



وزارة المواصلات والاتصالات  
MINISTRY OF TRANSPORT  
AND COMMUNICATIONS



# National Information Assurance Policy v2.0

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# Foreword

MOTC, Ministry of Transport and Communications, has touched the lives of all citizens and residents through various ICT initiatives and brought positive changes in the way they experience the ICT world. Through our various programs such as the Hukoomi (e-Government Initiative), MOTC has simplified a number of government processes and brought ease and speed to the lives of citizens and residents alike.

As a strategic direction, the Qatar National Vision 2030 program emphasizes on the following factors as the key to Qatar's growth strategy:

- Human Development
- Social Development
- Economic Development
- Environment Development

It is our endeavor to ensure that we meet these objectives through achievable projects and proper ICT means.

The spread of usage of ICT in such connected world is leading to a deluge of information that flows freely between our institutions (ministries and other agencies). Such a beneficial flow also raises questions when it comes to securing the information. It is the duty of all who collect, use and / or shares such information to ensure it is safely and securely handled and processed.

Therefore we need to work at defining a proper governance strategy, the right set of policies and procedures complement the technology. Most importantly awareness and education regarding information protection for the users and employees are of utmost importance as they use or handle this information.

As a result, it is a great privilege to introduce you to the National Information Assurance Policy. A publication recently endorsed by MOTC Board for adoption in all the sectors. The National Information Assurance Policy will provide you with the necessary foundation and the relevant tools to enable the implementation of a full-fledged Information Security Management System within your organization.

Our team here at Q-CERT, MOTC is available to help you in your quest for Information Security compliance or should you need more information, clarification and support.

Looking forward to working with you in building a resilient and secure Qatar.

Khalid N. Sadiq Al-Hashmi

Assistant Under secretary

Ministry of Transport and Communications

# NATIONAL INFORMATION CLASSIFICATION POLICY

[IAP-NAT-DCLS]



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## 1. Policy Objective

This policy specifies a high-level information classification methodology for entities in the State of Qatar. The rationale for classifying information into classes is to allow appropriate values to be ascertained for information items, their risks to be determined, and the corresponding protection to be applied.

The following threats are covered in this policy:

- **Unauthorised Disclosure**
- **Unauthorised Modification**
- **Non-Availability**

Consistent use of information classification methodology will facilitate business activities, ensure compliance with accepted best practices, and help keep the costs of information security to a minimum. Without its use, Agencies would have varying levels of protection applied to assets, with no defined baseline in place.

## 2. Scope

This policy applies to all Agencies and their corresponding Information Assets unless specifically exempted.

The following definitions, outlined in [IAP-NAT-IAFW] are used in this policy: **Agency, Information Asset, Unauthorised Disclosure, Unauthorised Modification, Availability**

The following normative references apply:

- [IAP-NAT-IAFW] Information Assurance Framework, 2008  
[IAP-NAT-INFA] National Information Assurance Policy, 2014  
[IAP-NAT-CIIP] Critical Information Infrastructure Protection Law, 2014

## 3. Policy

- 3.1 **Agencies** SHALL prioritise their compliance of this policy by determining the criticality of their processes according to the following:
- a. 1st Priority: Criticality to the State of Qatar. Processes SHALL be checked against Appendix A, [IAP-NAT-CIIP] to check whether they are critical at a national level.
  - b. 2nd Priority: Criticality to the **Agency**. Processes SHALL be assessed based upon their criticality to the functioning of the **Agency**, using a Business Impact Analysis, Appendix A maybe used for this.
- 3.2 **Agencies** SHALL develop a compliance plan, which shows the compliance priority of processes (as specified in section 3.1), their dependent **Information Assets** and the schedule for assessment and control implementation.
- 3.3 For dependent **Information Assets**, **Agencies** SHALL:
- a. Classify them according to a classification scheme, Appendix B maybe used for this.
  - b. Prioritise the implementation of controls based on the aggregate security level.
  - c. Apply baseline controls as specified in [IAP-NAT-INFA] to all classified assets. Additional, stronger controls MAY be applied, if necessary.
  - d. Consistently protect controlled **Information Assets** throughout their life, from their origination to their destruction, in a manner commensurate with their sensitivity, regardless of where they reside, what form they take, what technology was used to handle them, or what purpose(s) they serve.
  - e. Ensure assets with confidentiality requirements of C1, C2 or C3 are appropriately labelled as specified in [IAP-NAT-INFA].

## 4. Compliance

- 4.1 All **Agencies** SHALL be audited for compliance to this policy on an annual basis by a Certification body.

## Appendix A – Business Impact Analysis

To determine the priority for classification of information assets and the corresponding level of security protection a weighted impact assessment needs to be undertaken. If the **Agency** has an existing method for assessment of business impact, this **MAY** be used instead of the one provided in this Appendix.

The NIA recommended BIA is undertaken by rating the impact of loss or degradation of a process on the **Agency** using the following impact factors:

1. Impact on Reputation
2. External Impact (impact on external entities, other **Agencies**, public etc.)
3. Internal Impact (impact on employees and the **Agency** itself)
4. Legal Impact (liabilities due to non-fulfilment of legal obligations e.g. not complying with service level agreements, regulations, legislation etc.)
5. Economic Impact (loss of direct revenue, lost opportunities etc.)

The following steps should be undertaken to rate a processes criticality:

1. For each of the impact factors, rate the factor's importance to the **Agency**, based on the following rating. This weighting factor ( $\alpha_1$  to  $\alpha_5$ ) is calculated only once and is used for each process being assessed.

- a. 0: Not Important
- b. 1: Low importance
- c. 2: Medium importance
- d. 3: High importance
- e. 4: Very high importance

2. For each process, identify the impact (I) to the Agency upon its loss or degradation, using the following scale. For time dependent processes, ensure that impact at peak usage times is calculated.

- a. 0: No impact
- b. 1: Low impact
- c. 2: Medium impact
- d. 3: High impact
- e. 4: Very high impact

3. Use the following formula to determine a criticality (on a scale of 100) for each process. :

$$impactvalue = 1.25 (\alpha_1 I_1 + \alpha_2 I_2 + \alpha_3 I_3 + \alpha_4 I_4 + \alpha_5 I_5)$$

### Worked Example

Organisational Impact Factor weightings:

1. Reputation Impact Weight: High importance ( $\alpha_1=3$ )
2. External Impact Weight: High importance ( $\alpha_2=3$ )
3. Internal Impact Weight: Medium importance ( $\alpha_3=2$ )
4. Legal Impact Weight: Very high importance ( $\alpha_4=4$ )
5. Economic Impact Weight: Medium importance ( $\alpha_5=2$ )

Process Name: Salary Processing, Impact at Critical Time

1. Reputation Impact: High impact (I1=3)
2. External Impact: Low impact (I2=1)
3. Internal Impact: High impact (I3=3)

4. Legal Impact: Low impact (I4=1)

5. Economic Impact: No impact (I5=1)

Impactvalue = 1.25 (3x3 + 3x1 + 2x3 + 4x1 +2x1)

*This would yield an impact value of: 30.*

## Appendix B – Asset Classification Model

To determine the classification of Information Assets and the corresponding level of security protection, the following steps should be undertaken:

1. Identify key1 processes and their owners in the organization.
2. Identity process dependencies: information, applications, systems, networks, etc.
3. Determine the security classification for each information asset using table 1 below; aggregate security levels are: H: High, M: Medium, L: Low
4. Record the full classification (e.g.. COI2A2) and aggregate security level (e.g. M) foreach asset.

		A0	A1	A2	A3
I0	C0		L	M	H
	C1	L	L	M	H
	C2	M	M	M	H
	C3	H	H	H	H
I1	C0	L	L	M	H
	C1	L	L	M	H
	C2	M	M	M	H
	C3	H	H	H	H
I2	C0	M	M	M	H
	C1	M	M	M	H
	C2	M	M	M	H
	C3	H	H	H	H
I3	C0	H	H	H	H
	C1	H	H	H	H
	C2	H	H	H	H
	C3	H	H	H	H

Table 1 - Security Classification Table

### Availability

The availability of data means timely and easy access to usable data during previously agreed necessary and required business hours (i.e. at the necessary and required moment and within the necessary and required period of time) for authorised persons or technical means.

A0: Availability and productivity/reaction time not important

A1: Availability 90% (downtime ~ 17h/week); allowed max response time – hours (1 to 10)

A2: Availability 99% (downtime ~ 2h/week); allowed max response time – minutes (1 to 10)

A3: Availability 99.9% (downtime ~ 10min/week); allowed max response time – sec (1 to 10)

<sup>1</sup> These are processes that are absolutely critical to the effective functioning of the Agency.



### Integrity

The integrity of data means the guarantee of the correctness, completeness, up-to-datedness and authenticity of data and absence of unauthorised alterations.

- I0: Source of information and time of changes are not important
- I1: It should be possible to identify the source of information and time of changes
- I2: Source of information and time of changes is identified and periodically checked
- I3: Authenticity and integrity should be provable to third party.

### Confidentiality

The confidentiality of information means access to the data only for authorised persons or technical means.

- C0: Public information. Classification label: **“Public”**.
- C1: C1 Restricted – for internal use; material whose disclosure would cause light to moderate damage to the affected party. Classification label: **“Internal”**
- C2: C2 Restricted – access for defined users, roles or user groups, according to specific rules; material whose disclosure would cause serious damage to the affected party (e.g. HR data, sensitive constituent data, etc). Classification label: **“Limited Access”**
- C3: C3 Restricted – confidential information with access limited to a very small set of persons; material whose disclosure would cause severe damage to the affected party (Board/executive/minister level management changes, decisions etc.). Classification label: **“Restricted”**
- C4+: National Security Markings (Confidential, Secret, Top Secret)<sup>2</sup>

### Worked Examples

A government website publishing information classified as ‘Public’ can be rated with the following security ratings i.e. Confidentiality=C0, Availability=A1, However since it is a Government website, the integrity ratings should be high i.e. Integrity=I2

*This would yield a Security classification of M*

Government database containing biometric information of its citizens and residents can be rated with the following security ratings i.e. Confidentiality=C2, Availability=A3 and Integrity=I3

*This would yield a Security level of H*

<sup>2</sup> Use of National Security Markings are not covered within this document

# NATIONAL INFORMATION ASSURANCE MANUAL

[IAP-NAT-INFA]



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## A. OVERVIEW

Information security is not only a technical issue, but also a business and governance challenge that involves risk management, reporting, and accountability. It is a top-down process requiring a comprehensive information security strategy that is explicitly linked to the organization's business processes and objectives.

Effective security requires the active engagement of executive management to address emerging threats and provide strong cyber security leadership. The term used to describe executive management's engagement is Information Security Governance. Information Security Governance consists of the set of policies and internal controls by which information security activities within an organization, irrespective of size or form, are directed and managed. Risk management, reporting, and accountability are core focus area of all information security policies and internal controls. Information security governance is a subset of an organization's overall corporate governance programme.

For security to be effective, it must be included in all organizational and business processes from end to end - physical, operational and technical. A formal information security strategy must be implemented by developing comprehensive information security policies consistent with the goals and mission of the organization. To provide effective governance, a set of enterprise standards for each policy must be developed to provide defined boundaries for acceptable processes and procedures. Education, training and awareness must also be considered to convey information to all personnel as part of an ongoing process to change behaviours not conducive to secure, reliable operations.

The strategy must then be implemented through a comprehensive information security programme that includes well-conceived and complete policies and standards.

# 1. Introduction & Scope

This manual applies to all Agencies<sup>1</sup> and their corresponding information assets. Where the Agency has outsourced or subcontracted any processes or activities they should ensure they comply with this manual and associated controls.

In summary, the information security programme must cover such elements as:

- Assignment of roles and responsibilities
- Assignment of ownership of information assets
- Classification of information assets
- Periodic assessments of threats and vulnerabilities
- Adequate, effective and tested controls
- Integration of security in all organizational processes
- Processes to monitor security elements
- Effective identity and access management processes for users and suppliers of information
- Education on information security requirements for all users, managers, and board members
- Training, as appropriate, in the operation of security processes
- Development and testing of plans for continuing the business in case of interruption or disaster
- Perpetual maintenance of the information security programme and change management processes

# 2. Usage of this Manual

This NIA Manual is designed to be used in conjunction with the National Information Classification Policy [IAP-NAT-DCLS] and applicable laws and regulations within State of Qatar. The manual provides, baseline controls which an organization should implement at minimum to protect their information system. The controls are grouped in the following security domains:

- Access Control Security [AM]
- Audit & Certification [AC]
- Business Continuity Management [BC]
- Change Management [CM]
- Communications Security [CS]
- Cryptographic Security [CY]
- Data Labeling [DL]
- Data Retention & Archival [DR]
- Documentation [DC]
- Gateway Security [GS]
- Governance Structure [IG]
- Incident Management [IM]
- Information Exchange [IE]
- Logging, Auditing & Security Monitoring [SM]
- Media Security [MS]

<sup>1</sup>The term 'Agency' will refer to all entities in Qatar (inclusive of Government, Semi-Government and Private entities). The term 'State Agency' will refer exclusively to Government entities.

- Network Security [NS]
- Personnel Security [PS]
- Physical Security [PH]
- Portable Device & Working Off-Site Security [OS]
- Product Security [PR]
- Risk Management [RM]
- Security Awareness [SA]
- Software Security [SS]
- System Usage Security [SU]
- Third Party Security Management [TM]
- Virtualization [VL]

*Within this manual, baseline controls (indicated by “\*\*”) are mandatory and must be followed at minimum and implemented respectively. These form auditable items, against which conformance will be sought. Agencies may implement over and above the baseline. In case NIA controls intersect with other Laws and regulations, Agency must consider compliance to both or whichever is providing higher degree of security.*

The following steps are required to use this manual:

- a. Use the National Information Classification Policy [IAP-NAT-DCLS] to classify all your information assets. This is a mandatory step before attempting to apply the policy and controls outlined in this document.
- b. Assets allocated security attributes of IO, A0 and C0 require no baseline controls. Some minimal controls MAY apply.
- c. Assets allocated security attributes of I1, A1, C1 or above, require compliance to all policy statements that are baseline at minimum; these are indicated by (\*). All sections of the manual have positive impact on integrity, availability and confidentiality of assets (to some degree), hence for each asset, the appropriate baseline controls should be implemented.
- d. Assets allocated security attributes of I2, A2, or C2 require additional controls (one or more) per applicable domain based on the results of a Risk Assessment (see section B- 2, Risk Management [RM] for more details). This assessment needs to be undertaken before these additional controls are chosen.
- e. Assets allocated security attributes of I3, A3, or C3 require multiple additional controls (two or more) per applicable domain based on the results of a Risk Assessment (see section B- 2, Risk Management [RM] for more details). This assessment needs to be undertaken before these additional controls are chosen.
- f. Implementation of the chosen controls needs to be undertaken for each asset. Implementation priority should be based on the aggregate security level (L,M,H), with High (H) assets being the highest priority for implementation.

### 3. Ownership & Maintenance

The manual is owned by Ministry of Transport and Communications, MOTC, and shall update the document as when deemed necessary.

### 4. References

[IAP-NAT-DCLS]	National Information Classification Policy, 2014
[IAP-NAT-IAFW]	Information Assurance Framework, 2008
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Defined terms are specified in the Information Assurance Framework, [IAP-NAT-IAFW]. The following defined terms are used in this document: **Agency, State Agency, Personal Information, Hot/Warm/Cold Sites, Q-CERT, MOTC, National Classification Markings.**

# B. SECURITY GOVERNANCE & SECURITY PROCESSES

This section provides controls on how Security Governance should be established in an Agency. It also highlights some of the key activities that need to be established to ensure security is maintained to this baseline standard. The activities covered are Risk Management, Third Party Security Management, Data Labelling, Change Management, Personnel Security, Security Awareness, Incident Management, Business Continuity Management, Logging, Auditing & Security Monitoring, Data Retention & Archival, Documentation, and finally Certification.

## 1. Governance Structure [IG]

### 1.1. Policy Objective

The objective of this policy is to define an Information Security Governance structure for **Agencies**.

### 1.2. Policy & Baseline Controls

In order to comply with this policy, **Agencies** SHALL:

- IG 1. **\*Appoint a person to own and manage the Information Security programme.** This person will be referred to as the 'Security Manager' within this NIA Manual.
- IG 2. **\*Allocate appropriate budget to staff and operate the Information Security Programme.**
- IG 3. **\*Ensure the Security Manager has a reporting line to the Agency's risk or internal audit function.**
- IG 4. **\*Ensure that the Agency head provides documented and continuous support for the development, implementation and ongoing maintenance of ICT security processes and infrastructure within their Agency.**
- IG 5. Where the Agency head delegates their authority to approve variations from requirements in this manual the delegate must have higher authority than the Security Manager.
- IG 6. Define information security responsibilities for the Security Manager, management, employees and/or outsourced/3rd party vendors, suppliers or contractors of the Agency.
- IG 7. **\*Ensure the Security Manager has:**
  - a. ready access to, and full support from, executive management
  - b. familiarity with information security and/or ICT security
  - c. a general knowledge of, and experience in, or necessary resources in systems used by the Agency, especially operating systems, access & authorisation control systems/facilities and auditing facilities.
  - d. a reasonable capacity and competence to support the Security Manager role.
- IG 8. Include the following responsibilities within the Security Manager's role:
  - a. identifying and recommending ICT security improvements to all business systems and business processes.
  - b. ensuring ICT security aspects are considered as part of the change management process.
  - c. ensuring the coordinating of development, maintenance and implementation of all ICT security documentation, in conjunction with the business managers.
  - d. ensuring timely reporting and adequate participation in investigation for ICT security incidents, with Q-CERT.
- IG 9. Ensure the Security Manager is responsible for:

- a. ensuring the development, maintenance, updating and implementation of security risk management plans, system security plans and any security procedures used.
  - b. providing technical security advice involved with system development, acquisition, implementation, modification, operation, support, and architecture
  - c. assisting the system manager to develop system security standards/policies
  - d. the certification of systems, when applicable
  - e. ensuring the agency has an appropriate ICT security awareness and training program.
  - f. the regular review of system security, system audit trails and logs and the integrity of system configurations.
- IG 10. Ensure the Security Manager is familiar with all security operating procedures relating to systems, including to the roles of system managers, system administrators and system users.

## 2. Risk Management [RM]

### 2.1. Policy Objective

This policy defines the requirement to conduct risk assessment to devise a suitable risk treatment plan for information assets, which have been classified as having an aggregate security level of Medium or High [IAP-NAT-DCLS] and keep the residual risk to an acceptable level depending on the Agency's risk appetite.

### 2.2. Policy & Baseline Controls

To meet the requirements of this policy **Agencies MUST**:

- RM 1. **\*Define a risk assessment process to identify threats and vulnerabilities to critical information assets (identified with an aggregate security level of Medium or High).**
- RM 2. **\*Based on the assessment, define a risk treatment plan to address threats and vulnerabilities.**
- RM 3. Ensure that the risk treatment plan and residual risk selected for information assets, with an aggregate security level of High, are vetted by senior management in the Agency.
- RM 4. Ensure that the controls chosen in RM2 & RM3 are monitored for effectiveness on a periodic basis.
- RM 5. Risk assessments should be integrated within the business process and revised whenever there is a change. Changes in the business or legal/regulatory environment may also warrant the need to do risk assessment.

## 3. Third Party Security Management [TM]

### 3.1. Policy Objective

The purpose of this policy is to ensure that the baseline policy and controls specified in this NIA Manual are maintained in service(s) that have been outsourced to a third party.

### 3.2. Policy & Baseline Controls

To meet the requirements of this policy **Agencies MUST** ensure:

- TM1. **\*The areas or services being outsourced remain the governance, compliance and risk management accountability of the Agency.**
- TM2. **\*They understand and acknowledge the risks associated with the outsourcing of their services.**
- TM3. That the security controls and baseline policy specified in this NIA Manual are included in the third party service delivery agreement or contract. This SHALL also apply to sub-contractors used by the third party.
- TM4. The third party SHALL be contractually required to regularly report on the outsourced service'(s)

security posture, including any incidents.

- TM5. The services, reports and records provided by the third party should be continuously monitored and reviewed, and audits should be conducted on defined periodic intervals.

## 4. Data Labelling [DL]

### 4.1. Policy Objective

This policy provides a high-level data labelling methodology for all Agencies for the purpose of understanding and managing data and information assets with regard to their level of classification. The policy explains the methodology and the processes for effective data labelling.

The rationale for labelling information assets per their classification levels is to ensure the Agency and the designated users of the information assets will be able to correctly identify and adequately allocate resources for the protection of the information assets.

### 4.2. Policy & Baseline Controls

Although this document provides an overall policy to achieve consistent data labelling, the Agency MAY be expected to extend these concepts to fit the needs of **National Classification Markings**.

To meet the requirements of this policy Agencies MUST:

- DL1. \*Serve as a labelling authority for the data and information that it collects or maintains.
- DL2. \*Rate all information assets in accordance with [IAP-NAT-DCLS]. All assets rated with a Confidentiality rating of C1, C2 or C3 SHALL be suitably marked the data label of Internal, Limited Access or Restricted respectively.
- DL3. \*By default, classify information assets as 'Internal' unless they are specifically for public release or consumption.
- DL4. Establish the data labelling system to support the "Need-To-Know" requirement, so that information will be protected from unauthorized disclosure and use.
- DL5. Establish data labelling education and awareness for its staff, employees and contractors.

## 5. Change Management [CM]

### 5.1. Policy Objective

The purpose of the Change Management Policy is ensure no unauthorized changes are made to information systems to which may otherwise expose, disclose or threaten CIA of information. It is necessary to document, review, approve and implement changes in a formal process oriented mechanism to minimize security or business risks and to derive maximum value from information resources.

### 5.2. Policy & Baseline Controls

To comply with this policy Agencies MUST:

- CM 1. \*Define and adhere to a documented change management process which may include the following or similar change categories:
  - a. Planned Major Change. Examples of planned major changes are:
    - Change that results in business interruption during regular business hours
    - Change that results in business or operational practice change
    - Changes in any system that affects disaster recovery or business continuity
    - Introduction or discontinuance of an information technology service
  - b. Maintenance and Minor Changes. Examples of this type of change are:
    - Application level security changes/patches
    - Operating system patches (critical, hotfixes, and service packs)

- Regularly scheduled maintenance
- Changes that are not likely to cause a service outage
- c. Emergency and Unplanned Outage Changes. Examples of this type of change are:
  - A severe degradation of service needing immediate action
  - A system/application/component failure causing a negative impact on business operations
  - A response to a natural disaster
  - A response to an emergency business need
  - A change requested by emergency responder personnel
- CM 2. Establish a cross functional Change Management Committee which must include representation from security and risk divisions
- CM 3. Document and Approve all proposed changes through the relevant Change Management Committee.
- CM 4. **\*Ensure that upon implementing any proposed change that may impact the security of the ICT system assess whether the system will require re-certification.** The system **MUST** comply with baseline requirements at minimum even after change implementation. Risk analysis may be required to ensure residual risk at acceptable level.
- CM 5. All associated system documentation is updated to reflect the change.
- CM 6. Emergency changes may be carried out on the basis of a verbal/informed approval from the Change management committee Head and the Business process owner. However, post emergency, the standard procedure for documenting and risk analysis is to be applied.

## 6. Personnel Security [PS]

### 6.1. Policy Objective

The objective of this policy is to ensure that personnel (staff, vendors, contractors, and others) deployed with the Agencies are aware of their security responsibilities and that suitable controls are in place to mitigate risks arising out of human element.

### 6.2. Policy & Baseline Controls

To meet the requirements of this policy Agencies SHALL:

- PS 1. Ensure that the Human Resources (HR) processes are aligned with information security policies and initiatives of the organization.
- PS 2. **\*Ensure the HR department documents security requirements and obligations and ways of working in HR manual, which is read, understood and available to all staff to ensure they are aware and comply with their obligations to information security.**
- PS 3. **\*Obtain, manage and retain information related to personnel with due care and due diligence, in line with the requirements for handling Personal Information as specified in the proposed information Privacy and Protection Law.**
- PS 4. Ensure information security responsibilities are included as part of the employees' job responsibilities and job descriptions and are applied throughout an individual's employment within the organization.
- PS 5. **\*Conduct adequate screening to ascertain the integrity of prospective candidates for employment and contractors (including sub-contracted workers).** The Agency may further extend this exercise to existing employees as deemed necessary to satisfy conditions arising out of factors such as but not limited to "Change of employee responsibilities" or "Suspicion raised on the conduct of an employee".
- PS 6. **\*Ensure that staff sign an agreement, on joining the Agency or when there is a change in job profile or duties, which outlines their security obligations and responsibilities. This SHALL include:**

- a. Confidentiality and non-disclosure obligations.
- PS 7. Ensure that adequate controls are in place to prevent personnel (employees, vendors, contractors and visitors) from making unauthorized disclosures, misusing or corrupting information as per Agency security policies.
- PS 8. Ensure that users access rights are restrictive to the information they need to fulfill their job requirements as per least privilege and need to have principles.
- PS 9. Implement a split of responsibilities over sensitive security processes and tasks, using the four eyes principles to ensure knowledge sharing and to avoid a single individual having full control over critical processes or tasks.
- PS 10. **\*Define, communicate and enforce a disciplinary process and ensure that employees are made aware of the process.** Disciplinary processes SHOULD be documented in the employee or HR manual.
- PS 11. **\*Ensure that vendors, contractors, delegates or guests visiting Agency premises are:**
  - a. Logged with unique identifiable information including date, time and purpose of admittance.
  - b. Provided with a visitor badge or identification tag.
  - c. Wearing a noticeable sign displaying their status as "visitor" at all times.
  - d. Made aware of their obligations in complying with the security policies of the Agency.
  - e. Escorted by Agency employees while accessing secure areas.
- PS 12. **\*Ensure that a change request from the HR department is generated when a change of duties or termination of contract of an employee, contractor or third party occurs.** This ensures that employees, contractors and third parties return Agency assets and physical & logical access are amended/removed as appropriate.

## 7. Security Awareness [SA]

### 7.1. Policy Objective

The purpose of this policy is to define criteria for a security training and awareness programme conducted by the Agency for its employees, contractors, temporary personnel, and other entities who may use or administer the Agency's Information System assets.

### 7.2. Policy & Baseline Controls

To meet the requirements of this policy, **Agencies MUST** ensure:

- SA 1. **\*A security awareness programme is defined and adequate budgets are allocated for its implementation.**
- SA 2. **\*As a minimum, such training includes**
  - a. Baseline requirements specified in this NIA Manual
  - b. Agency's security requirements
  - c. Legal and regulatory responsibilities
  - d. Business specific processes and controls
  - e. Acceptable use of information processing facilities, (e.g. log-on procedures, use of software packages, etc.)
  - f. Information on the enforcement and disciplinary process
  - g. Information on who to contact for further security advice and the proper channels for reporting information security incidents
- SA 3. **\*All employees of the Agency and, where relevant, contractors and third party users receive appropriate security awareness training regarding the Agency's policies and**

- procedures, as relevant for their job function, roles, responsibilities and skills.
- SA 4. Employees should be trained to recognize social engineering attempts on them and not disclose any information that could violate the Agency's security policies, such as during social gatherings, public events and training events.
  - SA 5. Contents of the security training and awareness are reviewed and updated regularly to reflect new trends, new threats, and changes to the Agency's information technology infrastructure or applicable laws and regulations.
  - SA 6. New employees are provided information security awareness training as part of the employee induction process and refresher training must be conducted on periodic basis.
  - SA 7. Training is followed up with an assessment, to ascertain the effectiveness of the programme, including maintaining of records of attendance of security awareness programmes.
  - SA 8. Indirect media such as posters, intranet, email, etc. may be used effectively to support the awareness programme.

## 8. Incident Management [IM]

### 8.1. Policy Objective

An information security incident is an event that impacts on the confidentiality, integrity or availability of an information system or network, through an act that contravenes prescribed security policy and or applicable laws or regulations. For the purposes of this policy, an incident is defined as a violation or imminent threat of violation of computer security policies, acceptable use policies, or standard security practices.

This policy intends to provide a reference for the Agency's management, administration and other technical and operational staff to facilitate the development of information security incident management capability, and to be used for preparation for, detection of and response to information security incidents.

### 8.2. Policy & Baseline Controls

To meet the requirement of this Policy, **Agencies MUST:**

- IM 1. **\*Appoint a person to own and manage the Incident Management programme, including a point of contact for all information security communications.**
- IM 2. Establish an information security incident response capability, based on the [IAP-NAT-DCLS] which is capable of making a periodic risk assessment (from threat, vulnerability and asset value) of data, processes, systems and networks in accordance with this Information Assurance Manual.
- IM 3. **\*Define procedures to detect, evaluate and respond to incidents.**
- IM 4. Define procedures to report, manage and recover from information security incidents, internally, with Q-CERT and with other Agencies.
- IM 5. **\*Create awareness amongst its staff to report incidents.**
- IM 6. Categorise and prioritize all incidents according to the incident criticality classification provided in Appendix C.
- IM 7. Co-ordinate with Q-CERT to create a repository of incidents in the Agency.
- IM 8. **\*Report all Criticality Level 1 incidents to Q-CERT within one (1) hour of identification.**
- IM 9. The Incident Management coordinator is responsible for developing and executing an annual Security Assurance Plan. This may include activities such as penetration testing, audit of security procedures, and incident scenario testing.

## 9. Business Continuity Management [BC]

### 9.1. Policy Objective

This document provides Agencies guidance in the development and implementation of a comprehensive Business Continuity (BC) plan to enable organizations to recover, operate and deliver essential business processes and services

including information technology services.

### 9.2. Policy & Baseline Controls

In order to comply with this policy, Agencies MUST ensure:

- BC 1. \*A person is appointed to own and manage the Business Continuity Programme.
- BC 2. \*A Business Continuity (BC) Plan is prepared to ensure continuance of critical processes and the delivery of essential services to an acceptable level. This plan SHALL include, and be based on Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO) for each Agency process.
- BC 3. The BC Plan covers disaster scenarios possible and adequate and includes disaster recovery provisions.
- BC 4. \*The BC Plan is maintained and updated to reflect the current status and requirements and relevant information is made available for all team members, employees and service providers.
- BC 5. A copy of the up to date BC Plan along with the necessary backup data tapes media and information is stored in a fire/tamper proof safe, along with an additional copy stored in an off-site location. Best practices state that offsite location must be in a geographically different zone than the primary data centre.
- BC 6. They identify alternate disaster recovery sites, whose readiness is determined by the RTO requirements. These sites may be Hot/Warm/Cold Sites depending upon the Agency's requirements.
- BC 7. They specify strong controls in contracts that involve outsourcing a portion of their business or information technology functions or business continuity services.
- BC 8. The BC Plan is periodically tested at least on an annual basis or when significant changes take place in the business or legal/regulatory requirements.
- BC 9. \*Awareness about the BC plan is created amongst its employees.

## 10. Logging & Security Monitoring [SM]

### 10.1. Policy Objective

The aim of this policy is to provide requirements for logging and monitoring to identify unauthorized data, application and resource access and to detect unauthorized changes or access privileges abuse.

### 10.2. Policy & Baseline Controls

To meet the requirements of this Policy, Agencies SHALL ensure that:

- SM 1. \*Adequate set of technical control implementations, or processes exist for logging, identification and continuous monitoring of access, changes, command execution to, any/all information assets for protection of business sensitive information.
- SM 2. \*Monitoring practices are established in accordance with criticality of the infrastructure, data, and applications. It is RECOMMENDED to provide a 24/7 monitoring for C3, I3 and A3 classified infrastructures and ensure that monitoring responsibilities are allocated as specified in clause PS9, section B- 6, Personnel Security [PS].
- SM 3. Monitoring activity is in line with regulatory and legal frameworks such as the proposed Information Privacy & Protection Law and SHALL cover use or access to systems.
- SM 4. \*They enable logging on all infrastructure and data processing equipment, and applications that are associated with the access, transmission, processing, security, storage, and/or handing of information classified with a confidentiality rating of C2 and above.
- SM 5. They classify all security logs with a confidentiality rating of C3, while application and system logs SHALL be classified in accordance with the confidentiality rating of the system.
- SM 6. Logs containing Personal Information have appropriate privacy protection measures in place, in



- accordance with the Proposed Information Privacy & Protection Legislation..
- SM 7. **\*These logs are retained for a minimum of ninety (90) days and a maximum depending on criticality assessments and sector specific laws and regulations.**
  - SM 8. Agency's MUST enable audit logging or log capture, to record date, time, authentication activity with unique user and system identifiers, including all failure or change actions, further including commands issued and output generated to provide enough information to permit reconstruction of incidents and move system to its original state.
  - SM 9. Exceptions are identified and reported in accordance with the Incident Handling policy, as defined in section B- 8, Incident Management [IM].

## 11. Data Retention & Archival [DR]

### 11.1. Policy Objective

The objective of the policy is to provide direction on setting up the retention period for information and the necessary security controls to protect information in its lifetime.

### 11.2. Policy & Baseline Controls

To meet the requirements of this policy, **Agencies** SHALL ensure that:

- DR 1. **\*They determine and document the retention periods of suitable information assets including but not limited to the critical information assets that they hold. Data retention periods SHALL, at a minimum, be governed by:**
  - a. Agency policies & needs
  - b. Regulatory requirements
  - c. Legal requirements
- DR 2. **\*Data, which needs to be retained, is stored ensuring confidentiality, integrity and availability and that it can be accessed for defined future purposes.**
- DR 3. Personal and sensitive Information is not retained for longer than it is necessary as per the Proposed Information Privacy & Protection Legislation.
- DR 4. Processes for backup, archival and recovery of data have corresponding procedures which ensure that the integrity and confidentiality of the data is retained.
- DR 5. **\*Archived data retains its classification markings and is secured accordingly.**
- DR 6. The archiving technology deployed is regularly reviewed to ensure that it does not suffer from obsolescence and archived data is maintained in a state that allows successful recovery.

## 12. Documentation [DC]

### 12.1. Policy Objective

The objective of this policy is to define the minimum set of security documentations that a **Agency** needs to produce, as well as how these documents should be protected and maintained.

### 12.2. Policy & Baseline Controls

In order to comply with this policy **Agencies** SHALL:

- DC 1. **\*Produce a Agency security policy, incorporating the requirements of this NIA Manual.**
- DC 2. Ensure that every system that is determined to be critical to the Agency is covered by a system security plan/standard. Agencies SHOULD ensure that, where necessary, security operating procedures are created and documented.
- DC 3. Ensure system security standards and procedures are aligned and consistent with the Agency's security policies and objectives.
- DC 4. **\*By default, classify ICT security documentation as a minimum of C3/RESTRICTED**

- DC 5. \*Review and update documentation periodically to ensure that they are up to date and current.

## 13. Audit & Certification [AC]

### 13.1. Policy Objective

The objective of this policy is to ensure that a adequate governance and security improvement programme is established and managed by the Agency, which is in compliance with the National Information Classification Policy [IAP-NAT-DCLS] and this NIA Manual.

### 13.2. Policy & Baseline Controls

In order to comply with this policy **Agencies** SHALL:

- AC 1. \*Ensure the establishment of a governance and security improvement programme in compliance with the National Information Classification Policy [IAP-NAT-DCLS] and this NIA Manual.
- AC 2. \*Comply with relevant provisions of State Laws and regulations that exist at the time and those, which may be amended and / or added at a later date in time.
- AC 3. \*Be audited by the Certification Body or an independent body designated by MOTC.
- AC 4. \*Ensure that an audit of its Information System (infrastructure, people and processes) is carried out at least once every year or whenever it undergoes a change that may impact the security of the Agency.
- AC 5. \*Ensure that the identified scope of the audit process includes all information assets, people and processes.
- AC 6. \*Ensure that recertification is carried out where any change or new finding invalidates or calls into question the current accreditation. Full certification is required for major changes affecting the basic security design of a system and a partial process is needed where the change is moderate or affects two or more security requirements.
- AC 7. \*Ensure that all non-conformance is fixed in a defined timeline.
- AC 8. \*Ensure that any exemptions are approved by the Certification Body.

# C. SECURITY CONTROLS

This section of the NIA Manual covers mainly technical control areas that a Agency needs to implement as baseline security to be compliant to this NIA Manual. The areas covered are Communications Security, Information Exchange, Gateway Security, Product Security, Software Security, System Usage, Media Security, Access Control, Cryptographic Security and finally policy covering portable devices, working off-site and Virtualization.

## 1. Communications Security [CS]

### 1.1. Policy Objective

The objective of the policy is to ensure **Agencies** take the necessary measures to ensure potential emanation security and physical security weaknesses associated with cabling is minimised.

### 1.2. Policy & Baseline Controls - Cabling

In order to comply with this policy, **Agencies** MUST ensure:

- CS 1. Conduits (tubes, ducts or pipes) are used to protect cables from tampering, sabotage or accidental damage, when they are carrying data classified at C4 and above. This control is RECOMMENDED for data classified at C2 and above.
- CS 2. \*Separate cabling distribution is used for systems dealing with information classified at C4 and above

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- CS 3. Conduits installed in public or visitor areas are not labelled in a manner that attract undue attention by people who may not have the appropriate security clearances or a need-to-know of the existence of such cabling
  - CS 4. **\*They maintain a register of cables.** The register SHOULD record at least the following:
    - a. cable identification number,
    - b. classification,
    - c. source,
    - d. destination, and
    - e. floor plan diagram.
  - CS 5. **\*Inspect cables for inconsistencies with the cable register on a regular basis**
  - CS 6. Agency's MAY provision for redundant communication pathways to ensure continued connectivity.

### 1.3. Policy & Baseline Controls - Telephones & Faxes

In order to comply with this policy, **Agencies MUST:**

- CS 7. Advise users of the maximum permitted classification level for conversations of both internal and external telephone connections, as determined by the examination of the internal telephone system and the level of the encryption, if any, on external connections
- CS 8. **\*Ensure that the speakerphone feature is disabled during telephonic/video conversations where information classified at C3 or above is likely to be discussed and where it may be overheard.**
- CS 9. **\*Ensure that remote initiation of conferencing equipment is not enabled where it is installed in a sensitive location.**
- CS 10. **\*Ensure that rooms designated for communication of sensitive material or information or meetings have appropriate controls for preventing the leakage of sound.**
- CS 11. **\*Ensure that fax machines on both ends are secured using encryption devices, while sending information classified as C2 and above.**
- CS 12. Ensure that all of the standards for the use of fax machines are met at both ends for the level of classification to be sent, and the sender makes arrangements for the receiver to:
  - a. collect the information from the fax machine as soon as possible after it is received, and
  - b. notify the sender if the fax does not arrive within an agreed amount of time, e.g. 10 minutes.

## 2. Network Security [NS]

### 2.1. Policy Objective

This policy establishes the baseline for the general use and connection of IT networks. Networks have opened the doors to unlimited processing by sharing and inter connection of devices and given birth to concepts like distributed applications, GRID systems etc. However the introduction of networks has posed a slew of concerns, the security of multiple systems as well as the security of the interconnecting network is equally important, especially if public access wide area networks are used.

The risks of connecting to outside networks must be weighed against the benefits. It may be desirable to limit connection to outside networks to those hosts that do not store sensitive material and keep vital machines isolated.

### 2.2. Policy & Baseline Controls - Network Management

In order to comply with this policy **Agencies MUST** ensure that:

- NS 1. **\*Details of internal network and system configuration, employee or device related directory services and other sensitive technology are not publicly disclosed or enumerable by unauthorized personnel.**
- NS 2. They remove or disable all the default accounts e.g. root, administrator, etc. or change the password

- as specified in section C-6, Software Security [SS].
- NS 3. Network configuration is kept under the control of the network manager or similar and all changes to the configurations are:
- a. approved through a formal change control process as defined in section B- 5, Change Management [CM]
  - b. documented, and comply with the network security policy and security plan as defined in section B- 12, Documentation [DC].
  - c. regularly reviewed. Old configurations as mandated by the Agency's procedures are maintained as part of change revision. The frequency of reviewing configuration shall depend on the Agency risk and processes.
- NS 4. **\*For each managed network the Agency has:**
- a. a high level diagram showing all connections into the network, and
  - b. a logical network diagram showing all network devices.
  - c. processes to update NS4 (a) & (b), as network changes occur
  - d. include a "Current at <date>" label on each page.
- NS 5. **\*Networks are designed and configured to limit opportunities of unauthorized access to information transiting the network infrastructure.** Agencies SHOULD use the following technologies to meet this requirement:
- a. switches instead of hubs,
  - b. port security on switches to limit access and disable all unused ports
  - c. routers and firewalls segregating parts of the network on a need-to-know basis,
  - d. IPSEC/IP Version 6
  - e. application-level encryption
  - f. an automated tool that compares the running configuration of network devices against the documented configuration
  - g. network edge authentication
  - h. Restrict and manage end-user devices communicating to Agency network through techniques such as MAC address filtering.
  - i. IPS/IDS to detect/prevent malicious activity within the network
  - j. Time and day restriction.
- NS 6. **\*Management networks adopt the following protection measures:**
- a. dedicated network are used for management devices, i.e. implement a separate management VLAN, or physically separate infrastructure,
  - b. secure channels e.g. by using VPNs, SSH, etc.

### 2.3. Policy & Baseline Controls – Virtual LANs (VLANs)

In order to comply with this policy Agencies MUST ensure that:

- NS 7. VLANs are used to separate IP telephone traffic, in business critical networks.
- NS 8. **\*Administrative access is only permitted from the most highly classified VLAN to one at the same level of classification or of lower classification.**
- NS 9. **\*They implement all security measures recommended by the agency's risk assessment and the hardening guidelines by the vendor of the switch.**
- NS 10. **\*Trunking/port mirroring SHALL not be used on switches managing VLANs of differing classifications.**

### 2.4. Policy & Baseline Controls – Multifunction Devices (MFDs)

In order to comply with this policy **Agencies** MUST ensure that:

- NS 11. **\*Network-connected MFDs are not used to copy documents classified above the level of the connected network**
- NS 12. Where network-connected MFDs have the ability to transmit information via a gateway to another network, agencies MUST ensure that:
  - a. each MFD applies user identification, authentication and audit functions for all information transmitted by users from that MFD,
  - b. these mechanisms are of similar strength to those required for workstations on that network, and
  - c. **\*the gateway can identify and filter the information in accordance with the requirements for the export of data.**
- NS 13. **\*There is no direct connection from an MFD to a telephone network of a lower classification unless the MFD has been evaluated, and the scope of the evaluation includes:**
  - a. information flow control functions to prevent unintended and unauthorized data flows,
  - b. data export controls capable of blocking information based on information classification,
  - c. authentication, and audit data generation and protection,
- NS 14. They deploy MFDs after developing a set of policies, plans and procedures governing the use of the equipment.
- NS 15. Information classified at C1 or above is not retained permanently in the MFD. Where the MFD has features to schedule jobs, sufficient manual/automatic controls or configurations SHALL exist to remove the information from its memory once the job is complete.
- NS 16. MFDs follow the procedures specified in section C, 8.3, Media Sanitization.

### 2.5. Policy & Baseline Controls – Domain Name Service (DNS) Servers

In order to comply with this policy **Agencies** MUST ensure that:

- NS 17. A separate internal DNS server is set up and placed in the internal network for internal domain information that is not disclosed to the Internet.
- NS 18. DNS information that should be made public either has a locally hosted and secured (bastion server) server. State Agencies may also use the Government DNS which is part of the Government Network as the Primary DNS.
- NS 19. DNS servers are deployed to ensure there is no single points of failure in their service, they are security-hardened and security is proactively maintained.
- NS 20. **\*Zones files are digitally signed, and cryptographic mutual authentication and data integrity of zone transfers and dynamic updates is provided.**
- NS 21. **\*Cryptographic origin authentication and integrity assurance of DNS data is provided.**
- NS 22. DNS services including zone transfers are provided to authorized users only.
- NS 23. **\*Cryptographic functions related to NS 20 and NS 21 above, use a hardware security module for both key management and cryptographic processing as specified in section C- 10, Cryptographic Security [CY].**

### 2.6. Policy & Baseline Controls – Internet Security

In order to comply with this policy **Agencies** MUST ensure that:

- NS 24. All software and files downloaded from the Internet are screened and verified against malicious software, including mechanisms to scan HTTP traffic.
- NS 25. **\*The Internet gateway denies all Internet services unless specifically enabled.**
- NS 26. Web browsers running on user's workstation are properly configured and updated. Agencies SHOULD reference the following guidelines when configuring web browsers:

- a. Disable any active content options, e.g. Java, JavaScript and ActiveX, in the email application/ browser, except when communicating with a trusted source
- b. Use up-to-date browser versions and apply latest security patches
- c. Disable password auto-complete/password remembering features
- d. Enable pop-up blocking features, except when communicating with trusted sites
- e. Regularly remove cache files or temporary files of the browsers to protect data privacy
- f. Disable automatic installation of plug-ins, add-ons or software

NS 27. **\*They have the capability needed to monitor the traffic, deduce traffic patterns, usage etc. See section B- 10, Logging & Security Monitoring [SM] for more information.**

### 2.7. Policy & Baseline Controls – E-Mail Security

In order to comply with this policy **Agencies MUST** ensure that:

- NS 28. E-mail servers are hardened as per best practices and configured as a bastion server. If technically and operationally feasible, information revealing the specific details of internal systems or configurations **MUST** be avoided in email headers to avoid the disclosure of system information to external parties.
- NS 29. TLS protection is used with the SMTP Mail server in line with section C-10, Cryptographic Security [CY].
- NS 30. **\*They implement the email Sender Policy Framework (SPF) [RFC4408]. Agencies SHOULD only send undeliverable or bounce emails to senders that can be verified via SPF.**
- NS 31. **\*Internal email distribution lists are secured to prevent access from external parties to reduce the risk of unsolicited email.**
- NS 32. Email gateways are employed to scan all incoming and outgoing emails to ensure it complies with the Agency's security policy and that it is free of any malicious code.

### 2.8. Policy & Baseline Controls – Wireless Security

In order to comply with this policy **Agencies MUST** ensure that:

- NS 33. **\*Where wireless LANs (WLANs) are used, they are used with sufficient authentication and transmission encryption measures in place, complemented by proper security management processes and practices.**
- NS 34. **\*Strong wireless security protocols such as WPA2 and EAP-TLS are used.** However, such wireless security protocol should not be solely relied upon to protect data confidentiality and integrity. Agency **SHALL** deploy dynamic key exchange mechanisms, secure Virtual Private Network (VPN) on top of wireless network if classified data, C3 and above, is to be communicated over wireless networks. WEP **SHALL NOT** be implemented within any network.
- NS 35. **\*A good inventory of all devices with wireless interface cards is maintained. Once a device is reported missing, consider modifying the encryption keys and SSID.**
- NS 36. **\*Network administrators regularly scan for "rouge" or "unauthorized" wireless access points.**
- NS 37. Access points are located to minimize network tapping from publicly accessible area.
- NS 38. The client side settings for 802.1x **MUST** be secured. Some of the techniques are: server certificate validation by selecting the CA certificate, specify the server address and disable it from prompting users to trust new certificates or servers.
- NS 39. **\*The network default name, encryption keys and Simple Network Management Protocol (SNMP) community strings (and any insecure configuration) is changed at installation. SSID **SHALL NOT** reflect the name of any Agency's departments, system name or product name.**
- NS 40. For non-public wireless access points, encryption keys are regularly changed and SSID broadcasting is disabled. Where applicable MAC address filtering **SHOULD** also be considered.

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- NS 41. \*A firewall or router is in place between the access point and the Agency's network to filter connections. Restricted firewall rules **MUST** be applied to allow only needed ports to pass from the wireless segment.
  - NS 42. WIPS/WIDS installation is recommended for networks with C3+ to monitor threats from wireless installations like rouge Aps, DOS attacks, etc.
  - NS 43. Use multiple SSIDs with different configurations for different VLANs, client authentication methods, etc. For example, contract staff or guest may use a different WIFI connections. Guest WIFI may have lower security and may only allow for connecting to the internet.

### 2.9. Policy & Baseline Controls – Clock Synchronization

In order to comply with this policy **Agencies** **MUST** ensure that:

- NS 44. NTP servers **MUST** be secured as per best practices.
- NS 45. \*Where a computer or communications device has the capability to operate a real-time clock, it shall be set to an agreed standard, e.g., Universal Coordinated Time (UTC) or local standard time. As some clocks are known to drift with time, there shall be a procedure that checks for and corrects any significant variation.
- NS 46. State Agency's **MAY** use the authorized Qatari Government time server (a part of the Government Network) as the primary NTP server.
- NS 47. All servers and network devices are synchronized with the local Agency NTP server which is synchronized as specified in NS45 and NS46.

### 2.10. Policy & Baseline Controls – Virtual Private Networks (VPNs)

In order to comply with this policy **Agencies** **MUST** ensure that:

- NS 48. VPNs carrying classified data at C3 or above, **SHALL** authenticate using two-factor authentication :
  - first one a one-time password authentication such as a token device or a public/private key system with a strong passphrase
  - Second username and password using external authentication server (LDAP,Radius , TACACS .etc.)
- NS 49. VPNs disconnect automatically from Agency's network after a pre-defined period of inactivity. The user **SHALL** be required to logon again to reconnect to the network.
- NS 50. \*Dual (split) tunneling is not permitted unless suitable controls are in place. **Agencies SHOULD only permit one network connection at a time.**
- NS 51. All computers connected to a Agency's networks via VPN are equipped with personal security software, latest security patches, anti-virus software and malicious code detection and repair software. This security software **SHALL** be activated at all time and with the latest virus signatures and malicious code definitions.
- NS 52. Gateway-level firewalls are installed to control network traffic from VPN clients to authorized information systems or servers.

### 2.11. Policy & Baseline Controls – Voice over IP Security (VoIP)

In order to comply with this policy **Agencies** **MUST** ensure that:

- NS 53. Voice and data are separate networks. The separation **SHOULD** be physical, but use of Virtual LANS is permitted. The voice gateway, which interfaces with the PSTN segregates H.323, SIP, or other VoIP protocols from the data network.
- NS 54. VoIP capable gateways and other appropriate security mechanisms are employed.
- NS 55. \*They evaluate and use security enabled protocols such as Secure Real Time Protocol (SRTP) and disable unnecessary voice protocols.
- NS 56. \*Proper physical counter measures are in place to protect the VoIP infrastructure.
- NS 57. \*Adequate call log monitoring is implemented.

- NS 58. \*Soft-phones, if permitted are through a secure connection. e.g. secure VPN.
- NS 59. Backup power is provided to POE VoIP phone devices in case of failure of power.
- NS 60. Strong authentication and access controls are implemented to protect the voice gateway system.
- NS 61. IPSEC or Secure Shell (SSH) is used for all remote management and auditing access.
- NS 62. Contingency plans for making voice calls are developed if VoIP systems become unavailable.
- NS 63. \*Port security features are enabled on the network LAN switches that connect VoIP devices.

### 2.12. Policy & Baseline Controls – Internet Protocol Version 6

In order to comply with this policy Agencies MUST ensure that:

- NS 64. \*A proper risk assessment is conducted by the Agency to assess the security merits and demerits of IPv4 and IPv6 technology. Agencies SHOULD start considering IPv6 deployment.
- NS 65. A proper risk assessment is conducted if the Agency decided to implement a dual-stack environment.
- NS 66. Recertification is requested where Agencies deploy IPv6 in their network.

## 3. Information Exchange [IE]

### 3.1. Policy Objective

The purpose of this policy is to provide baseline security requirements when a Agency is exchanging confidential information with other government agencies or with other third parties.

### 3.2. Policy & Baseline Controls

To meet the requirements of this policy Agencies SHALL:

- IE1. Prior to establishing cross-domain connectivity, the Agency evaluates, understands and accepts the structure, security and risks of other domains. This risk review SHALL be documented for compliance requirements.
- IE2. \*When intending to connect an agency network to another secured network, they:
  - a. obtain a list of networks to which the other network is connected from the other network's Accreditation, Authority and System Manager,
  - b. examine the information from both sources to determine if any unintended cascaded connections exist, and
  - c. consider the risks associated with any identified cascaded connections prior to connecting the agency network to the other network, particularly where a connection to an un-trusted network such as the internet may exist.
- IE3. Ensure that necessary agreements (specifically confidentiality agreements) between the entities exchanging information have been established prior to information exchange. Agreements SHALL provide information on responsibilities, information exchange notification procedure, technical standards for transmission, identification of couriers, liabilities, ownership and controls. For vendors and 3rd parties a formal Non-Disclosure Agreement (NDA) SHALL be used. Appendix D provides a NDA template.
- IE4. Ensure media which is used to exchange information is protected against unauthorized access, manipulation or misuse within or outside the Agency environment.
- IE5. Maintain the classification and protection of information that has been obtained from another Agency.
- IE6. Maintain appropriate levels of physical protection for media in transit and store in packaging that protects it against any hazard that would render the content unreadable.
- IE7. \*Ensure only reliable and trusted courier service or transport organization SHALL be used based on a list of known and authorized couriers.



- IE8. **\*Protect information exchanged via electronic messaging from unauthorized access, change or interruption of service.**
- IE9. Ensure secure messaging (information is digitally signed and/or encrypted) is used for all information classified at C3 or above. Agencies SHALL use Secure Multipurpose Internet Mail Extension (S/MIME), equivalent or better protocol for secure messaging as specified in clause CY5, section C- 10, Cryptographic Security [CY].
- IE10. **\*Attach the following email disclaimer, or similar, to all outgoing email:**  
 "The information in this email, including attachments, may contain information that is confidential, protected by intellectual property rights, or may be legally privileged. It is intended solely for the addressee(s). Access to this email by anyone else is unauthorized. Any use, disclosure, copying, or distribution of this email by persons other than the designated addressee is prohibited. If you are not the intended recipient, you should delete this message immediately from your system. If you believe that you have received this email in error, please contact the sender or < Agency's name & contact information>. Any views expressed in this email or its attachments are those of the individual sender except where the sender, expressly and with authority, states them to be the views of < Agency>."
- IE11. Exercise due diligence to ensure that any information sent/received is free of viruses, trojans and other malicious code
- IE12. Ensure information exchanged between systems is secured against misuse, unauthorized access or data corruption. For transmitting information classified at C2, I2 or above, authenticated and encrypted channels SHALL be used as specified in CY5, section C- 10, Cryptographic Security [CY].
- IE13. **\*Limit the information provided to the general public (via media outlets), to sanitized and approved information, through a designated and trained media relation spokesperson.**

## 4. Gateway Security [GS]

### 4.1. Policy Objective

The main purpose of this policy is to provide minimum security requirement for securing gateways used for inter-agencies communications as well as for external link communications.

The deployment of a controlled gateway can be used to ensure that only allowable information is transferred between the gateway and the connected networks. This can be used to preserve need-to-know requirements and to prevent malicious activities propagating from one network connected to another. Gateways include routers, firewalls, content filtering solutions and proxies.

### 4.2. Policy & Baseline Controls - General

In order to comply with this policy, **Agencies** MUST ensure that:

- GS 1. Networks are protected from other networks by gateways and data flows are properly controlled
- GS 2. Gateways connecting Agency networks to other Agency networks, or to uncontrolled public networks, are implemented:
  - a. with an appropriate network device to control data flow
  - b. with all data flows appropriately controlled
  - c. with gateway components physically located within an appropriately secured server room.
- GS 3. Only authorized and trained staff manage and maintain gateways
- GS 4. **\*Administrative or management access to gateways processing or transmitting information classified at C3 or above is only provided based on dual control and the four eyes principles.**
- GS 5. Information exchanged through gateways is labelled as per the National Information Classification policy [IAP-NAT-DCLS] and protected as specified in this document. Gateways SHALL be classified inline with the information they are transmitting.

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- GS 6. Demilitarized zones (DMZs) are used to separate externally accessible systems from uncontrolled public networks and internal networks via usage of firewalls and other network security capable equipment
- GS 7. Gateways:
- a. are the only communications paths into and out of internal networks
  - b. by default, deny all connections into and out of the network
  - c. allow only explicitly authorised connections
  - d. are managed via a secure path isolated from all connected networks
  - e. provide sufficient audit capability to detect gateway security breaches and attempted network intrusions
  - f. provide real-time alarms.
- GS 8. \*Gateways are hardened prior to any implementation on production site and are protected against:
- a. Malicious code and vulnerabilities
  - b. Wrong or poor configurations
  - c. Account compromise and privilege escalation
  - d. Rogue network monitoring
  - e. Denial of service (DoS) attacks
  - f. Information/data leakage
- GS 9. \*Monitoring and supervision of gateways is in place and include threat prevention mechanisms, logging, alerts and surveillance of equipments. Section B- 10, Logging & Security Monitoring [SM].
- GS 10. Gateways block or drop any data identified by a content filter as suspicious, including at least the following:
- a. \*Offensive language or attachments
  - b. Malware infected content
  - c. DoS attacks
  - d. \*Categories of website/content defined as inappropriate in the proposed Cyber Crime Law including sites hosting obscene material, gambling sites, etc.

#### 4.3. Policy & Baseline Controls – Data Export

In order to comply with this policy, **Agencies** MUST ensure that:

- GS 11. System users:
- a. are held accountable for the data they export
  - b. are instructed to perform a protective marking check, a visual inspection and a metadata check if relevant on whether the information can be exported
- GS 12. Data exports are either:
- a. performed in accordance with processes and/or procedures approved by the Agency; or
  - b. individually approved by the information security manager.
- GS 13. \*Export of data to a less classified system is restricted by filtering data using at least checks on classification labels.
- GS 14. \*Data exports are checked, ensuring:
- a. keyword searches are performed on all textual data
  - b. any unidentified data is quarantined until reviewed and approved for release by a trusted source

other than the originator.

#### 4.4. Policy & Baseline Controls – Data Import

In order to comply with this policy, **Agencies MUST** ensure that:

- GS 15. System users:
  - a. are held accountable for the data they import
  - b. are instructed to perform a protective marking check, a visual inspection and a metadata check if relevant.
- GS 16. **\*Data imports are either:**
  - a. performed in accordance with processes and/or procedures approved by the Agency; or
  - b. individually approved by the information security manager.
- GS 17. **\*Data imported to a Agency system is scanned for malicious and active content.**

## 5. Product Security [PR]

### 5.1. Policy Objective

This policy establishes the minimum security for selecting and acquiring information products through a proper selection and acquisition process. **Agencies MUST** ensure that selected products are chosen after an independent evaluation process that meets the security requirements listed in this policy.

### 5.2. Policy & Baseline Controls

In order to comply with this policy, **Agencies MUST** ensure that:

- PR 1. The process for product selection is carried out with due diligence and ensures product and vendor independence.
- PR 2. Products are classified and labeled as per National Information Classification policy [IAP-NAT-DCLS].
- PR 3. **\*The selection process includes proper identification of vendor, screening of vendors and evaluation criteria definition which should include as a minimum:**
  - a. Vendor status and identification, including location and ownership
  - b. Financial situation
  - c. References from previous successful engagements
  - d. The ability of the vendor to build and/or maintain appropriate controls as determined by a risk assessment
- PR 4. Proper testing and effective matching between vendor's claim and functionality is carried out, to avoid loss of confidentiality, integrity and/or availability.
- PR 5. **\*Security evaluation of the product is done on a dedicated evaluation configuration including functionality tests, security tests and patching to protect against potential threats and vulnerabilities.**
- PR 6. Delivery of products is consistent with the Agency's security practice for secure delivery.
- PR 7. Secure delivery procedures SHALL include measures to detect tampering or masquerading.
- PR 8. **\*Products have been purchased from developers that have made a commitment to the ongoing maintenance of the assurance of their product.**
- PR 9. Product patching and updating processes are in place. Updates to of products SHALL follow the change management policies specified in section B- 5, Change Management [CM].

## 6. Software Security [SS]

### 6.1. Policy Objective

The purpose of this policy is to define the importance of including security in the process of software development and acquisition, rather than adding it as an add-on. This policy defines security as it applies to the various phases of the Software / System Development Life Cycle (SDLC). This policy also covers security controls for commercial applications deployed within an Agency.

### 6.2. Policy & Baseline Controls – Software Development & Acquisition

In order to comply with this policy, **Agencies MUST** ensure:

- SS 1. Security is considered in all phases of the SDLC and that it is an integral part of all system development or implementation project.
- SS 2. **\*All applications (including new and developed) are classified using the National Information Classification Policy [IAP-NAT-DCLS] and accorded security protection appropriate to its Confidentiality, Integrity and Availability ratings.**
- SS 3. Security requirements (functional, technical and assurance requirements) are developed and implemented as part of system requirements.
- SS 4. **\*Dedicated test and development infrastructure (systems and data) are available and is separate from production systems.** Furthermore, information flow between the environments SHALL be strictly limited according to a defined and documented policy, with access granted only to system users with a clear business requirement and write access to the authoritative source for the software SHALL be disabled.
- SS 5. All applications (acquired and/or developed) are available for production use only after appropriate quality and security assurance tests and checks to ensure that the system confirms and complies with the intended security requirements.
- SS 6. **\*Software developers use secure programming practices when writing code, including:**
  - a. complying with best practices, for example the Mitre top 25 most dangerous programming errors [Mitre]
  - b. designing software to use the lowest privilege level needed to achieve its task
  - c. denying access by default
  - d. checking return values of all system calls
  - e. validating all inputs.
- SS 7. Software should be reviewed and/or tested for vulnerabilities before it is used in a production environment. Software SHOULD be reviewed and/or tested by an independent party and not by the developer.
- SS 8. System (acquired and/or developed) complies with all legal requirements including license, copyrights, IPR etc.
- SS 9. All systems (acquired and/or developed) are adequately documented.
- SS 10. **\*Source code of custom developed critical applications is available and in the case of commercial applications (serving critical applications / processes) a Agency SHOULD look into options of arranging an escrow for the source code.**
- SS 11. Prior to commissioning of applications, they are certified as specified in section B- 13, Audit & Certification [AC].

### 6.3. Policy & Baseline Controls – Software Applications

In order to comply with this policy, **Agencies MUST** ensure:

- SS 12. All server and workstation security objectives and mechanisms are documented in the relevant system security plan.
- SS 13. **\*Workstations use a hardened standard operating environment (SOE) covering:**

- a. removal of unwanted software
  - b. disabling of unused or undesired functionality in installed software and operating systems
  - c. implementation of access controls on relevant objects to limit system users and programs to the minimum access needed to perform their duties
  - d. installation of software-based firewalls limiting inbound and outbound network connections
  - e. configuration of either remote logging or the transfer of local event logs to a central server.
- SS 14. \*Potential vulnerabilities in their SOEs and systems are reduced by:**
- a. removing unnecessary file shares
  - b. ensuring patching is up to date
  - c. disabling access to all unnecessary input/output functionality.
  - d. removing unused accounts
  - e. renaming default accounts
  - f. replacing default passwords.
- SS 15.** High risk servers e.g. Web, email, file and Internet Protocol telephony servers, etc. having connectivity to uncontrolled public networks:
- a. maintain effective functional separation between servers allowing them to operate independently
  - b. minimise communications between servers at both the network and file system level, as appropriate
  - c. limit system users and programs to the minimum access needed to perform their duties.
- SS 16.** Check the integrity of all servers whose functions are critical to the Agency, and those identified as being at a high risk of compromise. Wherever possible these checks SHOULD be performed from a trusted environment rather than the system itself.
- SS 17.** Store the integrity information securely off the server in a manner that maintains integrity
- SS 18.** Update the integrity information after every legitimate change to a system
- SS 19.** **\*As part of the Agency’s ongoing audit schedule, compare the stored integrity information against current integrity information to determine whether a compromise, or a legitimate but incorrectly completed system modification, has occurred**
- SS 20.** Resolve any detected changes in accordance with the Agency’s information and communications technology (ICT) security incident management procedures.
- SS 21.** **\*All software applications are reviewed to determine whether they attempt to establish any external connections.** If automated outbound connection functionality is included, Agencies SHOULD make a business decision to determine whether to permit or deny these connections, including an assessment of the risks involved in doing so.

#### 6.4. Policy & Baseline Controls – Web Applications

In order to comply with this policy, Agencies MUST ensure:

- SS 22.** **\*All active content on their Web servers is reviewed for security issues. Agencies SHOULD follow the documentation provided in the Open Web Application Security Project (OWASP) guide to building secure Web applications and Web services.**
- SS 23.** Connectivity and access between each Web application component is minimised.
- SS 24.** That Personal Information and sensitive data is protected whilst in storage and in transmission using appropriate cryptographic controls
- SS 25.** Critical sector websites that need to be strongly authenticated, use SSL certificates provided from a Certificate Service Provider (CSP) licensed in the State of Qatar.
- SS 26.** Web application firewall (WAF) MUST be used for applications with MEDIUM or higher risk rating.

## 6.5. Policy & Baseline Controls – Databases

In order to comply with this policy, **Agencies** MUST ensure:

- SS 27. All information stored within a database is associated with an appropriate classification if the information:
  - a. could be exported to a different system, or
  - b. contains differing classifications and/or different handling requirements.
- SS 28. Agencies should ensure that classifications are applied with a level of granularity sufficient to clearly define the handling requirements for any information retrieved or exported from a database.
- SS 29. **\*Database files are protected from access that bypasses the database's normal access controls.**
- SS 30. Databases provide functionality to allow for auditing of system users' actions.
- SS 31. **\*System users who do not have sufficient privilege to view database contents cannot see associated metadata in a list of results from a search engine query.** If results from database queries cannot be appropriately filtered, agencies MUST ensure that all query results are appropriately sanitized to meet the minimum-security privilege of system users.
- SS 32. Sensitive data in database shall be masked using data masking technology for C3 & above.

## 7. System Usage Security [SU]

### 7.1. Policy Objective

This policy establishes the need for Agencies to clearly define what behaviours and actions are permitted on their systems, and what is unacceptable. Agencies MUST ensure that system users have awareness training to ensure they understand their obligations.

### 7.2. Policy & Baseline Controls

In order to comply with this policy, **Agencies** MUST ensure that:

- SU 1. System users SHALL be responsible for the information assets (systems / infrastructure) provided to them to carry out their official responsibilities. They SHALL handle the information assets with due care and operate them in line with the vendor / Agency's Acceptable usage policy.
- SU 2. System users will conduct due diligence when accessing the web and browsing the web SHALL strictly follow Agency principles and guidelines on accessing the internet. Agencies SHOULD consider whether usage of forums, social networks, etc is permitted or not.
- SU 3. ICT assets are protected against web-based threats by implementing measures that will prevent downloading software programs, active content and non- business related websites.
- SU 4. Web access is provided through secure proxies and filtering gateways as defined in section C 4, Gateway Security [GS].
- SU 5. **\*Staff is aware of the types of content permitted and restricted within the Agency, as specified in section B- 4, Gateway Security [GS].** Agencies SHOULD consider an effective solution for monitoring content of encrypted channels.
- SU 6. Staff use e-mail with due diligence and include necessary classification labeling depending upon the content/attachments according to National Information Classification Policy [IAP-NAT-DCLS].
- SU 7. Appropriate measures are taken that e-mail is protected against potential threats as viruses, trojans, spam mails, forgery and social engineering
- SU 8. **\*Staff is aware that web based public e-mail services are not allowed to be used to send and receive e-mails from Agency systems.**
- SU 9. Staff is aware that e-mails used to exchange confidential information SHOULD only be sent to named recipients and not to a group or distribution list.
- SU 10. Staff is aware that the use of automatic forwarding of e-mails is dependent upon the sensitivity

of their normal e-mails. Emails carrying information classified at C2 and above SHALL NOT be automatically forwarded outside to the Agency's systems.

- SU 11. **\*When dealing with external parties, Agencies ensure that external recipients/originators understand and agree on the usage of classified data as defined in section C- 3, Information Exchange [IE].**

## 8. Media Security [MS]

### 8.1. Policy Objectives

The objective of this policy is to help Agencies to define how media can be classified, labelled and registered to assist in properly identifying and accounting for it. The policy considers the whole lifecycle of the media from usage, repair, sanitisation, and destruction to disposal.

### 8.2. Policy & Baseline Controls - Media Classification and Labelling

In order to comply with this policy, **Agencies MUST** ensure:

- MS 1. Hardware containing media is classified at or above the classification of the information contained on the media
- MS 2. Non-volatile media is classified to the highest classification of information stored on it
- MS 3. **\*Volatile media that has a continuous power supply is classified to the highest classification of information stored on it while the power is on.** Volatile media may be treated as classified C1 information once the power is removed from the media.
- MS 4. Storage media is reclassified if:
  - a. information copied onto that media is of a high classification,
  - b. information contained on that media is subject to a classification upgrade
- MS 5. Media holding classified information may be declassified after:
  - a. the information on the media has been declassified by the originator, or
  - b. the media has been sanitized in accordance with section C- 8.3, Policy & Baseline Controls - Media Sanitization
- MS 6. If the storage media cannot be sanitized, then it cannot be declassified and **MUST** be destroyed.
- MS 7. **\*The classification of all media is readily visually identifiable.** Agencies **SHOULD** achieve this by labelling media with a protective marking that states the maximum classification as specified in section B-4, Data Labelling [DL]
- MS 8. Classification of all media is easily visually identifiable. When using non-textual representations for classification markings due to operational security, Agencies **SHALL** document the labelling scheme and train staff members appropriately.

### 8.3. Policy & Baseline Controls - Media Sanitization

In order to comply with this policy, **Agencies MUST** ensure:

- MS 9. **\*They document procedures for the sanitisation of media, which are regularly tested.**
- MS 10. All media types which contain information classified as C1 or above are destroyed prior to disposal:
  - a. microfiche & microfilm
  - b. optical discs
  - c. printer ribbons and the impact surface facing the platen
  - d. programmable read-only memory
  - e. read-only memory
  - f. faulty media that cannot be successfully sanitised.
- MS 11. Volatile media is sanitised by:

- a. removing power from the media for at least 10 minutes, or
- b. overwriting all locations of the media with an arbitrary pattern followed by a read back for verification.

MS 12. **\*Non-volatile magnetic media is sanitised by:**

- a. overwriting the media, if pre-2001 or under 15GB, in its entirety, with an arbitrary pattern followed by a read back for verification three times
- b. overwriting the media, if post-2001 or over 15GB, in its entirety, with an arbitrary pattern followed by a read back for verification one time; or
- c. using a degausser with sufficient field strength for the coercivity of the media (NOTE: Degaussing may render some modern media unusable)

MS 13. Non-volatile EPROM media is sanitised by erasing as per the manufacturer's specification, increasing the specified ultraviolet erasure time by a factor of three, then overwriting the media once in its entirety with a pseudo random pattern. Sanitization of media with rating C3 & above SHOULD be documented.

MS 14. Flash memory media is sanitized by overwriting the media twice in its entirety with a pseudo random pattern, followed by a read back for verification.

#### 8.4. Policy & Baseline Controls - Media Repairing and Maintenance

In order to comply with this policy, **Agencies** MUST ensure:

MS 15. **\*Appropriately vetted and briefed personnel carry out repairs and maintenance for hardware containing classified information.**

MS 16. Repairs on systems containing classified information rated C3 or above are carried out under supervision..

#### 8.5. Policy & Baseline Controls - Media Destruction & Disposal

In order to comply with this policy, **Agencies** MUST ensure:

MS 17. They document procedures for the destruction and disposal of media.

MS 18. **\*Media is destroyed by:**

- a. Deguassing non-volatile magnetic media
- b. breaking up the media
- c. heating the media until it has either burnt to ash or melted.

MS 19. **\*Staff members supervise the destruction of media:**

- a. handling the media to the point of destruction
- b. ensuring that the destruction is completed successfully.
- c. C3 & above media destruction must be documented.

MS 20. Media, including faulty media, containing classified information is sanitised to the extent possible prior to disposal.

MS 21. **\*The disposal of media and media waste does not attract undue attention.**

## 9. Access Control Security [AM]

### 9.1. Policy Objective

The objective of this policy is to establish the use and deployment of a variety of access control solutions to ensure the confidentiality, integrity, and availability of the Agency's information assets. This policy defines the rules necessary to achieve this protection, and to ensure secure and reliable operation of the Agency's information systems.

### 9.2. Policy & Baseline Controls - General

In order to comply with this policy, **Agencies** MUST ensure:



- 
- AM 1. Users will be provided access based on the concept of “least privilege” and governed by a “Need to Know” or a “Need to Have” basis.
- AM 2. Access will be managed and controlled through system access controls, identification and authentication, and audit trails based on the sensitivity of the information. These requests for access SHALL be authorized by a staff member’s supervisor or manager.
- AM 3. **\*Access rights of a user or entity to create, read, update, delete or transmit a Agency’s information assets SHALL be based on a matrix (hierarchical) model of rights defined by business rules established by the owners of that information.**
- AM 4. A process is established which, upon any employee role or status change (including termination), ensures that information system access is updated to reflect the employee’s new role,
- AM 5. System users that need additional access to bypass security mechanisms for any reason seek formal authorisation from the Security Manager
- AM 6. **\*Any unauthorized effort to circumvent the Agency’s access control SHALL be perceived as a security incident, and SHALL be handled in accordance with established incident handling procedure and/or appropriate human resources policies and procedures.**
- AM 7. Audit logs SHALL be enabled and maintained in such a manner as to allow compliance monitoring with government policy and to assist in Incident Management.
- AM 8. **\*Logical access to Agency Networks is technically controlled.** This MAY be by using Network Admission Control (NAC) services/devices.
- AM 9. **\*Secure records are maintained of:**
- all authorised system users
  - their user identification
  - who provided the authorisation to access the system
  - when the authorisation was granted
  - maintain the record for the life of the system to which access is granted.
- AM 10. **\*A logon banner is displayed before access to the system is granted.** These banners SHOULD cover:
- access is only permitted to authorised system users
  - the system user’s agreement to abide by relevant security policies
  - the system user’s awareness of the possibility that system usage is being monitored
  - the definition of acceptable use for the system
  - legal ramifications of violating the relevant policies.
  - Wherever possible requires a system user response, as acknowledgement
- AM 11. **\*Centralised authentication repositories such as LDAP, authentication databases, etc. are protected from denial of service attacks and use secure and authenticated channels for retrieval of authentication data. Such repositories SHALL log the following events:**
- Unauthorized update/access
  - Start and end date and time of activity, together with system identifier
  - User identification (for illegal logon)
  - Sign-on and sign-off activity (for illegal logon)
  - Session/terminal or remote connection

### 9.3. Policy & Baseline Controls – Identification & Authentication

In order to comply with this policy, **Agencies** MUST ensure:

- AM 12. They develop and maintain a set of policies, plans and procedures, derived from the National

Information Classification Policy [IAP-NAT-DCLS], covering system users':

- a. identification
- b. authentication
- c. authorisation

AM 13. They educate their system users of the Agency's policies and procedures.

AM 14. All system users are:

- a. uniquely identifiable
- b. authenticated on each occasion that access is granted to a system.

AM 15. \*Individuals who are not employees, contractors, or consultants are not granted a user account or be given privileges to use the Agency's information resources or communications systems unless explicitly approved by the Security Manager who SHALL check that appropriate agreements, clearance and access forms have been completed.

AM 16. \*That alternate methods of determining the identification of the system user are in place when shared/non-specific accounts are used.

AM 17. \*Unprotected authentication information that grants system access, or decrypts an encrypted device is located on, or with the system or device, to which the authentication information grants access to.

AM 18. \*System authentication data whilst in use is not susceptible to attacks including, but not limited to, replay, man-in-the-middle and session hijacking

AM 19. \*A password policy enforcing either a minimum password length of 12 characters with no complexity requirement or a minimum password length of seven characters, consisting of at least three of the following character sets:

- a. lowercase characters (a-z)
- b. uppercase characters (A-Z)
- c. digits (0-9)
- d. punctuation and special characters

AM 20. \*Passwords are changed at least every 90 days

AM 21. \*System users cannot change their password more than once a day and the system forces the user to change an expired password on initial logon or if reset.

AM 22. \*Chosen passwords are checked to prevent:

- a. predictable reset passwords
- b. reuse of passwords when resetting multiple accounts
- c. passwords to be reused within eight password changes
- d. users to use sequential passwords

AM 23. \*Screen and/or session locks configured to:

- a. activate after a maximum of 15 minutes of system user inactivity
- b. activate manually by the system user, if desired
- c. lock to completely conceal all information on the screen
- d. ensure the screen does not appear to be turned off while in the locked state
- e. have the system user re-authenticate to unlock the system
- f. deny system users the ability to disable the locking mechanism.

AM 24. Access to a system is suspended after a specified number of failed logon attempts or as soon as possible after the staff member no longer needs access, due to changing roles or leaving the

- Agency.
- AM 25. Lost, stolen, compromised passwords are immediately:
- a. reported, to the Security Manager who SHALL ensure the corresponding account is suspended
  - b. changed upon user identity verification
- AM 26. \*Accounts that are inactive for more than three (3) months are suspended.
- AM 27. \*Accounts on systems processing information rated C2, I2, A2 or above are audited for currency on a six (6) monthly basis.

#### 9.4. Policy & Baseline Controls – System Access

In order to comply with this policy, **Agencies** MUST ensure:

- AM 28. Security policies document any access requirements, security clearances and briefings necessary for system access.
- AM 29. \*System users have been vetted as specified in section B- 6, Personnel Security [PS], before being granted access to a system.
- AM 30. \*System users have received any necessary briefings before being granted access to a system.

#### 9.5. Policy & Baseline Controls – Privileged Access

In order to comply with this policy, **Agencies** MUST ensure:

- AM 31. The use of privileged accounts is documented, controlled and accountable and kept to a minimum. Privileged accounts SHALL only be used for administrative work
- AM 32. System administrators are assigned an individual account for undertaking their administration tasks
- AM 33. \*Only Qatari nationals have privileged access to systems processing information classified at C4 and above unless explicit authorisation for exemption to this policy is given.
- AM 34. \*System management log is updated to record the following information:
- a. sanitisation activities
  - b. system startup and shutdown
  - c. component or system failures
  - d. maintenance activities
  - e. backup and archival activities
  - f. system recovery activities
  - g. special or out of hours activities.

#### 9.6. Policy & Baseline Controls – Remote Access

In order to comply with this policy, **Agencies** MUST ensure:

- AM 35. Remote access SHALL NOT be provided unless authorized explicitly by the department head and only if it is warranted by business requirements and only after due diligence has been performed to analyze associated risks and suitable controls are implemented to mitigate the identified risks.
- AM 36. \*Two factor authentication, using a hardware token, biometric control or similar is used when accessing systems processing data classified at C3 or above.
- AM 37. \*Remote access sessions are secured by using suitable end-to-end encryption as specified in section C- 10, Cryptographic Security [CY].
- AM 38. Remote access computers are equipped with at a minimum, a personal firewall and anti-malware software. These security controls SHALL be activated at all times.
- AM 39. Software, including security software on these computers SHALL be patched and kept up to date.

- 
- AM 40. \*Users do not access Agency internal systems from public computers e.g. Cyber Cafes etc. or print material to any public computer.
- AM 41. Vendor remote access is limited to situations where there are no other alternatives. In this case, initiation of the connection SHALL be controlled and monitored by the Agency. Vendor remote access SHALL only be for a defined period of time, dictated by the duration of the task being undertaken.

## 10. Cryptographic Security [CY]

### 10.1. Policy Objective

This policy establishes the baseline for the use of encryption technologies for keeping information assets confidential and/or integral. As a custodian of public and confidential information, Agencies must further protect private and sensitive data/information from all cyber threats and vulnerabilities whether external or internal to the Agency.

### 10.2. Policy & Baseline Controls

In order to comply with this policy Agencies MUST ensure that:

- CY 1. The cryptographic algorithms, encryption hardware/software, key management systems and digital signatures, meet the requirements specified in Appendix B of this manual for Approved Encryption/ Cryptographic Algorithms and Systems.
- CY 2. The lifetime of the key SHALL be determined by the primarily by the application and the information infrastructure it is used in. Keys SHALL be immediately revoked and replaced if it has been or suspected of being compromised.
- CY 3. \*Information assets classified as C3 [IAP-NAT-DCLS] are encrypted and protected against unauthorized disclosure when stored and/or in transit regardless of the storing format or media. Agencies MAY apply these cryptographic controls to assets with lower confidentiality requirements, if determined necessary by their risk assessment.
- CY 4. Information assets classified as I3 [IAP-NAT-DCLS] have assured integrity by the use of cryptographic hashing. Agencies MAY apply these cryptographic controls to assets with lower integrity requirements, if determined necessary by their risk assessment. Appendix B to this section specifies approved hashing algorithms.
- CY 5. \*The following protocols or better, with approved algorithms outlined in Appendix B, are used for securing data classified as C3 when in transit:
- For securing web traffic: TLS (128+ bits) [RFC4346]
  - For securing file transfers: SFTP [SFTP]
  - For secure remote access: SSH v2 [RFC4253] or IPSEC [RFC 4301]
  - Only S/MIME v3 [RFC3851] or better are used for securing emails. See CY11 for associated requirement.
- CY 6. \*Passwords must always be encrypted/hashed and protected against unauthorized disclosure when they are stored and/or in transit regardless of the storing format or media. Privileged passwords SHALL be encrypted and stored off-site with backup files each time the password is changed to ensure complete recovery.
- CY 7. \*Where Hardware Security Modules (HSMs) are used, they are certified to at least FIPS 140-2 Level 2 [FIPS-140-2] or Common Criteria [CC3.1] EAL4.
- CY 8. Cryptographic keys are only physically moved in HSMs meeting CY5
- CY 9. Suitable key management processes are defined, as per [ISO11770-1] and used to manage the lifecycle of cryptographic keys, covering the following functions:
- Key Custodians Roles and Responsibilities
  - Key Generation

- Dual Control and Split Knowledge
  - Secure Key Storage
  - Key Usage
  - Secure Key Distribution and in Transit
  - Key Backup and Recovery
  - Periodic Key Status Checking
  - Key Compromise
  - Key Revocation and Destruction
  - Audit Trails and Documentation
- CY 10. Agency's SHALL ensure the digital certificates are compliant to standards in use by the CSP-PMA, MOTC. Agencies SHALL use online revocation systems to minimize the risk of fraudulent use of digital certificates.
- CY 11. Security token/smartcard provisioning systems of CSPs meet the requirements for Subject Device Provision Services as specified in [CWA14167-1].
- CY 12. **\*Any digital certificates used in a production system SHALL be issued by a CSP licensed in Qatar.**

## 11. Portable Devices & Working Off-Site Security [OS]

### 11.1. Policy Objective

The main purpose of this policy is to specify the minimum requirements for mobile equipment (Mobile Devices (MDs) and laptops) when they are used within the vicinity of an **Agency** or when used in other uncontrolled environments.

### 11.2. Policy & Baseline Controls - General

In order to comply with this policy, **Agencies** MUST ensure:

- OS 1. **\*They develop policies governing if, and how, Mobile Devices (MDs) and laptops can be used in their organisation.**
- OS 2. They do not conduct classified conversations using MDs and laptops capable of conducting phone conversations while using Bluetooth-enabled peripherals.
- OS 3. MDs and laptops with Bluetooth serial port connections do not have the port enabled if the device is to hold classified information.
- OS 4. MDs with recording facilities are not allowed into high risk areas without prior approval from the Security Manager.
- OS 5. **\*All laptops and MDs SHALL encrypt the information they carry and be password protected.**
- OS 6. **\*MDs and laptops SHALL be kept under continual direct supervision when in use or kept secured when not in use.**
- OS 7. **\*MDs and laptops not directly owned or controlled by the Agency are not used with the Agency's systems.** MDs and laptops not owned or controlled by the Agency SHALL be managed, accounted for and accredited in the same manner as agency owned devices. Agency MD's and laptops MAY be temporary connected to a non- Agency network provided a suitable firewall is used to protect the device from any potential threats originating from the non- Agency controlled network.
- OS 8. Unaccredited MDs and laptops do not connect to the Agency's systems or store Agency information. However, temporary connected MDs and laptops are permitted provided they are segregated from the main networks by a firewall.
- OS 9. **\*In case of loss or theft of the MDs or laptops, the incident should be immediately reported**

to the Information Security Manager / Office and the concerned Law enforcement agencies. The loss / theft SHALL be handled as per the B-8 Incident Management[IM]

- OS 10. \*Emergency destruction/locking plan /remote wipe/auto destruct is in place for any MDs and laptops.

## 12. Physical Security [PH]

### 12.1. Policy Objective

The objective of the policy is to ensure prevention of unauthorized physical access, damage, and interference to an Agency's premises and information. Agencies need to ensure that appropriate physical security measures and controls are adopted to meet the baseline requirements of this policy.

### 12.2. Policy & Baseline Controls

In order to comply with this policy, Agencies MUST ensure:

- PH 1. Appropriate protection for physical space is determined based on an assessment of risk. This assessment SHALL occur during the design phase of a new construction or, for existing workplaces, as part of an on-going risk management process.
- PH 2. Physical spaces are zoned depending upon their security requirement. Each zone is designated a physical security level. The table below specifies the levels:

Minimal Protection	This provides a level of security designed to control assets with no classification (e.g. COIOA0). It is generally unsuitable for (non-public) government operations.
Baseline Protection	This provides a level of security designed to control assets of moderate value or classified as 'Low'. It is generally used as the baseline for government operations.
Medium Protection	This provides a level of security designed to control assets of medium value or classified as 'Medium'.
High Protection	This provides a level of security designed to control assets of high value or classified as 'High'.

- PH 3. Each zone has the appropriate physical security controls implemented. Appendix A provides details of these minimal and baseline protection controls, together with recommendations for additional controls. Medium protection requires one additional class of control, whereas High protection requires two additional class of control. An Agency MAY incorporate additional controls in addition to those mandated by this policy.
- PH 4. Implementation of a "clean desk" and "clean screen" policy.
- PH 5. Server/Data rooms meet at least the medium protection requirement
- PH 6. \*Cabling carrying information at levels C1-C3 is physically separate (including for fibre optic cabling) and is in separate ducting to that carrying Nationally Classified information
- PH 7. A site security plan and where necessary standard operating procedures (SOPs) for each secure areas are developed and implemented. Information to be covered includes, but is not limited to:
- a summary of the protective security risk assessment
  - roles and responsibilities of facility or ICT security officer and staff members;
  - the administration, operation and maintenance of the electronic access control system and/or security alarm system

- d. key management, the enrolment and removal of system users and issuing of personal identification
- e. staff member clearances, security awareness training and regular briefings
- f. inspection of the generated audit trails and logs
- g. end of day checks and lockup
- h. reporting of ICT security incidents and breaches.

## 13. Virtualization [VL]

### 13.1. Policy Objective

The objective of this policy is to provide controls to secure the virtualized IT infrastructure at the agency. Agencies need to ensure that such virtualized environments are adequately secured.

For virtual environment hosted outside by 3rd parties, agencies should also refer to Cloud Security Policy (proposed).

### 13.2. Policy & Baseline Controls

In order to comply with this policy, Agencies MUST ensure:

- VL 1. **\*Evaluate the risks associated with the virtual technologies.**
  - a. Evaluate the risks in context of relevant legal, regulatory policies and legislations.
  - b. Evaluate how the introduction of virtual technology will change your existing IT infrastructure and the related risk posture.
- VL2 **\*Harden the hypervisor, administrative layer, the virtual machine and related components as per the industry accepted best practices and security guidelines and the vendor recommendations.**
- VL3 Enforce least privilege and separation of duties [Refer to section C-9 Access Management] for managing the virtual environment.
  - a. Define specific roles and granular privileges for each administrator in the central virtualization management software.
  - b. Limit direct administrative access to the hypervisor to the extent possible
  - c. Depending on the risk and the classification of the information processed, Agencies should consider the use of multi factor authentication or dual or split control of administrative passwords between multiple administrators.
- VL4 **\*Ensure adequate physical security to prevent unauthorized access to the virtual technology environment.**
- VL5 Virtualized technology environment should be augmented by third party security technology to provide layered security controls (defence in depth approach) to complement the controls provided by the vendor and technology itself.
- VL6 Segregate the Virtual Machines based on the classification of data they process and / or store.
- VL7 **\*A change management [Refer to Section B-6 Change Management] process encompasses the virtual technology environment.**
  - a. Ensure that virtual machine profile is updated and the integrity of the Virtual Machine image is maintained at all times.
  - b. Care should be taken to maintain and update VM's which are not in active state (dormant or no longer used).
- VL8 **\*Logs from the virtual technology environment SHALL be logged and monitored along with other IT infrastructure. [Refer to Section B-10 Logging and Security Monitoring].**

# APPENDIX A (NORMATIVE) PHYSICAL CONTROLS

		Minimal (All Mandatory)	
<b>Control Class</b>	Physical security perimeter	<ul style="list-style-type: none"> <li>• Fire doors are alarmed. Monitored and tested</li> <li>• Perimeter walls, floors, and ceiling must be permanently constructed and attached to each other.</li> <li>• Number of entrances and exits to the facility should be minimized</li> </ul>	
	Physical entry controls	<ul style="list-style-type: none"> <li>• Locks</li> </ul>	
	Securing offices, rooms and facilities	<ul style="list-style-type: none"> <li>• Directories and internal telephone books should not be accessible by the public</li> </ul>	
	Protecting against external and environmental threats	<ul style="list-style-type: none"> <li>• Fire fighting equipment to be provided and suitably placed.</li> </ul>	





## Protection Level

	Baseline (All Mandatory)	Medium & High Controls
	<ul style="list-style-type: none"> <li>• All Minimal Controls</li> <li>• Physically sound walls with no gaps in the perimeter.</li> <li>• Manned reception area or other means to control physical access</li> <li>• Information Processing Facilities are physically separated from those managed by third parties</li> </ul>	<ul style="list-style-type: none"> <li>• All Baseline Controls</li> <li>• Slab-to-slab wall construction to separate zones; Metal or solid wood core, minimum of 44.45 mm thick</li> <li>• Visual evidence of unauthorized penetration</li> <li>• Floor to ceiling wall construction</li> <li>• External protection for Windows</li> <li>• Intruder Detection System installed to cover all external doors and accessible windows</li> </ul>
	<ul style="list-style-type: none"> <li>• All Minimal Controls</li> <li>• Electronic locks on zone entrances (card/token only)</li> <li>• Audit trail (date &amp; time) records for access points only</li> <li>• Perimeter doors resistant to forced entry</li> <li>• All visitors supervised; access for specific purpose</li> <li>• Visible identification for all employees, contractors, and third parties including visitors</li> <li>• Third party/contactors granted restricted access to secure areas or sensitive processing facilities</li> <li>• Locks that resist easy picking or prying open</li> </ul>	<ul style="list-style-type: none"> <li>• All Baseline Controls</li> <li>• Electronic locks on zone entrances (token and PIN or biometric)</li> <li>• Audit trail (date &amp; time) records for all access (including access to safes, etc.)</li> <li>• Primary entrance and access controlled interior doors must be equipped with an automatic door closer</li> <li>• Metal detectors</li> <li>• X-ray examination</li> <li>• Additional physically controlled barriers</li> <li>• Barriers to prevent access if opening of ducts, vents, pipes, etc. is &gt; 619 square centimetres</li> <li>• Use of safes/vaults</li> </ul>
	<ul style="list-style-type: none"> <li>• All Minimal Controls</li> <li>• Facilities should be sited to avoid public access</li> <li>• Buildings should not give obvious signs of their purpose or identify the presence of information processing facilities</li> <li>• Clean desk policy</li> </ul>	<ul style="list-style-type: none"> <li>• All Baseline Controls</li> <li>• Windows that might reasonably afford visual surveillance should be made opaque or equipped with coverings</li> <li>• Facilities should not be accessible by the public</li> </ul>
	<ul style="list-style-type: none"> <li>• All Minimal Controls</li> <li>• Fallback equipment and back-up data are outside of zone</li> <li>• Hazardous or combustible materials stored at a safe distance from zone</li> </ul>	<ul style="list-style-type: none"> <li>• All Baseline Controls</li> <li>• Sound Transmission Class (STC) rating of 45 or better between zones</li> </ul>

# APPENDIX A (NORMATIVE)

## PHYSICAL CONTROLS, *continued*

		Minimal (All Mandatory)	
<b>Control Class</b>	Working in secure areas		
	Public access, delivery and loading areas	<ul style="list-style-type: none"> <li>• Access to delivery and loading area from outside of zone restricted to authorised &amp; identified personnel</li> <li>• External doors to delivery/loading area secured when any internal door is open</li> <li>• Incoming material is registered and inspected for potential threats</li> </ul>	
	Equipment siting and protection	<ul style="list-style-type: none"> <li>• Guidelines for eating, drinking and smoking in proximity to information processing facilities should be established</li> <li>• Lightning/spike protection should be applied to all buildings to all incoming power and communications lines</li> </ul>	
	Supporting utilities		
	Cabling security	<ul style="list-style-type: none"> <li>• Power and telecommunications lines into information processing facilities should be underground or subject to adequate alternative protection</li> <li>• Network cabling should be protected from unauthorised interception or damage</li> </ul>	



## Protection Level

	Baseline (All Mandatory)	Medium & High Controls
	<ul style="list-style-type: none"> <li>Unsupervised working should be avoided</li> </ul>	<ul style="list-style-type: none"> <li>All Baseline Controls</li> <li>Vacant secure areas are physically locked and periodically checked</li> <li>Photographic, video, audio or other recording equipment not allowed, unless explicitly authorised.</li> <li>Visual indication when visitors are present in any secure zone.</li> </ul>
	<ul style="list-style-type: none"> <li>All Minimal Controls</li> <li>Incoming and outgoing shipments are physically segregated.</li> </ul>	<ul style="list-style-type: none"> <li>All Baseline Controls</li> <li>Access restricted to people / vehicles whose identification papers have been verified.</li> <li>Access restricted to personnel / vehicles by prior appointment.</li> <li>Vehicles are checked for suspect devices.</li> </ul>
	<ul style="list-style-type: none"> <li>All Minimal Controls</li> <li>Controls to minimise risk of potential physical threats e.g. theft, fire, explosives, smoke, water, dust, vibration, chemical effects, electrical supply interference, communications interference, electromagnetic radiation and vandalism</li> <li>Temperature &amp; humidity should be monitored in all Information Processing facilities (e.g. server rooms, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>All Baseline Controls</li> <li>Items requiring special protection should be isolated and appropriately protected</li> <li>Equipment processing sensitive information should be protected to minimise the risk of information leakage due to emanation.</li> </ul>
	<ul style="list-style-type: none"> <li>All Minimal Controls</li> <li>An Uninterruptible Power Supply (UPS) for all critical systems should be installed and regularly tested.</li> <li>Water supply failure should generate an alarm</li> </ul>	<ul style="list-style-type: none"> <li>All Baseline Controls</li> <li>A backup generator for all critical systems should be installed and regularly tested.</li> <li>Telecoms equipment should be connected by at least two diverse routes to prevent single points of failure.</li> </ul>
	<ul style="list-style-type: none"> <li>All Minimal Controls</li> <li>Power cables should be segregated from communications cables</li> <li>Clearly identifiable cable and equipment markings should be used.</li> <li>A documented patch list should be maintained</li> <li>Access to patch panels and cable rooms must be restricted to authorised personnel</li> </ul>	<ul style="list-style-type: none"> <li>All Baseline Controls</li> <li>Armoured conduit and locked rooms or boxes at inspection/termination points.</li> <li>Use fibre optic cabling</li> <li>Use electromagnetic shielding to protect cables</li> <li>Initiate technical sweeps and physical inspections for detecting unauthorised devices</li> </ul>

# APPENDIX A (NORMATIVE)

## PHYSICAL CONTROLS, *continued*

		Minimal (All Mandatory)	
<b>Control Class</b>	<b>Equipment maintenance</b>	<ul style="list-style-type: none"> <li>• Only authorised personnel should carry out repairs and service equipment</li> <li>• Records should be kept of all suspected or actual faults, and all preventive/corrective maintenance</li> </ul>	
	<b>Security of equipment off-Premises</b>	<ul style="list-style-type: none"> <li>• Equipment/media taken off site should not be left unattended</li> <li>• Portable computers should be carried as hand luggage</li> <li>• Adequate insurance cover should be in place</li> </ul>	
	<b>Secure disposal or re-use of equipment</b>		
	<b>Removal of property</b>	<ul style="list-style-type: none"> <li>• Equipment, information or software should not be taken off-site without prior authorization</li> <li>• Equipment should be recorded as being removed off-site and recorded when returned</li> </ul>	
	<b>Monitoring</b>	<ul style="list-style-type: none"> <li>• Physical guard at entrance during the business hours.</li> </ul>	



## Protection Level

	Baseline (All Mandatory)	Medium & High Controls
	<ul style="list-style-type: none"> <li>All Minimal Controls</li> <li>Only authorised and certified personnel should carry out repairs and service equipment</li> <li>Information should be cleared from equipment when sent for 3rd party repair/maintenance</li> </ul>	<ul style="list-style-type: none"> <li>All Baseline Controls</li> <li>Maintenance should preferably be carried within the premises of Agency or in a security controlled environment.</li> <li>Only authorised and certified personnel, whose identification papers have been verified by the Agency, shall carry out repairs and service equipment</li> </ul>
	<ul style="list-style-type: none"> <li>All Minimal Controls</li> <li>Home working controls should be determined (e.g. use of lockable cabinets, secure communications etc.)</li> <li>Portable computers with sensitive data should employ media encryption</li> </ul>	<ul style="list-style-type: none"> <li>All Baseline Controls</li> <li>Portable computers with sensitive data should not be taken out of the zone</li> </ul>
	<ul style="list-style-type: none"> <li>Devices containing sensitive information (including media, firmware passwords, etc.) should be physically destroyed or the information should be destroyed, deleted or overwritten using techniques to make the original information non-retrievable</li> </ul>	<ul style="list-style-type: none"> <li>All Baseline Controls</li> <li>Damaged devices containing sensitive information should be physically destroyed</li> <li>Media containing sensitive information should be physically destroyed.</li> </ul>
	<ul style="list-style-type: none"> <li>All Minimal Controls</li> <li>Employees, contractors and third party users who have authority to permit off-site removal of assets should be clearly identified;</li> </ul>	<ul style="list-style-type: none"> <li>All Baseline Controls</li> <li>Time limits for equipment removal should be set and returns checked for compliance</li> <li>Removal of "C3" classified information, shall require the authorization of "Information Security Manager"</li> </ul>
	<ul style="list-style-type: none"> <li>24 x 7 guard at entrance</li> <li>Perimeter video monitoring</li> <li>Video monitoring entrance to security zone</li> <li>30 day recording retention</li> </ul>	<ul style="list-style-type: none"> <li>Guard patrolling zone, in addition to guard at entrance</li> <li>Security control centre</li> <li>Intrusion detection (ex: motion detection &amp; alarm) within zone</li> </ul>

# APPENDIX B (NORMATIVE)

## APPROVED CRYPTOGRAPHIC ALGORITHMS AND PROTOCOLS

All Cryptographic algorithms recommended in this Appendix B are valid for one year after the date of issue of this manual. The GIAM shall recommend updates or alternatives to this algorithms as and when necessary. These algorithms and protocols are used for encryption, digital signatures, random number generation, key agreement, key transportation, key wrapping, deriving additional keys from a cryptographic key, hash numbers, MAC, etc.

### Symmetric Key/Private Key:

Cryptographic functions that use a symmetric key cipher (sometimes referred to as private key encryption) employing a shared secret key must adopt any of the following specifications.

Algorithm Name	References	Approved Use	Required Key Length
AES	Advanced Encryption Standard block cipher based on the "Rijndael" algorithm [AES]	General Data Encryption	256-bit keys
TDES /3DES	Triple Data Encryption Standard (or Triple DES) block cipher [SP800-67]	General Data Encryption	three unique 56-bit keys

Note: AES SHOULD be used unless this is not technically possible. TDES usage should be limited to systems not supporting AES.

### Asymmetric Key/Public Key:

Cryptographic functions that use *asymmetric key ciphers* (also known as public key encryption) that employ a pair of cryptographic keys consisting of one public key and one private key must adhere to the following specifications:

Algorithm Name	References	Approved Use	Required Key Length
RSA	"Rivest-Shamir-Adleman" algorithm for public-key cryptography [RSA]	Digital Signatures, Transport of encryption	1024-bit keys
DSA	Digital Signature Algorithm [FIP186-2]	Digital Signatures	1024-bit keys

Note: 1024 bit keys are to be replaced with 2048 bit keys for RSA and  $|p| \geq 2048$  bits &  $|q| \geq 224$  bits for DSA by 2013. Use of 1024 bit keys will be discontinued after 2013.

### Hashing algorithms

Secure hash algorithms can be used to support implementation of keyed-hash message authentication. Generally, hash functions are used to speed up data comparison tasks — such as finding items in a database, detecting duplicated or similar records in a large file or system.

Algorithm Name	References	Approved Use	Required Key Length
SHA-n	A secure hash algorithm that produces a hash size of “n” e.g.: (SHA 224, 256 ,384,512) [SHA]	All hashing purposes	$n \geq 256$
MD5	Message Digest v5 [RFC 1321]	All hashing purposes	The typical 128-bit state

Note: SHA-n SHOULD be used unless this is not technically possible. MD5 usage should be limited to systems not supporting SHA family.

# APPENDIX C (NORMATIVE) INCIDENT MANAGEMENT CRITICALITY CLASSIFICATION

Category	Typical Incident Categories
C1	<ul style="list-style-type: none"> <li>• Denial of service</li> <li>• Compromised Asset (critical)</li> <li>• Internal Hacking (active)</li> <li>• External Hacking (active)</li> <li>• Virus / Worm (outbreak)</li> <li>• Destruction of property (critical)</li> </ul>
C2	<ul style="list-style-type: none"> <li>• Internal Hacking (not active)</li> <li>• External Hacking (not active)</li> <li>• Unauthorized access.</li> <li>• Policy violations</li> <li>• Unlawful activity.</li> <li>• Compromised information.</li> <li>• Compromised asset. (non-critical)</li> <li>• Destruction of property (non-critical)</li> </ul>
C3	<ul style="list-style-type: none"> <li>• Email</li> <li>• Forensics Request</li> <li>• Inappropriate use of property.</li> <li>• Policy violations.</li> </ul>

CSO Critical Sector Organization as defined in CIIP Law

CII Critical Information Infrastructure as defined in CIIP Law

Incident Matrix	C1	C2	C3
CSO+CII	CL1	CL1	CL3
CSO+ Non CII	CL1	CL2	CL3
Non CSO + CII	CL1	CL2	CL3
Non CSO + Non CII	CL3	CL3	CL3



Response Matrix	Initial Response Times*	Notes
Criticality Level 1 CL1	60 minutes	
Criticality Level 2 CL2	Reporting not required	Employee investigations that are time sensitive should typically be classified at this level.
Criticality Level 3 CL3	Reporting not required	May include: Incident or employee investigations that are not time sensitive. Long-term investigations involving extensive research.

\*Initial Response Time – This specifies the maximum amount of time that should elapse before an Agency notifies Q-CERT.

# APPENDIX D (INFORMATIVE) – SAMPLE NON-DISCLOSURE AGREEMENT (NDA)

This Agreement dated, <INSERT DATE> between <CLIENT ORGANISATION> (hereinafter called “the Owner”) and **Agency**.

WHEREAS the Owner is in ownership and possession of certain Confidential Information (hereinafter called “the Confidential Information”).

AND WHEREAS **Agency** has requested the Owner to provide the said Confidential Information in order to provide services or undertake certain projects which may include legal obligations.

NOW THEREFORE THIS AGREEMENT WITNESSETH that in consideration of the Owner disclosing the Confidential Information to **Agency** and the mutual agreements and other good, valuable or nominal consideration, the receipt and sufficiency of which is hereby acknowledged, **Agency** hereto undertakes and agrees with the Owner as follows:

## 1. Definition

### a. Agreement

Any reference herein to an Agreement, means this Agreement which represents the entire understanding between the parties and supersedes all other agreements express or implied between the parties regarding disclosure of the confidential information.

### b. The Confidential Information

In this Agreement, “the Confidential Information” means information relating to the products, services, ideas, business, personnel, trademarks, copyrights, intellectual property or commercial activities of the Owner, including but not limited to formulae, systems, presentations, compilations, devices, concepts, techniques, marketing and commercial strategies, processes, data which individually may, or may not be confidential, which information is generally not known to the public and either derives economic value, actual or potential, from not being generally known, or has character such that the Owner has legitimate interest in maintaining its secrecy. In addition all documents given by the Owner to **Agency** will be considered the Confidential Information, whether or not marked with any proprietary notice or legend when the disclosure takes place. Confidential Information does not include any pre-existing intellectual property owned by **Agency** and any knowledge and expertise gained by **Agency** in the process of providing services or undertaking activities for the Owner.

## 2. Third parties

**Agency** shall not disclose the Confidential Information to third parties. If such third party disclosure is necessary, or about to be made for whatever reason, **Agency** shall seek prior written permission of the Owner, and allow the Owner the opportunity to enter into a non-disclosure agreement, substantially identical to this Agreement with the third party.

**Agency** shall not disclose the confidential information, except in the following:

- The owner has authorised disclosure in writing
- Disclosure is required by a legal or judicial process,
- Disclosure is required by law, or
- The information is in the public domain.

## 3. Acknowledgement of Ownership and Confidentiality

**Agency** acknowledges and agrees that the Confidential Information disclosed to it by the Owner, or that it requires, sees, or learns of as a direct or indirect consequence of the discussions contemplated herein, and all dealings and transactions that follow or result from such discussion/s, are the exclusive property of the Owner, and **Agency** will

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keep that information strictly confidential.

## 4. No Transfer of Rights

**Agency** acknowledges and agrees that it shall not acquire any right or interest in the Confidential Information and that the Owner shall remain the sole owner of the Confidential Information, including but not limited to all patent, copyright, trademark, trade secret, trade name and other property rights pertaining thereto, anywhere in the world. Receiver shall not manufacture, use, sell, or distribute the Confidential Information without the written permission of the Owner.

## 5. No Offer for Sale

The parties acknowledge and agree that the disclosure of the Confidential Information by the Owner to **Agency** does not constitute an offer by the Owner for the sale, license or other transfer of the Confidential Information. Except as may be expressly set forth herein, neither party shall have any financial or other obligation to each other respecting the Confidential Information. Any offer for sale, license, or other transfer of the Confidential Information shall be made pursuant to a separate agreement.

## 6. Remedies

Each party agrees that in the event of any such breach of this Agreement by it, that, in addition to all other remedies available to the other party by law, the other party shall be entitled as a matter of right to apply to a court of competent jurisdiction for such relief by way of restraining order compliant with the provisions of this Agreement.

## 7. Modification

The parties can modify any term or condition of this Agreement only by mutual consent and by reducing such modifications to writing, signed by both parties.

## 8. Successors

This Agreement shall be binding upon and inure to the benefit of both parties and their respective heirs, successors, assigns and representatives.

## 9. Waiver

No waiver, delay, indulgence or failure to act by either party regarding any particular default or omission by the other party shall affect or impair any rights or remedies regarding that or any subsequent default or omission that are expressly waived in writing.

## 10. Governing Law

This Agreement shall be construed and interpreted in accordance with the laws of the State of Qatar. Disputes arising out of non-compliance with any of the terms in this Agreement shall be subject to the jurisdiction of the Courts of the State of Qatar.

## 11. Commencing Proceedings

The parties to this Agreement agree that the process of any suit, action, or proceeding before any court sitting in the State of Qatar, may be commenced by service delivered personally to the opposing party to this Agreement or to an appropriate agent for service.

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## 12. Continuing Obligation

Any rights and obligations under this Agreement that by their nature extend beyond the terms of this Agreement shall survive any expiration or termination of this Agreement and shall remain in effect for a period of two (2) years following such expiration or termination. However, either party may require a longer confidentiality term for specific information that should be marked and identified to the other party.

## 13. Attorney Fees

If any litigation arises out of this Agreement, the prevailing party shall be entitled to reasonable attorney's fees, costs and expenses in addition to any other relief to which that party may be entitled

## 14. Captions

All indexes, titles, subject headings, section titles, and similar terms are provided for the purpose of reference and convenience and are not intended to be inclusive, definitive or to affect the meaning or scope of this agreement.

## 15. Execution Authority

The persons whose signatures appear below certify that they are authorized to enter into this agreement on behalf of the party for whom they sign.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

OWNER (<CLIENT ORGANISATION>)

**Agency**

Signed:

Signed:

Name:

Name:

Title:

Title:

Date:

Date:



