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DETAILED STUDY NOTES · 2026 EDITION

AWS & Azure Cloud Security Hardening Study Notes

Shared responsibility, identity, networks, storage, workloads, secrets, logging, posture, incident response, and secure cloud operations.

18	2	10
Detailed pages	Cloud platforms	Control domains

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How to use this guide

Cloud services evolve quickly. Use these notes as a conceptual and operational checklist, then validate names, defaults, and procedures against current AWS and Microsoft documentation.

> **Professional-use notice:** Security testing must stay within systems you own or have explicit written authorization to assess. Standards summaries are educational aids, not certification, legal, or audit advice.

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Shared Responsibility & Governance

Define which security outcomes belong to the provider and which remain with the customer.

Purpose: Define which security outcomes belong to the provider and which remain with the customer.

Working checklist

01 · Ownership
Map service model, account/subscription, workload, data, identity, and configuration responsibilities.

02 · Guardrails
Use organization/management groups, policies, tags, budgets, and approved regions.

Practical workflow

Stage	Action	Evidence / output
Prepare	Confirm scope, prerequisites, versions, access, and a rollback path.	Written scope and baseline
Execute	Apply the smallest safe change or test, one variable at a time.	Commands, screenshots, or notes
Validate	Compare expected and observed outcomes; investigate uncertainty.	Result with timestamps
Improve	Document lessons, ownership, maintenance, and the next measurable action.	Reusable playbook or portfolio artifact

Identity Foundations

Centralize workforce access and minimize long-lived credentials.

Purpose: Centralize workforce access and minimize long-lived credentials.

Working checklist

01 · AWS
IAM Identity Center, roles, permission boundaries, SCPs, MFA, access analysis.

02 · Azure
Entra ID, groups, RBAC, PIM, Conditional Access, managed identities.

Practical workflow

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Least Privilege Engineering

Move from broad permissions to task-specific access using evidence.

Purpose: Move from broad permissions to task-specific access using evidence.

Working checklist

01 · Design
Separate human, workload, deployment, and emergency identities.

02 · Review
Analyze used permissions, stale access, privilege paths, and cross-account/tenant trust.

Practical workflow

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Cloud Network Security

Design VPC/VNet, subnets, routes, security groups/NSGs, private access, and egress.

Purpose: Design VPC/VNet, subnets, routes, security groups/NSGs, private access, and egress.

Working checklist

01 · Segmentation
Separate environments and tiers; prefer private service endpoints.

02 · Visibility
Enable flow logs and correlate with identity and workload evidence.

Practical workflow

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Storage & Data Protection

Protect object, database, backup, and analytics data throughout lifecycle.

Purpose: Protect object, database, backup, and analytics data throughout lifecycle.

Working checklist

01 · Controls
Private defaults, encryption, versioning, retention, access logging, classification.

02 · Exposure
Review public access, sharing links, policies, replication, snapshots, and exports.

Practical workflow

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Compute, Containers & Serverless

Harden images, runtime identity, metadata access, patching, and deployment.

Purpose: Harden images, runtime identity, metadata access, patching, and deployment.

Working checklist

01 · Compute
Golden images, EDR, patching, IMDS protections, disk encryption.

02 · Cloud-native
Minimal images, signed artifacts, managed identity, concurrency and event validation.

Practical workflow

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Secrets & Key Management

Keep credentials out of code and manage keys through controlled lifecycle.

Purpose: Keep credentials out of code and manage keys through controlled lifecycle.

Working checklist

01 · Secrets
Use Secrets Manager/Key Vault, rotation, scoped access, audit, and cache limits.

02 · Keys
Ownership, separation, rotation, deletion protection, backup, and recovery.

Practical workflow

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Logging, Detection & Posture

Collect organization-wide control-plane and security telemetry.

Purpose: Collect organization-wide control-plane and security telemetry.

Working checklist

01 · AWS
CloudTrail, Config, GuardDuty, Security Hub, relevant service logs.

02 · Azure
Activity Logs, diagnostic settings, Defender for Cloud, Sentinel, Entra logs.

Practical workflow

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Backup, Resilience & Recovery

Design recovery against deletion, ransomware, region failure, and identity compromise.

Purpose: Design recovery against deletion, ransomware, region failure, and identity compromise.

Working checklist

01 · Protection
Immutable/locked backups, cross-account isolation, tested retention.

02 · Exercise
Restore data and infrastructure; measure RTO/RPO and access dependencies.

Practical workflow

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Cloud Incident Response

Prepare access, evidence, containment, and communication before an event.

Purpose: Prepare access, evidence, containment, and communication before an event.

Working checklist

01 · Readiness
IR roles, forensic accounts, log archive, snapshots, automation, contacts.

02 · Containment
Revoke sessions, quarantine resources, preserve evidence, rotate credentials, avoid destructive cleanup.

Practical workflow

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Concept Review Questions

Use explanation-first questions to expose gaps before attempting a lab.

Purpose: Use explanation-first questions to expose gaps before attempting a lab.

Working checklist

01 · Explain
Describe the concept in your own words without tool names.

02 · Differentiate
Compare it with the closest related concept and common confusion.

03 · Predict
State expected behavior before observing traffic or logs.

04 · Defend
Name preventive, detective, and recovery controls.

Practical workflow

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Defensive Lab Exercises

Practise with synthetic data and isolated environments.

Purpose: Practise with synthetic data and isolated environments.

Working checklist

01 · Baseline
Capture normal behavior before introducing a controlled change.

02 · Generate
Create one safe, observable event in the lab.

03 · Detect
Locate evidence across endpoint, application, identity, and network layers.

04 · Improve
Tune a control and show the before/after result.

Practical workflow

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Investigation Worksheet

Structure technical reasoning so conclusions remain auditable.

Purpose: Structure technical reasoning so conclusions remain auditable.

Working checklist

01 · Question
Write the precise question being answered.

02 · Evidence
Record source, timestamp, timezone, integrity, and limitations.

03 · Hypotheses
List multiple plausible explanations before deciding.

04 · Conclusion
Separate facts, inferences, unknowns, and next actions.

Practical workflow

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Exam & Interview Revision

Convert notes into concise explanations and practical examples.

Purpose: Convert notes into concise explanations and practical examples.

Working checklist

01 · One-minute answer
Define the concept, risk, example, and control.

02 · Diagram
Draw the data flow or trust boundary from memory.

03 · Scenario
Explain how you would investigate a realistic event.

04 · Mistakes
List common false assumptions and how to verify them.

Practical workflow

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Further Study & References

Prefer official documentation and repeatable practice over unverified shortcuts.

Purpose: Prefer official documentation and repeatable practice over unverified shortcuts.

Working checklist

01 · Primary sources
Read vendor, standards, protocol, and project documentation.

02 · Version awareness
Record edition, product version, and publication date.

03 · Lab notes
Link each claim to evidence or a trusted reference.

04 · Learning loop
Plan the next topic from observed gaps, not social-media trends.

Practical workflow

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Keep learning. Keep building.

Use this guide as a working plan: practise, document evidence, review outcomes, and improve the next iteration.

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