EXCEED YOUR VISION

EPSON
LX-10020M/WF-M21000 with FAX
Security Target

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

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1. ST Introduction

This section describes the ST reference, TOE reference, TOE overview, and TOE description.

1.1. ST Reference

ST title: EPSON LX-10020M/WF-M21000 with FAX Security Target
ST version: Rev.05
Created: 2021/07/30
Created by: SEIKO EPSON CORPORATION

1.2. TOE Reference

The TOE identification information is shown below.
TOE name: EPSON LX-10020M/WF-M21000 with FAX
TOE version: 1.00
Manufacturer: SEIKO EPSON CORPORATION

The TOE is composed of the MFP (Japan: LX-10020M; overseas: WF-M21000), the fax (Japan: Super G3/G3 Multi Fax Board/PR3FB0; overseas: Super G3/G3 Multi Fax Board/PR3FB1), and the firmware (GR12L4). The TOE can be verified by the model number of the MFP, the identification information of the fax, and the identification information of the firmware.

1.3. TOE Overview

This section defines TOE type, TOE usage and major security functions of the TOE.

1.3.1. TOE Type

The TOE defined in this ST is a digital Multi Function Peripheral (MFP) that is used in a LAN environment and has print, scan, copy, fax, and document storage functions.

1.3.2. TOE Usage

Figure 1-1 shows the usage environment for this TOE.

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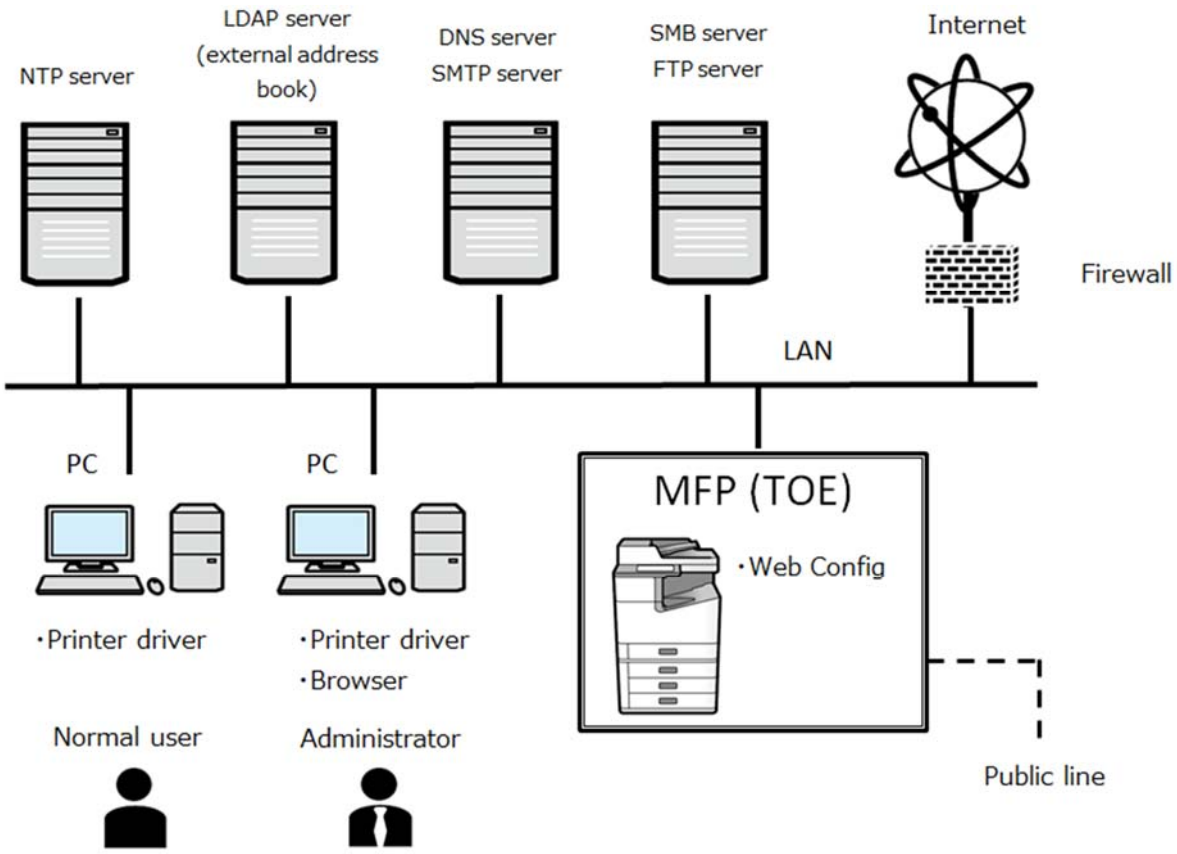

Figure 1-1 TOE Usage Environment

The TOE is connected to a LAN and a public line. The user can operate the TOE with the operation panel that the TOE is equipped with or via the LAN. The elements of Figure 1-1 are explained below.

(1) MFP

An MFP (Multi Function Peripheral) is a peripheral device for computers that has multiple different functions (printer, scanner, copying, fax, etc.).

(2) LAN

A LAN (Local Area Network) is a network that connects computers, communication devices, printers, and other such equipment in the same building using cables, wireless, and other methods to transfer data.

(3) Public line

A public line is a general telephone subscriber line, and is used to send and receive faxes.

(4) Firewall

A firewall is a piece of software, device, system, or other such item that is installed at the point where a computer or network comes into contact with an external network and relays and monitors incoming and outgoing communication to protect the internal network from attacks from external locations.

(5) PC

A PC (Personal Computer) is a compact, low-cost general-purpose computer product for individuals.

(6) NTP server

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An NTP (Network Time Protocol) server is a piece of server software that delivers data with the current time.

(7) LDAP server (external address book)

An LDAP server is a piece of server software that uses the LDAP (Light Directory Access Protocol) to access the directory services used as standard on TCP/IP networks such as the Internet. It also refers to an actual physical server on which such LDAP server software is running. The LDAP server manages an address book which is used to specify recipients of fax data.

(8) DNS server/SMTP server

A DNS server is a piece of server software that uses a DNS (Domain Name System) to convert the name of servers on an internal network into an IP address. It also refers to an actual physical server on which such DNS server software is running. An SMTP server is a piece of server software that uses the SMTP (Simple Mail Transfer Protocol) to send email that is used as standard on TCP/IP networks such as the Internet. It also refers to an actual physical server on which such SMTP server software is running. It is used to send mail containing scan data. DNS servers and SMTP servers can be installed independently of each other.

(9) SMB server/FTP server

An SMB server is a piece of server software that uses a SMB (Server Message Block) to perform actions such as sharing files or printers between multiple Windows computers on a network (LAN). It also refers to an actual physical server on which such SMB server software is running.

An FTP server is a piece of server software that uses the FTP (File Transfer Protocol) to send and receive files. It also refers to an actual physical server on which such FTP server software is running. Both servers are used for the transfer of scan data and fax receiving data.

These servers are used for the transfer of scan data and receiving of fax data.

(10) Printer driver

A printer driver is a piece of software that is required to connect and operate a printer from a computer. It is a type of device driver that adds hardware control functions to operating system, and a separate one is normally required for each type of printer and each type of operating system.

(11) Browser

A browser is a piece of software for viewing compiled data and information.

(12) Web Config

This is a function embedded in MFPs manufactured by Seiko Epson. This function makes it possible to configure a range of settings (print settings, network settings, user restriction settings, administrator password, etc.) for a printer or MFP by accessing it by its IP address from a browser.

1.3.3. Major Security Functions of TOE

The major security functions of the TOE are as below.

(1) User Identification and Authentication Function

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A function to identify and authenticate users of the TOE

(2) Document Access Control Function

A function to restrict operations on user data

(3) Access Control Function for TOE Function

A function to control TOE functions

(4) Security Management Function

A function to manage security functions

(5) Residual Data Overwrite Function

A function to completely erase deleted or temporarily stored documents from an HDD or Flash ROM and make them unrecoverable

(6) Self-Test Function

A function that verifies part of TSF and TSF implementation code are normal when the MFP starts up

(7) Audit Log Function

A function that records TOE usage and security-related events as an audit log for reference

(8) Network Protection Function

A function to prevent information leakage and data tampering from the network due to eavesdropping when using the LAN

1.4. TOE Description

This section describes user definitions, the physical boundary of the TOE, guidance, the logical boundary of the TOE, and the hardware/software/firmware other than TOE but that is required for the TOE.

1.4.1. Definition of Users

Table 1-1 describes the users for this TOE

Table 1-1 User Definitions

Name		Definition
U.USER User		Any authorized User.
	U.NORMAL Normal user	A User who is authorized to perform User Document Data processing functions of the TOE.
	U.ADMINISTRATOR 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.

1.4.2. Physical Boundary of TOE

Figure 1-2 shows the physical boundary of this TOE.

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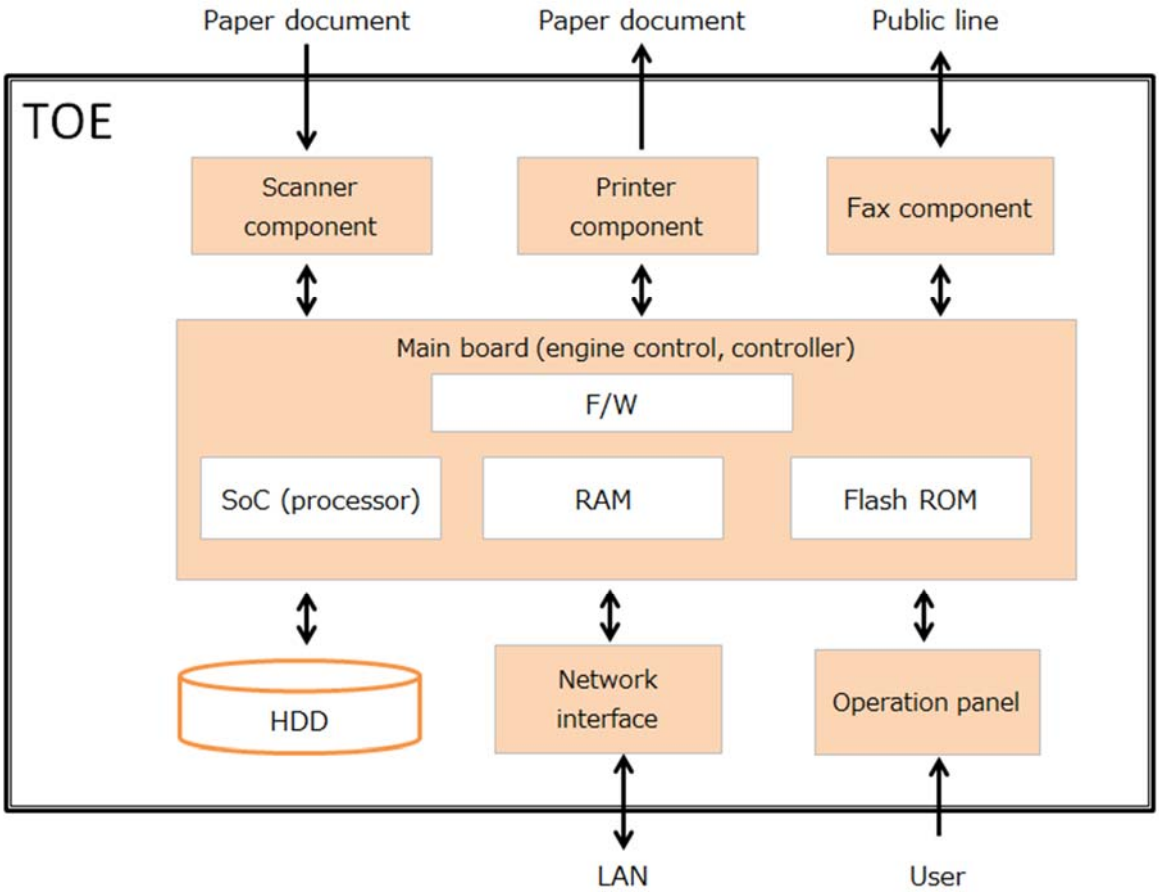

Figure 1-2 Physical Boundary of this TOE

The TOE is an MFP that is composed of a main board, a printer component, a scanner component, a fax component, a network interface, and operation panel and an HDD. The elements of Figure 1-2 are explained below.

(1) Main Board

The main board is a component on which are installed at a very high density things such as electronic components, integrated circuits (IC), and metal wiring to connect these.

(2) F/W

F/W (Firmware) is a type of software embedded in a computer or other device and has functions that perform basic control of things such as internal circuits and devices.

(3) SoC (processor)

An SoC (processor) is a device that performs control of various devices and calculation and processing of data. It executes a program that is stored in memory, receives data from input devices and storage devices, and after performing computations and processing, outputs it to an output device or storage device.

(4) RAM

RAM (Random Access Memory) is a memory device from which data can be erased and rewritten. It can read or write data anywhere in the device in the same time (i.e. random access), but data in this memory

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disappears when the power is turned off.

(5) Flash ROM

Flash ROM (Read Only Memory) is a memory device from which data can be erased and rewritten. Data in this memory does not disappear when the power is turned off.

(6) Printer Component

The printer component is a component that controls print functions.

(7) Scanner Component

The scanner component is a component that controls scan functions.

(8) Fax Component

The fax component is a component that controls fax functions. The fax boards described in Table 1-2 provide these functions.

(9) Network Interface

The network interface is a device that is required to connect the MFP to a LAN.

(10) Operation Panel

The operation panel is a user interface device to operate the MFP.

(11) HDD

An HDD (Hard Disk Drive) is a device that stores data.

Table 1-2 shows the delivery methods for the components of the TOE.

Table 1-2 Delivery methods for components of the TOE

Component of TOE	Format	Delivery method	Identification information
MFP	MFP device	Delivered by courier	• Japan: LX-10020M • Overseas: WF-M21000
Fax	Fax board	Delivered by courier	• Japan: Super G3/G3 Multi Fax Board/ PR3FB0 • Overseas: Super G3/G3 Multi Fax Board/ PR3FB1
Guidance	Format shown in Table 1-3	Delivery method shown in Table 1-3	Name and version shown in Table 1-3
Firmware	Digital file	Delivered by service personnel	Version GR12L4

Table 1-3 shows the guidance that comprises this TOE.

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Table 1-3 List of Guidance Comprising the TOE

Name	Ver.	Format	Delivery method	Target market
User's Guide	NPD6659-02 JA	PDF format files	Delivery over web	Japan
Supplemental Security Guide	NPD6692-01 JA	PDF format files	Delivery over web	Japan
Before Use	4140894-00	Paper media	Packaged with MFP	Japan/overseas
User's Guide	NPD6658-02 EN	PDF format files	Delivery over web	Overseas
Supplemental Security Guide	NPD6692-01 EN	PDF format files	Delivery over web	Overseas

1.4.3.Logical Boundary of TOE

Figure 1-3 shows the logical boundary of this TOE.

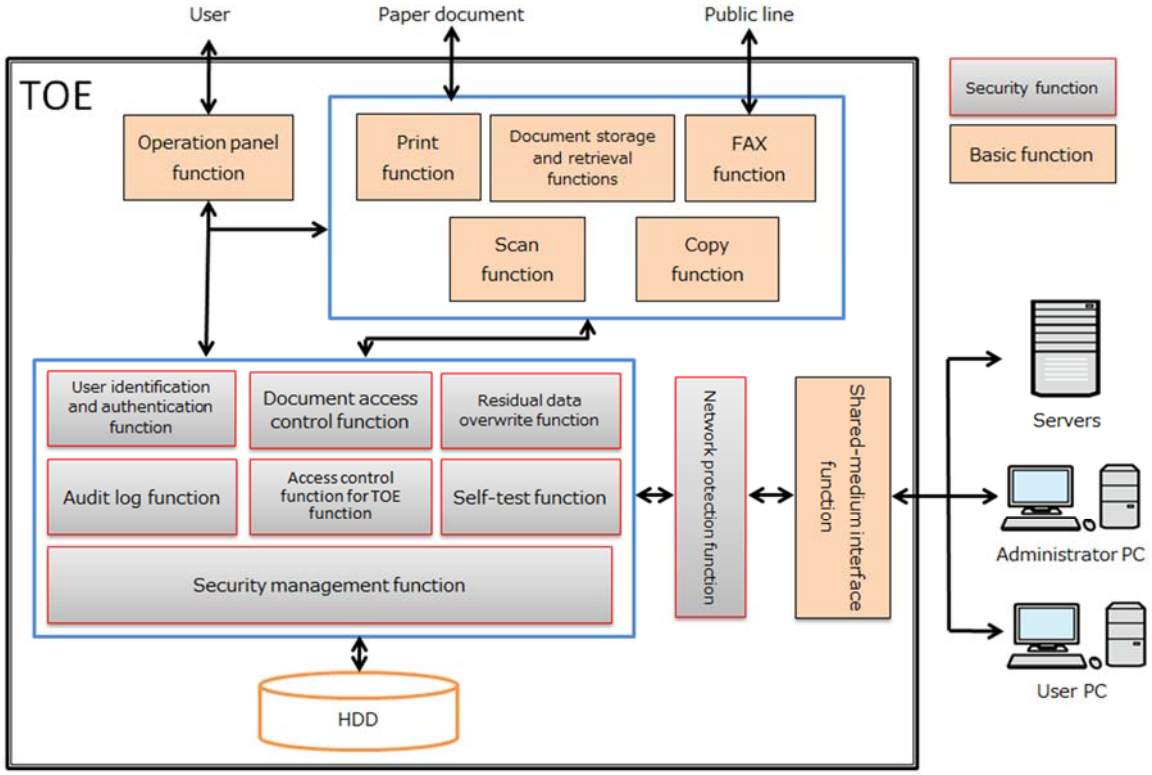

Figure 1-3 Logical Boundary of the TOE

The elements in Figure 1-3 are explained below.

◆ Basic functions provided by the TOE

(1) Print Function

A function to print digital documents received from a client via a LAN

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(2) Scan Function

A function to read a paper document and generate a digital document from it based on operations by a user on the operation panel

(3) Copy Function

A function to read a paper document and print a copy image of it based on operations by a user on the operation panel

(4) Fax Function

A function to send digital documents to an external fax (fax sending function), and a function to receive digital documents from an external fax (fax receiving function)

- Fax Sending Function

  A function to send a digital document over a public line to an external fax device

- Fax Receiving Function

  A function to receive a digital document over a public line from an external fax device

(5) Document Storage and Retrieval Functions

A function, called a box function, to save digital documents within the TOE and retrieve the saved digital documents

– A function to save digital documents in personal boxes

  A function to save digital documents read from the scanner or digital documents specified on a PC to be saved to a personal box

– A function to retrieve and use digital documents that have been saved to a personal box

  A function used by which digital documents saved to a personal box can be retrieved, printed, previewed, deleted, or sent to other systems

(6) Shared-medium Interface Functions

A function for TOE users to remotely control the TOE from a client PC

(7) Operation Panel Function

A function to control the operation panel

◆ Security functions provided by the TOE

(1) User Identification and Authentication Function

A function to identify and authenticate users who input their user name and logon password on an operation panel or via a network. This function includes functions for administrators to set the minimum number and required character types for logon passwords and functions to protect authentication feedback by displaying dummy characters when logon passwords are input. Furthermore, it includes functions to lock out targeted accounts a specified time period after authentication fails, and functions to automatically log off if no operations occur for a specified time period after logon.

(2) Document Access Control Function

A control function that allows users to operate user data and job data in the TOE according to the rights assigned to each user or to the rights assigned to the role of a user that has been authenticated by the

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User Identification and Authentication Function.

(3) Access Control Function for TOE Function

A control function that allows only permitted users to use the basic functions of the TOE based on the access control rules for users that have been authenticated by the User Identification and Authentication Function. The basic functions of the TOE are as follows.

- Print function
- Scan function
- Copy function
- Fax receiving and sending functions
- Document storage and retrieval functions

(4) Security Management Function

The Security Management Function is a function to manage the following items based on the rights assigned to roles through the operation panel or network.

- Security Attributes
- TSF data
- Management Functionality
- User roles

(5) Residual Data Overwrite Function

A function to make residual information impossible to reuse by overwriting it with a specified value after the data has been deleted by users or after the data has been saved to an HDD or flash ROM, and is no longer needed, while using the basic functions, such as print, scan, copy, and fax, of the TOE.

(6) Self-Test Function

A function to detect illegal modifications to the TOE firmware and to verify that parts of the TSF data and TSF implementation codes are complete and that parts of the TSF operate normally when the TOE starts up.

(7) Audit Log Function

A function that records a log of security-related events and a history of who, when, and how the TOE is operated. The log, which is a readable file format that only administrators can audit, can be downloaded and deleted, but the audit log itself is stored on the TOE and cannot be edited, even by administrators.

(8) Network Protection Function

A function that uses IPsec encrypted communications to prevent information leakage and data tampering due to eavesdropping on the network while the TOE is communicating with various servers and client PCs via wired LAN. Functions are also provided so the TOE does not directly transfer information between telephone lines and wired LAN without additional processing by TSF.

1.4.4. Hardware/software/firmware other than the TOE but that is required for the TOE

To use the TOE, the following software and the hardware on which they run are required.

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Table 1-4 Non-TOE Software Required for the TOE

Software	Version used for evaluation
NTP server	Microsoft Windows Server 2016 Standard
LDAP server	Microsoft Windows Server 2016 Standard
DNS server	Microsoft Windows Server 2016 Standard
SMTP server	hMailServer 5.6.7-B2425
SMB server	Microsoft Windows Server 2016 Standard
FTP server	Microsoft Windows Server 2016 Standard
Printer driver	For Microsoft Windows Japanese version: Epson Printing System (J) Version 3.01.00 English version: Epson Printing System (A) Version 3.01.00
Browser	Microsoft Edge

*The letter in the brackets for the English version of the printer driver indicates the time zone of the PC on which it is installed.

If the time zone of the PC used is not North America, a “W” is displayed in the brackets, but this is the same driver.

1.5. Terminology/Abbreviations

Table 1-5 defines the meaning of the specific terminology and abbreviations in this ST.

Table 1-5 Terminology/Abbreviations

Glossary	Definition
User ID of normal users	Attributes assigned to U.NORMAL, D.DOC, and D.FUNC A unique identifier is assigned to U.NORMAL
User role	Attribute assigned to U.USER There are normal users and administrator Normal users are assigned to U.NORMAL, and administrator is assigned to U.ADMINISTRATOR
Available Function List	Attribute assigned to U.NORMAL For U.NORMAL, a list of functions for which usage is permitted is assigned The functions are print (PRT), scan (SCAN), copy (CPY), fax receiving (FAXIN), fax sending (FAXOUT), and document storage and retrieval (DSR)
MFP function	A collective name for print, scan, copy, fax, and document storage and retrieval functions provided by the TOE
Function type	Attributes assigned to MFP functions Print attributes, scan attributes, copy attributes, fax attributes, and document storage and retrieval attributes
Document data attributes	Attributes assigned to D.DOC, and D.FUNC There are print, scan, copy, fax receiving, fax sending, and document storage and

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	retrieval
Job	A processing unit from the start to the end of processing by the MFP function on a D.DOC
Password Print Job	A print job to which User IDs of normal users and passwords of normal users have been added

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2. Conformance Claims

This section describes Conformance Claim.

2.1. CC Conformance Claim

The CC conformance claim for this ST is detailed below.

Common Criteria version:	Version 3.1 Release 5
Common Criteria conformance:	Part 2 extended and Part 3 conformant

2.2. PP Conformance Claim

The PP conformance claim for this ST is detailed below.

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

Notes: This PP conforms to "IEEE Standard Protection Profile for Hardcopy Devices in IEEE Std 2600-2008, Operational Environment B", published in Common Criteria Portal, and also satisfies "CCEVS Policy Letter #20".

2.3. Package Conformance Claim

The package conformance claim for this ST is detailed below.

This ST conforms to Common Criteria Evaluation Assurance Level (EAL) 2 augmented by ALC_FLR.2.SFR

Packages conform to PP are as follows.

- 2600.2-PRT, SFR Package for Hardcopy Device Print Functions, Operational Environment B (Package Version 1.0, dated March 2009)
- 2600.2-SCN, SFR Package for Hardcopy Device Scan Functions, Operational Environment B (Package Version 1.0, dated March 2009)
- 2600.2-CPY, SFR Package for Hardcopy Device Copy Functions, Operational Environment B (Package Version 1.0, dated March 2009)
- 2600.2-FAX, SFR Package for Hardcopy Device FAX Functions, Operational Environment B (Package Version 1.0, dated March 2009)
- 2600.2-DSR, SFR Package for Hardcopy Device Document Storage and Retrieval (DSR) Functions, Operational Environment B (Package Version 1.0, dated March 2009)
- 2600.2-SMI, SFR Package for Hardcopy Device Shared-medium Interface Functions, Operational Environment B (Package Version 1.0, dated March 2009)

2.4. 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 2-1.

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Table 2-1 SFR Package Functions

Name	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.FAX	Faxing: a function in which physical document input is converted to a telephone-based document facsimile (fax) transmission, and a function in which a telephone-based document facsimile (fax) reception is converted 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

2.5. 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 2-2.

Table 2-2 SFR Package Attributes

Name	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.
+FAXIN	Indicates data that are associated with an inbound (received) fax job.
+FAXOUT	Indicates data that are associated with an outbound (sent) fax 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.

2.6. PP Conformance Rationale

This section sets forth the consistency claim with TOE type in PP, the consistency claim with PP security problems and security objectives, and the consistency claim with PP security requirements.

2.6.1. Consistency Claim with TOE Type in PP

This TOE is an MFP that has print, scan, copy, fax, document storage and retrieval, and shared-medium interface functions, so its type is consistent with the hardcopy device (HCD) noted in "2600.2, Protection Profile

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for Hardcopy Devices, Operational Environment B." The TOE does not have a removable HDD or any other non-volatile storage system, so of the seven SFR packages defined in "2600.2, Protection Profile for Hardcopy Devices, Operational Environment B", it conforms to all but "2600.2-NVS, SFR Package for Hardcopy Device Nonvolatile Storage Functions, Operational Environment B."

2.6.2. Consistency Claim with Security Problems and Security Objectives in PP

The security problems in this ST are exactly the same as in the security problems demanded to be solved in the PP, and are consistent. In terms of security objectives, OE.AUDIT_STORAGE.PROTECTED and OE.AUDIT_ACCESS.AUTHORIZED are deleted from the security objectives of the IT environment, and O.AUDIT_STORAGE.PROTECTED and O.AUDIT_ACCESS.AUTHORIZED are added as the security objectives for the TOE. The internal functions that implement O.AUDIT_STORAGE.PROTECTED and O.AUDIT_ACCESS.AUTHORIZED are equivalent to the demands in OE.AUDIT_STORAGE.PROTECTED and OE.AUDIT_ACCESS.AUTHORIZED.

2.6.3. Consistency Claim with Security Requirements in PP

Table 2-3 shows the SFR demanded in the PP and the SFR stipulated in this ST.

Table 2-3 SFR Relationship

SFR demanded in PP	SFR stipulated in this ST
FAU_GEN.1	FAU_GEN.1
FAU_GEN.2	FAU_GEN.2
	FAU_SAR.1
	FAU_SAR.2
	FAU_STG.1
	FAU_STG.4
FDP_ACC.1(a)	FDP_ACC.1(a)
FDP_ACC.1(b)	FDP_ACC.1(b)
FDP_ACF.1(a)	FDP_ACF.1(a)
FDP_ACF.1(b)	FDP_ACF.1(b)
FDP_RIP.1	FDP_RIP.1
	FIA_AFL.1
FIA_ATD.1	FIA_ATD.1
	FIA_SOS.1
FIA_UAU.1	FIA_UAU.1
	FIA_UAU.7
FIA_UID.1	FIA_UID.1
FIA_USB.1	FIA_USB.1
FMT_MSA.1(a)	FMT_MSA.1(a)
FMT_MSA.1(b)	FMT_MSA.1(b)

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FMT_MSA.3(a)	FMT_MSA.3(a)
FMT_MSA.3(b)	FMT_MSA.3(b)
FMT_MTD.1	FMT_MTD.1
FMT_SMF.1	FMT_SMF.1
FMT_SMR.1	FMT_SMR.1
FPT_FDI_EXP.1	FPT_FDI_EXP.1
FPT_STM.1	FPT_STM.1
FPT_TST.1	FPT_TST.1
FTA_SSL.3	FTA_SSL.3
FTP_ITC.1	FTP_ITC.1

Having conformed with all SFR demanded in the PP, this ST adds several additional SFR. And with the exception of FDP_ACF.1.3(b), all SFR in the PP are completely the same as the SFR stipulated in the ST. In FDP_ACF.1.3(b) in the PP, administrator permissions can be used to permit the user performing operations to operate all TOE functions, whereas this ST places restrictions on some print functions. As such, FDP_ACF.1.3(b) in this ST is more restrictive than FDP_ACF.1.3(b) in the PP.

The PP also defines the modify and delete operations on D.FUNC in the Common Access Control SFP. However, in this TOE, the modify operation is not permitted for D.FUNC. This is a more restricted access control than the PP.

As such, as this ST is equivalent to or more restrictive than the PP, it is demonstrably compliant with the PP.

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3. Security Problem Definition

This section describes Protected assets, Threats, Organizational Security Policies and Assumptions.

3.1. Protected Assets

Protected assets refer to user data, TSF data, and functions.

(1) User Data

User data refers to data that is created by the user and does not have any impact on TOE security functions. It is divided into the following two categories.

Table 3-1 User Data

Name	Definition in PP
D.DOC	User Document Data consist 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.

(2) TSF Data

TSF data refers to data that has an impact on TOE security functions. It is divided into the following two categories.

Table 3-2 TSF Data

Name	Definition in PP
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.

Table 3-3 shows the TSF data in the scope of this TOE.

Table 3-3 TSF Data in the Scope of this TOE

Name	TSF data in this ST	Details
D.PROT	User ID of normal users	U.NORMAL identification information
	Administrator user ID	U.ADMINISTRATOR identification information The identifier "Administrator" is assigned
	List of recipients for scan/fax/email or address	Address book

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	book	
	Job status log	Job history
	Password policy	Settings information concerning password character types and number of digits
	Non-operation timer setting	Time information for automatic ending of logon session from operation panel
	Administrator authentication settings (operation panel)	Settings information to activate/disable administrator authentication from the operation panel
	User restriction settings	Information for settings that can be configured from Web Config (inc. Available Function List)
	IPsec settings	Settings information concerning IPsec
	Time settings	Time settings information
	Network settings	Network settings information
	Hash value for verifying integrity of firmware	Hash value calculated from the firmware file Stored in TOE
D.CONF	Normal user passwords	U.NORMAL authentication information
	Administrator password	U.ADMINISTRATOR authentication information
	Passwords to access external devices such as a mail server or file server	Password to access a mail server Password to access a file server
	Audit log	Log information generated by the monitoring log function
	IPsec preshared key	Cryptographic key required for key exchange in IPsec

(3) Functions

Functions refers to the function in Table 2-1.

3.2. 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 are 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 Security Target address the threats posed by these threat agents.

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3.3. Threats to TOE Assets

This section describes threats to assets described in 3.1.

Table 3-4 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 3-5 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

3.4. 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 3-6 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.AUDT.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.

3.5. Assumptions

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

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Table 3-7 Assumptions for the TOE

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.
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.

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4. Security Objectives

This section describes Security Objectives for TOE, Security Objectives of Operational Environment and Security Objectives Rationale.

4.1. Security Objectives for the TOE

This section describes the Security Objectives that the TOE shall fulfill.

Table 4-1 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.AUDIT_STORAGE.PROTECTED	The TOE shall ensure that audit records are protected from unauthorized access, deletion and modifications.
O.AUDIT_ACCESS.AUTHORIZED	The TOE shall ensure that audit records can be accessed in order to detect potential security violations, and only by authorized persons.

4.2. Security Objectives for the IT environment

This section describes the Security Objectives that must be fulfilled by IT methods in the IT environment of the TOE.

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Table 4-2 Security Objectives for the IT Environment

Objective	Definition
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 that must be fulfilled by non-IT methods in the non-IT environment of the TOE.

Table 4-3 Security Objectives for the Non-IT Environment

Objective	Definition
OE.PHISICAL.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 are mitigated by at least one security objective for the TOE, and that those Security Objectives counter the threats, enforce the policies, and uphold the assumptions.

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Table 4-4 Completeness of Security 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.AUDIT_STORAGE.PROTECTED	O.AUDIT_ACCESS.AUTHORIZED	OE.INTERFACE.MANAGED	OE.PHYSICAL.MANAGED	OE.USER.AUTHORIZED	OE.USER.TRAINED	OE.ADMIN.TRAINED	OE.ADMIN.TRUSTED	OE.AUDIT.REVIEWED
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								✓					✓						
A.ACCESS.MANAGED														✓					
A.USER.TRAINING																✓			
A.ADMIN.TRAINING																	✓		
A.ADMIN.TRUST																		✓	

Table 4-5 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.

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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.
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

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		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 selfverify 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 use and security-relevant events 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.
		O.AUDIT_STORAGE.PROTECTED protects audit records from unauthorized access, deletion and modifications.
		O.AUDIT_ACCESS.AUTHORIZED provides appropriate access to audit records only by authorized persons.
		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.
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.USER.TRAINING	Administrators are aware of and trained to follow security policies and procedures.	OE.USER.TRAINED establishes responsibility of the TOE Owner to provide appropriate User training.

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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.

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5. Extended components definition

This Security Target defines components that are extensions to Common Criteria 3.1 Revision 2, Part 2. These extended components are defined in the Security Target 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 behavior:

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

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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 Security Target, 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 Security Target 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 the 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 led 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*].

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6. Security Requirements

This section describes Security Functional Requirements, Security Assurance Requirements and Security Requirements Rationale.

6.1. Security Functional Requirements

This section describes the operation results for security function requirements.

6.1.1. Class FAU: Security audit

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:

- Start-up and shutdown of the audit functions;
- All auditable events for the [selection, choose one of: *minimum, basic, detailed, not specified*] level of audit; and
- **all Auditable Events as each is defined for its Audit Level (if one is specified) for the Relevant SFR in Table 6-1;** [assignment: *other specifically defined auditable events*]

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

- not specified

[assignment: *other specifically defined auditable events*]

- None

Table 6-1 Auditable Events

Auditable Event	Relevant SFR	Audit level	Additional information	Details
Use of authentication mechanism fail Use of authentication mechanism success	FIA_UAU.1	Basic	None	Logon operation fail Logon operation success
Use of identification mechanism fail Use of identification mechanism success	FIA_UID.1	Basic	User identification test (if applicable)	Logon operation fail (inc. user identification information) Logon operation success
Use of management functions	FMT_SMF.1	Minimum	None	Management function (see Table 6-11) record
Modification of user group that plays a partial role	FMT_SMR.1	Minimum	None	No modification so no records

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Change of time	FPT_STM.1	Minimum	None	Change of time
Failure of communication with trusted channel	FTP_ITC.1	Minimum	Communication recipient IP address	IPsec communication fail

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

- Date and time of the event, type of event, subject identity (if applicable), and the outcome (success or failure) of the event; and
- 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 6-1: (1) the 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

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.

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*]

- Administrator

[assignment: *list of audit information*]

- Table 6-1 shows auditable events

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

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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 unauthorized deletion.

FAU_STG.1.2 The TSF shall be able to [selection, choose one of: *prevent, detect*] unauthorized 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

6.1.2. Class FDP: User data protection

FDP_ACC.1(a) Subset access control

Hierarchical to: **No other components**

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

FDP_ACC.1.1(a) The TSF shall enforce the **Common Access Control SFP in Table 6-2 on the list of users as subjects, objects, and operations among subjects and objects covered by the Common Access Control SFP in Table 6-2.**

FDP_ACC.1(b) Subset access control

Hierarchical to: **No other components**

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

FDP_ACC.1.1(b) The TSF shall enforce the **TOE Function Access Control SFP in Table 6-3 on users as subjects, TOE functions as objects, and the right to use the functions as operations.**

FDP_ACF.1(a) 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(a) The TSF shall enforce the **Common Access Control SFP in Table 6-2** to objects based on the following: **the list of users as subjects and objects controlled under the Common Access Control SFP in Table 6-2, and for each, the indicated security attributes in Table 6-2.**

FDP_ACF.1.2(a) 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 6-2 governing access among controlled users as subjects and controlled objects using controlled operations on controlled objects.**

Table 6-2 Rules Controlling Operations between Controlled Subjects and Objects

Object	Document data attributes	Operation	Subject	Rules Controlling Operation
D.DOC	+PRT +SCN +CPY +FAXOUT +DSR	Delete Read	U.NORMAL	Denied, except for his/her own documents Documents are owned by the U.NORMAL that created the document
	+FAXIN	Delete Read	U.NORMAL	Denied, except for his/her own documents Received fax documents are owned by the U.NORMAL assigned by the “Fax Receiving Function (FAXIN)” in the Available Function List
D.FUNC	+PRT +SCN +CPY +FAXOUT +DSR	Delete	U.NORMAL	Denied, except for his/her own documents Documents are owned by the U.NORMAL that created the document
		Modify	U.NORMAL	Denied
	+FAXIN	Delete	U.NORMAL	Denied, except for his/her own

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				documents Received fax documents are owned by the U.NORMAL assigned by the "Fax Receiving Function (FAXIN)" in the Available Function List
		Modify	U.NORMAL	Denied

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

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

- For a U.ADMINISTRATOR, the "Delete" operation is permitted for D.DOC with the document data attribute "+PRT".
- For a U.ADMINISTRATOR, the "Read" and "Delete" operations are permitted for D.DOC with the document data attributes "+SCN", "+CPY", "+FAXIN", "+FAXOUT", and "+DSR"
- For a U.ADMINISTRATOR, the "Delete" operation is permitted for D.FUNC with the document data attributes "+PRT", "+SCN", "+CPY", "+FAXIN", "+FAXOUT", and "+DSR"

FDP_ACF.1.4(a) 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*]

- For a U.ADMINISTRATOR, the "Modify" operation is not permitted for D.FUNC with the document data attributes "+PRT", "+SCN", "+CPY", "+FAXIN", "+FAXOUT", and "+DSR"

FDP_ACF.1(b) 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(b) 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*]

- See Table 6-3

FDP_ACF.1.2(b) The TSF shall enforce the following rules to determine if an operation among controlled subjects and

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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*]

- See Table 6-3

Table 6-3 Rules Controlling Operations between Controlled Subjects and Objects

Object	Operation	Subject	Security Attribute	Rules Controlling Operation
F.PRT	Job execution Job deletion	U.NORMAL	Available Function List (PRT)	For subjects to which the print function (PRT) is assigned in the Available Function List, operation is permitted
F.SCN	Job execution Job deletion	U.NORMAL	Available Function List (SCN)	For subjects to which the scan function (SCN) is assigned in the Available Function List, operation is permitted
F.CPY	Job execution Job deletion	U.NORMAL	Available Function List (CPY)	For subjects to which the copy function (CPY) is assigned in the Available Function List, operation is permitted
F.FAX	Job execution Job deletion	U.NORMAL	Available Function List (FAXIN) Available Function List (FAXOUT)	For subjects to which the fax receiving function (FAXIN) and fax sending function (FAXOUT) are assigned in the Available Function List, operation is permitted
F.DSR	Job execution Job deletion	U.NORMAL	Available Function List (DSR)	For subjects to which the document storage and retrieval function (DSR) is assigned in the Available Function List, operation is permitted

FDP_ACF.1.3(b) The TSF shall explicitly authorise access of subjects to objects based on the following additional rules:

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

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

- For a U.ADMINISTRATOR, the "Job deletation" operation is permitted for “F.PRT”
- For a U.ADMINISTRATOR, the "Job execution" and "Job deletation" operations are permitted for “F.SCN”, “F.CPY”, “F.FAX”, and “F.DSR”

FDP_ACF.1.4(b) 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

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

6.1.3. Class FIA: Identification and authentication

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]*]

- [assignment: positive integer number]

[assignment: *positive integer number*]

- 1

[assignment: *list of authentication events*]

- Logon from the operation panel by an administrator

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- Logon from the operation panel by a normal user
- Logon from Web Config by an administrator
- Authentication upon receipt of a Password Print Job

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*]

- See Table 6-4

Table 6-4 Action List

Logon Pattern	Action upon unsuccessful authentication
Logon from the operation panel by an administrator	Lock the relevant administrator out for 0.6 seconds
Logon from the operation panel by a normal user	Lock the relevant normal user out for 0.6 seconds
Logon from Web Config by an administrator	Lock the relevant administrator out for 1 second
Authentication upon receipt of a Password Print Job	Lock the relevant normal user out for 1 second

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*]

- See Table 6-5

Table 6-5 Security Attribute List

User	Security Attribute
U.NORMAL	User ID of normal users User role Available Function List
U.ADMINISTRATOR	User role

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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 (normal user passwords, administrator password) meet [assignment: *a defined quality metric*].

[assignment: *a defined quality metric*]

- Length: 8 characters or more (maximum 20)
- Character types: must include at least one of the following character types
  - Upper-case letters
  - Lower-case letters
  - Numbers
  - Symbols (!"#$%&'()*+,-./:;<=>?@[¥]^_`{|}~)

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***]

- Printer information display on operation panel
- Printer information print from operation panel
- Network information display on operation panel
- Network information print from operation panel
- Job list display on operation panel
- Help display on operation panel
- Printer information display on Web Config
- Network information display on Web Config
- Fax information display on operation panel
- Fax information print from operation panel
- Printer maintenance function execution from operation panel
- Printer status display on printer driver

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.

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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*]

- See Table 6-6

Table 6-6 Feedback List

Action	Feedback
Logon from the operation panel by an administrator	* characters equaling the number of characters entered
Logon from the operation panel by a normal user	* characters equaling the number of characters entered
Logon from Web Config by an administrator	Mask characters equaling the number of characters entered ∗Masked character types depend on the browser

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***]

- Printer information display on operation panel
- Printer information print from operation panel
- Network information display on operation panel
- Network information print from operation panel
- Job list display on operation panel
- Help display on operation panel
- Printer information display on Web Config
- Network information display on Web Config
- Fax information display on operation panel
- Fax information print from operation panel
- Printer maintenance function execution from operation panel

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- Printer status display on printer driver

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*]

- See Table 6-5

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

6.1.4. Class FMT: Security management

FMT_MSA.1(a) 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(a) The TSF shall enforce the **Common Access Control SFP in Table 6-2,** [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 authorized identified roles*].

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[assignment: *access control SFP(s), information flow control SFP(s)*]

- None

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

- See Table 6-7
- [assignment: other operations]

[assignment: *other operations*]

- See Table 6-7

[assignment: *list of security attributes*]

- See Table 6-7

[assignment: *the authorized identified roles*]

- See Table 6-7

Table 6-7 Security Attributes, Operations, and User Roles for which Operations are Permitted

Security Attribute	Operation	User role for which operation is permitted
User ID of normal users	[Selected operations] delete	U.ADMINISTRATOR
	[Added operations] Newly create	
User role	[Selected operations] modify	Nobody
Available Function List	[Selected operations] modify	U.ADMINISTRATOR
Document data attributes	[Selected operations] modify	Nobody

FMT_MSA.1(b) 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(b) The TSF shall enforce the **TOE Function Access Control SFP in Table 6-3,** [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]*]

- See Table 6-8

[assignment: *list of security attributes*]

- See Table 6-8

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[assignment: *the authorised identified roles*]

- See Table 6-8

Table 6-8 Security Attributes, Operations, and User Roles for which Operations are Permitted

Security Attribute	Operation	User role for which operation is permitted
User role	[Selected operations] modify	Nobody
Available Function List	[Selected operations] modify	U.ADMINISTRATOR
Function type	[Selected operations] modify	Nobody

FMT_MSA.3(a) 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(a) The TSF shall enforce the **Common Access Control SFP in Table 6-2,** [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

FMT_MSA.3.2(a) 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

FMT_MSA.3(b) 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(b) The TSF shall enforce the **TOE Function Access Control Policy in Table 6-3,** [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*]

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- None

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

- restrictive

FMT_MSA.3.2(b) 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

FMT_MTD.1 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(a) 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]*]

- See Table 6-9
- [assignment: other operations]

[assignment: *other operations*]

- See Table 6-9

[assignment: *list of TSF Data*]

- See Table 6-9

[selection, choose one of: *Nobody, [selection: U.ADMINISTRATOR,* [assignment: *the authorized identified roles* ***except U.NORMAL***]**]]**

- See Table 6-9

Table 6-9 Management of TSF Data

Category	TSF data	Operation	User role for which operation is permitted
D.PROT	Administrator user ID	[Selected operations] modify	Nobody
	Password policy	[Selected operations] modify	U.ADMINISTRATOR
	Non-operation timer setting	[Selected operations] modify	U.ADMINISTRATOR

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	Administrator authentication settings (operation panel)	[Selected operations] modify	U.ADMINISTRATOR
	User restriction settings	[Selected operations] modify	U.ADMINISTRATOR
	IPsec settings	[Selected operations] modify	U.ADMINISTRATOR
	Time settings	[Selected operations] modify	U.ADMINISTRATOR
	Network settings	[Selected operations] modify	U.ADMINISTRATOR
	Hash value for verifying integrity of firmware	[Selected operations] modify	Nobody
D.CONF	Administrator password	[Selected operations] modify	U.ADMINISTRATOR
		[Selected operations] query	Nobody
	Passwords to access external devices such as a mail server or file server	[Selected operations] modify	U.ADMINISTRATOR
		[Added operations] Newly create	
		[Selected operations] query	Nobody
	IPsec preshared key	[Selected operations] modify	U.ADMINISTRATOR
		[Selected operations] query	Nobody

FMT_MTD.1.1(b) 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]*]

- See Table 6-10
- [assignment: other operations]

[assignment: *other operations*]

- See Table 6-10

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

- See Table 6-10

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

- See Table 6-10

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Table 6-10 Management of TSF Data

Category	TSF data	Operation	User role for which operation is permitted
D.PROT	User ID of normal users	[Selected operations] delete	U.ADMINISTRATOR
		[Added operations] Newly create	
	List of recipients for scan/fax/email or address book	[Selected operations] delete	U.ADMINISTRATOR
		[Added operations] Newly create	
	Job status log	[Selected operations] modify	Nobody
D.CONF	Normal user passwords	[Selected operations] delete	U.ADMINISTRATOR
		[Added operations] Newly create	
		[Selected operations] query	Nobody

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*]

- See Table 6-11

Table 6-11 Management Function List

Management Functionality
Registration/deletion of user ID for normal users by U.ADMINISTRATOR
Registration/deletion of list of recipients for scan/fax/email or address book by U.ADMINISTRATOR
Change of password policy by U.ADMINISTRATOR
Change of non-operation timer settings by U.ADMINISTRATOR
Change of administrator authentication settings (operation panel) by U.ADMINISTRATOR
Change of user restriction settings by U.ADMINISTRATOR
Change of IPsec settings by U.ADMINISTRATOR
Change of time settings by U.ADMINISTRATOR
Change of network settings by U.ADMINISTRATOR
Registration/deletion of user password for normal users by U.ADMINISTRATOR
Change of administrator password by U.ADMINISTRATOR
Registration/change of passwords to access external devices such as a mail server or file server by U.ADMINISTRATOR
Change of IPsec preshared key by U.ADMINISTRATOR

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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**.

6.1.5. Class FPT: Protection of the TSF

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 the TSF to **any Shared-medium Interface**.

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.

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*]

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- [assignment: parts of TSF]

[assignment: *parts of TSF*]

- Self-Test Function

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*]

- Hash value for verifying integrity of firmware

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

6.1.6. Class FTA: TOE access

FTA_SSL.3 TSF-initiated termination

Hierarchical to: No other components

Dependencies: No dependencies

FTA_SSL.3.1 The TSF shall terminate an interactive session after a [assignment: *time interval of user inactivity*].

[assignment: *time interval of user inactivity*]

- See Table 6-12

Table 6-12 User Inactive Time Interval

Action	User inactive time interval
Logon from the operation panel by an administrator	Set time in non-operation timer settings (can be set by an administrator with a range from 10 seconds to 240 minutes)
Logon from the operation panel by a normal user	Set time in non-operation timer settings (can be set by an administrator with a range from 10 seconds to 240 minutes)
Logon from Web Config by an administrator	20 minutes

6.1.7. Class FTP: Trusted paths/channels

FTP_ITC.1 Inter-TSF trusted channel

Hierarchical to: No other components

Dependencies: No dependencies

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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 channel 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.**

6.2. Security Assurance Requirements

Table 6-13 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 6-13 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 EAL 2)
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 Requirements Rationale

This section describes the rationale behind security functional requirements, security assurance requirements,

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and dependency analysis.

6.3.1. Security Functional Requirements rationale

Table 6-14 demonstrate the completeness of SFRs that fulfill the objectives of the TOE. Bold typeface items provide principal (P) fulfillment of the objectives, and normal typeface items provide supporting (S) fulfillment.

Table 6-14 Completeness of Security Requirements

	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. AUDIT_STORAGE.PROTECTED	O. AUDIT_ACCESS.AUTHORIZED
FAU_GEN.1										**P**		
FAU_GEN.2										**P**		
FAU_SAR.1					**P**							**P**
FAU_SAR.2					**P**							**P**
FAU_STG.1						**P**					**P**	
FAU_STG.4						**P**					**P**	
FDP_ACC.1(a)	**P**	**P**	**P**									
FDP_ACC.1(b)							**P**					
FDP_ACF.1(a)	S	S	S									
FDP_ACF.1(b)							S					
FDP_RIP.1	**P**											
FIA_AFL.1							S					
FIA_ATD.1							S					
FIA_SOS.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**					
FMT_MSA.1(a)	S	S	S									
FMT_MSA.1(b)							S					
FMT_MSA.3(a)	S	S	S									
FMT_MSA.3(b)							S					

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FMT_MTD.1				**P**	**P**	**P**						
FMT_SMF.1	S	S	S	S	S	S						
FMT_SMR.1	S	S	S	S	S	S	S					
FPT_FDI_EXP.1								**P**				
FPT_STM.1										S		
FPT_TST.1									**P**			
FTA_SSL.3							**P**	**P**				
FTP_ITC.1	**P**	**P**	**P**	**P**	**P**	**P**						

Table 6-15 shows the sufficiency of the SFR for achieving TOE objectives.

Table 6-15 Sufficiency of Security Requirements

Objective	SFR	Aim
O.DOC.NO_DIS (Protection of D.DOC from unauthorized disclosure)	**FDP_ACC.1(a)**	**Establish access control objectives and implement protection**
	FDP_ACF.1(a)	Provide access control functions and support access control objectives
	FDP_RIP.1	**Make residual data unusable and implement protection**
	FIA_UID.1	Demand user identification and support access control and security roles
	FMT_MSA.1(a)	Manage security attributes and support access control functions
	FMT_MSA.3(a)	Manage default security attributes and support access control functions
	FMT_SMF.1	Demand attribute management functions and support security attribute management
	FMT_SMR.1	Demand security roles and support security attribute management
	FTP_ITC.1	**Demand the use of a trusted channel when communicating on a share media interface, and implement protection**
O.DOC.NO_ALT (Protection of D.DOC from unauthorized alteration)	**FDP_ACC.1(a)**	**Establish access control objectives and implement protection**
	FDP_ACF.1(a)	Provide access control functions and support access control objectives
	FIA_UID.1	Demand user identification and support access control and security roles
	FMT_MSA.1(a)	Manage security attributes and support access

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		control functions
	FMT_MSA.3(a)	Manage default security attributes and support access control functions
	FMT_SMF.1	Demand attribute management functions and support security attribute management
	FMT_SMR.1	Demand security roles and support security attribute management
	FTP_ITC.1	**Demand the use of a trusted channel when communicating on a share media interface, and implement protection**
O.FUNC.NO_ALT (Protection of D.FUNC from unauthorized alteration)	**FDP_ACC.1(a)**	**Establish access control objectives and implement protection**
	FDP_ACF.1(b)	Provide access control functions and support access control objectives
	FIA_UID.1	Demand user identification and support access control and security roles
	FMT_MSA.1(a)	Manage security attributes and support access control functions
	FMT_MSA.3(a)	Manage default security attributes and support access control functions
	FMT_SMF.1	Demand attribute management functions and support security attribute management
	FMT_SMR.1	Demand security roles and support security attribute management
	FTP_ITC.1	**Demand the use of a trusted channel when communicating on a share media interface, and implement protection**
O.PROT.NO_ALT (Protection of D.PROT from unauthorized alteration)	FIA_UID.1	Demand user identification and support access control and security roles
	FMT_MTD.1	**Restrict access and implement protection**
	FMT_SMF.1	Demand attribute management functions and support security attribute management
	FMT_SMR.1	Demand security roles and support security attribute management
	FTP_ITC.1	**Demand the use of a trusted channel when communicating on a share media interface, and implement protection**
O.CONF.NO_DIS	**FAU_SAR.1**	**Provide security audit records and**

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(Protection of D.CONF from unauthorized disclosure)		**implement audit objectives**
	FAU_SAR.2	**Restrict the reading of security audit records and implement audit objectives**
	FIA_UID.1	Demand user identification and support access control and security roles
	FMT_MTD.1	**Restrict access and implement protection**
	FMT_SMF.1	Demand attribute management functions and support security attribute management
	FMT_SMR.1	Demand security roles and support security attribute management
	FTP_ITC.1	**Demand the use of a trusted channel when communicating on a share media interface, and implement protection**
O.CONF.NO_ALT (Protection of D.CONF from unauthorized alteration)	**FAU_STG.1**	**Protect from unauthorized deletion and modification, and implement auditing objectives**
	FAU_STG.4	**Prevent loss of audit data and implement auditing objectives**
	FIA_UID.1	Demand user identification and support access control and security roles
	FMT_MTD.1	**Restrict access and implement protection**
	FMT_SMF.1	Demand attribute management functions and support security attribute management
	FMT_SMR.1	Demand security roles and support security attribute management
	FTP_ITC.1	**Demand the use of a trusted channel when communicating on a share media interface, and implement protection**
O.USER.AUTHORIZED (Granting of permission for use of TOE to normal users and administrator)	**FDP_ACC.1(b)**	**Establish access control objectives and grant permissions**
	FDP_ACF.1(b)	Provide access control functions and support access control objectives
	FIA_AFL.1	Demand access control and grant permissions
	FIA_ATD.1	Link security attributes to users and support granting of permissions
	FIA_SOS.1	Demand confidential specifications and support granting of permissions
	FIA_UAU.1	**Demand user authentication and grant**

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		permissions
	FIA_UAU.7	Demand user authentication and grant permissions
	FIA_UID.1	**Demand user identification and grant permissions**
	FIA_USB.1	**Distinguish security attributes of subject linked to user role and grant permissions**
	FMT_MSA.1(b)	Manage security attributes and support access control functions
	FMT_MSA.3(b)	Manage default security attributes and support access control functions.
	FMT_SMR.1	Demand security roles and support granting of permissions
	FTA_SSL.3	**End a suspended session and grant permissions**
O.INTERFACE.MANAGED (external interface management)	**FIA_UAU.1**	**Demand user authentication and manage external interface**
	FIA_UID.1	**Demand user authentication and manage external interface**
	FPT_FDI_EXP.1	**(As needed) demand an administrator to manage data transfer to a shared media interface from an external interface and manage external interface**
	FTA_SSL.3	**End a suspended session and manage external interface**
O.SOFTWARE.VERIFIED (software integrity verification)	**FPT_TST.1**	**Demand self-test and verify software**
O.AUDIT.LOGGED (record of auditable events)	**FAU_GEN.1**	**Demand logging of relevant events and implement auditing objectives**
	FAU_GEN.2	**Demand logging of information linked to auditable events and implement auditing objectives**
	FIA_UID.1	Link user identification to events and support auditing objectives
	FPT_STM.1	Demand timestamps linked to events and support auditing objectives
O. AUDIT_STORAGE.PROTECTED (Protection of audit data from	**FAU_STG.1**	**Protect from unauthorized deletion and modification, and implement auditing**

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unauthorized access, deletion, and modification)		**objectives**
	FAU_STG.4	**Prevent loss of audit data and implement auditing objectives**
O. AUDIT_ACCESS.AUTHORIZED (audit of security audit records)	**FAU_SAR.1**	**Provide security audit records and implement audit objectives**
	FAU_SAR.2	**Restrict the reading of security audit records and implement audit objectives**

6.3.2. Security Assurance Requirements rationale

This Security Target has been developed for Hardcopy Devices used in restrictive commercial information processing environments that require a relatively high level of document security, operational accountability, and information assurance. The TOE environment 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.

6.3.3. Dependency Analysis

Table 6-16 shows the results of dependency analysis in this ST regarding TOE security function requirements.

Table 6-16 Dependency Analysis Results for TOE Security Function Requirements

Function requirement	Dependency demanded in CC	Dependency relation in this ST
FAU_GEN.1	· FPT_STM.1	· FPT_STM.1
FAU_GEN.2	· FAU_GEN.1 · FIA_UID.1	· FAU_GEN.1 · FIA_UID.1
FAU_SAR.1	· FAU_GEN.1	· FAU_GEN.1
FAU_SAR.2	· FAU_SAR.1	· FAU_SAR.1
FAU_STG.1	· FAU_GEN.1	· FAU_GEN.1
FAU_STG.4	· FAU_STG.1	· FAU_STG.1
FDP_ACC.1(a)	· FDP_ACF.1	· FDP_ACF.1(a)
FDP_ACC.1(b)	· FDP_ACF.1	· FDP_ACF.1(b)
FDP_ACF.1(a)	· FDP_ACC.1	· FDP_ACC.1(a)

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	· FMT_MSA.3	· FMT_MSA.3(a)
FDP_ACF.1(b)	· FDP_ACC.1 · FMT_MSA.3	· FDP_ACC.1(b) · FMT_MSA.3(b)
FDP_RIP.1	· None	· None
FIA_AFL.1	· FIA_UAU.1	· FIA_UAU.1
FIA_ATD.1	· None	· None
FIA_SOS.1	· None	· None
FIA_UAU.1	· FIA_UID.1	· FIA_UID.1
FIA_UAU.7	· FIA_UAU.1	· FIA_UAU.1
FIA_UID.1	· None	· None
FIA_USB.1	· FIA_ATD.1	· FIA_ATD.1
FMT_MSA.1(a)	· [FDP_ACC.1 or FDP_IFC.1] · FMT_SMR.1 · FMT_SMF.1	· FDP_ACC.1(a) · FMT_SMR.1 · FMT_SMF.1
FMT_MSA.1(b)	· [FDP_ACC.1 or FDP_IFC.1] · FMT_SMR.1 · FMT_SMF.1	· FDP_ACC.1(b) · FMT_SMR.1 · FMT_SMF.1
FMT_MSA.3(a)	· FMT_MSA.1 · FMT_SMR.1	· FMT_MSA.1(a) · FMT_SMR.1
FMT_MSA.3(b)	· FMT_MSA.1 · FMT_SMR.1	· FMT_MSA.1(b) · FMT_SMR.1
FMT_MTD.1	· FMT_SMR.1 · FMT_SMF.1	· FMT_SMR.1 · FMT_SMF.1
FMT_SMF.1	· None	· None
FMT_SMR.1	· FIA_UID.1	· FIA_UID.1
FPT_FDI_EXP.1	· FMT_SMF.1 · FMT_SMR.1	· FMT_SMF.1 · FMT_SMR.1
FPT_STM.1	· None	· None
FPT_TST.1	· None	· None
FTA_SSL.3	· None	· None
FTP_ITC.1	· None	· None

As above, all dependencies are fulfilled.

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7. TOE Summary Specification

This section describes the TOE summary specification.

7.1. User Identification and Authentication Function

User identification and authentication functions refer to functions to identify and authenticate users of the TOE. The security function requirements for user identification and authentication are as below.

- FIA_AFL.1, FIA_ATD.1, FIA_SOS.1, FIA_UAU.1, FIA_UAU.7, FIA_UID.1, FIA_USB.1, FTA_SSL.3

(1) FIA_AFL.1 Authentication failure handling

In the event of a failed logon or authentication, the TOE locks the relevant account as per Table 7-1. Lockout are implemented for an individual interface rather than an individual user.

Table 7-1 Action List Upon Authentication Failure

Logon or Authentication Pattern	Action upon unsuccessful authentication
Logon from the operation panel by an administrator	Lock the relevant administrator out for 0.6 seconds
Logon from the operation panel by a normal user	Lock the relevant normal user out for 0.6 seconds
Logon from Web Config by an administrator	Lock the relevant administrator out for 1 second
Authentication upon receipt of a print job with a password	Lock the relevant normal user out for 1 second

(2) FIA_ATD.1 User attribute definitions

The TOE defines and maintains user attributes as shown in Table 7-2.

Table 7-2 Security Attribute List

User	Security Attribute
U.NORMAL	User ID of normal users User role Available Function List
U.ADMINISTRATOR	User role

(3) FIA_SOS.1 Verification of secrets

The TOE verifies whether a password (password for normal user or administrator) conforms with a defined quality scale. The quality scale is as below.

- Length: 8 characters or more (maximum 20)
- Character types: must include at least one of the following character types
  - Upper-case letters
  - Lower-case letters
  - Numbers

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・ Symbols (!"#$%&'()*+,-./:;<=>?@[¥]^_`{|}~)

(4) FIA_UAU.1 Timing of authentication
FIA_UID.1 Timing of identification

The TOE verifies that the User ID and password of a normal user entered when the normal user logs in matches the User ID and password of the normal user registered in the TOE. The TOE verifies that a Password Print Job issued by a normal user matches the User ID and password of the normal user registered in the TOE. The TOE verifies that the User ID and password of an administrator entered when the administrator logs in matches the User ID and password of the administrator registered in the TOE. The TOE permits the following actions before normal user or administrator identification and authentication is implemented.

- Printer information display on operation panel
- Printer information print from operation panel
- Network information display on operation panel
- Network information print from operation panel
- Job list display on operation panel
- Help display on operation panel
- Printer information display on Web Config
- Network information display on Web Config
- Fax information display on operation panel
- Fax information print from operation panel
- Printer maintenance function execution from operation panel
- Printer status display on printer driver

(5) FIA_UAU.7 Protected authentication feedback

The TOE displays the dummy characters shown in Table 7-3 on the logon screen when a password is entered upon logon from the operation panel or Web Config.

Table 7-3 Dummy Characters during Password Input

Action	Dummy character
Logon from the operation panel by an administrator	* characters equaling the number of characters entered
Logon from the operation panel by a normal user	* characters equaling the number of characters entered
Logon from Web Config by an administrator	Mask characters equaling the number of characters entered ∗Masked character types depend on the browser

(6) FIA_USB.1 User-subject binding

If user identification and authentication is successful, the TOE links the User ID of the normal user, user

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role, and Available Function List user attributes to the subject as shown in Table 7-4.

Table 7-4 Initial Linking Rules for Attributes

User	Subject	User Security Attribute
Normal user	U.NORMAL	User ID of normal users User role Available Function List
Administrator	U.ADMINISTRATOR	User role

(7) FTA_SSL.3 TSF-initiated termination

The TOE performs automatic logoff if there is no operation from the operation panel or Web Config for a certain continuous period of time as shown in Table 7-5.

Table 7-5 User Inactive Time Interval

Action	User inactive time interval
Logon from the operation panel by an administrator	Set time in non-operation timer settings (can be set by an administrator with a range from 10 seconds to 240 minutes)
Logon from the operation panel by a normal user	Set time in non-operation timer settings (can be set by an administrator with a range from 10 seconds to 240 minutes)
Logon from Web Config by an administrator	20 minutes

7.2. Document Access Control Function

The document access control function is a function to restrict operations on user data. The security function requirements for the document access control function are as below.

- FDP_ACC.1(a), FDP_ACF.1(a), FMT_MSA.3(a)

(1) FDP_ACC.1(a) Subset access control

FDP_ACF.1(a) Security attribute based access control

For D.DOC and D.FUNC generated by the basic functions in Table 7-6, the TOE follows access control rules for each user, and only permits access to data for permitted users.

Table 7-6 Document Access Control Function Access Control Rules

Data	Security Attribute	Operation	User	Access control rule
D.DOC (+PRT)	User ID of normal users Document data attributes "+PRT"	Print Delete	Normal user	For normal users, operation is only permitted for data that has the document data attribute "+PRT" and a normal user that matches the normal user User ID - Printing is the operation of

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				print data being input from the printer driver and temporarily stored, and then output as a hard copy
		Delete	Administrator	For an administrator, operation is only permitted for data with the document data attribute “+PRT”
D.DOC (+SCN)	User ID of normal users Document data attributes “+SCN”	Email attachment sending Sending to specified folder Delete	Normal user	For normal users, operation is only permitted for data that has the document data attribute “+SCN” and a normal user that matches the normal user User ID − Email attachment sending is an operation to attach a D.DOC to an email and send it, and it completes through a series of operations with scanning − Specified folder sending is an operation to send D.DOC to a shared folder over a network, and it completes through a series of operations with scanning
		Email attachment sending Sending to specified folder Delete	Administrator	For an administrator, operation is only permitted for data with the document data attribute “+SCN”
D.DOC (+CPY)	User ID of normal users Document data attributes “+CPY”	Copy print Delete	Normal user	For normal users, operation is only permitted for data that has the document data attribute “+CPY” and a normal user that matches the normal user User ID − Copy print completes through a series of operations with

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				scan and hardcopy output
		Copy print Delete	Administrator	For an administrator, operation is only permitted for data with the document data attribute “+CPY”
D.DOC (+FAXIN)	Document data attributes “+FAXIN”	Fax receiving and printing Email attachment sending Sending to specified folder Fax forwarding Preview display on operation panel Delete	Normal user	For normal users, to which the fax receiving function (FAXIN) is assigned in the Available Function List, operation is only permitted for data that has the document data attribute “+FAXIN” − Email attachment sending is an operation to attach a D.DOC to an email and send it, and it completes through a series of operations with fax receiving − Specified folder sending is an operation to send D.DOC to a shared folder over a network, and it completes through a series of operations with fax receiving − Fax forwarding is an operation to transfer a D.DOC to a separate fax address, and it completes through a series of operations with fax receiving − Preview display on operation panel is an operation to display a D.DOC on the operation panel, and it completes through a series of operations with fax receiving
		Fax receiving and printing Email	Administrator	For an administrator, operation is only permitted for data with the document data attribute “+FAXIN”

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		attachment sending Sending to specified folder Fax forwarding Preview display on operation panel Delete		
D.DOC (+FAXOUT)	User ID of normal users Document data attributes “+FAXOUT”	Fax sending Preview display on operation panel Delete	Normal user	For normal users, operation is only permitted for data that has the document data attribute “+FAXOUT” and a normal user that matches the normal user User ID − Preview display on operation panel is an operation to display a D.DOC on the operation panel, and it completes through a series of operations with fax sending
		Fax sending Preview display on operation panel Delete	Administrator	For an administrator, operation is only permitted for data with the document data attribute “+FAXOUT”
D.DOC (+DSR)	User ID of normal users Document data attributes “+DSR”	Print document stored in box Preview display on operation panel Email attachment sending Sending to specified folder Delete	Normal user	For normal users, operation is only permitted for data that has the document data attribute “+DSR” and a normal user that matches the normal user User ID − Printing a document stored in a box is the operation to output a hard copy of a D.DOC stored in a personal box − Preview display on operation panel is an operation to display a D.DOC on the operation

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				panel - Email attachment sending is an operation to attach a D.DOC to an email and send it, and it completes through a series of operations with document storage and retrieval - Specified folder sending is an operation to send a D.DOC to a shared folder over a network, and it completes through a series of operations with document storage and retrieval
		Delete	Administrator	For an administrator, operation is only permitted for data with the document data attribute “+DSR”
D.FUNC (+PRT)	User ID of normal users Document data attributes “+PRT”	Delete	Normal user	For normal users, operation is only permitted for data that has the document data attribute “+PRT” and a normal user that matches the normal user User ID
		Delete	Administrator	For an administrator, operation is only permitted for data with the document data attribute “+PRT”
		Alteration	Normal user Administrator	Operation not permitted
D.FUNC (+SCN)	User ID of normal users Document data attributes “+SCN”	Delete	Normal user	For normal users, operation is only permitted for data that has the document data attribute “+SCN” and a normal user that matches the normal user User ID
		Delete	Administrator	For an administrator, operation is only permitted for data with the document data attribute “+SCN”
		Alteration	Normal user Administrator	Operation not permitted

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D.FUNC (+CPY)	User ID of normal users Document data attributes “+CPY”	Delete	Normal user	For normal users, operation is only permitted for data that has the document data attribute “+CPY” and a normal user that matches the normal user User ID
		Delete	Administrator	For an administrator, operation is only permitted for data with the document data attribute “+CPY”
		Alteration	Normal user Administrator	Operation not permitted
D.FUNC (+FAXIN)	Document data attributes “+FAXIN”	Delete	Normal user	For normal users, to which the fax receiving function (FAXIN) is assigned in the Available Function List, operation is only permitted for data that has the document data attribute “+FAXIN”
		Delete	Administrator	For an administrator, operation is only permitted for data with the document data attribute “+FAXIN”
		Alteration	Normal user Administrator	Operation not permitted
D.FUNC (+FAXOUT)	User ID of normal users Document data attributes “+FAXOUT”	Delete	Normal user	For normal users, operation is only permitted for data that has the document data attribute “+FAXOUT” and a normal user that matches the normal user User ID
		Delete	Administrator	For an administrator, operation is only permitted for data with the document data attribute “+FAXOUT”
		Alteration	Normal user Administrator	Operation not permitted
D.FUNC (+DSR)	User ID of normal users Document data attributes “+DSR”	Delete	Normal user	For normal users, operation is only permitted for data that has the document data attribute “+DSR” and a normal user that matches the normal user User ID
		Delete	Administrator	For an administrator, operation is

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				only permitted for data with the document data attribute “+DSR”
		Alteration	Normal user Administrator	Operation not permitted

(2) FMT_MSA.3(a) Static attribute initialisation

For D.DOC and D.FUNC that are newly generated in response to implemented MFP functions, the TOE configures the attributes shown in Table 7-7 as initial values.

Table 7-7 Security Attribute Initial Values

Function	Data	Security Attribute Initial Value
MFP function (print)	D.DOC (+PRT)	“User ID for a normal user” of a normal user who created data Document data attributes (+PRT)
	D.FUNC (+PRT)	
MFP function (scan)	D.DOC (+SCN)	User ID for a normal user of a normal user who created data *However, for administrator the identifier is “Administrator” Document data attributes (+SCN)
	D.FUNC (+SCN)	
MFP function (copy)	D.DOC (+CPY)	User ID for a normal user of a normal user who created data *However, for administrator the identifier is “Administrator” Document data attributes (+CPY)
	D.FUNC (+CPY)	
MFP function (fax receiving)	D.DOC (+FAXIN)	Document data attributes (+FAXIN)
	D.FUNC (+FAXIN)	
MFP function (fax sending)	D.DOC (+FAXOUT)	User ID for a normal user of a normal user who created data *However, for administrator the identifier is “Administrator” Document data attributes (+FAXOUT)
	D.FUNC (+FAXOUT)	
MFP function (Document Storage and Retrieval Functions)	D.DOC (+DSR)	User ID for a normal user of a normal user who created data *However, for administrator the identifier is “Administrator” Document data attributes (+DSR)
	D.FUNC (+DSR)	

Note, the owner of documents related to fax receiving is a normal user to whom the Available Function List fax receiving function (FAXIN) has been granted by an administrator, and the owner of documents related to fax sending is a normal user to whom the Available Function List fax sending function (FAXOUT) has been granted by an administrator. Furthermore, the initial value of the security attributes shown in Table 7-7 are default values, and access is restricted by these security attributes meaning they are restrictive, and no function exists to define initial values that differ from the default values.

7.3. Access Control Function for TOE Function

The access control function for TOE functions is a function to restrict operation of TOE functions. The security

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function requirements for the access control function for TOE functions are as below.

- FDP_ACC.1(b), FDP_ACF.1(b), FMT_MSA.3(b)

(1) FDP_ACC.1(b) Subset access control

FDP_ACF.1(b) Security attribute based access control

For basic functions in Table 7-8, the TOE follows access control rules for each user, and only permits permitted users to execute jobs.

Table 7-8 Access Control Rules of Access Control Function for TOE Functions

Function	Operation	User	Access control rule
MFP function (print)	Job execution Job deletion	Normal user	For normal users to which the print (PRT) function is assigned in the Available Function List, operation is permitted
	Job deletion	Administrator	For an administrator, operation is only permitted for functions with the function type “print”
MFP function (scan)	Job execution Job deletion	Normal user	For normal users to which the scan (SCN) function is assigned in the Available Function List, operation is permitted
	Job execution Job deletion	Administrator	For an administrator, operation is only permitted for functions with the function type “scan attribute”
MFP function (copy)	Job execution Job deletion	Normal user	For normal users to which the copy (CPY) function is assigned in the Available Function List, operation is permitted
	Job execution Job deletion	Administrator	For an administrator, operation is only permitted for functions with the function type “copy attribute”
MFP function (fax)	Job execution Job deletion	Normal user	For normal users to which the fax receiving function (FAXIN) and fax sending function (FAXOUT) are assigned in the Available Function List, operation is permitted
	Job execution Job deletion	Administrator	For an administrator, operation is only permitted for functions with the function type “fax attribute”
MFP function	Job execution	Normal user	For normal users to which the

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(document storage and retrieval)	Job deletion		document storage and retrieval (DSR) function is assigned in the Available Function List, operation is permitted
	Job execution Job deletion	Administrator	For an administrator, operation is only permitted for functions with the function type “document storage and retrieval attribute”

(2) FMT_MSA.3(b) Static attribute initialisation

For newly registered U.NORMAL, the TOE configures the Available Function List as the security attributes, but initial values disable use of all functions. The initial value of the security attributes are default values, and access is restricted by these security attributes meaning they are restrictive, and no function exists to define initial values that differ from the default values.

7.4. Security Management Function

The security management function is a function to manage security functions. The security function requirements for security management functions are as below.

- FMT_MSA.1(a), FMT_MSA.1(b), FMT_MTD.1, FMT_SMF.1, FMT_SMR.1

(1) FMT_MSA.1(a) Management of security attributes

The TOE permits the following operations for administrator.

- Deletion, and new creation for User ID of normal users
- Available Function List modify

There are no roles that can modify the document data attributes and user roles.

(2) FMT_MSA.1(b) Management of security attributes

The TOE permits the following operations for administrator.

- Available Function List modify

There are no roles that can modify the function type and user roles.

(3) FMT_MTD.1 Management of TSF Data

The TOE only permits operations on TSF data by roles for which the operations in Table 7-9 are permitted.

Table 7-9 Management of TSF Data

TSF data	Operation	User role for which operation is permitted
User ID of normal users	delete, newly create	Administrator
Administrator user ID	modify	None

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List of recipients for scan/fax/email or address book	delete, newly create	Administrator
Job status log	modify	None
Password policy	modify	Administrator
Non-operation timer setting	modify	Administrator
Administrator authentication settings (operation panel)	modify	Administrator
User restriction settings	modify	Administrator
IPsec settings	modify	Administrator
Time settings	modify	Administrator
Network settings	modify	Administrator
Hash value for verifying integrity of firmware	modify	None
Normal user passwords	delete, newly create	Administrator
	query	None
Administrator password	modify	Administrator
	query	None
Passwords to access external devices such as a mail server or file server	Newly create, modify	Administrator
	query	None
IPsec preshared key	modify	Administrator
	query	None

(4) FMT_SMF.1 Specification of Management Functions

The TOE provides the security management functions below.

Table 7-10 Management Function List

Management Functionality
Registration/deletion of user ID for normal users by U.ADMINISTRATOR
Registration/deletion of list of recipients for scan/fax/email or address book by U.ADMINISTRATOR
Change of password policy by U.ADMINISTRATOR
Change of non-operation timer settings by U.ADMINISTRATOR
Change of administrator authentication settings (operation panel) by U.ADMINISTRATOR
Change of user restriction settings by U.ADMINISTRATOR
Change of IPsec settings by U.ADMINISTRATOR
Change of time settings by U.ADMINISTRATOR
Change of network settings by U.ADMINISTRATOR
Registration/deletion of U.NORMAL user password for normal users by U.ADMINISTRATOR

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Change of U.ADMINISTRATOR administrator password by U.ADMINISTRATOR
Registration/change of passwords to access external devices such as a mail server or file server by U.ADMINISTRATOR
Change of IPsec preshared key by U.ADMINISTRATOR

(5) FMT_SMR.1 Security roles

The TOE has the following roles, and links users to a role.

- Normal user
- Administrator

7.5. Residual Data Overwrite Function

The residual data overwrite function is a function to completely erase deleted or temporarily stored documents from an HDD or Flash ROM and make them unrecoverable. The security function requirements for the residual data overwrite function are as below.

- FDP_RIP.1

(1) FDP_RIP.1 Subset residual information protection

The TOE erases D.DOC saved on the HDD or Flash ROM after jobs performed by basic functions complete. The space used for D.DOC is sequentially overwritten with a specific value (0x00) to erase it. Overwriting to erase from the HDD is performed when the TOE starts up, and when residual data is discovered by the audit process. The TOE can also perform overwriting through manual operation from the operation panel.

7.6. Self-Test Function

The self test function is a function that verifies that part of the TSF operates normally and part of TSF data and TSF implementation code are complete when the MFP starts up. The security function requirements for the self test function are as below.

- FPT_TST.1

(1) FPT_TST.1 TSF test

The TOE performs the following self tests when the MFP starts up.

- It provides a function that calculates a hash value from the firmware file and checks that it matches the value stored in the TOE (a hash value to verifying integrity of the firmware), and by doing so verifies the integrity of part of the TSF data (firmware hash value) and the TSF implementation code as well as partially verifying the normal TSF operation

If an abnormality is detected in the self test, the TOE displays an error message on the MFP's operation panel and does not permit any subsequent operations.

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7.7. Audit Log Function

The audit log function is a function that records TOE usage and security-related events as an audit log for reference. The security function requirements for the audit log function are as below.

- FAU_GEN.1, FAU_GEN.2, FAU_SAR.1, FAU_SAR.2, FAU_STG.1, FAU_STG.4, FPT_STM.1

(1) FAU_GEN.1 Audit data generation

If an auditable event shown in Table 7-11 occurs, the TOE creates audit data and records it as an audit log.

Table 7-11 Auditable Events

Auditable Event	Audit Data	Additional information
Audit log function start (success)	· Date of auditable event occurrence · Type of auditable event · Subject identification information of auditable event · Result of auditable event	· None
Audit log function end (success)		· None
Use of authentication mechanism (success/failure)		· None
Use of identification mechanism (success/failure)		· None
Use of management functions (success/failure)		· None
Change of time (success/failure)		· None
IPsec communication fail		· Communication recipient IP address

The identification mechanism and authentication mechanism are unified, so if identification and authentication fail, there is no need to identify if it is an "identification-only failure". As such, user identification test is not applicable as additional information for the auditable event "use of identification mechanism (success/failure)".

(2) FAU_GEN.2 User identity association

If an auditable event is brought about by a user's action, the TOE links the identification information of the user who caused it to the auditable event.

(3) FAU_SAR.1 Audit review

The TOE permits administrator to read audit logs. The TOE also converts audit logs into a format the administrator can interpret. Administrator logons to Web Config to obtain audit logs (CSV format).

(4) FAU_SAR.2 Restricted audit review

The TOE only permits administrator to read audit logs.

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(5) FAU_STG.1 Protected audit trail storage

The TOE does not permit any user to edit audit logs. Also, the TOE permits only administrators to delete audit logs.

(6) FAU_STG.4 Prevention of audit data loss

When the audit logs are full, the TOE overwrites the audit logs starting with the oldest log.

(7) FPT_STM.1 Reliable time stamps

The TOE has an internal system clock. When an auditable event occurs, the date and time of the occurrence is recorded in the audit log using the system clock. The system clock obtains the time accurately from an NTP server, and it can also be synchronized.

7.8. Network Protection Function

The network protection function is a function to prevent information leakage and data tampering from the network due to eavesdropping when using the LAN. The security function requirements for the network protection function are as below.

- FPT_FDI_EXP.1, FTP_ITC.1

(1) FPT_FDI_EXP.1 Restricted information transfer to external interfaces

The TOE places fixed restrictions on wired LAN and telephone line information transfer as follows.

- The TOE does not directly transfer information input from a wired LAN to a telephone line without additional processing by TSF
- The TOE does not directly transfer information input from a telephone line to a wired LAN without additional processing by TSF

(2) FTP_ITC.1 Inter-TSF trusted channel

During communication between the MFP and servers/client PC, the TOE communicates using a trusted channel. The TOE provides IPsec encryption as a trusted channel. Table 7-12 shows the specifications regarding IPsec encrypted communication.

Table 7-12 IPsec Specifications

Item	Details
Encryption algorithm	AES(128bits,192bits,256bits)

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