Australian Government

Digital Transformation Office

Gatekeeper Public Key Infrastructure Framework

Information Security Registered Assessors Program Guide

V 2.1 – November 2015

Digital Transformation Office

Licence

Use of the Coat of Arms

Contact us

Enquiries or comments regarding this document are welcome at:

Gatekeeper Competent Authority
C/O Director, Trusted Digital Identity Team
Digital Transformation Office
Email: authentication@dto.gov.au

Contents

Figures

1. Guide Management

1.1 Change Log

This is the fourth published edition of the Gatekeeper Public Key Infrastructure (PKI) Framework (The Framework) Information Security Registered Assessors Program (IRAP) Guide ('*The Guide*'). This release aligns with the compliance requirements of the current edition of the *Australian Government Protective Security Policy Framework* (PSPF) and *Australian Government Information Security Manual* (ISM).

1.2 Review Date

This document will be reviewed regularly and updated in line with changes to the ISM, PSPF and relevant government policies.

1.3 Conventions

This guide adopts the following conventions:

- **MUST** indicates a mandatory requirement that a Service Provider is to satisfy in order to obtain Gatekeeper Accreditation. This convention is also used to describe actions or activities to be undertaken by an IRAP Assessor.
- **MUST NOT** indicates something that if practiced, exercised or implemented will breach a Gatekeeper Accreditation requirement.
- **SHOULD** indicates something that is not mandatory but is recommended which either supports a mandatory obligation or is considered best practice.
- **COMPLIANCE** is an assessment outcome which indicates a Service Provider satisfies a control listed in this guide for Gatekeeper Accreditation
- **NON COMPLIANCE** is an assessment outcome which indicates a Service Provider does not meet a mandatory control listed in this guide for Gatekeeper Accreditation. Non-compliance severity ratings are listed at Annex A. A template for recording non-compliance is provided at Annex B.
  - Service Providers may seek a waiver for a NON COMPLIANCE with any mandatory control listed in this Guide from their Accreditation Authority. The Accreditation Authority for Agencies is their Agency Head or their delegated representative. For commercial organisations the Accreditation Authority is a person or committee with the necessary authority to grant such a waiver.
  - Service Providers seeking Gatekeeper Accreditation are to meet all mandatory controls in this guide unless they obtain a waiver for a NON COMPLIANCE from their Accreditation Authority.
  - Service Providers seeking a waiver for a NON COMPLIANCE with any mandatory control listed in this guide MUST document the justification for NON COMPLIANCE, alternative mitigation measures to be implemented (if any) and an assessment of the residual security risk.
  - Service Providers MUST retain a copy of all decisions to grant a waiver for any mandatory control listed in this guide.

1.4 Terms and Definitions

- The terms and definitions used in this document are defined in the *Identity and Access Management Glossary*.

1.5 Advice on this Framework

Advice on the Framework or suggestions for amendment is welcome at:

Gatekeeper Competent Authority
C/O Director, Trusted Digital Identity Team
Digital Transformation Office
Email: authentication@dto.gov.au

1.6 Document Structure

This document is structured in the following manner:

- Section 2 provides an introduction to the IRAP Guide.
- Section 3 describes the Gatekeeper PKI Framework.
- Section 4 lists the IRAP Assessment requirements.
- Section 5 provides a summary of all applicable controls within this guide.
- Sections 6 through 9 list the documentation, physical, logical and personnel controls to be met by Service Providers.
- Annex A lists the severity rating definitions to distinguish between degrees of non-compliance.
- Annex B contains a template that IRAP Assessors can use to record their findings for areas of non-compliance.

2. Introduction

2.1 Purpose

The Gatekeeper PKI Framework operates within a risk management context and aligns with the Australian Government's Protective Security Policy Framework and the Australian Government Information Security Manual.

- The PSPF defines a series of core policies and mandatory requirements with which applicable Commonwealth agencies and bodies must demonstrate their compliance. These requirements cover protective security governance, personnel security, information security and physical security.
- The ISM is designed to assist Australian government agencies in applying a risk-based approach to protecting their information and systems. The ISM includes a set of information security controls that, when implemented, will help agencies meet their compliance requirements for mitigating security risks to their information and systems.

Service Providers who apply for Gatekeeper Accreditation undergo rigorous evaluation of all aspects of their operations, including compliance with Australian Government protective security requirements outlined in the PSPF and ISM.

This document provides Information Security Registered Assessor Program Assessors with a guide to assess the implementation, appropriateness and effectiveness of information security controls of a Service Provider's PKI environment. Service Providers are required to undergo an IRAP Assessment in order to obtain Gatekeeper Accreditation.

Once accreditation is granted by the Gatekeeper Competent Authority, a Service Provider may require an additional IRAP Assessment if their PKI operating environment is changed in a manner which may result in significant impacts to protective security. If such circumstances occur the Gatekeeper Competent Authority will advise the Service Provider in writing of the requirement for them to carry out an additional IRAP Assessment.

Service Providers and IRAP Assessors are encouraged to seek further guidance from the documentation listed in the Framework at:

- Mandatory Requirements (section 5.8),
- Recommended Standards and Guides (section 5.9), and
- References (section 13)

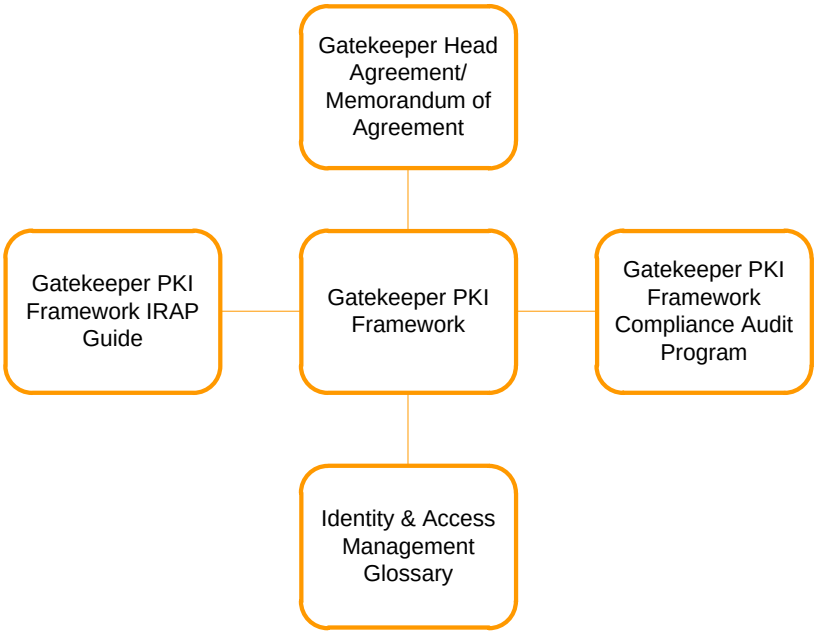
The complete suite of Gatekeeper documents is available at www.dto.gov.au

3. Gatekeeper PKI Framework

3.1 Gatekeeper PKI Framework

The Gatekeeper PKI Framework is a whole-of-government suite of policies, standards and procedures that governs the use of PKI in Government for the authentication of individuals, organisations and non-person entities– such as devices, applications or computing components. The Framework supports accreditation of Registration Authorities (RA), Certification Authorities (CA) and Validation Authorities (VA) and is built around five core documents as shown below.

Figure 1 Framework Structure



- The *Gatekeeper PKI Framework IRAP Guide* (this document) provides IRAP Assessors with a guide to assess the implementation of security controls and practices by Service Providers.
- The *Gatekeeper PKI Framework* defines the minimum requirements for Service Providers to obtain and maintain Gatekeeper accreditation.
- The *Gatekeeper Head Agreement/Memorandum of Agreement* is the formal agreement between the Digital Transformation Office (DTO) (on behalf of the Commonwealth) and the Service Provider. This agreement establishes the conditions under which the Service Provider is accredited and what is required in order for the Service Provider to maintain Gatekeeper Accreditation.
- The *Gatekeeper PKI Framework Compliance Audit Program* provides guidance to Approved Auditors and Service Providers on the scope and conduct of the compliance assessment required under the Framework.
- The *Identity and Access Management Glossary* contains a list of acronyms and associated terms related to the Framework. The Glossary also contains all related terms associated with the National e-Authentication Framework and the Third Party Identity Services Assurance Framework.

4. IRAP Assessments

4.1 What is an IRAP Assessment?

An IRAP Assessment is a review by an IRAP Assessor of the implementation, appropriateness and effectiveness of the protective security controls within a Service Provider's PKI environment.

An IRAP Assessment is achieved through a two-stage audit which encompasses documentation reviews, a site visit and interviews with key personnel. The outcome of the IRAP Assessment is a Findings Report which is sent to the Gatekeeper Competent Authority for consideration.

4.1.1 Stage 1 Audit

In a Stage 1 Audit an IRAP Assessor:

- Defines the statement of applicability in consultation with the Service Provider;
  - The IRAP Assessor **MUST** determine if the PKI under evaluation is operational or not.
  - If elements of the PKI are not yet operational but would have been considered within the statement of applicability if they were operational, the IRAP Assessor **MUST** note that these elements are subject to review as part of the Service Provider's first Gatekeeper Compliance Audit. Such a situation **MUST NOT** adversely impact the outcome of the IRAP Assessment.
- Gains an understanding of the Service Provider's PKI operating environment;
- Reviews system architecture and information security documentation;
- Seeks evidence of compliance with Australian Government protective security requirements and recommendations; and,
- Highlights the effectiveness of protective security controls and recommends actions to address or mitigate non-compliance.

The outcome of a Stage 1 Audit is a Findings Report which is used as an input for the Stage 2 Audit.

4.1.2 Stage 2 Audit

In the Stage 2 Audit an IRAP Assessor looks deeper into the system's operation, focusing on seeking evidence of compliance with and the effectiveness of security controls. The IRAP Assessor will conduct a site visit where they will:

- Conduct interviews with key personnel;
- Investigate the implementation and effectiveness of security controls in reference to the information security documentation suite; and,
- Sight all relevant physical security and information security certifications and waivers.
  - Where a waiver has been granted in relation to any aspect of a Service Provider's Gatekeeper PKI operations, the IRAP Assessor **MUST** sight the document and make allowance for the waiver in their evaluation and indicate this in the relevant section of the assessment against this guide and in the Findings Report.

The outcome of a Stage 2 Audit is a Findings Report to the Gatekeeper Competent Authority that:

- Describes areas on compliance and non-compliance;
- Suggests remediation actions; and,
- Make a recommendation to the Gatekeeper Competent Authority.

The Gatekeeper Competent Authority uses the Findings Report to:

- Assess the residual risk relating to the operation of the Service Provider's PKI environment;
- Assess any remediation activities the Service Provider has undertaken; and,
- Support a decision on whether to grant Gatekeeper Accreditation.

4.2 Documents to be reviewed as part of the IRAP Assessment

The following information security documentation **MUST** be reviewed by the IRAP Assessor as part of the IRAP Assessment:

- Information Security Policy;
- Protective Security Risk Review;
- Security Risk Management Plan;
- System Security Plan, comprising;
  - Standard Operating Procedures;
- Physical & Environmental Security Plan;
- Personnel Security Plan;
- Incident Response Plan;
- Cryptographic Key Management Plan; and,
- Disaster Recovery and Business Continuity Plan.

The suite of Information Security Documentation **MUST** be maintained by all Gatekeeper Accredited Service Providers. These documents address all elements of the Service Provider's protective security arrangements and are used to support the accurate and consistent application of policy and procedure within a Service Provider's PKI environment.

All documents **MUST** include the title, version number and date and be authorised by an appropriate representative of the Service Provider's organisation.

4.3 Controls, Waivers and Site Visits

A control is satisfied if the IRAP Assessor determines the Service Provider has successfully met the intent of a control. A control is not satisfied if the IRAP Assessor determines the Service Provider has not successfully met the intent of a control.

Where a waiver has been granted in relation to any aspect of a Service Provider's PKI operations, the IRAP Assessor **MUST** sight the document and make allowance for the waiver in their evaluation and indicate this in the Findings Report.

The IRAP Assessor **MUST** comment on each instance of **NON COMPLIANCE**. Comments are to include an indication of the extent to which the Service Provider does not comply with the control under evaluation. The severity ratings of **NON COMPLIANCE** are listed in Annex A. A template for providing comments on areas of non-compliance is outlined in Annex B.

The IRAP Assessor **MUST** verify consistency between policy, plans, and procedures. In order to verify that procedures mentioned within policy documentation are operational, the IRAP Assessor **SHOULD** have the Service Provider demonstrate that the procedure is in use.

4.4 Failed Evaluations

A failed evaluation is one where, in the opinion of the IRAP Assessor, the Service Provider's implementation of its security policies and procedures, EITHER does not adequately mitigate the threats and risks identified in the Security Risk Management Plan OR does not satisfy the requirements of this Guide.

In reaching this decision the IRAP Assessor **MUST** have due regard to the nature of the PKI service provided by the Service Provider and the importance of maintaining a balance between commercial and security considerations.

This decision is not subject to negotiation with the Service Provider seeking Gatekeeper Accreditation.

Where a failed evaluation occurs the Findings Report **MUST** identify remedial action to be undertaken (and a timeframe within which the actions are to be completed) to address a **NON-COMPLIANCE.**

The Findings Report **MUST** include signoff from the Service Provider's Accreditation Authority, stating that to the best of their knowledge, the IRAP Assessor who signed the Findings Report has actively participated in conducting the assessment work.

A copy of the counter-signed Findings Report **MUST** be provided to the Service Provider.

4.5 Findings Report

The IRAP Assessor **MUST**:

- Prepare a Findings Report based on the activities they have undertaken in completing the IRAP Assessment; Identify areas of compliance and non-compliance with the controls listed in this guide;
- Suggest remediation actions to address all areas of non-compliance; and
- Provide a recommendation to the Gatekeeper Competent Authority as to the adequacy of the Service Provider's protective security controls for the PKI environment under evaluation.

The covering letter to the Findings Report **MUST** advise the Gatekeeper Competent Authority, in the view of the IRAP Assessor, whether or not the Service Provider has successfully met the requirements of the Guide. A copy of the counter-signed Findings Report **MUST** be included with the covering letter.

Where the Service Provider has failed the IRAP Assessment, the letter and the report **MUST** specify what remedial action is required to be undertaken by the Service Provider in order to achieve compliance.

A copy of the Covering Letter **MUST** also be provided to the Service Provider.

The IRAP Assessor **MUST** forward the following documents to the Gatekeeper Competent Authority once the assessment is completed:

- Findings Report with covering letter,
- Completed assessment against this guide,
- A complete list of non-compliances including their severity ratings[1], and
- Recommended actions to remediate non compliances.

[1] Annex A lists the non-compliance severity ratings and their associated definitions.

Completed IRAP Guides are to be sent to the following address:

Gatekeeper Competent Authority
C/O Director, Trusted Digital Identity Team
Digital Transformation Office
Email: authentication@dto.gov.au

5. Protective Security Controls

The Guide consists of 228 controls which cover the protective security requirements specific for the Gatekeeper PKI Framework. Each control contains six pieces of information:

1. **No**. The control number (1 through 228).
2. **Source**. The source from where a control is derived (i.e. PSPF, ISM or the Framework itself).
3. **Control**. The control number relative to the source. For example, 'GOV4' is a control from the PSPF. '0040' is a control from the ISM.
4. **Applicability**. The accreditation type(s) to whom the requirement applies. (i.e. RAs, CAs, or VAs).
5. **Framework sections**. A cross reference to the relevant section(s) within the Gatekeeper PKI Framework. For example, '7 (GK3 & 4)' is a cross reference to third and fourth Gatekeeper Mandatory Security Requirements (GK 3 & 4) within section 7. '9.4' is a cross reference to the Security Risk Management Plan.
6. **Requirement**. The requirement to be met.

Below is an example of a requirement used within the Guide.

No: 17	**Source:** ISM, PSPF	**Control:** 0040, GOV4, INFOSEC 2	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK3 & 4), 9.4
All systems MUST be covered by a Security Risk Management Plan.				

Note: For the purpose of this guide some ISM and PSPF controls have been altered to fit within a PKI-specific context. For example the ISM states 'Agencies must report cyber security incidents to ASD'. For Gatekeeper Accreditation this requirement has been expanded to 'Service Providers MUST report cyber security incidents to ASD and the Gatekeeper Competent Authority'. Wherever alterations like this have occurred the source of the control will state both GK and ISM/PSPF.

Below is a summary of protective security controls contained within this Guide.

Section	Requirement	Controls
	Total Controls	**228**
6	**Documentation Controls**	**78**
6.1	Security Provider Governance	13
6.2	Information Security Documentation	54
6.3	Certification Practice Statement and Certificate Policies	11
7	**Physical Controls**	**51**
7.1	Facilities	6
7.2	Infrastructure	8
7.3	Equipment & Media	30
7.4	Mobile Devices	7
8	**Logical Controls**	**89**
8.1	Strategies to Mitigate Targeted Cyber Intrusions (Top 4)	23
8.2	Access Controls	7
8.3	User Accounts	10
8.4	Standard Operating Environment	5
8.5	Databases	11
8.6	System Monitoring	2
8.7	PKI Core Elements	9
8.8	Approved Algorithms and Protocols	21
8.9	Outsourced Arrangements	1
9	**Personnel Controls**	**10**
9.1	Clearances	4
9.2	Training	2
9.3	Security Awareness	3
9.4	Staff Responsibilities	1

6. Documentation Controls

6.1 Service Provider Governance

No	Source	Control	Applicability	Framework sections
No: 1	**Source:** GK	**Control:** GK	**Applicability:** RA, CA, VA	**Framework sections:** 6.3
Service Providers MUST be registered with the Australian Business Register and maintain a current Australian Business Number.				
No: 2	**Source:** GK	**Control:** GK	**Applicability:** RA, CA, VA	**Framework sections:** 6.3
Service Providers MUST be physically located within Australia and provide services from within Australia. Any remote connections to the PKI environment MUST also occur from within Australia.				
No: 3	**Source:** ISM	**Control:** 1071	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.5
Each system MUST have a system owner who is responsible for the operation of the system.				
No: 4	**Source:** ISM, PSPF	**Control:** 1229, GOV2	**Applicability:** RA, CA, VA	**Framework sections:** 7, 9.2, 9.5
A Service Provider's Accreditation Authority MUST be at least a senior executive with an appropriate level of understanding of the security risks they are accepting on behalf of the Service Provider.				
No: 5	**Source:** ISM, PSPF	**Control:** 768, GOV3	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.5
Service Providers MUST appoint at least one expert, commonly referred to as an ITSA (or an equivalent position), in administering and configuring a broad range of systems as well as analysing and reporting on information security issues.				

No	Source	Control	Applicability	Framework sections
No: 6	**Source:** ISM, PSPF	**Control:** 741, GOV2	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK2), 9.2, 9.5
Service Providers MUST appoint at least one executive, commonly referred to as an ITSM (or an equivalent position), to manage the day-to-day operations of information security within the Service Provider, in line with the strategic directions provided by the CISO or equivalent.				
No: 7	**Source:** ISM	**Control:** 7	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5
Service Providers undertaking system design activities for in-house or out-sourced projects MUST use the latest release of the ISM for security requirements.				
No: 8	**Source:** ISM	**Control:** 710	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.8, 10.3
Service Providers seeking approval for non-compliance with any control MUST document: • the justification for non-compliance, • a security risk assessment, • the alternative mitigation measures to be implemented, if any.				
No: 9	**Source:** ISM, GK	**Control:** 3, GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.8, 10.3
Service Providers MUST retain a copy of decisions to grant non-compliance with any Gatekeeper specific control from the ISM.				
No: 10	**Source:** ISM	**Control:** 876	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.8, 10.3
Service Providers MUST review decisions to grant non-compliance with any control, including the justification, any mitigation measures and security risks, at least annually or when significant changes occur to ensure its continuing relevance, adequacy and effectiveness.				

No	Source	Control	Applicability	Framework sections
No: 11	**Source:** PSPF	**Control:** GOV10	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK6)
Service Providers MUST adhere to any provisions concerning the security of people, information and assets contained in multilateral or bilateral agreements and arrangements to which Australia is a party.				
No: 12	**Source:** GK	**Control:** GK	**Applicability:** RA, CA, VA	**Framework sections:** 6.3
Service Providers MUST document their compliance with Gatekeeper Core Obligations in their legal documents such as the CPS, CP, Subscriber and Relying Party Agreements (where relevant), or into other Approved Documents submitted for approval by the Gatekeeper Competent Authority.				
No: 13	**Source:** ISM	**Control:** 137	**Applicability:** RA, CA, VA	**Framework sections:** 9.9
Service Providers considering allowing intrusion activity to continue under controlled conditions for the purpose of seeking further information or evidence MUST seek legal advice.				

6.2 Information Security Documentation

6.2.1 Information Security Policy

No	Source	Control	Applicability	Framework sections
No: 14	**Source:** ISM, PSPF	**Control:** 39, GOV5, INFOSEC 1	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK3), 9.2
Service Providers MUST have an Information Security Policy which covers the PKI environment.				

6.2.2 Protective Security Risk Review

No	Source	Control	Applicability	Framework sections
No: 15	**Source:** GK	**Control:** GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4
Threats to PKI services, assets and business processes MUST be outlined in the Protective Security Risk Review and Security Risk Management Plan documents as part of the Service Provider's Information Security Documents.				

6.2.3 Security Risk Management Plan

No	Source	Control	Applicability	Framework sections
No: 16	**Source:** ISM, PSPF	**Control:** 40, GOV4, 5 & 6, INFOSEC 2	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK3 & 4), 9.4
All systems MUST be covered by a Security Risk Management Plan.				
No: 17	**Source:** ISM	**Control:** 1208	**Applicability:** RA, CA, VA	**Framework sections:** 9.4
Service Providers MUST document identified information security risks, as well as the evaluation of those risks and mitigation strategies, in their Security Risk Management Plan.				
No: 18	**Source:** ISM	**Control:** 1203	**Applicability:** RA, CA, VA	**Framework sections:** 9.4
Service Providers MUST identify and analyse security risks to their information and systems.				
No: 19	**Source:** ISM	**Control:** 1204	**Applicability:** RA, CA, VA	**Framework sections:** 9.4
Security risks deemed unacceptable MUST be treated.				

No	Source	Control	Applicability	Framework sections
No: 20	**Source:** GK	**Control:** GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.4
Assets to be protected MUST be identified in the Risk Assessment.				
No: 21	**Source:** ISM	**Control:** 1205	**Applicability:** RA, CA, VA	**Framework sections:** 9.4
Service Providers MUST incorporate the relevant controls contained in the current version of the ISM in their security risk management processes. The relevant controls are those listed in this IRAP Guide.				
No: 22	**Source:** ISM, PSPF	**Control:** 1354, GOV5 & GOV6, INFOSEC 2	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK3 & 4), 9.4, 9.8, 10.3
Service Providers MUST adopt a risk–management approach and implement alternative security controls for: • technologies which lack available software to enforce the mandatory controls; and • scenarios or circumstances which prevent enforcement of the mandatory Top 4 Strategies.				
No: 23	**Source:** ISM	**Control:** 282	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.10, 10.3
Service Providers MUST NOT use unevaluated products, unless the risks have been appropriately accepted and documented.				
No: 24	**Source:** ISM	**Control:** 291	**Applicability:** RA, CA, VA	**Framework sections:** 9.4, 9.8, 10.3
Service Providers wishing to use an evaluated product in an unevaluated configuration MUST undertake a security risk assessment including: • the necessity of the unevaluated configuration; • testing of the unevaluated configuration in the Service Provider's environment; and • new vulnerabilities introduced due to the product being used outside of its evaluated configuration.				

No	Source	Control	Applicability	Framework sections
No: 25	**Source:** GK	**Control:** GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.4
Security risks deemed acceptable by a Service Provider MUST be formally accepted by the System Owner.				

6.2.4 System Security Plan

No	Source	Control	Applicability	Framework sections
No: 26	**Source:** ISM	**Control:** 41	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
All systems MUST be covered by a System Security Plan.				
No: 27	**Source:** ISM, PSPF	**Control:** 895, INFOSEC 5 & 6	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK 3 & 4), 9.5
Service Providers MUST select controls from the current version of the ISM to be included in the SSP based on the scope of the system with additional system specific controls being included as a result of the associated SRMP.				
No: 28	**Source:** ISM	**Control:** 432	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Service Providers MUST specify in the SSP any authorisations, security clearances and briefings necessary for system access.				
No: 29	**Source:** GK	**Control:** GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.5,
All server and workstation security objectives and mechanisms MUST be documented in the relevant SSP.				

No	Source	Control	Applicability	Framework sections
No: 30	**Source:** ISM	**Control:** 580	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Service Providers MUST develop an event log strategy covering: • logging facilities including availability requirements and the reliable delivery of event logs to logging facilities; • the list of events associated with a system or software component to be logged; and • Event log protection and archival requirements.				
No: 31	**Source:** ISM	**Control:** 586	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Event logs MUST be protected from modification and unauthorised access, and whole or partial loss within the defined retention period.				
No: 32	**Source:** ISM	**Control:** 1405	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Service Providers MUST implement a secure centralised logging facility.				
No: 33	**Source:** ISM	**Control:** 1344	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Service Providers MUST ensure systems are configured to save event logs to the secure centralised logging facility.				

6.2.5 Standard Operating Procedures

No	Source	Control	Applicability	Framework sections
No: 34	**Source:** ISM	**Control:** 123, 130, GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.9
Standard Operating Procedures for all personnel with access to systems MUST include the requirement to notify the ITSM: • of any cyber security incident as soon as possible after the cyber security incident is discovered, and • access to any data that they are not authorised to access.				

No	Source	Control	Applicability	Framework sections
No: 35	**Source:** ISM	**Control:** 322	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Service Providers MUST document SOPs for the reclassification and declassification of media and equipment.				
No: 36	**Source:** ISM	**Control:** 348	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Service Providers MUST document SOPs for the sanitisation of media and equipment.				
No: 37	**Source:** ISM	**Control:** 363	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Service Providers MUST document SOPs for the destruction of media and equipment.				
No: 38	**Source:** ISM	**Control:** 313	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Service Providers MUST have a documented process for the disposal of media and equipment.				
No: 39	**Source:** ISM	**Control:** 374	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Service Providers MUST document SOPs for the disposal of media and equipment				
No: 40	**Source:** ISM	**Control:** 1082	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Service Providers MUST develop a policy governing the use of mobile devices.				

6.2.6 Physical & Environmental Security Plan

No	Source	Control	Applicability	Framework sections
No: 41	**Source:** PSPF	**Control:** PHYSEC3	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK11), 9.6
Service Providers MUST prepare a Physical & Environmental Security Plan.				

6.2.7 Personnel Security Plan

No	Source	Control	Applicability	Framework sections
No: 42	**Source:** GK	**Control:** GK	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK), 9.7
Service Providers MUST implement a Personnel Security Plan.				

6.2.8 Vulnerability Management

No	Source	Control	Applicability	Framework sections
No: 43	**Source:** ISM	**Control:** 112	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.8
Service Providers MUST analyse any vulnerabilities to determine their potential impact on their PKI operations and determine appropriate mitigations or other treatments. Evidence of these mitigations and treatments MUST appear in the Service Provider's Information Security Documentation.				
No: 44	**Source:** ISM	**Control:** 113	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.8
Service Providers MUST mitigate or otherwise treat identified vulnerabilities as soon as possible.				

6.2.9 Incident Response Plan

No	Source	Control	Applicability	Framework sections
No: 45	**Source:** ISM, PSPF	**Control:** 43, PHYSEC7	**Applicability:** RA, CA, VA	**Framework sections:** 7(GK12), 9.9
Service Providers MUST develop, maintain and implement an Incident Response Plan and supporting procedures.				
No: 46	**Source:** ISM	**Control:** 58	**Applicability:** RA, CA, VA	**Framework sections:** 9.9
Service Providers MUST include, as a minimum, the following content in their IRP: • broad guidelines on what constitutes a cyber security incident • the minimum level of cyber security incident response and investigation training for users and system administrators • the authority responsible for initiating investigations of a cyber security incident • the steps necessary to ensure the integrity of evidence supporting a cyber security incident • the steps necessary to ensure that critical systems remain operational • how to formally report cyber security incidents.				
No: 47	**Source:** ISM	**Control:** 131	**Applicability:** RA, CA, VA	**Framework sections:** 9.9
Service Providers MUST document procedures for dealing with data spills in their IRP.				
No: 48	**Source:** ISM	**Control:** 132	**Applicability:** RA, CA, VA	**Framework sections:** 9.9
Service Providers MUST treat any data spillage as an cyber security incident, and follow the IRP to mitigate the incident.				
No: 49	**Source:** ISM	**Control:** 129	**Applicability:** RA, CA, VA	**Framework sections:** 9.9
When a data spill occurs Service Providers MUST assume that the information has been compromised and report the details of the data spill to ASD.				

No	Source	Control	Applicability	Framework sections
No: 50	**Source:** ISM	**Control:** 133	**Applicability:** RA, CA, VA	**Framework sections:** 9.9
When a data spill occurs, Service Providers MUST report the details of the data spill to the information owner.				
No: 51	**Source:** ISM	**Control:** 139, GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.9
Service Providers MUST report cyber security incidents to ASD and the Gatekeeper Competent Authority.				
No: 52	**Source:** ISM	**Control:** 142	**Applicability:** RA, CA, VA	**Framework sections:** 9.9, 9.10
Service Providers MUST notify all communications security custodians of any suspected loss or compromise of keying material.				
No: 53	**Source:** ISM	**Control:** 141	**Applicability:** RA, CA, VA	**Framework sections:** 9.9
Service Providers that outsource their ICT services and functions to a third party MUST ensure that the third party consults with them when a cyber security incident occurs.				

6.2.10 Cryptographic Key Management Plan

No	Source	Control	Applicability	Framework sections
No: 54	**Source:** ISM, GK	**Control:** 511, GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
The Cryptographic Key Management Plan MUST be consistent with the criticality and classification of the information to be protected.				

No	Source	Control	Applicability	Framework sections
No: 55	**Source:** ISM	**Control:** 504	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers MUST conduct an inventory of cryptographic system material: • on handover/takeover of administrative responsibility for the cryptographic system • on change of personnel with access to the cryptographic system • at least annually.				
No: 56	**Source:** GK	**Control:** GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.10, 10.3
Service Providers MUST use accredited PKI software and hardware products that have undergone a security evaluation through an ASD recognised evaluation program.				
No: 57	**Source:** ISM	**Control:** 280	**Applicability:** RA, CA, VA	**Framework sections:** 9.4, 9.10
Service Providers MUST select PKI software and hardware products with the required security functionality that has completed an ASD approved Protection Profile evaluation in preference to one that has completed an EAL–based evaluation. If Service Providers select a PKI software and hardware products that has not completed an evaluation, documenting this decision, assessing the security risks and accepting these risks ensures the decision is appropriate for an Service Provider's business requirements and risk profile.				
No: 58	**Source:** ISM	**Control:** 463	**Applicability:** RA, CA, VA	**Framework sections:** 9.10, 10.3
Service Providers MUST check PKI software and hardware product evaluation documentation, where available, to determine any product specific requirements.				
No: 59	**Source:** ISM	**Control:** 464	**Applicability:** RA, CA, VA	**Framework sections:** 9.10, 10.3
Service Providers MUST comply with all PKI software and hardware product specific requirements outlined in product evaluation documentation.				

No	Source	Control	Applicability	Framework sections
No: 60	**Source:** ISM	**Control:** 503	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers MUST be able to readily account for all transactions relating to cryptographic system material, including identifying hardware and software that was issued with the cryptographic equipment and materials, when they were issued and where they were issued.				
No: 61	**Source:** ISM	**Control:** 455	**Applicability:** CA	**Framework sections:** 6.4, 9.10
Where practical, cryptographic products MUST provide a means of data recovery to allow for circumstances where the encryption key is unavailable due to loss, damage or failure.				

6.2.11 Change Management

No	Source	Control	Applicability	Framework sections
No: 62	**Source:** ISM, GK	**Control:** 1211, GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.11
Service Providers MUST have a formal change management process in place.				
No: 63	**Source:** ISM	**Control:** 117	**Applicability:** RA, CA, VA	**Framework sections:** 9.11
The change management process MUST define appropriate actions to be followed before and after urgent or emergency changes are implemented.				

No	Source	Control	Applicability	Framework sections
No: 64	**Source:** ISM	**Control:** 115	**Applicability:** RA, CA, VA	**Framework sections:** 9.1, 9.3, 9.4, 9.5, 9.6, 9.11
Service Providers MUST ensure that for routine and urgent changes: • the change management process is followed; • the proposed change is approved by the relevant authority; • any proposed change that could impact the security of a system is submitted to the accreditation authority for approval; and • all relevant Information Security Documentation is updated to reflect the change.				
No: 65	**Source:** ISM, GK	**Control:** 809, GK	**Applicability:** RA, CA, VA	**Framework sections:** 5.6, 9.3, 9.4, 9.5, 9.11
When a configuration change impacts the security of a system, and is subsequently assessed as having changed the overall security risk for the system, the system MUST undergo reaccreditation.				

6.2.12 Disaster Recovery and Business Continuity Plan

No	Source	Control	Applicability	Framework sections
No: 66	**Source:** PSPF, GK	**Control:** GOV11, GK	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK5), 9.12
Service Providers MUST develop a Disaster Recovery Business Continuity Plan.				
No: 67	**Source:** ISM, PSPF	**Control:** 118, GOV11	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK7), 9.12
Service Providers MUST determine availability requirements for their systems and implement appropriate security measures to support these requirements.				

6.3 Certification Practice Statement and Certificate Policies

No	Source	Control	Applicability	Framework sections
No: 68	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4
The Certification Practice Statement and Certificate Policy MUST conform to the document framework as described in RFC3647.				
No: 69	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4
Security objectives identified in the Security Policy MUST be reflected in the Certification Practice Statement and as appropriate all Certificate Policies.				
No: 70	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4
The PKI MUST perform its operations to manage the life cycle of the certificates it issues in compliance with its CPS.				
No: 71	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4, 6.8
All certificates issued by the PKI MUST be issued in compliance with a published CP.				
No: 72	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4
A CA MUST ensure every Certificate Policy under which digital certificates are issued clearly specify the Level of Assurance associated with the digital certificates.				
No: 73	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4
The Certificate Revocation List MUST conform to the X.509 version 2 profile as described in RFC5280.				

No	Source	Control	Applicability	Framework sections
No: 74	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4
If supported Online Certificate Status Protocol responses MUST conform to RFC5019.				
No: 75	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4
Where CRLs are used, new CRLs MUST be generated at regular scheduled intervals and published CRLs have a suitable validity period.				
No: 76	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4, 6.8
CRLs MUST be published to a location that is accessible by any applications that use the certificates.				
No: 77	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4
The location where certificates and CRLs are published MUST have restricted write access so that only valid certificates and CRLs issued by approved PKI entities can be published by an authorised person or process.				
No: 78	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4, 6.8
The PKI MUST publish as much of its documented CPS as necessary to alloy a relying party to make informed decision on trust.				

7. Physical Controls

7.1 Facilities

No	Source	Control	Applicability	Framework sections
No: 79	**Source:** ISM, PSPF	**Control:** 865, PHYSEC4 & 6	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK11), 6.3, 8.2, 9.6, 10.4
Service Providers MUST ensure that any facility containing a PKI system, (including a mobile device or removable media as the case may be for remote RAs) meet the requirements in the Australian Government Physical Security Management Protocol.				
No: 80	**Source:** PSPF, GK	**Control:** PHYSEC6, GK	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK11), 8.2, 9.2, 9.6, 10.4
PKI servers MUST be housed within a secure data centre and have restrictive physical access controls to ensure only authorized and trained PKI administrator have access.				
No: 81	**Source:** ISM	**Control:** 813	**Applicability:** RA, CA, VA	**Framework sections:** 9.4, 9.5, 9.6
Service Providers MUST NOT leave server rooms, communications rooms and security containers or rooms in an unsecured state.				
No: 82	**Source:** ISM	**Control:** 1074	**Applicability:** RA, CA, VA	**Framework sections:** 9.4, 9.5, 9.6
Service Providers MUST ensure that keys or equivalent access mechanisms to server rooms, communications rooms and security containers or rooms are appropriately controlled and audited.				

No	Source	Control	Applicability	Framework sections
No: 83	**Source:** ISM	**Control:** 150	**Applicability:** RA, CA, VA	**Framework sections:** 9.6, 10.4
Where a Service Provider uses a NLZ, this area MUST: • be suitably sign-posted; and • have all entry and exit points appropriately secured.				
No: 84	**Source:** ISM, PSPF	**Control:** 1053, INFOSEC 6, & 7, PHYSEC 6	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 7, 10.4
Service Providers MUST ensure that servers and network devices are secured in either security containers or rooms as specified in the Australian Government Physical Security Management Protocol.				

7.2 Infrastructure

No	Source	Control	Applicability	Framework sections
No: 85	**Source:** ISM	**Control:** 1304	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5, 9.7
Default network device accounts MUST be disabled, renamed or have their passphrase changed.				
No: 86	**Source:** ISM	**Control:** 1383	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5, 9.6, 9.7
Service Providers MUST ensure that all administrative infrastructure including, but not limited to, privileged workstations and jump boxes are hardened appropriately.				

No	Source	Control	Applicability	Framework sections
No: 87	**Source:** ISM	**Control:** 1388	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5, 9.6, 9.7
Service Providers MUST ensure that jump boxes are prevented from communicating to assets and sending and receiving traffic not related to administrative purposes.				
No: 88	**Source:** ISM	**Control:** 1296	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.6, 10.4
Adequate physical measures MUST be provided to protect network devices, especially those in public areas, from physical damage or unauthorised access.				
No: 89	**Source:** GK	**Control:** GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.6, 9.10
Service Providers MUST use a firewall as part of their traffic flow filter.				
No: 90	**Source:** ISM	**Control:** 639	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.6, 9.10
Service Providers MUST use a firewall between networks of different security domains.				
No: 91	**Source:** ISM	**Control:** 1194	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.6
The requirement to use a firewall as part of gateway infrastructure MUST be met by both parties independently; shared equipment does not satisfy the requirements of both parties.				

7.3 Equipment & Media

No	Source	Control	Applicability	Framework sections
No: 92	**Source:** ISM	**Control:** 337	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.6
Service Providers MUST NOT use media with a system that is not accredited to process, store or communicate the information on the media.				
No: 93	**Source:** ISM, PSPF	**Control:** 294, INFOSEC 6 & 7	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK 10), 9.4, 9.5, 9.6
Service Providers MUST clearly label all ICT equipment capable of storing information, with the exception of High Assurance products, with the appropriate protective marking.				
No: 94	**Source:** ISM, PSPF	**Control:** 323, INFOSEC 6 & 7	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK10), 9.3, 9.4, 9.5, 9.6
Service Providers MUST classify media to the highest classification stored on the media since any previous reclassification.				
No: 95	**Source:** ISM, PSPF	**Control:** 325, INFOSEC 6 & 7	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK10), 9.3, 9.4, 9.5, 9.6
Service Providers MUST classify any media connected to a system the same sensitivity or classification as the system, unless either: • the media is read-only • the media is inserted into a read-only device • the system has a mechanism through which read-only access can be assured.				
No: 96	**Source:** ISM	**Control:** 333	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Service Providers MUST ensure that classification of all media is easily visually identifiable.				

No	Source	Control	Applicability	Framework sections
No: 97	**Source:** ISM, PSPF	**Control:** 334	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6, 9.7
When using non-textual protective markings for media due to operational security reasons, Service Providers MUST document the labelling scheme and train personnel appropriately.				
No: 98	**Source:** ISM, PSPF	**Control:** 161, INFOSEC 6 & 7	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK 10), 9.4, 9.5, 9.6, 10.4
Service Providers MUST ensure that ICT equipment and media with sensitive or classified information is secured in accordance with the requirements for storing sensitive or classified information in the Australian Government Physical Security Management Protocol.				
No: 99	**Source:** ISM	**Control:** 832	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers MUST encrypt media with at least an ASD Approved Cryptographic Algorithm if it is to be transferred through an area not certified and accredited to process the sensitivity or classification of the information on the media.				
No: 100	**Source:** ISM	**Control:** 418	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5
Authentication information MUST be stored separately to a system to which it grants access.				
No: 101	**Source:** ISM	**Control:** 1402	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5
Authentication information stored on a system MUST be protected.				
No: 102	**Source:** ISM	**Control:** 462	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6, 9.10
When a user authenticates to ICT equipment storing encrypted information, it MUST be treated in accordance with the original sensitivity or classification of the equipment.				

No	Source	Control	Applicability	Framework sections
No: 103	**Source:** ISM, PSPF	**Control:** 159, INFOSEC 6 & 7	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK 10), 9.4, 9.5, 9.6
Service Providers MUST account for all sensitive and classified ICT equipment and media.				
No: 104	**Source:** ISM, PSPF	**Control:** 293, INFOSEC 3 & 7	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK 10), 9.4, 9.5, 9.6
Service Providers MUST classify ICT equipment based on the sensitivity or classification of information for which the equipment and any associated media in the equipment are approved for processing, storing or communicating.				
No: 105	**Source:** ISM	**Control:** 306	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5, 9.6, 9.7
If an uncleared technician is used to undertake maintenance or repairs of ICT equipment, the technician MUST be escorted by someone who: • is appropriately cleared and briefed; • takes due care to ensure that sensitive or classified information is not disclosed; • takes all responsible measures to ensure the integrity of the equipment; and, • has the authority to direct the technician.				
No: 106	**Source:** ISM	**Control:** 310	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Service Providers having ICT equipment maintained or repaired off-site MUST ensure that the physical transfer, processing and storage requirements are appropriate for the sensitivity or classification of the equipment and that procedures are complied with at all times.				

No	Source	Control	Applicability	Framework sections
No: 107	**Source:** ISM, PSPF	**Control:** 329, INFOSEC 6 & 7	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK10), 9.3, 9.4, 9.5, 9.6
Service Providers declassifying media MUST ensure that: • the media has been reclassified to an unclassified level either through an administrative decision, sanitisation or destruction • a formal administrative decision is made to release the unclassified media, or its waste, into the public domain.				
No: 108	**Source:** ISM, PSPF	**Control:** 330, INFOSEC 6 & 7	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK10), 9.3, 9.4, 9.5, 9.6
Service Providers wishing to reclassify media to a lower classification MUST ensure that: • the reclassification of all information on the media has been approved by the originator, or the media has been appropriately sanitised or destroyed. • a formal administrative decision is made to reclassify the media.				
No: 109	**Source:** ISM, PSPF	**Control:** 331, INFOSEC 6 & 7	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK10), 9.3, 9.4, 9.5, 9.6
Media MUST be reclassified if: • information copied onto the media is of a higher classification than the sensitivity or classification of the information already on the media; and • information contained on the media is subjected to a classification upgrade.				
No: 110	**Source:** ISM	**Control:** 375	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Service Providers MUST declassify all media prior to disposing of it into the public domain.				

No	Source	Control	Applicability	Framework sections
No: 111	**Source:** ISM, PSPF	**Control:** 311, INFOSEC 6 & 7	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK10), 9.3, 9.4, 9.5, 9.6
Service Providers MUST, when disposing of ICT equipment containing classified media, sanitise the equipment by either: • sanitising the media within the equipment; • removing the media from the equipment and disposing of it separately; or • destroying the equipment in its entirety.				
No: 112	**Source:** ISM	**Control:** 350	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Service Providers MUST destroy the following media types prior to disposal, as they cannot be sanitised: • microform (i.e. microfiche and microfilm) • optical discs • printer ribbons and the impact surface facing the platen • programmable read-only memory • read-only memory • faulty or other types of media that cannot be successfully sanitised.				
No: 113	**Source:** ISM	**Control:** 364	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
To destroy media, Service Providers MUST either: • break up the media • heat the media until it has either burnt to ash or melted • degauss the media.				

No	Source	Control	Applicability	Framework sections
No: 114	**Source:** ISM	**Control:** 1217	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
When disposing of ICT equipment, Service Providers MUST remove labels and markings indicating the classification, code words, caveats, owner, system or network name, or any other marking that can associate the equipment with its original use.				
No: 115	**Source:** ISM	**Control:** 1347	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Where volatile media has undergone sanitisation but sensitive or classified information persists on the media, Service Providers MUST destroy the media, and handle the media at the sensitivity or classification of the information it contains until it is destroyed.				
No: 116	**Source:** ISM, PSPF	**Control:** 370, PERSEC 1, PERSEC 4, INFOSEC 6	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK8 & 10), 9.3, 9.4, 9.5, 9.6
Service Providers MUST perform the destruction of media under the supervision of at least one person cleared to the classification of the media being destroyed.				
No: 117	**Source:** ISM, PSPF	**Control:** 371, PERSEC 1, PERSEC 4, INFOSEC 6	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK8 & 10), 9.3, 9.4, 9.5, 9.6
The person supervising the destruction of the media MUST: • supervise the handling of the material to the point of destruction; and • ensures that the destruction is successfully completed.				
No: 118	**Source:** ISM	**Control:** 378	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Service Providers MUST dispose of media in a manner that does not draw undue attention to its previous sensitivity or classification.				
No: 119	**Source:** ISM, GK	**Control:** 336, GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Service Providers MUST register all removable media with a unique identifier in an appropriate register (e.g. removable media register).				

7.4 Mobile Devices[2]

No	Source	Control	Applicability	Framework sections
No: 120	**Source:** ISM	**Control:** 864	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5, 9.7
Service Providers MUST prevent personnel from disabling security functions on a mobile device once provisioned.				
No: 121	**Source:** ISM	**Control:** 1085	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.6
Service Providers using mobile devices to communicate sensitive or classified information over public network infrastructure MUST use encryption approved for communicating such information over public network infrastructure.				
No: 122	**Source:** ISM	**Control:** 870	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Service Providers MUST ensure mobile devices are carried in a secured state when not being actively used.				
No: 123	**Source:** ISM	**Control:** 1087	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.6
When travelling with mobile devices and media, personnel MUST retain control over them at all times, this includes not placing them in checked-in luggage or leaving them unattended for any period of time.				
No: 124	**Source:** ISM	**Control:** 871	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
When in use mobile devices MUST be kept under continual direct supervision.				

[2] The context for this section is two-fold; 1) the use of mobile devices by a Service Provider and, 2) Registration Authorities that support mobile identity proofing capabilities

No	Source	Control	Applicability	Framework sections
No: 125	**Source:** ISM	**Control:** 693	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Service Providers permitting personnel to access or store sensitive information using non-Service Provider owned mobile devices MUST implement technical controls to enforce the separation of sensitive information from personnel information.				
No: 126	**Source:** ISM	**Control:** 1200	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
If using Bluetooth on a mobile device, Service Providers MUST ensure both pairing devices uses Bluetooth version 2.1 or later.				

8. Logical Controls

8.1 Strategies to Mitigate Targeted Cyber Intrusions (Top 4)[3]

No	Source	Control	Applicability	Framework sections
No: 127	**Source:** ISM, PSPF, GK	**Control:** 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers, at a minimum, MUST implement the controls indicated in the following table on all PKI-related systems. Note: Some controls are duplicated between 'patch applications' and 'patch operating system' as they satisfy both strategies.				

TOP 4 CONTROLS	
Mitigation strategy	**ISM Control numbers**
Application whitelisting	0843, 0846, 0955, 1391, 1392
Patch applications	0300, 0303, 0304, 0940, 0941, 1143, 1144,
Patch operating systems	0300, 0303, 0304, 0940, 0941, 1143, 1144,
Restrict administrative privileges	0405, 0445, 0985, 1175

[3] For Linux based systems use the ASD publication *The Top 4 in a Linux Environment*

8.1.1 Application Whitelisting

No	Source	Control	Applicability	Framework sections
No: 128	**Source:** ISM, PSPF	**Control:** 843, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST use an application whitelisting solution within the Standard Operating Environments to restrict the execution of programs and Dynamic Link Libraries to an approved set.				
No: 129	**Source:** ISM, PSPF	**Control:** 846, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST ensure that users and system administrators cannot temporarily or permanently disable, bypass or be exempt from application whitelisting mechanisms.				
No: 130	**Source:** ISM, PSPF	**Control:** 955, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST implement application whitelisting using at least one of the following methods: • cryptographic hashes, • publisher certificates, • absolute paths, or • parent folders.				
No: 131	**Source:** ISM, PSPF	**Control:** 1391, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
When implementing application whitelisting using parent folder rules, file system permissions MUST be configured to prevent users and system administrators from adding or modifying files in authorised parent folders.				

No	Source	Control	Applicability	Framework sections
No: 132	**Source:** ISM, PSPF	**Control:** 1392, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
When implementing application whitelisting using absolute path rules, file system permissions MUST be configured to prevent users and system administrators from modifying riles that are permitted to run.				

8.1.2 Patch applications

No	Source	Control	Applicability	Framework sections
No: 133	**Source:** ISM, PSPF	**Control:** 300, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
High Assurance products MUST only be patched by ASD approved patches using methods and timeframes prescribed by ASD				
No: 134	**Source:** ISM, PSPF	**Control:** 303, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST use an approach for patching operating systems, applications, drivers and hardware devices that ensures the integrity and authenticity of patches as well as the processes used to apply them.				
No: 135	**Source:** ISM, PSPF	**Control:** 304, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Operating systems, applications and hardware devices that are no longer supported by their vendors MUST be updated to a vendor supported version or replaced with an alternative vendor supported version.				

No	Source	Control	Applicability	Framework sections
No: 136	**Source:** ISM, PSPF	**Control:** 940, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST apply all security patches as soon as possible.				

No	Source	Control	Applicability	Framework sections
No: 137	**Source:** ISM, PSPF	**Control:** 941, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6

When patches are not available for vulnerabilities, one or more of the following approaches must be implemented:

- resolve the vulnerability by either:
  - disabling the functionality associated with the vulnerability
  - asking the vendor for an alternative method of managing the vulnerability
  - moving to a different product with a more responsive vendor
  - engaging a software developer to resolve the vulnerability.
- prevent exploitation of the vulnerability by either:
  - applying external input sanitisation (if an input triggers the exploit)
  - applying filtering or verification on output (if the exploit relates to an information disclosure)
  - applying additional access controls that prevent access to the vulnerability
  - configuring firewall rules to limit access to the vulnerability.
- contain exploitation of the vulnerability by either:
  - applying firewall rules limiting outward traffic that is likely in the event of an exploitation
  - applying mandatory access control preventing the execution of exploitation code
  - setting file system permissions preventing exploitation code from being written to disk.
- detect exploitation of the vulnerability by either:
  - deploying an intrusion detection system
  - monitoring logging alerts
  - using other mechanisms for the detection of exploits using the known vulnerability.

No	Source	Control	Applicability	Framework sections
No: 138	**Source:** ISM, PSPF	**Control:** 1143, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST develop and implement a patch management strategy covering the patching of vulnerabilities in operating systems, applications, drivers and hardware devices.				
No: 139	**Source:** ISM, PSPF	**Control:** 1144, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Vulnerabilities in operating systems, applications, drivers and hardware devices assessed as extreme risk MUST be patched or mitigated within two days.				

8.1.3 Patch operating systems

No	Source	Control	Applicability	Framework sections
No: 140	**Source:** ISM, PSPF	**Control:** 300, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
High Assurance products MUST only be patched by ASD approved patches using methods and timeframes prescribed by ASD				
No: 141	**Source:** ISM, PSPF	**Control:** 303, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST use an approach for patching operating systems, applications, drivers and hardware devices that ensures the integrity and authenticity of patches as well as the processes used to apply them.				

No	Source	Control	Applicability	Framework sections
No: 142	**Source:** ISM, PSPF	**Control:** 304, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Operating systems, applications and hardware devices that are no longer supported by their vendors MUST be updated to a vendor supported version or replaced with an alternative vendor supported version.				
No: 143	**Source:** ISM, PSPF	**Control:** 940, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Vulnerabilities in operating systems, applications, drivers and hardware devices assessed as below extreme risk MUST be patched or mitigated as soon as possible.				

No	Source	Control	Applicability	Framework sections
No: 144	**Source:** ISM, PSPF	**Control:** 941, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6

When patches are not available for vulnerabilities, one or more of the following approaches must be implemented:

- resolve the vulnerability by either:
  - disabling the functionality associated with the vulnerability
  - asking the vendor for an alternative method of managing the vulnerability
  - moving to a different product with a more responsive vendor
  - engaging a software developer to resolve the vulnerability.
- prevent exploitation of the vulnerability by either:
  - applying external input sanitisation (if an input triggers the exploit)
  - applying filtering or verification on output (if the exploit relates to an information disclosure)
  - applying additional access controls that prevent access to the vulnerability
  - configuring firewall rules to limit access to the vulnerability.
- contain exploitation of the vulnerability by either:
  - applying firewall rules limiting outward traffic that is likely in the event of an exploitation
  - applying mandatory access control preventing the execution of exploitation code
  - setting file system permissions preventing exploitation code from being written to disk.
- detect exploitation of the vulnerability by either:
  - deploying an intrusion detection system
  - monitoring logging alerts
  - using other mechanisms for the detection of exploits using the known vulnerability.

No	Source	Control	Applicability	Framework sections
No: 145	**Source:** ISM, PSPF	**Control:** 1143, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST have a patch management strategy covering the patching or upgrade of applications and operating systems to address security vulnerabilities.				
No: 146	**Source:** ISM, PSPF	**Control:** 1144, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
For security vulnerabilities assessed as 'extreme risk', Service Providers MUST, within two days: • apply the security patch, or • mitigate the vulnerability if there is no patch available.				

8.1.4 Restrict administrative privileges

No	Source	Control	Applicability	Framework sections
No: 147	**Source:** ISM, PSPF	**Control:** 0405, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST: • limit system access on a need-to-know basis • have any requests for access to a system authorised by the person's manager • provide personnel with the least amount of privileges needed to undertake their duties • review system access and privileges at least annually and when personnel change roles • when reviewing access, ensure a response from the person's manager confirming the need to access the system is still valid, otherwise access will be removed.				

No	Source	Control	Applicability	Framework sections
No: 148	**Source:** ISM, PSPF	**Control:** 445, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST restrict the use of privileged accounts by ensuring that: • the use of privileged accounts is controlled and auditable; • system administrators are assigned a dedicated account to be used solely for the performance of their administration tasks; • privileged accounts are kept to a minimum; • privileged accounts are used for administrative work only; • passphrases for privileged accounts are regularly audited to check the same passphrase is not being reused over time or for multiple accounts (particularly between privileged and unprivileged accounts); and • privileges allocated to privileged accounts are regularly reviewed.				
No: 149	**Source:** ISM, PSPF	**Control:** 985, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST conduct remote administration of systems, including the use of privileged accounts, over a secure communications medium from secure devices.				
No: 150	**Source:** ISM, PSPF	**Control:** 1175, 1353, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST prevent users from using privileged accounts access to access the Internet and email.				

8.2 Access Controls

No	Source	Control	Applicability	Framework sections
No: 151	**Source:** ISM	**Control:** 414	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5
Service Providers MUST ensure that all users are: • uniquely identifiable • authenticated on each occasion that access is granted to a system.				
No: 152	**Source:** ISM	**Control:** 1173	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5
Service Providers MUST use multi-factor authentication for: • system administrators, • database administrators, • privileged users, • positions of trust, and • remote access.				
No: 153	**Source:** ISM	**Control:** 1384	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5
Service Providers MUST ensure that all privileged actions have passed through at least one multi-factor authentication process.				
No: 154	**Source:** ISM	**Control:** 1381	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5, 9.7
Service Providers MUST ensure that dedicated workstations used for privileged tasks are prevented from communicating to assets and sending and receiving traffic not related to administrative purposes.				

No	Source	Control	Applicability	Framework sections
No: 155	**Source:** ISM, PSPF	**Control:** 856, PERSEC 1, INFOSEC 5	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK8 & 9), 9.2, 9.3, 9.4, 9.5, 9.7
Users authorisations MUST be enforced by access controls.				
No: 156	**Source:** ISM	**Control:** 382	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Service Providers MUST ensure that users do not have the ability to install, uninstall or disable software.				
No: 157	**Source:** ISM	**Control:** 845	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5
Service Providers MUST restrict a user's rights in order to permit them to only execute a specific set of predefined executables as required for them to complete their duties.				

8.3 User Accounts

No	Source	Control	Applicability	Framework sections
No: 158	**Source:** ISM	**Control:** 383	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5
Service Providers MUST ensure that default operating system accounts are disabled, renamed or have their passphrase changed.				
No: 159	**Source:** GK	**Control:** GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5, 9.7
PKI administrative rights MUST be removed when no longer required by the user, or when the user leaves the company/Service Provider.				

No	Source	Control	Applicability	Framework sections
No: 160	**Source:** ISM	**Control:** 421	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5
Service Providers using passphrases as the sole method of authentication MUST enforce the following passphrase policy: • a minimum length of 13 alphabetic characters with no complexity requirement; or • a minimum length of 10 characters, consisting of at least three of the following character sets: – lowercase alphabetic characters (a–z) – uppercase alphabetic characters (A–Z) – numeric characters (0–9) – special characters.				
No: 161	**Source:** ISM	**Control:** 417	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5
Service Providers MUST NOT use a numerical password (or personal identification number) as the sole method of authenticating a user.				
No: 162	**Source:** ISM	**Control:** 1403	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5
Service Providers MUST ensure accounts are locked after a maximum of five failed logon attempts.				
No: 163	**Source:** ISM	**Control:** 430	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5
Accounts MUST be removed or suspended the same day a user no longer has a legitimate business requirement for its use. For example, changing duties or leaving the organisation.				

No	Source	Control	Applicability	Framework sections
No: 164	**Source:** ISM	**Control:** 1227	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5, 9.7
Service Providers MUST ensure reset passphrases are: • random for each individual reset • not reused when resetting multiple accounts • not based on a single dictionary word • not based on another identifying factor, such as the user's name or the date.				
No: 165	**Source:** ISM	**Control:** 976	**Applicability:** RA, CA, VA	**Framework sections:** 9.4, 9.5, 9.7
Service Providers MUST ensure users provide sufficient evidence to verify their identity when requesting a passphrase reset for their system account.				
No: 166	**Source:** ISM	**Control:** 419	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5
Authentication information MUST be protected when communicated across networks.				
No: 167	**Source:** ISM	**Control:** 416	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5
If Service Providers choose to allow shared, non user-specific accounts, another method of attributing actions undertaken by such accounts to specific personnel MUST be implemented.				

8.4 Standard Operating Environment

No	Source	Control	Applicability	Framework sections
No: 168	**Source:** ISM	**Control:** 380	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.6
Service Providers MUST remove or disable unneeded operating system accounts, software, components, services and functionality.				
No: 169	**Source:** ISM	**Control:** 1033	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Service Providers MUST ensure that antivirus or internet security software has: • signature-based detection enabled and set to a high level • heuristic-based detection enabled and set to a high level • detection signatures checked for currency and updated on at least a daily basis • automatic and regular scanning configured for all fixed disks and removable media.				
No: 170	**Source:** ISM	**Control:** 1306	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Firmware for network devices MUST be kept up to date.				
No: 171	**Source:** ISM	**Control:** 657	**Applicability:** RA, CA, VA	**Framework sections:** 9.5
Data imported to a system MUST be scanned for malicious and active content.				

No	Source	Control	Applicability	Framework sections
No: 172	**Source:** ISM	**Control:** 842	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5
When using a software-based isolation mechanism to share a physical server's hardware, Service Providers MUST ensure that: • the isolation mechanism is from a vendor that uses secure programming practices and, when vulnerabilities have been identified, the vendor has developed and distributed patches in a timely manner; • the configuration of the isolation mechanism is hardened, including removing support for unneeded functionality and restricting access to the administrative interface used to manage the isolation mechanism, with the configuration performed and reviewed by subject matter experts; • the underlying operating system running on the server is hardened; • security patches are applied to both the isolation mechanism and operating system in a timely manner; and, • integrity and log monitoring is performed for the isolation mechanism and underlying operating system in a timely manner.				

8.5 Databases

No	Source	Control	Applicability	Framework sections
No: 173	**Source:** ISM, PSPF	**Control:** 1250, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Database servers MUST use a hardened SOE.				
No: 174	**Source:** ISM	**Control:** 1262	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.7
Database administrators MUST have unique and identifiable accounts.				

No	Source	Control	Applicability	Framework sections
No: 175	**Source:** ISM	**Control:** 1266	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.7
Anonymous database accounts MUST be removed.				
No: 176	**Source:** ISM	**Control:** 1260	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.7
Default database administrator accounts MUST be disabled, renamed or have their passphrases changed.				
No: 177	**Source:** ISM	**Control:** 1263	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.7
Database administrator accounts MUST be used exclusively for administrative tasks with standard database accounts used for general purpose interactions with databases.				
No: 178	**Source:** ISM, PSPF	**Control:** 1249, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
Service Providers MUST configure DBMS software to run as a separate account with the minimum privileges needed to perform its functions.				
No: 179	**Source:** ISM, PSPF	**Control:** 1250, INFOSEC 4	**Applicability:** RA, CA, VA	**Framework sections:** 6.3, 7 (GK10), 9.5, 9.6
The account under which DBMS software runs MUST have limited access to non-essential areas of the database server's file system.				
No: 180	**Source:** ISM	**Control:** 1252	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Service Providers MUST ensure passphrases stored in databases are hashed with a strong hashing algorithm which is uniquely salted.				

No	Source	Control	Applicability	Framework sections
No: 181	**Source:** ISM	**Control:** 1256	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6
Service Providers MUST apply file-based access controls to database files.				
No: 182	**Source:** ISM	**Control:** 1275	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5
All queries to database systems from web applications MUST be filtered for legitimate content and correct syntax.				
No: 183	**Source:** ISM	**Control:** 1277	**Applicability:** RA, CA, VA	**Framework sections:** 9.2, 9.3, 9.4, 9.5, 9.10, 11.2
Sensitive or classified information communicated between database systems and web applications MUST be encrypted.				
No: 184	**Source:** ISM	**Control:** 393	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6, 9.7
Databases or their contents MUST be associated with protective markings.				

8.6 System Monitoring

No	Source	Control	Applicability	Framework sections
No: 185	**Source:** ISM	**Control:** 859	**Applicability:** RA, CA, VA	**Framework sections:** 6.4, 9.5, 11.3
Service Providers MUST retain event logs for a minimum of 7 years after action is completed in accordance with the NAA's Administrative Functions Disposal Authority.				

No	Source	Control	Applicability	Framework sections
No: 186	**Source:** ISM	**Control:** 585	**Applicability:** RA, CA, VA	**Framework sections:** 6.4, 9.5, 11.3
For each event logged, Service Providers MUST ensure that the logging facility records at least the following details: • date and time of the event; • relevant system user(s) or process; • event description; (d) success or failure of the event; • event source (for example application name); and • equipment location/identification.				

8.7 PKI Core Elements

No	Source	Control	Applicability	Framework sections
No: 187	**Source:** ISM, GK	**Control:** 1444	**Applicability:** CA	**Framework sections:** 9.3, 9.4, 9.5, 9.6
Certificates MUST be generated using a certificate authority product or hardware security module that completed an evaluation endorsed by ASD				
No: 188	**Source:** GK	**Control:** GK	**Applicability:** RA	**Framework sections:** 9.3, 9.4, 9.5, 9.6
RA servers are MUST be inaccessible directly from the internet.				

No	Source	Control	Applicability	Framework sections
No: 189	**Source:** GK	**Control:** GK	**Applicability:** RA	**Framework sections:** 9.5, 9.6, 9.7, 11.3
When a registration is performed, all relevant information on who performed the registration MUST is logged.				
No: 190	**Source:** GK	**Control:** GK	**Applicability:** RA	**Framework sections:** 9.7, 11.5, 11.6
When very high assurance (LOA 4) is required, an in-person face to face identity proofing procedure MUST be used to ensure that there is some physical verification the registrant is who they claim to be.				
No: 191	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 9.3, 9.4, 9.5, 9.6
CA servers are MUST be inaccessible directly from the internet.				
No: 192	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4, 9.10
Service Providers MUST only archive encryption keys to enable recovery of encrypted data. Digital signature/authentication keys MUST NOT be archived.				
No: 193	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4, 10.4
PKI backups, including backups key escrow services and software based private keys MUST be stored in a manner at least as secure as live systems with similar restrictions on who has access and no-lone requirements.				
No: 194	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4, 9.4, 9.10
Private keys MUST be encrypted within the key archive store to stop attacks where the store is stolen and accessed offline.				

No	Source	Control	Applicability	Framework sections
No: 195	**Source:** GK	**Control:** GK	**Applicability:** CA	**Framework sections:** 6.4, 9.10
Any instances of key recovery MUST be logged, audited and alerted so they can be reviewed by the appropriate authority.				

8.8 Approved Algorithms and Protocols

No	Source	Control	Applicability	Framework sections
No: 196	**Source:** GK	**Control:** GK	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers MUST use encryption products that implement ASD Approved Cryptographic Algorithms				
No: 197	**Source:** ISM, GK	**Control:** 1446	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers using elliptic curve cryptography MUST select a curve from the NIST standard, FIPS 186-4.				
No: 198	**Source:** ISM	**Control:** 471	**Applicability:** RA, CA, VA	**Framework sections:** 9.10, 10.3, 11.2
Service Providers using an unevaluated product that implements an AACA MUST ensure that only AACAs can be used				
No: 199	**Source:** ISM	**Control:** 472	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers using DH for the approved use of agreeing on encryption session keys MUST use a modulus of at least 1024 bits.				
No: 200	**Source:** ISM	**Control:** 1373	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers MUST NOT use anonymous DH.				

No	Source	Control	Applicability	Framework sections
No: 201	**Source:** ISM	**Control:** 474	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers using ECDH for the approved use of agreeing on encryption session keys MUST use a field/key size of at least 160 bits				
No: 202	**Source:** ISM	**Control:** 998	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers MUST use HMAC–SHA256, HMAC–SHA384 or HMAC–SHA512 as a HMAC algorithm.				
No: 203	**Source:** ISM	**Control:** 473	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers using DSA for the approved use of digital signatures MUST use a modulus of at least 1024 bits				
No: 204	**Source:** ISM	**Control:** 475	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers using ECDSA for the approved use of digital signatures MUST use a field/key size of at least 160 bits				
No: 205	**Source:** ISM	**Control:** 476	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers using RSA, for both the approved use of digital signatures and passing encryption session keys or similar keys, MUST use a modulus of at least 1024 bits.				
No: 206	**Source:** ISM	**Control:** 477	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers using RSA, both for the approved use of digital signatures and for passing encryption session keys or similar keys, MUST ensure that the key pair used for passing encrypted session keys is different from the key pair used for digital signatures.				
No: 207	**Source:** ISM	**Control:** 480	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers using 3DES MUST use either two distinct keys in the order key 1, key 2, key 1 or three distinct keys.				

No	Source	Control	Applicability	Framework sections
No: 208	**Source:** ISM	**Control:** 1161	**Applicability:** RA, CA, VA	**Framework sections:** 9.10, 10.3, 11.2
Service Providers MUST use an encryption product that implements a AACA if they wish to reduce the storage or physical transfer requirements for ICT equipment or media that contains sensitive information to an unclassified level.				
No: 209	**Source:** ISM	**Control:** 481	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers using a product that implements an AACP MUST ensure that only AACAs can be used.				
No: 210	**Source:** ISM	**Control:** 482	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers MUST NOT use SSL.				
No: 211	**Source:** ISM	**Control:** 1447	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers MUST use TLS.				
No: 212	**Source:** ISM	**Control:** 1233	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers MUST NOT use manual keying for Key Exchange when establishing an IPsec connection.				
No: 213	**Source:** ISM	**Control:** 496	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers MUST use the ESP protocol for IPsec connections.				

No	Source	Control	Applicability	Framework sections
No: 214	**Source:** ISM	**Control:** 1162	**Applicability:** RA, CA, VA	**Framework sections:** 9.10, 10.3, 11.2
Service Providers MUST use an encryption product that implements a AACP if they wish to communicate sensitive information over public network infrastructure.				
No: 215	**Source:** ISM, GK	**Control:** 457	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers MUST use a Common Criteria-evaluated encryption product that has completed a ACE if they wish to reduce the storage or physical transfer requirements for ICT equipment or media that contains classified information to an unclassified level.				
No: 216	**Source:** ISM, GK	**Control:** 465	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers MUST use a Common Criteria-evaluated encryption product that has completed a ACE if they wish to communicate classified or sensitive information over public network infrastructure.				
No: 217	**Source:** ISM	**Control:** 157	**Applicability:** RA, CA, VA	**Framework sections:** 9.10
Service Providers communicating sensitive or classified information over public network infrastructure or over infrastructure in unsecured spaces (Zone One security areas) MUST use encryption approved for communicating such information over public network infrastructure.				

8.9 Outsourced Arrangements

No	Source	Control	Applicability	Framework sections
No: 218	**Source:** ISM	**Control:** 71	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5
If information is processed, stored or communicated by a system not under a Service Provider's control, the Service Provider MUST ensure that the non-Service Provider system has appropriate security measures in place to protect the Service Provider's information.				

9. Personnel Controls

9.1 Clearances

No	Source	Control	Applicability	Framework sections
No: 219	**Source:** ISM, PSPF	**Control:** 434, PERSEC 1, 4 & 5	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK8 & 9), 9.2, 9.3, 9.4, 9.5, 9.7
Service Providers MUST ensure that personnel undergo an appropriate employment screening, and where necessary hold an appropriate security clearance according to the requirements in the Australian Government Personnel Security Management Protocol before being granted access to a system.				
No: 220	**Source:** PSPF	**Control:** PERSEC 6	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK9), 9.7
Service Providers MUST ensure that personnel holding security clearances advise AGSVA of any significant changes in personal circumstances which may impact on their continuing suitability to access security classified resources.				
No: 221	**Source:** ISM, PSPF	**Control:** 502, PERSEC 1, 4 & 5, INFOSEC 5	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK10), 9.2, 9.3, 9.4, 9.5, 9.7
Before personnel are granted communications security custodian access, Service Providers MUST ensure that they have: • a demonstrated need for access • read and agreed to comply with the relevant Cryptographic Key Management Plan for the cryptographic system they are using; • a security clearance at least equal to the classification of the keying material; • agreed to protect the authentication information for the cryptographic system at the sensitivity or classification of information it secures; • agreed not to share authentication information for the cryptographic system without approval; • agreed to be responsible for all actions under their accounts; and, • agreed to report all potentially security related problems to an ITSM.				

No	Source	Control	Applicability	Framework sections
No: 222	**Source:** ISM, PSPF	**Control:** 435, PERSEC 1	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK8), 9.2, 9.3, 9.4, 9.5, 9.7
Service Providers MUST ensure that personnel have received any necessary briefings before being granted access to a system.				

9.2 Training

No	Source	Control	Applicability	Framework sections
No: 223	**Source:** ISM, PSPF	**Control:** 251, GOV1 & 9, INFOSEC 3, PHYSEC2	**Applicability:** RA, CA, VA	**Framework sections:** 6, 7 (GK1 & 9), 9.2, 9.4, 9.5, 9.6, 9.7
Service Providers MUST ensure that all personnel who have access to ICT systems have sufficient information awareness and training.				
No: 224	**Source:** ISM, PSPF	**Control:** 252, GOV1 & 9, INFOSEC 3, PHYSEC2	**Applicability:** RA, CA, VA	**Framework sections:** 6, 7 (GK1 & 9), 9.2, 9.4, 9.5, 9.6, 9.7
Service Providers MUST provide ongoing ICT security training and awareness for personnel on information security policies on topics such as responsibilities, consequences of non-compliance, potential security risks and countermeasures.				

9.3 Security Awareness

No	Source	Control	Applicability	Framework sections
No: 225	**Source:** ISM, PSPF	**Control:** 413, GOV1, INFOSEC 3 & 5	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK1 & 9), 9.2, 9.4, 9.5, 9.6
Service Providers MUST develop and maintain a set of policies and procedures covering user identification, authentication, roles, responsibilities and authorisations and make users aware of, and understand the policies and procedures.				
No: 226	**Source:** ISM	**Control:** 122	**Applicability:** RA, CA, VA	**Framework sections:** 9.5, 9.6, 9.7, 9.9
Service Providers MUST detail cyber security incident responsibilities and procedures for each system in the relevant SSP, SOPs, and IRP.				
No: 227	**Source:** ISM, PSPF	**Control:** 1083, GOV1, INFOSEC 3 & 5	**Applicability:** RA, CA, VA	**Framework sections:** 7 (GK1 & 9), 9.2, 9.4, 9.5, 9.6, 9.7
Service Providers MUST advise personnel of the sensitivities and classifications permitted for data and voice communications when using mobile devices.				

9.4 Staff Responsibilities

No	Source	Control	Applicability	Framework sections
No: 228	**Source:** ISM	**Control:** 661	**Applicability:** RA, CA, VA	**Framework sections:** 9.3, 9.4, 9.5, 9.6, 9.7
Service Providers MUST ensure that system users transferring data to and from a system are held accountable for the data they transfer				

ANNEX A: Non-Compliance Ratings

Severity Rating	Definition
CRITICAL	An IRAP Assessor's determination that the Service Provider does not comply with essential protective security requirements of the Gatekeeper Framework shall be classified as a critical failure. For example, the inappropriate storage of cryptographic keys, digital certificates or passphrases shall be classified as a critical failure. The cessation of Gatekeeper accreditation activities shall occur until such time as the critical non-compliance is addressed.
MAJOR	An IRAP Assessor's determination that the Service Provider does not comply with significant protective security requirements of the Gatekeeper Framework shall be classified as a major failure. For example, a Service Provider does not have sufficient security awareness training programmes or plans in place shall be classified as a major failure. Escalation of the problem to a critical failure shall be imposed if additional related events impact on the Service Provider's operations simultaneously. Unmitigated failures in this category will result in the Gatekeeper Competent Authority not granting accreditation to the Service Provider until such time as the major non-compliance is addressed.
PARTIAL	An IRAP Assessor's determination that the Service Provider does not comply with important protective security requirements of the Gatekeeper Framework shall be classified as a partial failure. For example Standard Operating Procedures not implemented in a manner consistent with the System Security Plan. Escalation of the problem to a major failure shall be imposed if additional related events impact on the Service Provider's operations simultaneously. Unmitigated failures in this category may result in the Gatekeeper Competent Authority granting conditional accreditation to the Service Provider and request the partial non-compliance be remediated within six months from the accreditation date. Once this time limit is reached the area concerned shall be reviewed for compliance.
MINOR	An IRAP Assessor's determination that the Service Provider does not comply with general requirements of the Gatekeeper Framework shall be classified as a minor failure. For example insufficient linkages between Information Security Documentation. Unmitigated failures in this category may result in the Gatekeeper Competent Authority granting conditional accreditation to the Service Provider and request the minor non-compliance be remediated within twelve months from the accreditation date. The area concerned shall be reviewed as part of the annual Gatekeeper compliance audit.

ANNEX B: Non-Compliance Template

Section:	**{Documentation, Physical, Logical, Personnel} Controls**				
Total Section Controls:	{number}	Compliant controls:	{number}	Non-compliant controls:	{number}
IRAP Assessor's comments					
No	Severity Rating	Comment			
{requirement #}	{As per Annex A}				
{requirement #}	{As per Annex A}				
{requirement #}	{As per Annex A}				