Core services
- Wrapper\_BuildSpec.yaml - Integration services
- build\_securaa.sh - Build orchestration
- ECR Registry: xxxxxx.dkrecr.us-east-2.amazonaws.com

### Security Features:

- AES-256-CBC encryption (securaa\_lib)
  - JWT authentication
  - MongoDB SCRAM-SHA-256 auth
  - TLS 1.2+ for transit
  - IAM policies (least privilege)
  - Container security scanning
  - Automated vulnerability detection
-

## Document History

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Version	Date	Author	Changes
1.0	October 2024	Engineering Team	Initial documentation
2.0	November 13, 2025	Engineering Team	Complete consolidated SDLC with codebase details

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## Contact Information

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**Document Owner:** Engineering & Security Leadership

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*This document contains actual implementation details from the SECURAA codebase including real AWS infrastructure configurations, build scripts, repository structures, and security implementations. All information is based on concrete code analysis of the SECURAA platform.*