# Canon imagePRESS C910/C810/C710/C660 2600 model

# Security Target

Version 1.06
2020/03/18

## Canon Inc.



This document is a translation of the evaluated and certified security target written in Japanese.

# Table of Contents

# 1 ST introduction

## 1.1 ST reference

This section provides the Security Target (ST) identification information.

ST name: Canon imagePRESS C910/C810/C710/C660 2600 model Security Target

Version: 1.06
Issued by: Canon Inc.
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## 1.2 TOE reference

This section provides the TOE identification information.

TOE name: Canon imagePRESS C910/C810/C710/C660 2600 model
Version: 1.0

The TOE is comprised of the following software and hardware ([] indicates TOE identification).

Japanese name)

・キヤノン　iPR セキュリティーキット・C1 for IEEE 2600 Ver 1.00（制御ソフトウェア）
[セキュリティーキット for IEEE 2600]
[コントローラーバージョン 9101]
・Canon imagePRESS C910/C810/C710/C660
[iPR C910, iPR C810, iPR C710, iPR C660]
・キヤノン　HDD データ暗号化/ミラーリングキット E3
[Canon MFP Security Chip 2.11]

English name)

・Canon iPR Security Kit-C1 for IEEE 2600 Common Criteria Certification Ver 1.00(system software)
[Security Kit for IEEE 2600]
[Controller Version 9101]
・Canon imagePRESS C910/C810/C710/C660
[iPR C910, iPR C810, iPR C710, iPR C660]
・Canon HDD Data Encryption & Mirroring Kit-E3
[Canon MFP Security Chip 2.11]

## 1.3 TOE overview

This section describes an owerview of the usage and major security features of the TOE.

### 1.3.1 TOE Type

The TOE is a digital multifunction device with printing, scanning, copying, document storage and retrieval, and HDD encryption.

### 1.3.2 The usage and major security function of the TOE

The TOE is an MFP having a print function, a scan function, a copy function, a universal send function, and a user box function, and is used by connecting to an internal LAN. In order to protect these functions, there are functions for identifying and authenticating users, access control functions for document data and functions based on authority, transfer restriction of received jobs, encryption functions for setting

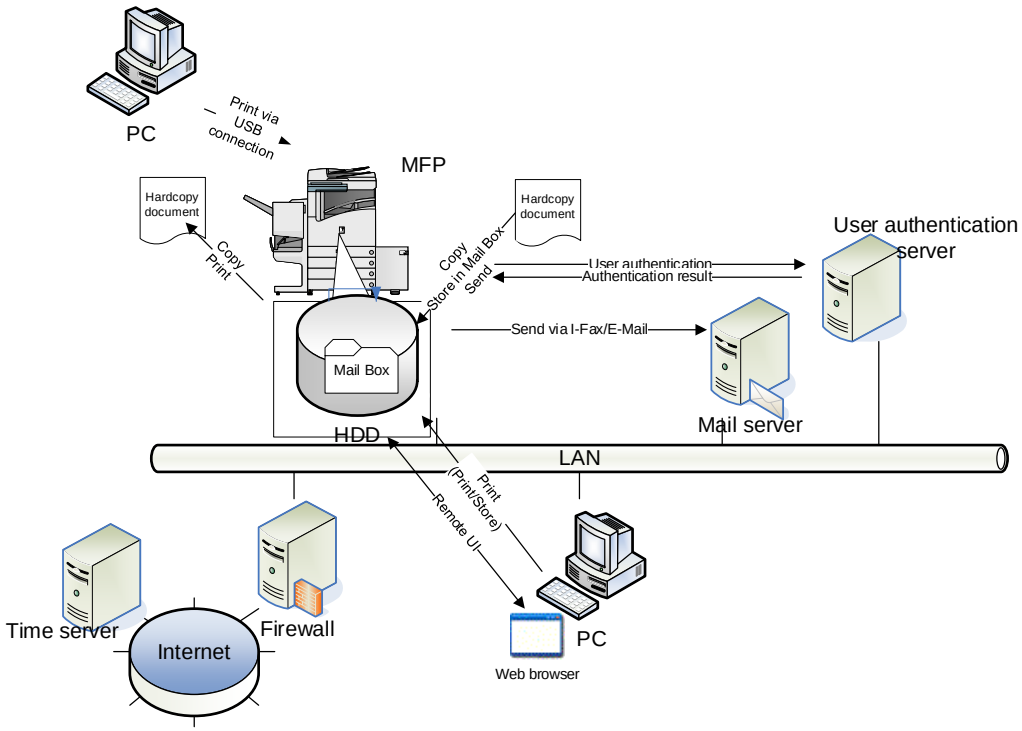
information and document data stored in storage in TOE, HDD data complete erasure function, LAN data protection function, self-test function, audit log acquisition function for auditing user operations, and management functions limited to administrators.

### 1.3.3 TOE Operational Environment

The TOE is a MFP that offers Copy, Print, Universal Send, and Mail Box capabilities. The TOE, which conforms to "U.S. Government Approved Protection Profile - U.S. Government Protection Profile for Hardcopy Devices Version 1.0 (IEEE Std 2600.2™-2009))" is designed to operate in an environment such as the one shown below (as excerpted from "U.S. Government Approved Protection Profile - U.S. Government Protection Profile for Hardcopy Devices Version 1.0 (IEEE Std 2600.2™-2009)" clause "1.1 Scope").

Figure 1 shows the environment for which the TOE or < Canon imagePRESS C910/C810/C710/C660 2600 model > has been designed, with options included. Since not all of these features may be required, the actual operational environment is expected to differ than what is shown here.

Figure 1 **The assumed operational environment of the MFP**
**<** Canon imagePRESS C910/C810/C710/C660**>**




In Figure 1, the MFP is connected by an internal LAN, to all of the other major components, namely the Mail Server, User Authentication Server, PC, and Firewall. Furthermore, the internal LAN is protected by Firewall from threats from the Internet. To send a previously scanned document via email, the MFP connects to the Mail Server. By using a PC with a Web browser[1], functions such as printing or storing can also be executed remotely. However, in order to print from a PC, the appropriate printer driver needs to be installed in the PC. Alternatively, a USB cable could be used to connect the PC directly, and print or store document data from the PC. In this case, some configuration is required initially, in order to protect against data being taken out of the MFP and stored in a PC or USB device.

[1] This evaluation was performed using Microsoft Internet Explorer 11 as the Web browser.

The TOE also obtains accurate time from the Time server for time synchronization, and supports user authentication through the External Authentication Server. The TOE also has HDD encryption function to encrypt all the data to be stored in the internal HDD.

## 1.4 TOE description

The TOE conforms to "U.S. Government Approved Protection Profile - U.S. Government Protection Profile for Hardcopy Devices Version 1.0 (IEEE Std 2600.2™-2009)" and is designed to meet the requirements specified therein, as described below.

The physical and logical scopes of the TOE are described below.

### 1.4.1 Physical Scope of the TOE

The TOE is a MFP consisting of hardware and software components. The physical scope of the TOE is shown in Figure 2.

Figure 2 **Hardware and software components of the TOE**

<table>
<tr><td colspan="2">control software<br>（TOE Software）</td></tr>
<tr><td>Canon imagePRESS C910/C810/C710/C660<br>MFP Main Unit<br>（TOE Hardware）</td><td>Canon HDD Data Encryption & Mirroring Kit-E3<br>（TOE Hardware）</td></tr>
</table>

The TOE < Canon imagePRESS C910/C810/C710/C660 2600 model > consists of the Canon HDD data encryption/mirroring kit E3 installed in the hardware, the control software included in the < Canon iPR Security Kit-C1 for IEEE 2600 Common Criteria Certification Ver 1.00 > (controller version V 91.01) installed, and various settings described in the guidance. The following three optional licenses are required for various settings.

- ACCESS MANAGEMENT SYSTEM 拡張キット・B1：ライセンスオプション[2]
  (English Name: ACCESS MANAGEMENT SYSTEM KIT-B1)
- キヤノン　データ消去キット・C1：ライセンスオプション [2]
  (English Name: Canon Data Erase Kit-C1)
- キヤノン　ＰＳマルチキット・Ｆ１：ライセンスオプション [2]
  (English Name: Canon imagePRESS Printer Kit-F1)

< Canon imagePRESS C910/C810/C710/C660 >, which is the main body hardware constituting TOE, has the following lineup.

Table 1 **- List of Product Lineups**

| List of Product Lineups：Canon imagePRESS C910/C810/C710/C660 |
|---|
| iPR C910、iPR C810、iPR C710、iPR C660 |

The control software constituting the TOE is provided on a disk medium in < Canon iPR Security Kit-C1 for IEEE 2600 Common Criteria Certification Ver 1.00> (controller version V91.01).
The guidance included in the TOE will also be provided to consumers in a < Canon iPR Security Kit-C1 for IEEE 2600 Common Criteria Certification Ver 1.00 > package. The identification and distribution media are described below.

[2] The actual components of the licensing option are contained in the control software provided as Canon iPR Security Kit-C1 for IEEE 2600 Common Criteria Certification Ver 1.00.

（Japanese name）
- iPR セキュリティーキット・C1 for IEEE 2600 アドミニストレーターガイド [FT6-2593 (000)] (booklet)
- iPR セキュリティーキット・C1 for IEEE 2600 V1.00 をお使いになる前にお読みください [FT6-2594 (000)] (paper)
- Canon imagePRESS C910/C810/C660 2600 model ユーザーズガイド [FT6-2595 (000)] (CD)

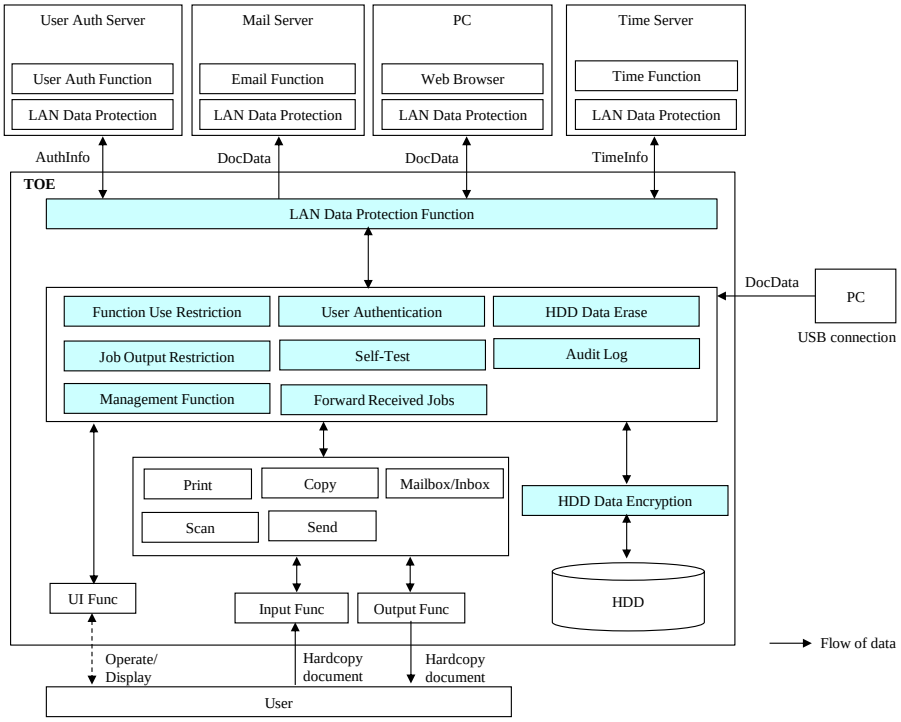
（English name）
- iPR Security Kit-C1 for IEEE 2600 Common Criteria Certification Administrator Guide [FT6-2596 (000)] (booklet)
- Before Using the iPR Security Kit-C1 for IEEE 2600 Common Criteria Certification Ver 1.00 [FT6-2597(000)] (paper)
- Canon imagePRESS C910/C810/C710 2600 model User's Guide（USE Version）[FT6-2598(000)] (CD)
- Canon imagePRESS C910/C810/C710 2600 model User's Guide（APE Version）[FT6-2599(000)] (CD)

The TOE is delivered directly from the distributor or via the distributor to the consumer with the following information for each consciousness.
- iPR C910, iPR C810, iPR C710, iPR C660（One of the models will be delivered）
- キヤノン HDD データ暗号化/ミラーリングキット E3 (Delivery to Japan),
  Canon HDD Data Encryption & Mirroring Kit-E3 (Delivery outside of Japan)
- キヤノン iPR セキュリティーキット・C1 for IEEE 2600 Ver 1.00(Delivery to Japan),
  iPR Security Kit-C1 for IEEE 2600 Common Criteria Certification Ver 1.00 (Delivery outside of Japan)
- ACCESS MANAGEMENT SYSTEM 拡張キット・B1 (Delivery to Japan),
  ACCESS MANAGEMENT SYSTEM KIT-B1 (Delivery outside of Japan)
- キヤノン　データ消去キット・C1 (Delivery to Japan),
  Canon Data Erase Kit-C1 (Delivery outside of Japan)
- キヤノン　ＰＳマルチキット・Ｆ１(Delivery to Japan),
  Canon imagePRESS Printer Kit-F1 (Delivery outside of Japan)

### 1.4.2 Logical Scope of the TOE

The logical scope of the TOE is shown in Figure 3 (excluding: User, User Authentication Server, Mail Server, PC, and Time Server). In the table, the security functions of the TOE are shown in blue.

Figure 3 **Functional configuration of the TOE**




The TOE embodies the following basic functionality.

- Copy function

  Produces duplicates of the hardcopy document by scanning and printing.

- Print function

  Produces a hardcopy document from its electronic form (contained in the MFP or sent from a PC).

- Universal Send function

  Scanned document data or electronic documents stored in Mail Box/Memory RX Inbox can be transmitted by email or sent to a shared folder on a PC, in TIFF or PDF file format.

- Mail Box function

  Refers to the storage of image files into a Mail Box or in Memory RX Inbox, or to functions that utilize the Mail Box/inbox functionality.

  - Image files Stored in Mail Box

    Scanned document data or electronic data specified for storage from a PC, are stored in a Mail Box.

  - Functions that utilize Mail Box functionality

    The following functions can be executed on data stored in a Mail Box.

    - Edit (document/print setting)

- Print
- Send
- Delete

- UI function

  The user operates the TOE using the operation panel, and the TOE is displayed on the operation panel.

The TOE embodies the following security functions.

- User Authentication Function

  Performs authentication on the user, to prevent any unauthorized access to the TOE.

  Two types of user authentication are supported: Internal Authentication wherein authentication takes place internally within the TOE, and External Authentication which uses an external user authentication server. External authentication uses Kerberos[3] or LDAP[4] authentication.

- Function Use Restriction Function

  Uses role management to restrict the functions that each authenticated user can use.

- Job Output Restriction Function

  This function restricts access to print, cancel, and other job operations, to the user that executed the job.

- Forward Received Jobs Function

  This function restricts the machine from forwarding received data directly to the LAN.

- HDD Data Erase Function

  Function for erasing unnecessary data from the hard disk by overwriting the data, in order to prevent unauthorized use of previously generated image data.

- HDD Data Encryption Function

  To protect from the threat of taking away a HDD or taking away together an HDD and an HDD data encryption/mirroring board to access the HDD data, the HDD data encryption/mirroring board identifies the main body of the digital MFP each time it is started and permits HDD access only when the main body of the digital MFP is correct. Further, all data stored in the HDD are encrypted to protect the confidentiality of the HDD data.

- LAN Data Protection Function

  To protect LAN data from IP packet sniffing, IP packets are encrypted using IPSec.

- Self-Test Function

  When the machine starts, this function checks to see that the primary security functions are running properly.

- Audit Log Function

  Allows auditing of user operations by generating logs which are stored in the HDD. Stored audit logs are protected and can be viewed. Audit Log can also be saved to an audit log file server or a

[3] This evaluation was performed using Active Directory Domain Services as the authentication server software for Kerberos.
[4] This evaluation was performed using eDirectory 8.8 SP8 as the authentication server software for LDAP authentication.

syslog server.

The date/time recorded on the audit log is provided by the TOE. The TOE's date/time information is set by the Management Function, or is set by time synchronization when the accurate time is obtained from the Time Server.

- Management Function

  Consists of user management functions such as user registration and role management, and device management functions which enable proper operation of various security functions, which can only be specified by Administrators.

## 1.5 Terms and Abbreviations

The following terms and abbreviations are used throughout this ST.

Table 2 - **Terms and Abbreviations**

| Terms/Abbreviations | Description |
|---|---|
| Multi-Function Product (MFP) | A machine which incorporates the functionality of multiple devices in one, such as copier, printer, and Universal Send, and containing a large capacity HDD to facilitate such capabilities. |
| Control software | Software that runs on the hardware of the device, and controls security functions. |
| Control panel | One of the hardware elements of the MFP, consisting of a touch panel and operation keys, which provides the interface for operation of the MFP. |
| Remote UI | An interface that provides access to the MFP from a Web browser via the LAN, to allow the acquisition of operating status, perform job operations or BOX operations, and making various settings. |
| HDD | Hard disk drive mounted on the MFP, where control software and assets are stored. |
| Image file | Image data generated within the MFP, from operations such as scan, print, and receive. |
| Temporary image file | Image files generated during jobs such as Copy and Print, which are needed only until the job completes. |
| Roles | Used by access restriction functions to restrict the functions that each user can use. One role is associated with each user.<br>In addition to pre-defined default roles, default roles may be modified to create custom roles. The default roles are: Administrator, Power User, General User, and Limited User.<br>A user assigned the Administrator role is capable of using management operations (administrative privileges). |
| Administrator | User assigned the Administrator role and has administrative privileges.<br>Equivalent to U.ADMINISTRATOR defined in the PP. |
| Job | When a user uses the functions of the TOE to execute an operation on a document, a Job is the intended document data combined with the user instructions for processing those data.<br>The operations that can be performed on a document are: Scan, Print, Copy, Store, and Delete. The processing phases for a Job issued by the user are: generation, execution, and completion. |

| Terms/Abbreviations | Description |
|---|---|
| Document data | User data processed within the MFP, consisting of image files and print setting. |
| Box | Collective name for Mail Boxes, Fax Inboxes, or the Memory RX Inbox wherein data from operations such as scan or print are stored in the MFP.<br>*Use of Memory RX Inbox and Fax Inboxes are not included in this TOE. |
| Mail Box | Whether a general user feeds data to the MFP directly, or specifies a document for printing from a PC, data can be stored here to be printed later. |
| Mail server | Server that facilitates email transmission of document data in the MFP. |
| User authentication server | Server that maintains user information such as user ID and password, for user authentication over the network. |
| Firewall | Device or system designed to protect the internal LAN against threats from the Internet. |
| Time server | Server that uses the Network Time Protocol to provide the accurate time over the Internet. |
| [Secured Print] | A button on the control panel that activates the Secured Print function (print jobs with a PIN). |
| [Copy] | A button on the control panel that activates the Copy function. |
| [Scan] | Indicates the [Scan and Store] and [Scan and Send] buttons on the control panel, that allow the user to scan paper documents to be stored as files, or scanned documents to be sent to some location such as to an email address or a shared folder in a PC, respectively. |
| [Access Stored Files] | A button on the control panel that allows the user to access files stored in a Mail Box/Inbox. |
| Remote UI<br>[Access Received/Stored Files] | A button on the remote UI that allows the user to access files stored in a Mail Box/Inbox. |

# 2 Conformance claims

## 2.1 CC Conformance claim

This ST conforms to the following Common Criteria (CC).

- Common Criteria version: Version 3.1 Release 5
- Common Criteria conformance: Part 2 extended and Part 3 conformant
- Assurance level: EAL2 augmented by ALC_FLR.2

## 2.2 PP claim, Package claim

This ST conforms to the following Protection Profile (PP).

- Title: U.S. Government Approved Protection Profile - U.S. Government Protection Profile for Hardcopy Devices Version 1.0 (IEEE Std 2600.2™-2009)
- Version:1.0

This ST is package-conformant to and package-augmented by the following SFR Packages:

- 2600.2-PRT conformant
- 2600.2-SCN conformant
- 2600.2-CPY conformant
- 2600.2-DSR conformant
- 2600.2-SMI augmented

## 2.3 SFR Packages

### 2.3.1 SFR Packages reference

***Title:*** 2600.2-PRT, SFR Package for Hardcopy Device Print Functions, Operational Environment B
***Package version:*** 1.0, dated March 2009
***Common Criteria version:*** Version 3.1 Revision 2
***Common Criteria conformance:*** Part 2 and Part 3 conformant
***Package conformance:*** EAL2 augmented by ALC_FLR.2
***Usage:*** This SFR Package shall be used for HCD products (such as printers, paper-based fax machines, and MFPs) that perform a printing function in which electronic document input is converted to physical document output.

***Title:*** 2600.2-SCN, SFR Package for Hardcopy Device Scan Functions, Operational Environment B
***Package version:*** 1.0, dated March 2009
***Common Criteria version:*** Version 3.1 Revision 2
***Common Criteria conformance:*** Part 2 and Part 3 conformant
***Package conformance:*** EAL2 augmented by ALC_FLR.2
***Usage:*** This SFR Package shall be used for HCD products (such as scanners, paper-based fax machines, and MFPs) that perform a scanning function in which physical document input is converted to electronic document output.

***Title:*** 2600.2-CPY, SFR Package for Hardcopy Device Copy Functions, Operational Environment B
***Package version:*** 1.0, dated March 2009

***Common Criteria version:*** Version 3.1 Revision 2
***Common Criteria conformance:*** Part 2 and Part 3 conformant
***Package conformance:*** EAL2 augmented by ALC_FLR.2
***Usage:*** This Protection Profile shall be used for HCD products (such as copiers and MFPs) that perform a copy function in which physical document input is duplicated to physical document output.

***Title:*** 2600.2-DSR, SFR Package for Hardcopy Device Document Storage and Retrieval (DSR) Functions, Operational Environment B
***Package version:*** 1.0, dated March 2009
***Common Criteria version:*** Version 3.1 Revision 2
***Common Criteria conformance:*** Part 2 and Part 3 conformant
***Package conformance:*** EAL2 augmented by ALC_FLR.2
***Usage:*** This SFR Package shall be used for HCD products (such as MFPs) that perform a document storage and retrieval feature in which a document is stored during one job and retrieved during one or more subsequent jobs.

***Title:*** 2600.2-SMI, SFR Package for Hardcopy Device Shared-medium Interface Functions, Operational Environment B
***Package version:*** 1.0, dated March 2009
***Common Criteria version:*** Version 3.1 Revision 2
***Common Criteria conformance:*** Part 2 extended and Part 3 conformant
***Package conformance:*** EAL2 augmented by ALC_FLR.2
***Usage:*** This SFR Package shall be used for HCD products that transmit or receive User Data or TSF Data over a communications medium which, in conventional practice, is or can be simultaneously accessed by multiple users, such as wired network media and most radio frequency wireless media. This package applies for TOEs that provide a trusted channel function allowing for secure and authenticated communication with other IT systems. If such protection is supplied only by the TOE environment, then this package cannot be claimed.

### 2.3.2 SFR Package functions

Functions perform processing, storage, and transmission of data that may be present in HCD products. The functions that are allowed, but not required in any particular conforming Security Target or Protection Profile, are listed in Table 3.

Table 3 **- SFR Package functions**

| Designation | Definition |
|---|---|
| **F.PRT** | Printing: a function in which electronic document input is converted to physical document output |
| **F.SCN** | Scanning: a function in which physical document input is converted to electronic document output |
| **F.CPY** | Copying: a function in which physical document input is duplicated to physical document output |
| **F.DSR** | Document storage and retrieval: a function in which a document is stored during one job and retrieved during one or more subsequent jobs |
| **F.SMI** | Shared-medium interface: a function that transmits or receives User Data or TSF Data over a communications medium which, in conventional practice, is or can be simultaneously accessed by multiple users, such as wired network media and most radio-frequency wireless media |

### 2.3.3 SFR Package attributes

When a function is performing processing, storage, or transmission of data, the identity of the function is associated with that particular data as a security attribute. This attribute in the TOE model makes it possible to distinguish differences in Security Functional Requirements that depend on the function being performed. The attributes that are allowed, but not required in any particular conforming Security Target or Protection Profile, are listed in Table 4.

Table 4 **-SFR Package attributes**

| Designation | Definition |
|---|---|
| **+PRT** | Indicates data that are associated with a print job. |
| **+SCN** | Indicates data that are associated with a scan job. |
| **+CPY** | Indicates data that are associated with a copy job. |
| **+DSR** | Indicates data that are associated with a document storage and retrieval job. |
| **+SMI** | Indicates data that are transmitted or received over a Shared-medium interface. |

## 2.4 PP Conformance rationale

In addition to the primary functionality of the MFP (Copy, Print, and Scan), the TOE implements the document storage function and the LAN data encryption function. As such, it is appropriate to conform to all of the SFR Package defined in the PP(Chapter 2.2 PP claim, Package claim).

The PP to which this ST claims to be conformant conforms to IEEE Standard Protection Profile for Hardcopy Devices in IEEE Std 2600-2008, Operational Environment B and includes the contents defined in CCEVS Policy Letter #20 are also included.

In the following, the ST is compared against the PP containing all five of the aforementioned SFR Packages.

First, regarding Security Problem Definition, comparing PP and ST, it is the same except for adding two OSP as follows.

P.HDD.ACCESS.AUTHORIZATION, P.STORAGE.CRYPT

This is an OSP that constrains the TOE, not the operating environment.

Therefore, the following is established.

- All TOEs that meet the ST security challenge definition also meet the PP security challenge definition

- All operating environments that meet the PP security challenge definition also meet the ST security challenge definition

Next, regarding Objective, comparing PP and ST, it is the same except for adding two Objective below.

O.HDD.ACCESS.AUTHORISED

FPT _ PHP.1 has been added to implement this Objective. This limits the behavior of TOE rather than PP. Therefore, this Objective is an Objective that restricts TOE.

O. STORAGE.CRYPTED

To realize this objective, FCS _ COP.1 (h) and FCS _ CKM.1 (h) have been added. These limit the behavior of TOE rather than PP. Therefore, this Objective is an Objective that restricts TOE.

Therefore, the following is established.

- All TOEs that meet the ST TOE security policy also meet the PP TOE security policy

- All operating environments that meet the security policy for the operating environment of PP also meet the security policy for the operating environment of ST.

In terms of the functional requirements, the ST compared with the PP contains all functional requirements of the PP including the five SFR Packages, as well as additional functional requirements, as shown in Table 5.

Where "-" is indicated in the PP Package column and the PP functional requirement column, it indicates that there is no applicable package or function requirement.

Table 5 **- Functional requirements specified in the PP and the ST**

| PP_Package | PP functional requirement | ST functional requirement |
|---|---|---|
| Common | FAU_GEN.1 | FAU_GEN.1 |
| Common | FAU_GEN.2 | FAU_GEN.2 |
| Common | FAU_SAR.1 | FAU_SAR.1 |
| Common | FAU_SAR.2 | FAU_SAR.2 |
| Common | FAU_STG.1 | FAU_STG.1 |
| Common | FAU_STG.4 | FAU_STG.4 |
| Common | FDP_ACC.1(a) | FDP_ACC.1(delete-job) |
| Common | FDP_ACC.1(b) | FDP_ACC.1(exec-job) |
| Common | FDP_ACF.1(a) | FDP_ACF.1(delete-job) |
| Common | FDP_ACF.1(b) | FDP_ACF.1(exec-job) |
| Common | FDP_RIP.1 | FDP_RIP.1 |
| Common | FIA_ATD.1 | FIA_ATD.1 |
| Common | FIA_UAU.1 | FIA_UAU.1 |
| Common | FIA_UID.1 | FIA_UID.1 |
| Common | FIA_USB.1 | FIA_USB.1 |
| Common | FMT_MSA.1(a) | FMT_MSA.1(delete-job) |
| Common | FMT_MSA.3(a) | FMT_MSA.3(delete-job) |
| Common | FMT_MSA.1(b) | FMT_MSA.1(exec-job) |
| Common | FMT_MSA.3(b) | FMT_MSA.3(exec-job) |
| Common | FMT_MTD.1(FMT_MTD.1.1(a)) | FMT_MTD.1(device-mgt) |
| Common | FMT_MTD.1(FMT_MTD.1.1(b)) | FMT_MTD.1(user-mgt) |
| Common | FMT_SMF.1 | FMT_SMF.1 |
| Common | FMT_SMR.1 | FMT_SMR.1 |
| Common | FPT_STM.1 | FPT_STM.1 |
| Common | FPT_TST.1 | FPT_TST.1 |
| Common | FTA_SSL.3 | FTA_SSL.3(lui), FTA_SSL.3(rui) |
| PRT | FDP_ACC.1 | FDP_ACC.1(in-job) |
| PRT | FDP_ACF.1 | FDP_ACF.1(in-job) |
| SCN | FDP_ACC.1 | FDP_ACC.1(in-job) |
| SCN | FDP_ACF.1 | FDP_ACF.1(in-job) |
| CPY | FDP_ACC.1 | FDP_ACC.1(in-job) |
| CPY | FDP_ACF.1 | FDP_ACF.1(in-job) |
| DSR | FDP_ACC.1 | FDP_ACC.1(in-job) |
| DSR | FDP_ACF.1 | FDP_ACF.1(in-job) |
| SMI | FAU_GEN.1 | FAU_GEN.1 |
| SMI | FPT_FDI_EXP.1 | FPT_FDI_EXP.1 |
| SMI | FTP_ITC.1 | FTP_ITC.1 |
| Common | - | FIA_AFL.1 |
| Common | - | FIA_SOS.1 |
| Common | - | FIA_UAU.7 |
| - | - | FCS_COP.1(h) |
| - | - | FCS_CKM.1(h) |
| SMI | - | FCS_CKM.1(n) |
| SMI | - | FCS_COP.1(n) |
| SMI | - | FCS_CKM.2 |
| - | - | FPT_PHP.1 |

- All TOEs that would meet the SFRs in the ST would also meet the SFRs in the PP.

In terms of the Security Assurance Requirements, the ST and PP are equivalent.

As such, this ST compared with the PP, specifies equal or greater restrictions on the TOE, and at most equal restrictions on the operational environment of the TOE.

Therefore, this ST claims demonstrable conformance to the PP.

# 3 Security Problem Definition

## 3.1 Notational conventions

a) Defined terms in full form are set in title case (for example, "Document Storage and Retrieval").

b) Defined terms in abbreviated form are set in all caps (for example, "DSR").

c) In tables that describe Security Objectives rationale, a checkmark ("✓") place at the intersection of a row and column indicates that the threat identified in that row is wholly or partially mitigated by the objective in that column.

d) In tables that describe completeness of security requirements, a bold typeface letter "P" placed at the intersection of a row and column indicates that the requirement identified in that row performs a principal fulfillment of the objective indicated in that column. A letter "S" in such an intersection indicates that it performs a supporting fulfillment.

e) In tables that describe the sufficiency of security requirements, a bold typeface requirement name and purpose indicates that the requirement performs a principal fulfillment of the objective in the same row. Requirement names and purposes set in normal typeface indicate that those requirements perform supporting fulfillments.

f) In specifications of Security Functional Requirements (SFRs):

1) **Bold** typeface indicates the portion of an SFR that has been completed or refined in this Protection Profile, relative to the original SFR definition in Common Criteria Part 2 or an Extended Component Definition.

2) *Italic* typeface indicates the portion of an SFR that must be completed by the ST Author in a conforming Security Target.

3) ***Bold italic*** typeface indicates the portion of an SFR that has been partially completed or refined in this Protection Profile, relative to the original SFR definition in Common Criteria Part 2 or an Extended Component Definition, but which also must be completed by the ST Author in a conforming Security Target.

g) The following prefixes in Table 6 are used to indicate different entity types:

Table 6 **- Notational prefix conventions**

| Prefix | Type of entity |
|---|---|
| U. | User |
| D. | Data |
| F. | Function |
| T. | Threat |
| P. | Policy |
| A. | Assumption |
| O. | Objective |
| OE. | Environmental objective |
| + | Security attribute |

## 3.2 Users of the TOE

The TOE has two types of users (U.USER): U.NORMAL and U.ADMINISTRATOR

Table 7 **- Users**

| Designation | Definition |
|---|---|
| U.USER | Any authorized User. |
| U.NORMAL | A User who is authorized to perform User Document Data processing functions of the TOE. |

| Designation | | Definition |
|---|---|---|
| | U.ADMINISTRATOR | A User who has been specifically granted the authority to manage some portion or all of the TOE and whose actions may affect the TOE security policy (TSP). Administrators may possess special privileges that provide capabilities to override portions of the TSP. |

## 3.3 Assets of the TOE

There are three types of assets: user data, TSF data, and functions.

### 3.3.1 User Data

User data are created by the user, and have no effect on TOE security functions. There are two types of user data: D.DOC and D.FUNC.

Table 8 **- User Data**

| Designation | Definition |
|---|---|
| D.DOC | User Document Data consists of the information contained in a user's document. This includes the original document itself in either hardcopy or electronic form, image data, or residually-stored data created by the hardcopy device while processing an original document and printed hardcopy output. |
| D.FUNC | User Function Data are the information about a user's document or job to be processed by the TOE. |

### 3.3.2 TSF Data

TSF Data are data that have an effect on TOE security functions. There are two types of TSF data: D.PROT and D.CONF.

Table 9 **-TSF Data**

| Designation | Definition |
|---|---|
| D.PROT | TSF Protected Data are assets for which alteration by a User who is neither an Administrator nor the owner of the data would have an effect on the operational security of the TOE, but for which disclosure is acceptable. |
| D.CONF | TSF Confidential Data are assets for which either disclosure or alteration by a User who is neither an Administrator nor the owner of the data would have an effect on the operational security of the TOE. |

A list of the TSF data used in this TOE is given in Table 10.

Table 10 **- List of TSF data**

| Type | TSF Data | Description | Stored in |
|---|---|---|---|
| D.PROT | User name | User identification information used by the user identification and authentication function. | HDD |
| | Role | Used by access restriction functions to restrict the functions that each user can use. | HDD |
| | Lockout policy settings | Settings for the lockout function, such as number of attempts before lockout and the lockout time. | HDD |
| | Password policy settings | Policy for the password for user authentication, such as minimum password length, allowed characters, and combination of character types. | HDD |
| | Auto Reset Time setting | Settings for session timeout in the control panel. | HDD |
| | Date/Time setting | Specifies the date and time that is set. | RTC |
| | HDD Data Erase setting | Settings for the HDD Data Erase function, including the settings to enable or disable the HDD Data Erase function. | HDD |
| | IPSec settings | Settings for the LAN Data Protection function, including the settings to enable or disable the LAN Data Protection function. | HDD |
| D.CONF | Password | Password used to authenticate the user in the User Identification and Authentication function. | HDD |
| | Audit logs | Logs generated by the Audit Log function. | HDD |
| | Box PIN | PIN used for access control to the Mail Box or the Memory RX Inbox where the data is stored, for Job Output Restriction functions. | HDD |

### 3.3.3 Functions

Refer to the functions listed in Table 3.

## 3.4 Threats agents

This security problem definition addresses threats posed by four categories of threat agents:

a) Persons who are not permitted to use the TOE who may attempt to use the TOE.
b) Persons who are authorized to use the TOE who may attempt to use TOE functions for which they are not authorized.
c) Persons who are authorized to use the TOE who may attempt to access data in ways for which they not authorized.
d) Persons who unintentionally cause a software malfunction that may expose the TOE to unanticipated threats.

The threats and policies defined in this Protection Profile address the threats posed by these threat agents.

## 3.5 Threats to TOE Assets

This section describes threats to assets described in clause 3.3.

Table 11 - **Threats to User Data for the TOE**

| Threat | Affected asset | Description |
|---|---|---|
| T.DOC.DIS | D.DOC | User Document Data may be disclosed to unauthorized persons |
| T.DOC.ALT | D.DOC | User Document Data may be altered by unauthorized persons |
| T.FUNC.ALT | D.FUNC | User Function Data may be altered by unauthorized persons |

Table 12 - **Threats to TSF Data for the TOE**

| Threat | Affected asset | Description |
|---|---|---|
| T.PROT.ALT | D.PROT | TSF Protected Data may be altered by unauthorized persons |
| T.CONF.DIS | D.CONF | TSF Confidential Data may be disclosed to unauthorized persons |
| T.CONF.ALT | D.CONF | TSF Confidential Data may be altered by unauthorized persons |

## 3.6 Organizational Security Policies for the TOE

This section describes the Organizational Security Policies (OSPs) that apply to the TOE. OSPs are used to provide a basis for Security Objectives that are commonly desired by TOE Owners in this operational environment but for which it is not practical to universally define the assets being protected or the threats to those assets.

Table 13 - **Organizational Security Policies for the TOE**

| Name | Definition |
|---|---|
| P.USER.AUTHORIZATION | To preserve operational accountability and security, Users will be authorized to use the TOE only as permitted by the TOE Owner. |
| P.SOFTWARE.VERIFICATION | To detect corruption of the executable code in the TSF, procedures will exist to self-verify executable code in the TSF. |
| P.AUDIT.LOGGING | To preserve operational accountability and security, records that provide an audit trail of TOE use and security-relevant events will be created, maintained, and protected from unauthorized disclosure or alteration, and will be reviewed by authorized personnel. |
| P.INTERFACE.MANAGEMENT | To prevent unauthorized use of the external interfaces of the TOE, operation of those interfaces will be controlled by the TOE and its IT environment. |
| P.HDD.ACCESS.AUTHORIZATION*) | To prevent access TOE assets in the HDD with connecting the other HCDs, TOE will have authorized access the HDD data. |
| P.STORAGE.CRYPT**) | Data recorded on TOE HDD must be encrypted |

*) A common policy when using HDD encryption boards that make up a TOE.
**) A customer who has a policy that MFP has HDD encryption function is assumed

## 3.7 Assumptions

The Security Objectives and Security Functional Requirements defined in subsequent sections of this Protection Profile are based on the condition that all of the assumptions described in this section are satisfied.

Table 14 - **Assumptions**

| Assumption | Definition |
|---|---|
| A.ACCESS.MANAGED | The TOE is located in a restricted or monitored environment that provides protection from unmanaged access to the physical components and data interfaces of the TOE. |
| A.USER.TRAINING | TOE Users are aware of the security policies and procedures of their organization, and are trained and competent to follow those policies and procedures. |

| Assumption | Definition |
|---|---|
| A.ADMIN.TRAINING | Administrators are aware of the security policies and procedures of their organization, are trained and competent to follow the manufacturer's guidance and documentation, and correctly configure and operate the TOE in accordance with those policies and procedures. |
| A.ADMIN.TRUST | Administrators do not use their privileged access rights for malicious purposes. |

# 4 Security Objectives

## 4.1 Security Objectives for the TOE

This section describes the Security Objectives that are satisfied by the TOE.

Table 15 - **Security Objectives for the TOE**

| Objective | Definition |
|---|---|
| O.DOC.NO_DIS | The TOE shall protect User Document Data from unauthorized disclosure. |
| O.DOC.NO_ALT | The TOE shall protect User Document Data from unauthorized alteration. |
| O.FUNC.NO_ALT | The TOE shall protect User Function Data from unauthorized alteration. |
| O.PROT.NO_ALT | The TOE shall protect TSF Protected Data from unauthorized alteration. |
| O.CONF.NO_DIS | The TOE shall protect TSF Confidential Data from unauthorized disclosure. |
| O.CONF.NO_ALT | The TOE shall protect TSF Confidential Data from unauthorized alteration. |
| O.USER.AUTHORIZED | The TOE shall require identification and authentication of Users, and shall ensure that Users are authorized in accordance with security policies before allowing them to use the TOE |
| O.INTERFACE.MANAGED | The TOE shall manage the operation of external interfaces in accordance with security policies. |
| O.SOFTWARE.VERIFIED | The TOE shall provide procedures to self-verify executable code in the TSF. |
| O.AUDIT.LOGGED | The TOE shall create and maintain a log of TOE use and security-relevant events and prevent its unauthorized disclosure or alteration. |
| O.HDD.ACCESS.AUTHORISED | The TOE shall protect TOE assets in the HDD from accessing without the TOE authorization. |
| O.STORAGE.CRYPTED | The TOE must be encrypted when data is written to the HDD. |

## 4.2 Security Objectives for the IT environment

This section describes the Security Objectives for the IT environment.

Table 16 - **Security Objectives for the IT environment**

| Objective | Definition |
|---|---|
| OE.AUDIT_STORAGE.PROTECTED | If audit records are exported from the TOE to another trusted IT product, the TOE Owner shall ensure that those records are protected from unauthorized access, deletion and modifications. |
| OE.AUDIT_ACCESS.AUTHORIZED | If audit records generated by the TOE are exported from the TOE to another trusted IT product, the TOE Owner shall ensure that those records can be accessed in order to detect potential security violations, and only by authorized persons. |
| OE.INTERFACE.MANAGED | The IT environment shall provide protection from unmanaged access to TOE external interfaces. |

## 4.3 Security Objectives for the non-IT environment

This section describes the Security Objectives for non-IT environments.

Table 17 - **Security Objectives for the non-IT environment**

| Objective | Definition |
|---|---|
| OE.PHYSICAL.MANAGED | The TOE shall be placed in a secure or monitored area that provides protection from unmanaged physical access to the TOE. |
| OE.USER.AUTHORIZED | The TOE Owner shall grant permission to Users to be authorized to use the TOE according to the security policies and procedures of their organization. |
| OE.USER.TRAINED | The TOE Owner shall ensure that Users are aware of the security policies and procedures of their organization and have the training and competence to follow those policies and procedures. |
| OE.ADMIN.TRAINED | The TOE Owner shall ensure that TOE Administrators are aware of the security policies and procedures of their organization; have the training, competence, and time to follow the manufacturer's guidance and documentation; and correctly configure and operate the TOE in accordance with those policies and procedures. |
| OE.ADMIN.TRUSTED | The TOE Owner shall establish trust that TOE Administrators will not use their privileged access rights for malicious purposes. |
| OE.AUDIT.REVIEWED | The TOE Owner shall ensure that audit logs are reviewed at appropriate intervals for security violations or unusual patterns of activity. |

## 4.4 Security Objectives rationale

This section demonstrates that each threat, organizational security policy and assumption is mitigated/eased by at least one security objective, and that such security objectives counter the threat, implement the security policy and support assumption.

Table 18 - **Completeness of Security Objectives**

| | **Objectives** | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Threats. Policies, and Assumptions** | O.DOC.NO_DIS | O.DOC.NO_ALT | O.FUNC.NO_ALT | O.PROT.NO_ALT | O.CONF.NO_DIS | O.CONF.NO_ALT | O.USER.AUTHORIZED | OE.USER.AUTHORIZED | O.SOFTWARE.VERIFIED | O.AUDIT.LOGGED | O.HDD.ACCESS.AUTHORISED | OE.AUDIT_STORAGE.PROTECTED | OE.AUDIT_ACCESS.AUTHORIZED | OE.AUDIT.REVIEWED | O.INTERFACE.MANAGED | O.STORAGE.CRYPTED | OE.PHYISCAL.MANAGED | OE.INTERFACE.MANAGED | OE.ADMIN.TRAINED | OE.ADMIN.TRUSTED | OE.USER.TRAINED |
| T.DOC.DIS | ✓ | | | | | | ✓ | ✓ | | | | | | | | | | | | | |
| T.DOC.ALT | | ✓ | | | | | ✓ | ✓ | | | | | | | | | | | | | |
| T.FUNC.ALT | | | ✓ | | | | ✓ | ✓ | | | | | | | | | | | | | |
| T.PROT.ALT | | | | ✓ | | | ✓ | ✓ | | | | | | | | | | | | | |
| T.CONF.DIS | | | | | ✓ | | ✓ | ✓ | | | | | | | | | | | | | |
| T.CONF.ALT | | | | | | ✓ | ✓ | ✓ | | | | | | | | | | | | | |
| P.USER.AUTHORIZATION | | | | | | | ✓ | ✓ | | | | | | | | | | | | | |
| P.SOFTWARE.VERIFICATION | | | | | | | | | ✓ | | | | | | | | | | | | |
| P.AUDIT.LOGGING | | | | | | | | | | ✓ | | ✓ | ✓ | ✓ | | | | | | | |
| P.INTERFACE.MANAGEMENT | | | | | | | | | | | | | | | ✓ | | | ✓ | | | |
| P.HDD.ACCESS.AUTHORIZATION | | | | | | | | | | | ✓ | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P.STORAGE.CRYPT | | | | | | | | | | | | | | | ✓ | | | | | |
| A.ACCESS.MANAGED | | | | | | | | | | | | | | | | ✓ | | | | |
| A.ADMIN.TRAINING | | | | | | | | | | | | | | | | | | ✓ | | |
| A.ADMIN.TRUST | | | | | | | | | | | | | | | | | | | ✓ | |
| A.USER.TRAINING | | | | | | | | | | | | | | | | | | | | ✓ |

Table 19 - **Sufficiency of Security Objectives**

| **Threats. Policies, and Assumptions** | **Summary** | **Objectives and rationale** |
|---|---|---|
| T.DOC.DIS | User Document Data may be disclosed to unauthorized persons. | O.DOC.NO_DIS protects D.DOC from unauthorized disclosure. |
| | | O.USER.AUTHORIZED establishes user identification and authentication as the basis for authorization. |
| | | OE.USER.AUTHORIZED establishes responsibility of the TOE Owner to appropriately grant authorization. |
| T.DOC.ALT | User Document Data may be altered by unauthorized persons. | O.DOC.NO_ALT protects D.DOC from unauthorized alteration. |
| | | O.USER.AUTHORIZED establishes user identification and authentication as the basis for authorization. |
| | | OE.USER.AUTHORIZED establishes responsibility of the TOE Owner to appropriately grant authorization. |
| T.FUNC.ALT | User Function Data may be altered by unauthorized persons. | O.FUNC_ NO_ALT protects D.FUNC from unauthorized alteration. |
| | | O.USER.AUTHORIZED establishes user identification and authentication as the basis for authorization. |
| | | OE.USER.AUTHORIZED establishes responsibility of the TOE Owner to appropriately grant authorization. |
| T.PROT.ALT | TSF Protected Data may be altered by unauthorized persons. | O.PROT.NO_ALT protects D.PROT from unauthorized alteration. |
| | | O.USER.AUTHORIZED establishes user identification and authentication as the basis for authorization. |
| | | OE.USER.AUTHORIZED establishes responsibility of the TOE Owner to appropriately grant authorization. |
| T.CONF.DIS | TSF Confidential Data may be disclosed to unauthorized persons. | O.CONF.NO_DIS protects D.CONF from unauthorized disclosure. |
| | | O.USER.AUTHORIZED establishes user identification and authentication as the basis for authorization. |
| | | OE.USER.AUTHORIZED establishes responsibility of the TOE Owner to appropriately grant authorization. |

| Threats. Policies, and Assumptions | Summary | Objectives and rationale |
|---|---|---|
| T.CONF.ALT | TSF Confidential Data may be altered by unauthorized persons. | O.CONF.NO_ALT protects D.CONF from unauthorized alteration. |
| | | O.USER.AUTHORIZED establishes user identification and authentication as the basis for authorization. |
| | | OE.USER.AUTHORIZED establishes responsibility of the TOE Owner to appropriately grant authorization. |
| P.USER.AUTHORIZATION | Users will be authorized to use the TOE. | O.USER.AUTHORIZED establishes user identification and authentication as the basis for authorization to use the TOE. |
| | | OE.USER.AUTHORIZED establishes responsibility of the TOE Owner to appropriately grant authorization. |
| P.SOFTWARE.VERIFICATION | Procedures will exist to self-verify executable code in the TSF. | O.SOFTWARE.VERIFIED provides procedures to self-verify executable code in the TSF. |
| P.AUDIT.LOGGING | An audit trail of TOE useand security-relevantevents will be created,maintained, protected,and reviewed. | O.AUDIT.LOGGED creates and maintains a log of TOE use and security-relevant events, and prevents unauthorized disclosure or alteration. |
| | | OE.AUDIT_STORAGE.PROTECTED protects exported audit records from unauthorized access, deletion and modifications. |
| | | OE.AUDIT_ACCESS.AUTHORIZED establishes responsibility of, the TOE Owner to provide appropriate access to exported audit records. |
| | | OE.AUDIT.REVIEWED establishes responsibility of the TOE Owner to ensure that audit logs are appropriately reviewed. |
| P.INTERFACE.MANAGEMENT | Operation of external interfaces will be controlled by the TOE and its IT environment. | O.INTERFACE.MANAGED manages the operation of external interfaces in accordance with security policies. |
| | | OE.INTERFACE.MANAGED establishes a protected environment for TOE external interfaces. |
| P.STORAGE.CRYPT | The data to be stored in the HDD will be encrypted. | O.STORAGE.CRYPTED encrypts the data when writing in the HDD. |
| A.ACCESS.MANAGED | The TOE environment provides protection from unmanaged access to the physical components and data interfaces of the TOE. | OE.PHYSICAL.MANAGED establishes a protected physical environment for the TOE. |
| A.ADMIN.TRAINING | TOE Users are aware of and trained to follow security policies and procedures. | OE.ADMIN.TRAINED establishes responsibility of the TOE Owner to provide appropriate Administrator training. |
| A.ADMIN.TRUST | Administrators do not use their privileged access rights for malicious purposes. | OE.ADMIN.TRUSTED establishes responsibility of the TOE Owner to have a trusted relationship with Administrators. |
| A.USER.TRAINING | Administrators are aware of and trained to followsecurity policies and procedures. | OE.USER.TRAINED establishes responsibility of the TOE Owner to provide appropriate User training. |

# 5 Extended components definition (APE_ECD)

Protection Profile defines components that are extensions to Common Criteria 3.1 Revision 2, Part 2. These extended components are defined in the Protection Profile but are used in SFR Packages, and therefore, are employed only in TOEs whose STs conform to those SFR Packages.

## 5.1 FPT_FDI_EXP Restricted forwarding of data to external interfaces

**Family behaviour:**

This family defines requirements for the TSF to restrict direct forwarding of information from one external interface to another external interface.

Many products receive information on specific external interfaces and are intended to transform and process this information before it is transmitted on another external interface. However, some products may provide the capability for attackers to misuse external interfaces to violate the security of the TOE or devices that are connected to the TOE's external interfaces. Therefore, direct forwarding of unprocessed data between different external interfaces is forbidden unless explicitly allowed by an authorized administrative role. The family FPT_FDI_EXP has been defined to specify this kind of functionality.

**Component leveling:**

| FPT_FDI_EXP.1 Restricted forwarding of data to external interfaces | 1 |
|---|---|

FPT_FDI_EXP.1 Restricted forwarding of data to external interfaces provides for the functionality to require TSF controlled processing of data received over defined external interfaces before these data are sent out on another external interface. Direct forwarding of data from one external interface to another one requires explicit allowance by an authorized administrative role.

**Management: FPT_FDI_EXP.1**

The following actions could be considered for the management functions in FMT:

a) Definition of the role(s) that are allowed to perform the management activities

b) Management of the conditions under which direct forwarding can be allowed by an administrative role

c) Revocation of such an allowance

**Audit: FPT_FDI_EXP.1**

The following actions should be auditable if FAU_GEN Security Audit Data Generation is included in the PP/ST:

There are no auditable events foreseen.

**Rationale:**

Quite often, a TOE is supposed to perform specific checks and process data received on one external interface before such (processed) data are allowed to be transferred to another external interface. Examples are firewall systems but also other systems that require a specific work flow for the incoming data before it can be transferred. Direct forwarding of such data (i.e., without processing the data first) between different external interfaces is therefore a function that-if allowed at all-can only be allowed by an authorized role.

It has been viewed as useful to have this functionality as a single component that allows specifying the property to disallow direct forwarding and require that only an authorized role can allow this. Since this is a function that is quite common for a number of products, it has been viewed as useful to define an extended component.

The Common Criteria defines attribute-based control of User Data flow in its FDP class. However, in this

Protection Profile, the authors needed to express the control of both User Data and TSF Data flow using administrative control instead of attribute-based control. It was found that using FDP_IFF and FDP_IFC for this purpose resulted in SFRs that were either too implementation-specific for a Protection Profile or too unwieldy for refinement in a Security Target. Therefore, the authors decided to define an extended component to address this functionality.

This extended component protects both User Data and TSF Data, and it could therefore be placed in either the FDP or FPT class. Since its purpose is to protect the TOE from misuse, the authors believed that it was most appropriate to place it in the FPT class. It did not fit well in any of the existing families in either class, and this lead the authors to define a new family with just one member.

### FPT_FDI_EXP.1 Restricted forwarding of data to external interfaces

**Hierarchical to:** **No other components**

**Dependencies:** **FMT_SMF.1 Specification of Management Functions**
**FMT_SMR.1 Security roles**

FPT_FDI_EXP.1.1 The TSF shall provide the capability to restrict data received on [assignment: *list of external interfaces*] from being forwarded without further processing by the TSF to [assignment: *list of external interfaces*].

# 6 Security requirements

## 6.1 Security functional requirements

This section describes the security functional requirements for the TOE.
The text in brackets following the component identifier or element name denotes iteration operations.

### 6.1.1 User Authentication Function

#### FIA_AFL.1 Authentication failure handling

**Hierarchical to:** No other components.

**Dependencies:** FIA_UAU.1 Timing of authentication

FIA_AFL.1.1 The TSF shall detect when [selection: *[assignment: positive integer number], an administrator configurable positive integer within[assignment: range of acceptable values]*] unsuccessful authentication attempts occur related to [assignment: *list of authentication events*].

[selection: *[assignment: positive integer number], an administrator configurable positive integer within[assignment: range of acceptable values]*]
- an administrator configurable positive integer within 1 to 10

[assignment: *list of authentication events*]
- Login attempts from the control panel or remote UIs.

FIA_AFL.1.2 When the defined number of unsuccessful authentication attempts has been [selection: *met, surpassed*], the TSF shall [assignment: *list of actions*].

[selection: *met, surpassed*]
- met

[assignment: *list of actions*]
- Lockout

#### FIA_ATD.1 User attribute definition

**Hierarchical to:** No other components

**Dependencies:** No dependencies

FIA_ATD.1.1 The TSF shall maintain the following list of security attributes belonging to individual users: [assignment: *list of security attributes*].

[assignment: *list of security attributes*].
- User name, role

#### FIA_UAU.1 Timing of authentication

**Hierarchical to:** No other components

**Dependencies:** FIA_UID.1 Timing of identification

FIA_UAU.1.1 The TSF shall allow [assignment: *list of TSF-mediated actions* ***that do not conflict***

***with access-controlled Functions of the TOE***] on behalf of the user to be performed before the user is authenticated.

[assignment: *list of TSF-mediated actions* ***that do not conflict with access-controlled Functions of the TOE***]
- Submission of print jobs

**FIA_UAU.1.2** The TSF shall require each user to be successfully authenticated before allowing any other TSF-mediated actions on behalf of that user.

## FIA_UAU.7 Protected authentication feedback

**Hierarchical to:** **No other components.**

**Dependencies:** **FIA_UAU.1 Timing of authentication**

**FIA_UAU .7.1** The TSF shall provide only [assignment: *list of feedback*] to the user while the authentication is in progress.

[assignment: *list of feedback*]
- *, ●

## FIA_UID.1 Timing of identification

**Hierarchical to:** **No other components**

**Dependencies:** **No dependencies**

**FIA_UID.1.1** The TSF shall allow [assignment: *list of TSF-mediated actions* ***that do not conflict with access-controlled Functions of the TOE***] on behalf of the user to be performed before the user is identified.

[assignment: *list of TSF-mediated actions* ***that do not conflict with access-controlled Functions of the TOE***]
- Submission of print jobs

**FIA_UID.1.2** The TSF shall require each user to be successfully identified before allowing any other TSF-mediated actions on behalf of that user.

## FIA_USB.1 User-subject binding

**Hierarchical to:** **No other components**

**Dependencies:** **FIA_ATD.1 User attribute definition**

**FIA_USB.1.1** The TSF shall associate the following user security attributes with subjects acting on the behalf of that user: [assignment: *list of user security attributes*].

[assignment: *list of user security attributes*].
- User name, role

**FIA_USB.1.2** The TSF shall enforce the following rules on the initial association of user security attributes with the subjects acting on behalf of users: [assignment: *rules for the initial association of attributes*].

[assignment: *rules for the initial association of attributes*].
- None

**FIA_USB.1.3** The TSF shall enforce the following rules governing changes to the user security attributes with the subjects acting on behalf of users: [assignment: *rules for the changing of attributes*].

[assignment: *rules for the changing of attributes*]
- None

### FTA_SSL.3(lui) TSF-initiated termination

**Hierarchical to:** No other components

**Dependencies:** No dependencies

**FTA_SSL.3.1(lui)** The TSF shall terminate an interactive session after a [assignment: *time interval of userinactivity*].

[assignment: *time interval of userinactivity*].
- User inactivity at the control panel lasting for the specified period of time

### FTA_SSL.3(rui) TSF-initiated termination

**Hierarchical to:** No other components

**Dependencies:** No dependencies

**FTA_SSL.3.1(rui)** The TSF shall terminate an interactive session after a [assignment: *time interval of userinactivity*].

[assignment: *time interval of userinactivity*].
- User inactivity at the remote UI lasting for 15 minutes

## 6.1.2 Function Use Restriction Function

### FMT_MSA.1(exec-job) Management of security attributes

**Hierarchical to:** No other components

**Dependencies:** [FDP_ACC.1 Subset access control, or
FDP_IFC.1 Subset information flow control]
FMT_SMR.1 Security roles
FMT_SMF.1 Specification of Management Functions

**FMT_MSA.1.1(exec-job)** The TSF shall enforce the **TOE Function Access Control SFP,** [assignment: *access control SFP(s), information flow control SFP(s)*] to restrict the ability to [selection: *change_default, query, modify, delete, [assignment: other operations]*] the security attributes [assignment: *list of security attributes*] to [assignment: *the authorised identified roles*].

[assignment: *access control SFP(s), information flow control SFP(s)*]
- None

[selection: *change_default, query, modify, delete, [assignment: other operations]*]
- query, modify, delete, create

[assignment: *list of security attributes*]
- Role

[assignment: *the authorised identified roles*].
- U.ADMINISTRATOR

### FMT_MSA.3(exec-job) Static attribute initialisation

**Hierarchical to:** **No other components**

**Dependencies:** **FMT_MSA.1 Management of security attributes**
**FMT_SMR.1 Security roles**

**FMT_MSA.3.1(exec-job)** The TSF shall enforce the **TOE Function Access Control Policy,** [assignment: *access control SFP, information flow control SFP*] to provide [selection, choose one of : *restrictive, permissive, [assignment: other property]*] default values for security attributes that are used to enforce the SFP.

[assignment: *access control SFP, information flow control SFP*]
- None

[selection, choose one of: *restrictive, permissive, [assignment: other property]*]
- Restrictive

[refinement]
- TOE Function Access Control Policy → TOE Function Access Control SFP

**FMT_MSA.3.2(exec-job)** The TSF shall allow the [assignment: *the authorized identified roles*] to specify alternative initial values to override the default values when an object or information is created.

[assignment: *the authorized identified roles*]
- Nobody

### FDP_ACC.1(exec-job) Subset access control

**Hierarchical to:** **No other components**

**Dependencies:** **FDP_ACF.1 Security attribute based access control**

**FDP_ACC.1.1(exec-job)** The TSF shall enforce the **TOE Function Access Control SFP** on **users as subjects, TOE functions as objects, and the right to use the functions as operations.**

## FDP_ACF.1(exec-job) Security attribute based access control

**Hierarchical to:** No other components

**Dependencies:** FDP_ACC.1 Subset access control
FMT_MSA.3 Static attribute initialisation

**FDP_ACF.1.1(exec-job)** The TSF shall enforce the **TOE Function Access Control SFP** to objects based on the following: **users and [assignment: *list of TOE functions and the security attribute(s) used to determine the TOE Function Access Control SFP*]**.

**[assignment: *list of TOE functions and the security attribute(s) used to determine the TOE Function Access Control SFP*]**

- objects controlled under the TOE Function Access Control SFP in Table 20, and for each, the indicated security attributes in Table 20

**FDP_ACF.1.2(exec-job)** The TSF shall enforce the following rules to determine if an operation among controlled subjects and controlled objects is allowed: **[selection: *the user is explicitly authorized by U.ADMINISTATOR to use a function, a user that is authorized to use the TOE is automatically authorized to use the functions* [assignment: *list of functions*], [assignment: *other conditions*]]**.

**[selection: *the user is explicitly authorized by U.ADMINISTATOR to use a function, a user that is authorized to use the TOE is automatically authorized to use the functions* [assignment: *list of functions*], [assignment: *other conditions*]]**

- **[assignment: *other conditions*]**

**[assignment: *other conditions*]**

- rules specified in the TOE Function Access Control SFP in Table 20 governing access among controlled users as subjects and controlled objects using controlled operations on controlled objects.

**FDP_ACF.1.3(exec-job)** The TSF shall explicitly authorise access of subjects to objects based on the following additional rules: **the user acts in the role U.ADMINISTRATOR,** [assignment: ***other*** *rules, based on security attributes, that explicitly authorise access of subjects to objects*].

[assignment: ***other*** *rules, based on security attributes, that explicitly authorise access of subjects to objects*]

- None

**FDP_ACF.1.4(exec-job)** The TSF shall explicitly deny access of subjects to objects based on the [assignment: *rules, based on security attributes, that explicitly deny access of subjects to objects*].

[assignment: *rules, based on security attributes, that explicitly deny access of subjects to objects*]

- None

Table 20- **TOE Function Access Control SFP**

| Object | Attribute | Operation(s) | Subject | Attribute | Access control rule |
|---|---|---|---|---|---|
| [Secured Print] | +PRT | Use of the function, using pointer to the Object. | U.USER | Role | For the attribute of the Object, the role associated with the Subject, must be authorized to perform the Operation. |

| Object | Attribute | Operation(s) | Subject | Attribute | Access control rule |
|---|---|---|---|---|---|
| [Copy] | +CPY<br>+DSR | Use of the function, using pointer to the Object. | U.USER | Role | For the attribute of the Object, the role associated with the Subject, must be authorized to perform the Operation. |
| [Scan] | +SCN<br>+DSR | Use of the function, using pointer to the Object. | U.USER | Role | For the attribute of the Object, the role associated with the Subject, must be authorized to perform the Operation. |
| [Access Stored Files] | +DSR | Use of the function, using pointer to the Object. | U.USER | Role | For the attribute of the Object, the role associated with the Subject, must be authorized to perform the Operation. |
| Remote UI<br>[Access Received/Stored Files] | +DSR | Use of the function, using pointer to the Object. | U.USER | Role | If the role associated with the Subject is Administrator, the Operation is permitted. |

### 6.1.3 Job Output Restriction Functions

6.1.3.1 Delete Job

**FMT_MSA.1(delete-job) Management of security attributes**

**Hierarchical to:** No other components

**Dependencies:** [FDP_ACC.1 Subset access control, or
FDP_IFC.1 Subset information flow control]
FMT_SMR.1 Security roles
FMT_SMF.1 Specification of Management Functions

**FMT_MSA.1.1(delete-job)** The TSF shall enforce the **Common Access Control SFP in Table 22,** [assignment: *access control SFP(s), information flow control SFP(s)*] to restrict the ability to [selection: *change_default, query, modify, delete, [assignment: other operations]*] the security attributes [assignment: *list of security attributes*] to [assignment: *the authorised identified roles*].

[assignment: *access control SFP(s), information flow control SFP(s)*]
- **In The JOB Access Control SFP in Table 23**

[selection: *change_default, query, modify, delete, [assignment: other operations]*]
- Refer to **"Operation"** in Table 21.

[assignment: *list of security attributes*]
- Refer to **"Security Attributes"** in Table 21.

[assignment: *the authorised identified roles*]
- Refer to **"Role"** in Table 21.

Table 21 - **Management of security attributes**

| security attributes | Operation | Role |
|---|---|---|
| User name | delete, create, query | U.ADMINISTRATOR |

| security attributes | Operation | Role |
|---|---|---|
| Box PINs | modify, create | U.ADMINISTRATOR |
| PIN of own Mail Box | modify | U.NORMAL |

### FMT_MSA.3(delete-job) Static attribute initialisation

**Hierarchical to:** No other components

**Dependencies:** FMT_MSA.1 Management of security attributes
FMT_SMR.1 Security roles

**FMT_MSA.3.1(delete-job)** The TSF shall enforce the **Common Access Control SFP in Table 22,** [assignment: *access control SFP, information flow control SFP*] to provide [selection, choose one of: *restrictive, permissive, [assignment: other property]*] default values for security attributes that are used to enforce the SFP.

[assignment: *access control SFP, information flow control SFP*]
- **Common Access Control SFP in Table 22**
- **In The JOB Access Control SFP in Table 23**

[selection, choose one of: *restrictive, permissive, [assignment: other property]*]
- restrictive

**FMT_MSA.3.2(delete-job)** The TSF shall allow the [assignment: *the authorized identified roles*] to specify alternative initial values to override the default values when an object or information is created.

[assignment: *the authorized identified roles*]
- Nobody

### FDP_ACC.1(delete-job) Subset access control

**Hierarchical to:** No other components

**Dependencies:** FDP_ACF.1 Security attribute based access control

**FDP_ACC.1.1(delete-job)** The TSF shall enforce the **Common Access Control SFP in Table 22** on **the list of users as subjects, objects, and operations among subjects and objects covered by the Common Access Control SFP in Table 22**.

### FDP_ACF.1(delete-job) Security attribute based access control

**Hierarchical to:** No other components

**Dependencies:** FDP_ACC.1 Subset access control
FMT_MSA.3 Static attribute initialisation

**FDP_ACF.1.1(delete-job)** The TSF shall enforce the **Common Access Control SFP in Table 22** to objects based on the following: **the list of users as subjects and objects controlled under the Common Access Control SFP in Table 22, and for each, the indicated security attributes in Table 22**.

**FDP_ACF.1.2(delete-job)** The TSF shall enforce the following rules to determine if an operation

among controlled subjects and controlled objects is allowed: **rules specified in the Common Access Control SFP in Table 22 governing access among controlled users as subjects and controlled objects using controlled operations on controlled objects**.

**FDP_ACF.1.3(delete-job)** The TSF shall explicitly authorise access of subjects to objects based on the following additional rules: [assignment: *rules, based on security attributes, that explicitly authorise access of subjects to objects*].

[assignment: *rules, based on security attributes, that explicitly authorise access of subjects to objects*]
- U.ADMINISTRATOR is authorized to delete any D.DOC/D.FUNC.
- U.ADMINISTRATOR is authorized to modify any +CPY, +SCN, +DSR D.FUNC.

**FDP_ACF.1.4(delete-job)** The TSF shall explicitly deny access of subjects to objects based on the [assignment: *rules, based on security attributes, that explicitly deny access of subjects to objects*].

[assignment: *rules, based on security attributes, that explicitly deny access of subjects to objects*]
- None

Table 22-**Common Access Control SFP**

| Object | Attribute | Operation(s) | Subject | Access control rule |
|---|---|---|---|---|
| D.DOC | +PRT,+SCN,+CPY, +DSR | Delete | U.NORMAL | Denied, except for his/her own documents |
| D.FUNC | +PRT,+SCN,+CPY, +DSR | Modify; Delete | U.NORMAL | Denied, except for his/her own function data |

#### 6.1.3.2 In The Job

### FDP_ACC.1(in-job) Subset access control

**Hierarchical to:** No other components

**Dependencies:** FDP_ACF.1 Security attribute based access control

**FDP_ACC.1.1(in-job)** The TSF shall enforce the **In The JOB Access Control SFP in Table 23** on **the list of subjects, objects, and operations among subjects and objects covered by the In The JOB Access Control SFP in Table 23.**.

### FDP_ACF.1(in-job) Security attribute based access control

**Hierarchical to:** No other components

**Dependencies:** FDP_ACC.1 Subset access control
FMT_MSA.3 Static attribute initialisation

**FDP_ACF.1.1(in-job)** The TSF shall enforce the **In The JOB Access Control SFP in Table 23** to objects based on the following: **the list of subjects and objects controlled under the In The JOB Access Control SFP in Table 23, and for each, the indicated security attributes in Table 23**.

**FDP_ACF.1.2(in-job)** The TSF shall enforce the following rules to determine if an operation among controlled subjects and controlled objects is allowed: **rules specified in the In The JOB Access Control SFP in Table 23 governing access among Users and controlled objects using controlled operations on controlled objects**.

**FDP_ACF.1.3(in-job)** The TSF shall explicitly authorise access of subjects to objects based on the following additional rules: [assignment: *rules, based on security attributes, that explicitly authorise access of subjects to objects*].

[assignment: *rules, based on security attributes, that explicitly authorise access of subjects to objects*]

- U.ADMINISTRATOR is authorized to read any +DSR D.DOC

**FDP_ACF.1.4(in-job)** The TSF shall explicitly deny access of subjects to objects based on the [assignment: *rules, based on security attributes, that explicitly deny access of subjects to objects*].

[assignment: *rules, based on security attributes, that explicitly deny access of subjects to objects*]

- None

Table 23 - **In The JOB Access Control SFP**

| Object | Attribute(s) | Operation | Subject | Access control rule |
|---|---|---|---|---|
| D.DOC | +PRT | Read | U.USER | Denied, except for his/her own documents |
| D.DOC | +SCN | Read | U.USER | Denied, except for his/her own documents |
| D.DOC | +CPY | Read | U.USER | Denied |
| D.DOC | +DSR | Read | U.NORMAL | Denied, except for his/her own documents |

### 6.1.4 Forward Received Jobs Function

### FPT_FDI_EXP.1 Restricted forwarding of data to external interfaces

**Hierarchical to:** **No other components**

**Dependencies:** **FMT_SMF.1 Specification of Management Functions**
**FMT_SMR.1 Security roles**

**FPT_FDI_EXP.1.1** The TSF shall provide the capability to restrict data received on **any external Interface** from being forwarded without further processing by the TSF to **any Shared-medium Interface**.

### 6.1.5 HDD Data Erase Function

### FDP_RIP.1 Subset residual information protection

**Hierarchical to:** **No other components**

**Dependencies:**: **No dependencies**

**FDP_RIP.1.1** The TSF shall ensure that any previous information content of a resource is made unavailable upon the [selection: *allocation of the resource to, deallocation of the resource from*] the following objects: **D.DOC,** [assignment: *list of objects*].

[selection: *allocation of the resource to, deallocation of the resource from*]
- deallocation of the resource from

[assignment: *list of objects*].
- None

### 6.1.6 HDD Data Encryption Function

#### 6.1.6.1 Encryption/Decryption Function

**FCS_COP.1(h) Cryptographic operation**

**Hierarchical to:** **No other components.**

**Dependencies:** **[FDP_ITC.1 Import of user data without security attributes, or**
**FDP_ITC.2 Import of user data with security attributes, or**
**FCS_CKM.1 Cryptographic key generation]**
**FCS_CKM.4 Cryptographic key destruction**

**FCS_COP.1.1(h)** The TSF shall perform [assignment: *list of cryptographic operations*] in accordance with a specified cryptographic algorithm [assignment: *cryptographic algorithm*] and cryptographic key sizes [assignment: *cryptographic key sizes*] that meet the following: [assignment: *list of standards*].

[assignment: *list of cryptographic operations*]
- Encryption of data written to the HDD
- Decryption of data read out from the HDD

[assignment: *cryptographic algorithm*]
- AES

[assignment: *cryptographic key sizes*]
- 256 bit

[assignment: *list of standards*]
- FIPS PUB 197

#### 6.1.6.2 Device Identification and Authentication Function

**FPT_PHP.1 Passive detection of physical attack**

**Hierarchical to:** **No other components.**

**Dependencies:** **No dependencies.**

FPT_PHP.1.1 The TSF shall provide unambiguous detection of physical tampering that might compromise the TSF.

[refinement] physical tampering -> Physical replacement of the HDD and HDD Data Encryption & Mirroring Board

FPT_PHP.1.2 The TSF shall provide the capability to determine whether physical tampering with the TSF's devices or TSF's elements has occurred.

[refinement] physical tampering -> Physical replacement of the HDD and HDD Data Encryption & Mirroring Board

### 6.1.7 LAN Data Protection Function

#### 6.1.7.1 IP Packet Encryption Function

## FCS_COP.1(n) Cryptographic operation

**Hierarchical to:** **No other components.**

**Dependencies:** **[FDP_ITC.1 Import of user data without security attributes, or
FDP_ITC.2 Import of user data with security attributes, or
FCS_CKM.1 Cryptographic key generation]
FCS_CKM.4 Cryptographic key destruction**

**FCS_COP.1.1(n)** The TSF shall perform [assignment: *list of cryptographic operations*] in accordance with a specified cryptographic algorithm [assignment: *cryptographic algorithm*] and cryptographic key sizes [assignment: *cryptographic key sizes*] that meet the following: [assignment: *list of standards*].

[assignment: *list of cryptographic operations*]
- Encryption of IP packets sent to the LAN.
- Decryption of IP packets received from the LAN.

[assignment: *cryptographic algorithm*]
- Refer to **"Cryptographic Algorithm"** in Table 24.

[assignment: *cryptographic key sizes*]
- Refer to **"Cryptographic Key Sizes"** in Table 24.

[assignment: *list of standards*]
- Refer to **"List of Standards"** in Table 24.

Table 24 **- IPSec *cryptographic* algorithm,*key sizes* and standards**

| ***cryptographic algorithm*** | ***cryptographic key sizes*** | ***list of standards*** |
|---|---|---|
| AES-CBC | 256 bit | FIPS PUB 197 |
| AES-GCM | 256 bit | SP800-38D |

## FTP_ITC.1 Inter-TSF trusted channel

**Hierarchical to:** **No other components**

**Dependencies:** **No dependencies**

**FTP_ITC.1.1** The TSF shall provide a communication channel between itself and another trusted IT product that is logically distinct from other communication channels and provides assured identification of its end points and protection of the communicated data from modification or disclosure.

**FTP_ITC.1.2** The TSF shall permit **the TSF, another trusted IT product** to initiate communication via the trusted channel.

**FTP_ITC.1.3** The TSF shall initiate communication via the trusted channel for **communication of D.DOC, D.FUNC, D.PROT, and D.CONF over any Shared-medium Interface**.

### 6.1.8 Self-Test Function

### FPT_TST.1 TSF testing

**Hierarchical to:** **No other components**

**Dependencies:** **No dependencies**

**FPT_TST.1.1** The TSF shall run a suite of self tests [selection: *during initial start-up*, *periodically during normal operation*, *at the request of the authorised user*, *at the conditions* [assignment: *conditions under which self test should occur*]] to demonstrate the correct operation of [selection: [assignment: *parts of TSF*], *the TSF*].

[selection: *during initial start-up*, *periodically during normal operation*, *at the request of the authorised user*, *at the conditions* [assignment: *conditions under which self test should occur*]]
- *during initial start-up*

[selection: [assignment: *parts of TSF*], *the TSF*]
- Cryptographic algorithms used with the LAN Data Protection Function (AES)

**FPT_TST.1.2** The TSF shall provide authorised users with the capability to verify the integrity of [selection: [assignment: *parts of TSF*], *TSF Data*].

[selection: [assignment: *parts of TSF*], *TSF Data*]
- [assignment: parts of TSF]

[assignment: *parts of TSF*]
- Audit Log

**FPT_TST.1.3** The TSF shall provide authorised users with the capability to verify the integrity of stored TSF executable code.

### 6.1.9 Audit Log Function

### FAU_GEN.1 Audit data generation

**Hierarchical to:** **No other components**

**Dependencies:** **FPT_STM.1 Reliable time stamps**

**FAU_GEN.1.1** The TSF shall be able to generate an audit record of the following auditable events:

a) Start-up and shutdown of the audit functions;

b) All auditable events for the [selection, choose one of: *minimum, basic, detailed, not specified*] level of audit; and

c) **All Auditable Events as each is defined for its Audit Level (if one is specified) for the Relevant SFR in Table 25 ;** [assignment: *other specifically defined auditable events*].

[selection, choose one of: *minimum, basic, detailed, not specified*]

- not specified

[assignment: *other specifically defined auditable events*]

- None

**FAU_GEN.1.2** The TSF shall record within each audit record at least the following information:

a) Date and time of the event, type of event, subject identity (if applicable), and the outcome (success or failure) of the event; and

b) For each audit event type, based on the auditable event definitions of the functional components included in the PP/ST, **for each Relevant SFR listed in Table 25: (1) information as defined by its Audit Level (if one is specified), and (2) all Additional Information (if any is required);** [assignment: *other audit relevant information*].

[assignment: *other audit relevant information*]

- None

Table 25 - **Audit data requirements**

| Auditable event | Relevant SFR | Audit level | Additional information |
|---|---|---|---|
| Job completion | FDP_ACF.1 | Not specified | Type of job |
| Both successful and unsuccessful use of the authentication mechanism | FIA_UAU.1 | Basic | None required |
| Both successful and unsuccessful use of the identification mechanism | FIA_UID.1 | Basic | Attempted user identity, if available |
| Use of the management functions | FMT_SMF.1 | Minimum | None required |
| Modifications to the group of users that are part of a role | FMT_SMR.1 | Minimum | None required |
| Changes to the time | FPT_STM.1 | Minimum | None required |
| Termination of an interactive session by the session locking mechanism[5] | FTA_SSL.3 | Minimum | None required |
| Failure of the trusted channel functions | FTP_ITC.1 | Minimum | None required |

## FAU_GEN.2 User identity association

**Hierarchical to:** No other components.

**Dependencies:** FAU_GEN.1 Audit data generation
FIA_UID.1 Timing of identification

**FAU_GEN.2.1** For audit events resulting from actions of identified users, the TSF shall be able to associate each auditable event with the identity of the user that caused the event.

[5] See "Section 13.1 IEEE Std 2600.1 Errata" in the PP Guide.
In IEEE Std 2600.1, this is indicated as "Locking of an interactive session by the session locking mechanism" but notes that this is a transcription error.

### FPT_STM.1 Reliable time stamps

**Hierarchical to:** **No other components**

**Dependencies:** **No dependencies**

**FPT_STM.1.1** The TSF shall be able to provide reliable time stamps.

### FAU_SAR.1 Audit review

**Hierarchical to:** **No other components.**

**Dependencies:** **FAU_GEN.1 Audit data generation**

FAU_SAR.1.1 The TSF shall provide [assignment: *authorised users*] with the capability to read [assignment: *list of audit information*] from the audit records.

[assignment: authorised users]
- U.ADMINISTRATOR

[assignment: list of audit information]
- Refer to the audit logs listed in Table 25.

FAU_SAR.1.2 The TSF shall provide the audit records in a manner suitable for the user to interpret the information.

### FAU_SAR.2 Restricted audit review

**Hierarchical to:** **No other components.**

**Dependencies:** **FAU_SAR.1 Audit review**

**FAU_SAR.2.1** The TSF shall prohibit all users read access to the audit records, except those users that have been granted explicit read-access.

### FAU_STG.1 Protected audit trail storage

**Hierarchical to:** **No other components.**

**Dependencies:** **FAU_GEN.1 Audit data generation**

**FAU_STG.1.1** The TSF shall protect the stored audit records in the audit trail from unauthorised deletion.

**FAU_STG.1.2** The TSF shall be able to [selection, *choose one of: prevent, detect*] unauthorised modifications to the stored audit records in the audit trail.

[selection, *choose one of: prevent, detect*]
- prevent

### FAU_STG.4 Prevention of audit data loss

**Hierarchical to:** **FAU_STG.3 Action in case of possible audit data loss**

**Dependencies:** **FAU_STG.1 Protected audit trail storage**

**FAU_STG.4.1** The TSF shall [selection, *choose one of: "ignore audited events", "prevent audited events, except those taken by the authorised user with special rights", "overwrite the oldest stored audit records"*] and [*assignment: other actions to be taken in case of audit storage failure*] if the audit trail is full.

[selection, *choose one of: "ignore audited events", "prevent audited events, except those taken by the authorised user with special rights", "overwrite the oldest stored audit records"*]

- "overwrite the oldest stored audit records"

[assignment: other actions to be taken in case of audit storage failure]

- None

## 6.1.10 Management Function

6.1.10.1 User Management Function

### FIA_SOS.1 Verification of secrets

**Hierarchical to:** **No other components.**

**Dependencies:** **No dependencies**

**FIA_SOS.1.1** The TSF shall provide a mechanism to verify that secrets meet [assignment: *a defined quality metric*].

[assignment: *a defined quality metric*]

- Use a password 4 to 32 characters in length
- Prohibit the use of 3 or more consecutive characters
- Use at least one uppercase character (A to Z)
- Use at least one lowercase character (a to z)
- Use at least one number (0-9)
- Use at least one non-alphabet characters (^-@[]:;,./¥!"#$%&'()=~|{`+*}_?><)

### FMT_MTD.1(user-mgt) Management of TSF Data

**Hierarchical to:** **No other components.**

**Dependencies:** **FMT_SMR.1 Security roles**
**FMT_SMF.1 Specification of Management Functions**

**FMT_MTD.1.1 (user-mgt)** The TSF shall restrict the ability to [selection: *change_default, query, modify, delete, clear, [assignment: other operations]*] the [assignment: *list of TSF Data* ***associated with a U.NORMAL or TSF Data associated with documents or jobs owned by a U.NORMAL***] to **[selection, choose one of: *Nobody*, [selection: *U.ADMINISTRATOR, the U.NORMAL to whom such TSF Data are associated*]]**.

[selection: *change_default, query, modify, delete, clear, [assignment: other operations]*]

- Refer to "Operation" in Table 26.

[assignment: *list of TSF Data* ***associated with a U.NORMAL or TSF Data associated with documents or jobs owned by a U.NORMAL***]

- Refer to "TSF Data" in Table 26.

**[selection, choose one of: *Nobody*, [selection: *U.ADMINISTRATOR*, *the U.NORMAL to whom such TSF Data are associated*]]**

- Refer to "Role" in Table 26.

Table 26- **User information management**

| TSF data | Role | Operation |
|---|---|---|
| User name | U.ADMINISTRATOR | delete, create, query |
| role | U.ADMINISTRATOR | modify, delete, create, query |
| Passwords | U.ADMINISTRATOR | modify, delete, create |
| Own password | U.NORMAL | modify |

### FMT_SMR.1 Security roles

**Hierarchical to:** **No other components.**

**Dependencies:** **FIA_UID.1 Timing of identification**

**FMT_SMR.1.1** The TSF shall maintain the roles **U.ADMINISTRATOR, U.NORMAL, [selection: *Nobody*,** [assignment: *the authorised identified roles*]].

**[selection: *Nobody*,** [assignment: *the authorised identified roles*]]

- Nobody

**FMT_SMR.1.2** The TSF shall be able to associate users with roles**, except for the role "Nobody" to which no user shall be associated**.

6.1.10.2 Cryptographic Key Management Function

### FCS_CKM.1(h) Cryptographic key generation

**Hierarchical to:** **No other components.**

**Dependencies:** **[FCS_CKM.2 Cryptographic key distribution, or FCS_COP.1 Cryptographic operation]**
**FCS_CKM.4 Cryptographic key destruction**

**FCS_CKM.1.1(h)** The TSF shall generate cryptographic keys in accordance with a specified cryptographic key generation algorithm [assignment: *cryptographic key generation algorithm*] and specified cryptographic key sizes [assignment: *cryptographic key sizes*] that meet the following: [assignment: *list of standards*].

[assignment: *cryptographic key generation algorithm*]

- Random number generation algorithm according to SP800-90A using Hash_DRBG

[assignment: *cryptographic key sizes*]

- 256 bit

[assignment: *list of standards*]

- Not specified

### FCS_CKM.1(n) Cryptographic key generation

**Hierarchical to:** No other components.

**Dependencies:** [FCS_CKM.2 Cryptographic key distribution, or
FCS_COP.1 Cryptographic operation]
FCS_CKM.4 Cryptographic key destruction

**FCS_CKM.1.1(n)** The TSF shall generate cryptographic keys in accordance with a specified cryptographic key generation algorithm [assignment: *cryptographic key generation algorithm*] and specified cryptographic key sizes [assignment: *cryptographic key sizes*] that meet the following: [assignment: *list of standards*].

[assignment: *cryptographic key generation algorithm*]
- Random number generation algorithm according to SP800-90A using HMAC_DRBG(SHA-256)

[assignment: *cryptographic key sizes*]
- 256 bit

[assignment: *list of standards*]
- Not specified

### FCS_CKM.2 Cryptographic key distribution

**Hierarchical to:** No other components.

**Dependencies:** [FDP_ITC.1 Import of user data without security attributes, or
FDP_ITC.2 Import of user data with security attributes, or
FCS_CKM.1 Cryptographic key generation]
FCS_CKM.4 Cryptographic key destruction

**FCS_CKM.2.1** The TSF shall distribute cryptographic keys in accordance with a specified cryptographic key distribution method [assignment: *cryptographic key distribution method*] that meets the following: [assignment: *list of standards*].

[assignment: *cryptographic key distribution method*]
- DH (Diffie Hellman) and ECDH (Elliptic Curve Diffie Hellman)

[assignment: *list of standards*]
- SP800-56A

#### 6.1.10.3 Device Management Function

### FMT_MTD.1(device-mgt) Management of TSF Data

**Hierarchical to:** No other components

**Dependencies:** FMT_SMR.1 Security roles
FMT_SMF.1 Specification of Management Functions

**FMT_MTD.1.1(device-mgt)** The TSF shall restrict the ability to [selection: *change_default, query, modify, delete, clear, [assignment: other operations]*] the [assignment: *list of TSF data*] to [selection, choose one of: ***Nobody***, [selection: ***U.ADMINISTRATOR***,

[assignment: *the authorized identified roles* ***except U.NORMAL***]]]

[selection: *change_default, query, modify, delete, clear, [assignment: other operations]*]
- Refer to "Operation" in Table 27.

[assignment: *list of TSF data*]
- Refer to "TSF Data" in Table 27.

**[selection, choose one of: *Nobody*, [selection: *U.ADMINISTRATOR*,** [assignment: *the authorized identified roles* ***except U.NORMAL***]]]
- Refer to "Role" in Table 27.

Table 27 - **Device management function**

| TSF Data | Role | Operation |
|---|---|---|
| Date/Time settings | U.ADMINISTRATOR | modify |
| HDD Data Erase settings | U.ADMINISTRATOR | query, modify |
| IPSec settings | U.ADMINISTRATOR | query, modify |
| Auto Reset settings | U.ADMINISTRATOR | query, modify |
| Lockout policy settings | U.ADMINISTRATOR | query, modify |
| Password policy settings | U.ADMINISTRATOR | query, modify |
| Audit log | U.ADMINISTRATOR | query, delete |

## FMT_SMF.1 Specification of Management Functions

**Hierarchical to:** **No other components**

**Dependencies:** **No dependencies**

**FMT_SMF.1.1** The TSF shall be capable of performing the following management functions: [assignment: *list of management functions to be provided by the TSF*].

[assignment: *list of management functions to be provided by the TSF*]
- Refer to "Management Function" in Table 28.

Table 28 - **The management of security requirements**

| Management Function | Operation |
|---|---|
| Date/Time settings | modify |
| HDD Data Erase settings | query,modify |
| IPSec settings | query,modify |
| Auto Reset settings | query,modify |

| Management Function | Operation |
|---|---|
| Lockout policy settings | query,modify |
| Password policy settings | query,modify |
| Audit log | query, delete |
| Username | delete, create,query |
| role | modify,delete, create,query |
| Password | modify,delete, create |
| Box PIN | modify, create |
| Own password | modify |
| PIN of own Mail Box | modify |

## 6.2 Security Assurance Requirements

Table 29 lists the Security Assurance Requirements for 2600.2-PP, Protection Profile for Hardcopy Devices, Operational Environment B, and related SFR Packages, EAL 2 augmented by ALC_FLR.2.

Table 29- **IEEE 2600.2 Security Assurance Requirements**

| Assurance class | Assurance components |
|---|---|
| ADV: Development | ADV_ARC.1 Security architecture description |
| | ADV_FSP.2 Security-enforcing functional specification |
| | ADV_TDS.1 Basic design |
| AGD: Guidance documents | AGD_OPE.1 Operational user guidance |
| | AGD_PRE.1 Preparative procedures |
| ALC: Life-cycle support | ALC_CMC.2 Use of a CM system |
| | ALC_CMS.2 Parts of the TOE CM coverage |
| | ALC_DEL.1 Delivery procedures |
| | ALC_FLR.2 Flaw reporting procedures (augmentation of EAL2) |
| ASE: Security Target evaluation | ASE_CCL.1 Conformance claims |
| | ASE_ECD.1 Extended components definition |
| | ASE_INT.1 ST introduction |
| | ASE_OBJ.2 Security objectives |
| | ASE_REQ.2 Derived security requirements |
| | ASE_SPD.1 Security problem definition |
| | ASE_TSS.1 TOE summary specification |
| ATE: Tests | ATE_COV.1 Evidence of coverage |
| | ATE_FUN.1 Functional testing |
| | ATE_IND.2 Independent testing-sample |
| AVA: Vulnerability assessment | AVA_VAN.2 Vulnerability analysis |

## 6.3 Security functional requirements rationale

### 6.3.1 The completeness of security requirements

Table 30 provides a mapping of TOE Security Objectives and security functional requirements. This shows how each of the security functional requirements corresponds to at least one TOE Security Objective.
**Bold typeface** items provide principal (P) fulfillment of the objectives, and normal typeface items provide supporting (S) fulfillment.

Table 30 - **The completeness of security requirements**

| SFRs | Objectives | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | O.DOC.NO_DIS | O.DOC.NO_ALT | O.FUNC.NO_ALT | O.PROT.NO_ALT | O.CONF.NO_DIS | O.CONF.NO_ALT | O.USER.AUTHORIZED | O.INTERFACE.MANAGED | O.SOFTWARE.VERIFIED | O.AUDIT.LOGGED | O.HDD.ACCESS.AUTHORISED | O.STORAGE.CRYPTED |
| FIA_AFL.1 | | | | | | | S | | | | | |
| FIA_ATD.1 | | | | | | | S | | | | | |
| FIA_UAU.1 | | | | | | | **P** | **P** | | | | |
| FIA_UAU.7 | | | | | | | S | | | | | |
| FIA_UID.1 | S | S | S | S | S | S | **P** | **P** | | S | | |
| FIA_USB.1 | | | | | | | **P** | | | | | |
| FTA_SSL.3(lui) | | | | | | | **P** | **P** | | | | |
| FTA_SSL.3(rui) | | | | | | | **P** | **P** | | | | |
| FMT_MSA.1(exec-job) | | | | | | | S | | | | | |
| FMT_MSA.3(exec-job) | | | | | | | S | | | | | |
| FDP_ACC.1(exec-job) | | | | | | | **P** | | | | | |
| FDP_ACF.1(exec-job) | | | | | | | S | | | | | |
| FMT_MSA.1(delete-job) | S | S | S | | | | | | | | | |
| FMT_MSA.3(delete-job) | S | S | S | | | | | | | | | |
| FDP_ACC.1(delete-job) | **P** | **P** | **P** | | | | | | | | | |
| FDP_ACF.1(delete-job) | S | S | S | | | | | | | | | |
| FDP_ACC.1(in-job) | **P** | | | | | | | | | | | |
| FDP_ACF.1(in-job) | S | | | | | | | | | | | |
| FPT_FDI_EXP.1 | | | | | | | | **P** | | | | |
| FDP_RIP.1 | **P** | | | | | | | | | | | |
| FCS_COP.1(h) | S | | | | S | | | | | | | **P** |
| FPT_PHP.1 | | | | | | | | | | | **P** | |
| FCS_COP.1(n) | S | S | S | S | S | S | | | | | | |
| FTP_ITC.1 | **P** | **P** | **P** | **P** | **P** | **P** | | | | | | |
| FCS_CKM.1(h) | S | | | | S | | | | | | | **P** |
| FCS_CKM.1(n) | S | S | S | S | S | S | | | | | | |
| FCS_CKM.2 | S | S | S | S | S | S | | | | | | |
| FPT_TST.1 | | | | | | | | | **P** | | | |
| FAU_GEN.1 | | | | | | | | | | **P** | | |
| FAU_GEN.2 | | | | | | | | | | **P** | | |

| SFRs | Objectives | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | O.DOC.NO_DIS | O.DOC.NO_ALT | O.FUNC.NO_ALT | O.PROT.NO_ALT | O.CONF.NO_DIS | O.CONF.NO_ALT | O.USER.AUTHORIZED | O.INTERFACE.MANAGED | O.SOFTWARE.VERIFIED | O.AUDIT.LOGGED | O.HDD.ACCESS.AUTHORISED | O.STORAGE.CRYPTED |
| FAU_SAR.1 | | | | | | | | | | **P** | | |
| FAU_SAR.2 | | | | | | | | | | **P** | | |
| FAU_STG.1 | | | | | | | | | | **P** | | |
| FAU_STG.4 | | | | | | | | | | **P** | | |
| FPT_STM.1 | | | | | | | | | | S | | |
| FIA_SOS.1 | | | | | | | S | | | | | |
| FMT_MTD.1(user-mgt) | | | | **P** | **P** | **P** | | | | | | |
| FMT_SMR.1 | S | S | S | S | S | S | S | | | | | |
| FMT_MTD.1(device-mgt) | | | | **P** | **P** | **P** | | | | | | |
| FMT_SMF.1 | S | S | S | S | S | S | | | | | | |

### 6.3.2 The sufficiency of security requirements

This section provides the rationale on how the security functional requirements are sufficient to satisfy the Security Objectives.

O.DOC.NO_DIS is the security objective that ensures user document data is protected from unauthorized disclosure. O.DOC.NO_DIS is addressed by the following:
Based on user identification information resulting from FIA_UID.1, roles managed by FMT_SMR.1 are assigned for access control.
The identified users are allowed to cancel only his/her own job according to FMT_MSA.1(delete-job)/FMT_MSA.3(delete-job), FDP_ACC.1(delete-job)/FDP_ACF.1(delete-job).
The identified users are allowed to access only his/her own document data in print job, according to FDP_ACC.1(in-job)/FDP_ACF.1(in-job), and Nobody is allowed to access any document data in other job types.
Furthermore, by FDP_RIP.1, complete deletion of residual information of user document data created as a result of job processing is ensured. By FCS_COP.1(h) and FCS_CKM.1(h), user data and TSF data in the HDD are protected from unauthorized disclosure. By FCS_COP.1(n), FTP_ITC.1, FCS_CKM.1(n), and FCS_CKM.2, user data and TSF data sent over the LAN are protected from unauthorized alteration and disclosure. By FMT_SMF.1, management functions related to these actions, are provided.

O.DOC.NO_ALT is the security objective that ensures protection of user document data from unauthorized alteration. O.DOC.NO_ALT is addressed by the following:
Based on user identification information resulting from FIA_UID.1, roles managed by FMT_SMR.1 are assigned for access control.
The identified users are allowed to operate only his/her own job according to FMT_MSA.1(delete-job)/FMT_MSA.3(delete-job), FDP_ACC.1(delete-job)/FDP_ACF.1(delete-job).
Furthermore, by FCS_COP.1(n), FTP_ITC.1, FCS_CKM.1(n), and FCS_CKM.2, user data and TSF data sent over the LAN are protected from unauthorized alteration and disclosure. By FMT_SMF.1, management functions related to these actions, are provided.

O.FUNC.NO_ALT is the security objective that ensures protection of user function data from unauthorized alteration. O.FUNC.NO_ALT is addressed by the following:
Based on user identification information resulting from FIA_UID.1, roles managed by FMT_SMR.1 are assigned for access control.
The identified users are allowed to operate only his/her own job according to FMT_MSA.1(delete-job)/FMT_MSA.3(delete-job), FDP_ACC.1(delete-job)/FDP_ACF.1(delete-job).
Furthermore, by FCS_COP.1(n), FTP_ITC.1, FCS_CKM.1(n), and FCS_CKM.2, user data and TSF data sent over the LAN are protected from unauthorized alteration and disclosure. By FMT_SMF.1, management functions related to these actions, are provided.

O.PROT.NO_ALT is the security objective that ensures protection of TSF protected data from unauthorized alteration. O.PROT.NO_ALT is addressed by the following:
Based on user identification information managed by FMT_MTD.1(user-mgt) and resulting from FIA_UID.1, roles managed by FMT_SMR.1 are assigned for the Device Management function as specified by FMT_SMR.1, FMT_MTD.1(device-mgt), and FMT_SMF.1.
Furthermore, by FCS_COP.1(n), FTP_ITC.1, FCS_CKM.1(n), and FCS_CKM.2, user data and TSF data sent over the LAN are protected from unauthorized alteration and disclosure.

O.CONF.NO_DIS is the security objective that ensures protection of TSF confidential data from unauthorized disclosure. O.CONF.NO_DIS is addressed by the following:
Based on user identification information managed by FMT_MTD.1(user-mgt) and resulting from FIA_UID.1, roles managed by FMT_SMR.1 are assigned for the Device Management function as specified by FMT_SMR.1, FMT_MTD.1(device-mgt), and FMT_SMF.1.
Furthermore, by FCS_COP.1(h) and FCS_CKM.1(h), user data and TSF data in the HDD are protected from unauthorized disclosure. By FCS_COP.1(n), FTP_ITC.1, FCS_CKM.1(n), and FCS_CKM.2, user data and TSF data sent over the LAN are protected from unauthorized alteration and disclosure.

O.CONF.NO_ALT is the security objective that ensures protection of TSF confidential data from unauthorized alteration. O.CONF.NO_ALT is addressed by the following:
Based on user identification information managed by FMT_MTD.1(user-mgt) and resulting from FIA_UID.1, roles managed by FMT_SMR.1 are assigned for the Device Management function as specified by FMT_SMR.1, FMT_MTD.1(device-mgt), and FMT_SMF.1.
Furthermore, by FCS_COP.1(n), FTP_ITC.1, FCS_CKM.1(n), and FCS_CKM.2, user data and TSF data sent over the LAN are protected from unauthorized alteration and disclosure.

O.USER.AUTHORIZED is the security objective that ensures user identification and authentication. O.USER.AUTHORIZED is addressed by the following:
Users authenticated by the identification and authentication mechanism specified by FIA_UAU.1, FIA_UID.1, FIA_UAU.7, and FIA_AFL.1, with user sessions managed by FIA_ATD.1, FIA_USB.1, and FTA_SSL.3(lui)/FTA_SSL.3(rui), are granted use of the function, as determined by access control specified by FDP_ACC.1(exec-job)/FDP_ACF.1(exec-job).
Furthermore, authorized user information are managed by FIA_SOS.1, FMT_MSA.1(exec-job), FMT_MSA.3(exec-job), FMT_SMR.1.

O.INTERFACE.MANAGED is the security objective that ensures control of operations of the I/O interfaces in accordance with security policy. O.INTERFACE.MANAGED is addressed by the following:
By FIA_UAU.1, FIA_UID.1, FTA_SSL.3(lui)/FTA_SSL.3(rui), the user interface is managed.
By FPT_FDI_EXP.1, restricted forwarding of data to the LAN is specified.

O.SOFTWARE.VERIFIED is addressed by providing the self-test procedures specified by FPT_TST.1.

O.AUDIT.LOGGED is addressed by providing the Audit Log function as specified by FAU_GEN.1, FAU_GEN.2, FAU_SAR.1, FAU_SAR.2, FAU_STG.1, and FAU_STG.4. FIA_UID.1 and FPT_STM.1 provide the means for user information and timestamps generated on audit logs.

O.HDD.ACCESS.AUTHORISED is addressed by the Device Identification and Authentication function as specified by FPT_PHP.1, prior to permitting access to the HDD.

O.STORAGE.CRYPTED is realized by the encryption/decryption function of FCS_COP.1(h) and the encryption key management function of FCS_CKM.1(h).

### 6.3.3 The dependencies of security requirements

This section provides the justification for any dependencies not met.

Table 31 - **The dependencies of security requirements**

| Functional Requirement | Dependencies required by CC | Dependencies satisfied by ST | Reason for not meeting dependencies |
|---|---|---|---|
| FIA_AFL.1 | FIA_UAU.1 | FIA_UAU.1 | N/A (dependencies are satisfied) |
| FIA_ATD.1 | No dependencies | No dependencies | N/A (no dependencies) |
| FIA_UAU.1 | FIA_UID.1 | FIA_UID.1 | N/A (dependencies are satisfied) |
| FIA_UAU.7 | FIA_UAU.1 | FIA_UAU.1 | N/A (dependencies are satisfied) |
| FIA_UID.1 | No dependencies | No dependencies | N/A (no dependencies) |
| FIA_USB.1 | FIA_ATD.1 | FIA_ATD.1 | N/A (dependencies are satisfied) |
| FTA_SSL.3(lui) | No dependencies | No dependencies | N/A (no dependencies) |
| FTA_SSL.3(rui) | No dependencies | No dependencies | N/A (no dependencies) |
| FMT_MSA.1(exec-job) | [FDP_ACC.1 or FDP_IFC.1]<br>FMT_SMR.1<br>FMT_SMF.1 | FDP_ACC.1(exec-job)<br>FMT_SMR.1<br>FMT_SMF.1 | N/A (dependencies are satisfied) |
| FMT_MSA.3(exec-job) | FMT_MSA.1<br>FMT_SMR.1 | FMT_MSA.1(exec-job)<br>FMT_SMR.1 | N/A (dependencies are satisfied) |
| FDP_ACC.1(exec-job) | FDP_ACF.1 | FDP_ACF.1(exec-job) | N/A (dependencies are satisfied) |
| FDP_ACF.1(exec-job) | FDP_ACC.1<br>FMT_MSA.3 | FDP_ACC.1(exec-job)<br>FMT_MSA.3(exec-job) | N/A (dependencies are satisfied) |
| FMT_MSA.1(delete-job) | [FDP_ACC.1 or FDP_IFC.1]<br>FMT_SMR.1<br>FMT_SMF.1 | FDP_ACC.1(delete-job)<br>FMT_SMR.1<br>FMT_SMF.1 | N/A (dependencies are satisfied) |
| FMT_MSA.3(delete-job) | FMT_MSA.1<br>FMT_SMR.1 | FMT_MSA.1(delete-job)<br>FMT_SMR.1 | N/A (dependencies are satisfied) |
| FDP_ACC.1(delete-job) | FDP_ACF.1 | FDP_ACF.1(delete-job) | N/A (dependencies are satisfied) |
| FDP_ACF.1(delete-job) | FDP_ACC.1<br>FMT_MSA.3 | FDP_ACC.1(delete-job)<br>FMT_MSA.3(delete-job) | N/A (dependencies are satisfied) |
| FDP_ACC.1(in-job) | FDP_ACF.1 | FDP_ACF.1(in-job) | N/A (dependencies are satisfied) |
| FDP_ACF.1(in-job) | FDP_ACC.1<br>FMT_MSA.3 | FDP_ACC.1(in-job)<br>FMT_MSA.3(delete-job) | N/A (dependencies are satisfied) |
| FPT_FDI_EXP.1 | FMT_SMF.1<br>FMT_SMR.1 | FMT_SMF.1<br>FMT_SMR.1 | N/A (dependencies are satisfied) |
| FDP_RIP.1 | No dependencies | No dependencies | N/A (no dependencies) |
| FCS_COP.1(h) | [FDP_ITC.1 or FDP_ITC.2 or FCS_CKM.1(h)]<br>FCS_CKM.4 | FCS_CKM.1(h) | FCS_CKM.4 is not claimed because:<br>Cryptographic keys are stored in RAM, and disappear when power is shut off. Also, extraction of cryptographic keys is prevented by the design of the system. As such, cryptographic keys are managed securely enough not to require any method for their destruction. |
| FPT_PHP.1 | No dependencies. | No dependencies. | N/A (no dependencies) |
| FTP_ITC.1 | No dependencies | No dependencies | N/A (no dependencies) |

| Functional Requirement | Dependencies required by CC | Dependencies satisfied by ST | Reason for not meeting dependencies |
|---|---|---|---|
| FCS_COP.1(n) | [FDP_ITC.1 or FDP_ITC.2 or FCS_CKM.1(n)] FCS_CKM.4 | FCS_CKM.1(n) | FCS_CKM.4 is not claimed because: Cryptographic keys are stored in RAM, and disappear when power is shut off. Also, extraction of cryptographic keys is prevented by the design of the system. As such, cryptographic keys are managed securely enough not to require any method for their destruction. |
| FCS_CKM.1(h) | FCS_COP.1 FCS_CKM.4 | FCS_COP.1(h) | FCS_CKM.4 is not claimed because: Cryptographic keys are stored in RAM, and disappear when power is shut off. Also, extraction of cryptographic keys is prevented by the design of the system. As such, cryptographic keys are managed securely enough not to require any method for their destruction. |
| FCS_CKM.1(n) | [FCS_CKM.2 or FCS_COP.1] FCS_CKM.4 | FCS_COP.1(n) | FCS_CKM.4 is not claimed because: Cryptographic keys are stored in RAM, and disappear when power is shut off. Also, extraction of cryptographic keys is prevented by the design of the system. As such, cryptographic keys are managed securely enough not to require any method for their destruction. |
| FCS_CKM.2 | [FDP_ITC.1 or FDP_ITC.2 or FCS_CKM.1(n)] FCS_CKM.4 | FCS_CKM.1(n) | FCS_CKM.4 is not claimed because: Cryptographic keys are stored in RAM, and disappear when power is shut off. Also, extraction of cryptographic keys is prevented by the design of the system. As such, cryptographic keys are managed securely enough not to require any method for their destruction. |
| FPT_TST.1 | No dependencies | No dependencies | N/A (no dependencies) |
| FAU_GEN.1 | FPT_STM.1 | FPT_STM.1 | N/A (dependencies are satisfied) |
| FAU_GEN.2 | FAU_GEN.1 FIA_UID.1 | FAU_GEN.1 FIA_UID.1 | N/A (dependencies are satisfied) |
| FPT_STM.1 | No dependencies | No dependencies | N/A (no dependencies) |
| FAU_SAR.1 | FAU_GEN.1 | FAU_GEN.1 | N/A (dependencies are satisfied) |
| FAU_SAR.2 | FAU_SAR.1 | FAU_SAR.1 | N/A (dependencies are satisfied) |
| FAU_STG.1 | FAU_GEN.1 | FAU_GEN.1 | N/A (dependencies are satisfied) |
| FAU_STG.4 | FAU_STG.1 | FAU_STG.1 | N/A (dependencies are satisfied) |
| FIA_SOS.1 | No dependencies | No dependencies | N/A (no dependencies) |
| FMT_MTD.1(user-mgt) | FMT_SMR.1 FMT_SMF.1 | FMT_SMR.1 FMT_SMF.1 | N/A (dependencies are satisfied) |
| FMT_SMR.1 | FIA_UID.1 | FIA_UID.1 | N/A (dependencies are satisfied) |
| FMT_MTD.1(device-mgt) | FMT_SMR.1 FMT_SMF.1 | FMT_SMR.1 FMT_SMF.1 | N/A (dependencies are satisfied) |
| FMT_SMF.1 | No dependencies | No dependencies | N/A (no dependencies) |

## 6.4 Security assurance requirements rationale

This Protection Profile has been developed for Hardcopy Devices to be used in commercial information processing environments that require a moderate level of document security, network security, and security assurance. The TOE will be exposed to only a low level of risk because it is assumed that the TOE will be located in a restricted or monitored environment that provides almost constant protection from unauthorized and unmanaged access to the TOE and its data interfaces. Agents cannot physically access any nonvolatile storage without disassembling the TOE except for removable nonvolatile storage devices, where protection of User and TSF Data are provided when such devices are removed from the TOE environment. Agents have limited or no means of infiltrating the

TOE with code to effect a change, and the TOE self-verifies its executable code to detect unintentional malfunctions. As such, the Evaluation Assurance Level 2 is appropriate.

EAL 2 is augmented with ALC_FLR.2, Flaw reporting procedures. ALC_FLR.2 ensures that instructions and procedures for the reporting and remediation of identified security flaws are in place, and their inclusion is expected by the consumers of this TOE.

# 7 TOE Summary specification

This section describes the TOE summary specifications.

## 7.1 User Authentication Function

- **Supported functional requirements: FIA_UAU.1, FIA_UID.1, FIA_UAU.7, FIA_ATD.1, FIA_USB.1, FIA_AFL.1, FTA_SSL.3(lui), FTA_SSL.3(rui)**

When the control panel or a remote UI is used to operate the MFP, before permitting such operations, the TOE requires user authentication in order to identify and authenticate valid users. However, the submission of print jobs is always permitted. [**FIA_UAU.1, FIA_UID.1**]

Two methods of user authentication are supported:

- External Authentication

  Authentication is based on user information registered in the authentication server. This may be an Active Directory server that uses Kerberos authentication, or LDAP server that uses LDAP authentication.

- Internal Authentication

  Authentication is based on user information registered in the device.

For user authentication, the TOE prompts input of the user name, password, and the login destination. User authentication succeeds only if the user name and password matches the one at the specified destination. The password text area at the time of password input is displayed as "*" in the operation panel and "●" in the remote UI. [**FIA_UAU.7**]

The TOE maintains user names and roles as attributes for the user. If the user's identity is successfully authenticated, the attribute is allocated by issuing an access control token (ACT) for each user.[**FIA_ATD.1, FIA_USB.1**]

The TOE provides a lockout function in order to minimize invalid login attempts.[**FIA_AFL.1**]

- This function locks out any user that fails to login successfully within the maximum number of failed authentication attempts. A value from 1 to 10 can be specified as the number of attempts before lockout (Initial value: 3).
- Any user that is locked out will not be able to login until the lockout time passes. A value from 1 to 60 minutes can be specified as the lockout time (Initial value: 3 minutes).

The TOE terminates an interactive session when there is no user activity at the control panel or remote UI lasting for a specified period of time.[**FTA_SSL.3(lui), FTA_SSL.3(rui)**]

- At the control panel, session timeout occurs after a specified period of user inactivity. A value from 10 seconds to 9 minutes can be specified (Initial value: 2 minutes).
- At a remote UI, session timeout occurs after 15 minutes of user inactivity.

## 7.2 Function Use Restriction Function

- **Supported functional requirements: FDP_ACC.1(exec-job), FDP_ACF.1(exec-job), FMT_MSA.3(exec-job)**

For each UI, the TOE provides Function Use Restriction, which controls access based on the contents of the ACT issued to authenticated users. For Function Use Restriction, the attribute of the Object is the functions itself, and is therefore fixed.

When the control panel is used, Function Use Restriction Function permits or denies use of functions depending on the settings in "Application Restrictions", which are based on the role contained in the ACT.

When a remote UI is used, Function Use Restriction Function permits or denies use of functions based on attribute values associated with the role in the ACT.

Only U.ADMINISTRATORs are allowed use of all functions.

Table 32- **Function Use Restriction Policy**

| UI | Object | Condition | Operation |
|---|---|---|---|
| Control panel | Pointer to [Secured Print] | The role associated with U.USER must have permission to the [Print] function. | Executed by activating the Object. |
| | Pointer to [Copy] | The role associated with U.USER must have permission to the [Copy] function | Executed by activating the Object. |
| | Pointer to [Scan and Send] | The role associated with U.USER must have permission to the [Scan and Send] function | Executed by activating the Object. |
| | Pointer to [Access Stored Files] | The role associated with U.USER must have permission to the [Access Stored Files] function | Executed by activating the Object. |
| | Pointer to [Scan and Store] | The role associated with U.USER must have permission to the [Scan and Store] function | Executed by activating the Object. |
| Remote UI | Pointer to [Access Received/Stored Files] | The role associated with U.USER is anything other than Administrator. | Cannot be executed. |

## 7.3 Job Output Restriction Functions

For Print, Copy, and Scan jobs the TOE provides the following security functions. Job Output Restriction restricts access to submitted jobs, to the user that executed the job.

### 7.3.1 Job Cancel

- **Supported functional requirements: FDP_ACC.1(delete-job), FDP_ACF.1(delete-job), FMT_MSA.3(delete-job)**

TOE can delete Print, Copy, and Scan jobs according to following. The user name of these jobs is initialized by username of the user that executed the job.

- U.NORMAL is authorized to delete his/her own job.
- U.ADMINISTRATOR is authorized to delete all jobs.

With the cancellation of the job, the attribute value to be attached to the job is deleted.

### 7.3.2 In The JOB Access Control

- **Supported functional requirements:FDP_ACC.1(in-job), FDP_ACC.1(delete-job), FDP_ACF.1(in-job), FDP_ACF.1(delete-job), FMT_MSA.3(delete-job)**

TOE provides the following access control functions for documents in each jobs. User name of these jobs is initialized by username of the user that executed the job.

#### Copy, Scan Jobs

- Nobody is authorized to read documents in any copy jobs.
  However, the job owner and U.ADMINISTRATOR may perform interrupt/priority printing.
- Nobody is authorized to read documents in any scan jobs, except in case of 7.3.3 Temporarily Stored Send Jobs.

#### Temporarily Stored Print Jobs

If a print job is submitted, the job is temporarily stored in the machine without being output. Additionally, it uses the user name associated with the print job to determine its owner, in order to realize access restriction as described below.

For temporarily stored jobs, the following operations are available to U.USERs, only if the user's name matches the user name associated with the desired job.

- Print
- Change priority for printing
- Delete

For jobs to which print is instructed, U.ADMINISTRATOR is allowed to execute the following:

- Delete

#### Document Data Stored in Mail Box

For Copy or Scan jobs, the TOE provides Mail Boxes where these jobs may be stored as document data, to be printed or sent at a later time. Since these are stored in Mail Boxes, access control to Mail Boxes, is equivalent to access control to the stored document data.

A seven digit PIN can be assigned to a Mail Box, to help prevent unauthorized access by a user.

No PIN is required when storing document data in a Mail Box. The TOE realizes access restriction, by determining the U.USER that enters the correct PIN, to be the owner of the stored document data.

For document data stored in a Mail Box, the following operations are made available to U.NORMAL only by entering the correct PIN.

- Print
- Change print settings
- Preview
- Send
- Delete

If the control panel is used, U.ADMINISTRATOR is allowed access to the following operations without entering any PIN.

- Print
- Change print settings
- Preview
- Send
- Delete

If a remote UI is used, U.ADMINISTRATOR is allowed access to the following operations only by entering the correct PIN.

- Print
- Change print settings
- Preview
- Send
- Delete

### 7.3.3 Temporarily Stored Send Jobs

- **Supported functional requirements: FDP_ACC.1(in-job), FDP_ACF.1(in-job), FDP_ACC.1(delete-job), FDP_ACF.1(delete-job)**

There are Delayed Send function and Preview function as Temporarily Stored Send Jobs function to store jobs temporarily.

#### Delayed Send

When the TOE receives a Send job with transmission time specified, it is first stored temporarily, until sending at the specified time.

For temporarily stored Send jobs, the following operations are available to U.NORMALs, only if the user's name matches the user name associated with the desired job.

- Change destination

For all temporarily stored Send jobs, U.ADMINISTRATOR is allowed to execute the following:

- Change destination

#### Preview

When the TOE receives a Send job with Preview setting, it is first stored temporarily and previewed, later it is send.

For temporarily stored Send jobs, the following operations are available to U.USERs, only if the user's name matches the user name associated with the desired job.

- Preview
- Delete Pages
- Delete Jobs

## 7.4 Forward Received Jobs Function

- **Supported functional requirements: FPT_FDI_EXP.1**

The design of the TOE prevents received data from being forwarded directly to a server or computer. This function enables the user to restrict forwarding of received jobs to the LAN.

## 7.5 HDD Data Erase Function

- **Supported functional requirements: FDP_RIP.1**

By overwriting with random data, the TOE permanently erases document data (including temporary image files) in the HDD, to ensure that no trace of the document data remains on the HDD.

One type of complete erasure can be selected from the following methods, and the selected data is encrypted and written to the HDD with built-in TOE.

- Overwrite with random data three times
- Overwrite once with random data
- Overwrite once with null data

The timing in which data are erased is specified below.

- Image files temporarily stored in the HDD as a result of job processing is completely erased during or after processing of the job.
- Document data are completely erased from the HDD, immediately after being deleted from Mail Box/Memory RX Inbox.
- Residual information that remained unerased due to a sudden power shutdown, are completely erased from the HDD upon startup of the TOE.

## 7.6 HDD Data Encryption Function

The security functions provided by the “HDD data encryption & mirroring board” of the TOE are described below.

The encryption/decryption function together with the Device Identification and Authentication function provide confidentiality and integrity protection for user data and TSF data stored in the HDD.

### 7.6.1 Encryption/Decryption Function

- **Supported functional requirements: FCS_COP.1(h)**

To protect the confidentiality of user data and TSF data stored in the HDD, the TOE performs the following

cryptographic operations to encrypt all data stored in the HDD.

- Encryption of data written to the HDD.
- Decryption of data read out from the HDD.

The cryptographic algorithm and cryptographic key size are specified below:

- AES algorithm (FIPS PUB 197)
- 256 bit key length

### 7.6.2 Cryptographic Key Management Function

- **Supported functional requirements: FCS_CKM.1(h)**

The TOE uses the following specifications for generating the cryptographic key that is used by the HDD data encryption function.

- Uses a random number generation algorithm according to NIST SP800-90A Hash_DRBG(SHA-256) for cryptographic key generation
- Generates a cryptographic key with 256 bit key length

The cryptographic key is managed as follows.

- Upon startup, the TOE reads the seed information stored in FlashROM and generates a cryptographic key.
- After generating the cryptographic key, the TOE stores the key in RAM.

No method is available for acquiring the seed from the encryption chip. Note also, that because the cryptographic key is stored in volatile RAM memory, it disappears when power is shut off.

### 7.6.3 Device Identification and Authentication Function

- **Supported functional requirements: FPT_PHP.1**

The HDD Data Encryption & Mirroring Board identifies the MFP at each startup, and permits access to the HDD only if it is identified as the correct MFP. This function helps prevent unauthorized access to the contents of the HDD, even if the HDD and HDD Data Encryption & Mirroring Board are physically removed and connected to a different MFP.

[Registration of the Authentication ID]

The HDD Data Encryption & Mirroring Board, when it is initially mounted, acquires the device authentication ID from the MFP device, and stores it in FlashROM.

[Procedure for identification and authentication]

Upon startup, the HDD Data Encryption & Mirroring board generates a pseudo-random number which it passes to the MFP device as a random number to a challenge. The MFP device makes a computation using its device authentication ID and the received random number, and passes the resulting hash value (SHA-1) to the encryption board. The HDD Data Encryption & Mirroring Board performs the same computation in order to verify the response.

Access to the HDD is denied, unless the HDD Data Encryption & Mirroring Board confirms successfully that it is mounted on the correct MFP device.

## 7.7 LAN Data Protection Function

LAN Data Protection Function encrypts/decrypts all IP packets that are used in communication with an IT device.

### 7.7.1 IP Packet Encryption Function

- **Supported functional requirements: FCS_COP.1(n), FTP_ITC.1**

To ensure confidentiality and integrity of user data and TSF data communicated to and from an IT device, the TOE uses IPSec to encrypt/decrypt all IP packets.

- Encryption of IP packets sent to the LAN
- Decryption of IP packets received from the LAN

The following cryptographic algorithm and cryptographic key sizes are used.

- See Table 24

### 7.7.2 Cryptographic Key Management Function

- **Supported functional requirements: FCS_CKM.1(n), FCS_CKM.2**

The TOE uses the following specifications for generating the cryptographic key that is used by the IP packet encryption function.

- Cryptographic key generation algorithm according to SP800-90A using HMAC_DRBG(SHA-256)
- Generates a cryptographic key with 256 bit key length

The following method is used by the TOE, to transmit the cryptographic key used by the IP Packet Encryption Function, to the other party

- ECDH (Elliptic Curve Diffie Hellman) and DH (Diffie Hellman) according to SP800-56A

## 7.8 Self-Test Function

- **Supported functional requirements: FPT_TST.1**

At startup, the TOE performs the following self-test.

- Checks whether cryptographic algorithms are running properly (AES)
- Checks the integrity of the Audit Log
- Checks the integrity of the executable code of the cryptographic algorithm

## 7.9 Audit Log Function

- **Supported functional requirements: FAU_GEN.1, FAU_GEN.2, FPT_STM.1, FAU_SAR.1, FAU_SAR.2, FAU_STG.1, FAU_STG.4, FMT_MTD.1(device-mgt), FMT_SMF.1**

The TOE generates logs for the following events.

- Startup
- Shutdown
- Job completion
- User authentication success/failure
- Logout
- Use of device management functions
- Use of user management functions
- Changes to the date/time setting
- IPSec connection failures

The items that are recorded on each log, are listed below. The date/time is provided by the TOE. The TOE's date/time information is set by the Management Function, or is set by time synchronization when the accurate time is obtained from the Time Server.

- Date/Time, User Name, Event Type, Outcome (Success/Failed)

Other log events may have additional items as described below.

- Job type (job completion)
- Name of the user that failed authentication (authentication failure)

Also, export of audit logs can be performed from a remote UI, in order to read out log records, although use of this function is restricted to U.ADMINISTRATOR only.Users other than U.ADMINISTRATOR are not allowed to export audit logs when logged in to the TOE from a remote UI.

When accessing the TOE from a remote UI, another capability restricted to U.ADMINISTRATORs only is the deletion of log records from the [Deleting Collected Logs] menu. Users other than U.ADMINISTRATOR are not allowed access to this capability when logged in to the TOE from a remote UI, thus preventing unauthorized alterations from occurring.

A maximum of 40,000 audit records can be maintained. Once this becomes full, the oldest audit record is overwritten with the newest.

## 7.10 Management Functions

### 7.10.1 User Management Function

- **Supported functional requirements: FIA_SOS.1 , FMT_MTD.1(user-mgt) , FMT_MSA.1(exec-job), FMT_MSA.1(delete-job), FMT_SMR.1, FMT_SMF.1**

The TOE restricts the use of the following user management functions to the U. ADMINISTRATOR with the Administrator role only. However, U.NORMAL can only change their own passwords and the PIN for the Mail Box they use.

- User name : query, create, delete
- Role : modify,delete, create, query
- Password : modify,delete, create
- Box PIN : modify, create

- Access restriction information : modify,delete, create

[Setting/Changing/Deleting User, Role, and Access Restriction Information]

New users are registered by setting the user name and password, and assigning a role to the user. Registered user information can be modified by changing the password, or the assigned role, or the user's registration can be deleted altogether. User specified passwords are checked to see that they are consistent with the password policy.

Four roles exist, which are called "Base Roles": Administrator, Power User, General User, and Limited User. To create a new "Custom Role" different from these, any one of four base roles is used as a template for the new role, which can then be registered.

The Administrator role is a role whose base role is "Administrator", and has administrative privileges.

The access restriction information that determines whether use of certain functions is permitted or denied, is specified by the "Application Restrictions" setting, which depends on what role is assigned. Although the initial value for "Application Restrictions" is fixed for base roles, the initial value of "Application Restrictions" can be changed for custom roles.

[Box PIN]

Grant the ability to register or change a PIN to access the box only to U.ADMINISTRATOR assigned to the Administrator role. U.NORMAL are allowed to change the PIN of the box they can use.

[Types of Role]

There are two types of role: U.ADMINISTRATOR and U.NORMAL.

- U.ADMINISTRATOR

  User assigned the Administrator role and has administrative privileges.

- U.NORMAL

  General user assigned a role other than Administrator role.

### 7.10.2 Device Management Function

- **Supported functional requirements: FMT_MTD.1(device-mgt), FMT_SMF.1**

To provide for the effective enforcement of security functions, the TOE allows only U.ADMINISTRATORs to set the device management settings in Table 27.

The following settings are also provided.

[Password Policy Settings]

To encourage the use of strong passwords, the following password policy may be set.

- Use a password 4 to 32 characters in length
- Prohibit the use of 3 or more consecutive characters
- Use at least one uppercase characters (A to Z)
- Use at least one lowercase characters (a to z)
- Use at least one number (0-9)
- Use at least one non-alphabet characters (^-@[]:;,./¥!"#$%&'()=~|{`+*}_?><)

[Lockout Policy Settings]

The number of attempts before lockout and the lockout time can be set.

- Number of attempts before lockout

  Select a value from 1 to 10 (Initial value: 3)

- Lockout time

  Select a value from 1 to 60 minutes (Initial value: 3 minutes)

END