

### CIA Triad

<b>Confidentiality</b>	Preserving authorized restrictions on information access and disclosure, including means for protecting personal privacy and proprietary information. Note – Encryption (At transit – TLS) (At rest - AES – 256)
<b>Integrity</b>	Guarding against improper information modification or destruction and includes ensuring information non-repudiation and authenticity.
<b>Availability</b>	Ensuring timely and reliable access to and use of information by authorized users.

\*Citation: <https://www.isc2.org/Certifications/CISSP/CISSP-Student-Glossary>

### Achieving CIA - Best Practices

Separation of Duties	Mandatory Vacations	Job Rotation	Least Privileges	Need to know	Dual Control
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### Availability Measuring Metrics

RTO/MTD/RPO, MTBF, SLA

### IAAAA

<b>Identification</b>	Unique user identification
<b>Authentication</b>	Validation of identification
<b>Authorization</b>	Verification of privileges and permissions for authenticated user
<b>Accountability</b>	Only authorized users are accessing and use the system accordingly
<b>Auditing</b>	Tools, processes, and activities used to achieve and maintain compliance

### D.A.D.

<b>Disclosure</b>	<b>Alteration</b>	<b>Destruction</b>
Opposite of Confidentiality	Opposite of Integrity	Opposite of Availability

### Plans

Type	Duration	Example
<b>Strategic Plan</b>	up to 5 Years	Risk Assessment
<b>Tactical Plan</b>	Maximum of 1 year	Project budget, staffing etc
<b>Operational Plan</b>	A few months	Patching computers Updating AV signatures Daily network administration

### Protection Mechanisms

Layering	Abstractions	Data Hiding	Encryption
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### Data classification

Entails analyzing the data that the organization retains, determining its importance and value, and then assigning it to a category.

### Risk Management

- No risk can be completely avoided .
- Risks can be minimized and controlled to avoid impact of damages.
- Risk management is the process of identifying, examining, measuring, mitigating, or transferring risk

\*Citation:<https://resources.infosecinstitute.com/category/certifications-training/cissp/domains/security-and-risk-management/>

**Solution** – Keep risks at a tolerable and acceptable level.  
**Risk management constraints** – Time, budget

### Risk Terminology

<b>Asset</b>	Anything of value to the company.
<b>Vulnerability</b>	A weakness; the absence of a safeguard
<b>Threat</b>	Things that could pose a risk to all or part of an asset
<b>Threat Agent</b>	The entity which carries out the attack
<b>Exploit</b>	An instance of compromise
<b>Risk</b>	The probability of a threat materializing

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### Risk Management Frameworks

Preventive Ex ISO 27001	Deterrent Ex ISO 27000	Detective	Corrective	Recovery
Security Policies	Security Personnel	Logs	Alarms	Backups
Security Cameras	Guards	Security Cameras	Antivirus Solutions	Server Clustering
Callback	Security Cameras	Intrusion Detection Systems	Intrusion Detection Systems	Fault Tolerant Drive Systems
Security Awareness Training	Separation of Duties	Honey Pots	Business Continuity Plans	Database Shadowing
Job Rotation	Intrusion Alarms	Audit Trails		Antivirus Software
Encryption	Awareness Training	Mandatory Vacations		
Data Classification	Firewalls			
Smart Cards	Encryption			

### Risk Management Life Cycle

Assessment	Analysis	Mitigation / Response
Categorize, Classify & Evaluate Assets	Qualitative vs Quantitative	Reduce, Transfer, Accept
<b>as per NIST 800-30:</b>	Qualitative – Judgments	Reduce / Avoid
System Characterization	Quantitative – Main terms	Transfer
Threat Identification	AV – Asset Value	Accept / Reject
Vulnerability Identification	EF – Exposure Factor	<div style="background-color: #c8e6c9; padding: 10px; text-align: center;"> <h3>Security Governance</h3> </div> <ul style="list-style-type: none"> <li>BS 7799</li> <li>ISO 17799 &amp; 2700 Series</li> <li>COBIT &amp; COSO</li> <li>OCTAVE</li> <li>ITIL</li> </ul>
Control Analysis	ARO – Annual Rate of Occurrence	
Likelihood Determination	Single Loss Expectancy = AV * EF	
Impact Analysis	Annual Loss Expectancy = SLE*ARO	
Risk Determination	Risk Value = Probability * Impact	
Control Recommendation		
Results Documentation		

### Risk Framework Types

- Security and Risk Management
- Asset Security
- Security Engineering
- Communications and Network Security
- Identity and Access Management
- Security Assessment and Testing
- Security Operations
- Software Development Security

### The 6 Steps of the Risk Management Framework

- Categorize**
- Select**
- Implement**
- Asses**
- Authorize**
- Monitor**

### Threat Identification Models

<b>S.T.R.I.D.E.</b>	Spoofting - Tampering - Repudiation - Information Disclosure - Denial of Service - Escalation of Privilege
<b>D.R.E.A.D.</b>	Damage - Reproducibility - Exploitability - Affected - Discoverability
<b>M.A.R.T.</b>	Mitigate - Accept - Reject - Transfer

### Disaster Recovery / Business Continuity Plan

Continuity plan goals
Statement of importance
Statement of priorities
Statement of organization responsibility
Statement of urgency and timing
Risk assessment
Risk acceptance / mitigation

### Types of Law

Criminal law
Civil Law
Administrative Law
Comprehensive Crime Control Act (1984)
Computer Fraud and Abuse Act (1986)
Computer Security Act (1987)
Government Information Security Reform Act (2000)
Federal Information Security Management Act (2002)

### Intellectual Property

- Copyright
- Trademarks
- Patents
- Trade Secrets
- Licensing