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Information security, cybersecurity and privacy protection — Guidelines for protection of personally identifiable information (PII) in public clouds acting as PII processors

Sécurité de l'information, cybersécurité et protection de la vie privée — Lignes directrices en matière de protection des informations personnelles identifiables (PII) dans l'informatique en nuage public agissant comme processeur de PII

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives or www.iec.ch/members_experts/refdocs).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 27, *Information security, cybersecurity and privacy protection*.

This third edition cancels and replaces the second edition (ISO/IEC 27018:2019), which has been technically revised.

The main changes are as follows:

— the text has been aligned with ISO/IEC 27002:2022;

— Annex B has been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

Introduction

0.1 Background and context

Cloud service providers who process personally identifiable information (PII) under contract to their customers are expected to operate their services in ways that allow both parties to meet the requirements of applicable legislation and regulations covering the protection of PII. The requirements and the way in which the requirements are divided between the cloud service provider and its customers vary according to legal jurisdiction, and according to the terms of the contract between the cloud service provider and the customer. Legislation which governs how PII is allowed to be processed (i.e. collected, used, transferred and disposed of) is sometimes referred to as data protection legislation; PII is sometimes referred to as personal data or personal information. The obligations falling on a PII processor vary from jurisdiction to jurisdiction, which makes it challenging for businesses providing cloud computing services to operate in a multinational environment.

A public cloud service provider is a "PII processor" when it processes PII for and according to the instructions of a cloud service customer. The cloud service customer, who has the contractual relationship with the public cloud PII processor, can range from a natural person (i.e. a "PII principal", processing his or her own PII in the cloud) to an organization (i.e. a "PII controller", processing PII relating to many PII principals). The cloud service customer can authorize one or more cloud service users associated with it to use the services made available to the customer under its contract with the public cloud PII processor. The cloud service customer has authority over the processing and use of the data. A cloud service customer who is also a PII controller can be subject to a wider set of obligations governing the protection of PII than the public cloud PII processor. Maintaining the distinction between PII controller and PII processor relies on the public cloud PII processor having no data processing objectives other than those set by the cloud service customer with respect to the PII it processes and the operations necessary to achieve the cloud service customer's objectives.

NOTE 1 Where the public cloud PII processor is processing cloud service customer account data, it can be acting as a PII controller for this purpose. This document does not cover such activity.

The intention of this document, when used in conjunction with the information security objectives and controls in ISO/IEC 27002, is to create a common set of security categories and controls that can be implemented by a public cloud computing service provider acting as a PII processor. This document has the following objectives:

— to enable the public cloud PII processor to be transparent in relevant matters so that cloud service customers can select well-governed cloud-based PII processing services;

— to assist the cloud service customer and the public cloud PII processor in entering into a contractual agreement;

— to provide cloud service customers with a mechanism for exercising audit and compliance rights and responsibilities in cases where the individual cloud service customer data, which are hosted in a multi-party, virtualized server (cloud) environment, can be technically impractical to audit and can potentially increase risks to those physical and logical network security controls in place.

NOTE 2 It is expected that public cloud service providers comply with applicable obligations when acting as a PII processor.

This document can assist by providing a common compliance framework for public cloud service providers, in particular those that operate in a multinational market.

0.2 PII protection controls for public cloud computing services

This document is designed for organizations to use as a reference for selecting PII protection controls within the process of implementing a cloud computing information security management system based on ISO/IEC 27001, or as a guidance document for implementing commonly accepted PII protection controls for organizations acting as public cloud PII processors. In particular, this document has been based on ISO/IEC 27002, taking into consideration the specific risk environment(s) arising from those PII protection requirements which can apply to public cloud computing service providers acting as PII processors.

In the context of PII protection requirements for a public cloud service provider acting as a PII processor, the organization is protecting the information assets entrusted to it by its customers. Implementation of the controls of ISO/IEC 27002 by the public cloud PII processor is both suitable for this purpose and necessary. This document extends the ISO/IEC 27002 controls to accommodate the distributed nature of the risk and the existence of a contractual relationship between the cloud service customer and the public cloud PII processor. This document extends ISO/IEC 27002 in two ways, by providing:

— implementation guidance applicable to public cloud PII protection for some of the existing ISO/IEC 27002 controls, and

— a set of additional controls and associated guidance in Annex A intended to address public cloud PII protection requirements not addressed by the existing ISO/IEC 27002 control set, organized in line with the privacy principles of ISO/IEC 29100.

Most of the controls and guidelines in this document also apply to a PII controller. However, the PII controller is, in most cases, subject to additional obligations not specified here.

0.3 PII protection requirements

It is essential that an organization identifies its requirements for the protection of PII. There are three main sources of requirement, as given below.

a) Legal and contractual requirements: One source is the legal and contractual requirements to which an organization, its trading partners, contractors and service providers are bound, as well as responsibilities concerning their socio-cultural and operating environment. It should be noted that legislation, regulations and contractual commitments made by the PII processor can mandate the selection of particular controls and can also necessitate specific criteria for implementing those controls. These requirements can vary from one jurisdiction to another.

b) Risks: Another source is derived from assessing risks to the organization associated with PII, taking into account the organization's overall business strategy and objectives. Through a risk assessment, risks are identified, their consequence and likelihood are assessed and risks are evaluated. ISO/IEC 27005 provides information security risk management guidance, including advice on risk assessment, risk acceptance, risk communication, risk monitoring and risk review. ISO/IEC 29134 provides guidelines on privacy impact assessment.

c) Corporate policies: While many aspects covered by a corporate policy are derived from legal and socio-cultural requirements, an organization can also choose voluntarily to go beyond the criteria that are derived from the requirements of a).

0.4 Selecting and implementing controls in a cloud computing environment

Controls can be selected from this document (which includes by reference the controls from ISO/IEC 27002, creating a combined reference control set for the sector or application defined by the relevant sector). If required, controls can also be selected from other control sets, or new controls can be designed to meet specific needs as appropriate.

NOTE A PII processing service provided by a public cloud PII processor can be considered as an application of cloud computing rather than as a sector in itself. Nevertheless, the term "public cloud service provider-specific" is used in this document, as this is the conventional term used within other Information Security Management systems standards developed by ISO/IEC JTC 1/SC 27.

The selection of controls is dependent on organizational decisions based on the criteria for risk acceptance, risk treatment options, and the general risk management approach applied to the organization and, through contractual agreements, its customers and suppliers. It is also subject to relevant national and international legislation. Where organizations/public cloud providers do not select the controls specified in this document, a justification should be provided.

Further, the selection and implementation of controls is dependent on the public cloud provider's actual role in the context of the whole cloud computing reference architecture (see ISO/IEC 22123-3). Many different organizations can be involved in providing infrastructure and application services in a cloud computing environment. In some circumstances, selected controls can be unique to a particular service category of

the cloud computing reference architecture. In other instances, there can be shared roles in implementing security controls. Contractual agreements are expected to specify the PII protection responsibilities of all organizations involved in providing or using the cloud services, including the public cloud PII processor, its sub-contractors and the cloud service customer.

The controls in this document can be considered as guiding principles and applicable for most organizations. They are explained in more detail in this document along with implementation guidance. Implementation can be made simpler if requirements for the protection of PII have been considered in the design of the public cloud PII processor's information system, services and operations. Such consideration is an element of the concept that is often called "privacy by design" (see References [64] and [65]).

0.5 Developing additional guidelines

This document can be regarded as a starting point for developing PII protection guidelines. It is possible that not all of the controls and guidance in this code of practice are applicable. Furthermore, additional controls and guidelines not included in this document can be required. When documents are developed containing additional guidelines or controls, it can be useful to include cross-references to clauses in this document where applicable to facilitate compliance checking by auditors and business partners.

0.6 Lifecycle considerations

PII has a natural lifecycle, from creation and origination, through to storage, processing, use and transmission, to its eventual destruction or disuse. The risks to PII can vary during its lifetime but protection of PII remains important at all stages.

PII protection requirements are expected to be taken into account as existing and new information systems are managed through their lifecycle.

Information security, cybersecurity and privacy protection — Guidelines for protection of personally identifiable information (PII) in public clouds acting as PII processors

1 Scope

This document establishes commonly accepted control objectives, controls and guidelines for implementing measures to protect personally identifiable information (PII) in line with the privacy principles in ISO/IEC 29100 for the public cloud computing environment.

In particular, this document specifies guidelines based on ISO/IEC 27002:2022, taking into consideration the regulatory requirements for the protection of PII which can be applicable within the context of the information security risk environment(s) of a provider of public cloud services.

This document is applicable to all types and sizes of organizations, including public and private companies, government entities and not-for-profit organizations, which provide information processing services as PII processors via cloud computing under contract to other organizations.

The guidelines in this document can also be relevant to organizations acting as PII controllers.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 27000, *Information technology — Security techniques — Information security management systems — Overview and vocabulary*

ISO/IEC 27002:2022, *Information security, cybersecurity and privacy protection — Information security controls*

ISO/IEC 22123-1, *Information technology — Cloud computing — Part 1: Vocabulary*