Network Appliance Data ONTAP Version 6.5.2R1 Security Target
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DOCUMENT INTRODUCTION

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This document provides the basis for an evaluation of a specific Target of Evaluation (TOE), Data ONTAP Version 6.5.2R1. This Security Target (ST) defines a set of assumptions about the aspects of the environment, a list of threats that the product intends to counter, a set of security objectives, a set of security requirements and the IT Security Functions provided by the TOE which meet the set of requirements.

REVISION HISTORY

Rev	Description
	Initial Release, October 13, 2005

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ACRYONYM AND ABBREVIATION LIST

ACE.....Access Control Entry
ACL.....Access Control List
ADMIN.....Administration
ANSI.....American National Standards Institute
ATA.....Advanced Technology Attachment
CC.....Common Criteria
CIFS.....Common Internet File System
CLI.....Command Line Interface
DAC.....Discretionary Access Control
DC.....Domain Controller (when used in context of resolving client information)
DC.....Delete Child (when used in context of ACEs)
EAL2.....Evaluation Assurance Level 2
FTP.....File Transfer Protocol
GID.....Group ID
ID.....IDentifier
IP.....Internet Protocol
IPSec.....Internet Protocol Security
IT.....Information Technology
I&A.....Identification and Authentication
LDAP.....Lightweight Directory Access Protocol
NAS.....Network-Attached Storage
NDMP.....Network Data Management Protocol
NetApp.....Network Appliance
NIAP.....National Information Assurance Partnership
NIS.....Network Information Service
NFS.....Network File System
NT.....New Technology
NTFS.....NT File System
PP.....Protection Profile
SAN.....Storage Area Network
SD.....Security Descriptor
SF.....Security Function
SFP.....Security Function Policy
SFR.....Security Functional Requirement
SID.....Security ID
SOF.....Strength of Function
SSH.....Secure SHell
SSL.....Secure Socket Layer
ST.....Security Target
TCP.....Transmission Control Protocol
TFTP.....Trivial File Transfer Protocol
TOE.....Target of Evaluation
TSC.....TSF Scope of Control
UAC.....User Access Control
UDP.....User Datagram Protocol

UID .....User ID
UNIX.....UNiversal Interactive eXecutive
WAFL .....Write Anywhere File Layout

CHAPTER 1

1. Security Target Introduction

This Security Target (ST) describes the objectives, requirements and rationale for Data ONTAP (Version 6.5.2R1). The language used in this Security Target is consistent with the *Common Criteria for Information Technology Security Evaluation, Version 2.1*, the ISO/IEC JTC 1/SC27, *Guide for the Production of PPs and STs, Version 0.9* and all National Information Assurance Partnership (NIAP) and international interpretations through July 6, 2004. As such, the spelling of terms is presented using the internationally accepted English.

1.1 Security Target Reference

This section provides identifying information for the Data ONTAP Security Target by defining the Target of Evaluation (TOE).

1.1.1 Security Target Name

Network Appliance Data ONTAP Version 6.5.2R1 Security Target, dated October 13, 2005.

1.1.2 Security Target Author

COACT, Inc.

1.1.3 TOE Reference

Data ONTAP Version 6.5.2R1

1.1.4 Evaluation Assurance Level

Assurance claims conform to EAL2 (Evaluation Assurance Level 2) from the *Common Criteria for Information Technology Security Evaluation, Version 2.1*.

1.1.5 Keywords

Operating System, access control, discretionary access control (DAC).

1.2 TOE Overview

Data ONTAP is a microkernel operating system that supports multi-protocol services and advanced data management capabilities for consolidating and protecting data for enterprise applications and users. Network Appliance's storage appliances are based on the Data ONTAP microkernel operating system.

1.2.1 Security Target Organization

Chapter 1 of this ST provides introductory and identifying information for the TOE.

Chapter 2 describes the TOE and provides some guidance on its use.

Chapter 3 provides a security environment description in terms of assumptions, threats and organizational security policies.

Chapter 4 identifies the security objectives of the TOE and of the Information Technology (IT) environment.

Chapter 5 provides the TOE Security Functional Requirements, as well as requirements on the IT Environment.

Chapter 6 is the TOE Summary Specification, a description of the Security Functions and assurance requirements provided by Data ONTAP.

Chapter 7 identifies claims of conformance to a registered Protection Profile (PP).

Chapter 8 provides a rationale for the security objectives, Security Functional Requirements, TOE summary specification and PP claims.

1.3 Common Criteria Conformance

The Data ONTAP Version 6.5.2R1 is compliant with the Common Criteria (CC) Version 2.1, functional requirements (Part 2) conformant and assurance requirements (Part 3) conformant for EAL2.

1.4 Protection Profile Conformance

The Data ONTAP Version 6.5.2R1 does not claim conformance to any registered Protection Profile.

CHAPTER 2

2. TOE Description

This section provides the context for the TOE evaluation by identifying the product and describing the evaluated configuration.

2.1 Data ONTAP Description

Data ONTAP is a proprietary microkernel operating system developed by Network Appliance. The microkernel is included in the distribution of several of Network Appliance's storage solution products including NearStore, gFiler, and Filer. Data ONTAP provides data management functions that include providing secure data storage and multi-protocol access. Secure storage is provided by Data ONTAP by implementing strict access control rules to data managed by Data ONTAP. Multi-protocol access support is provided by Data ONTAP by supporting both NFS and CIFS clients and providing transparent access to data including cross-protocol support.

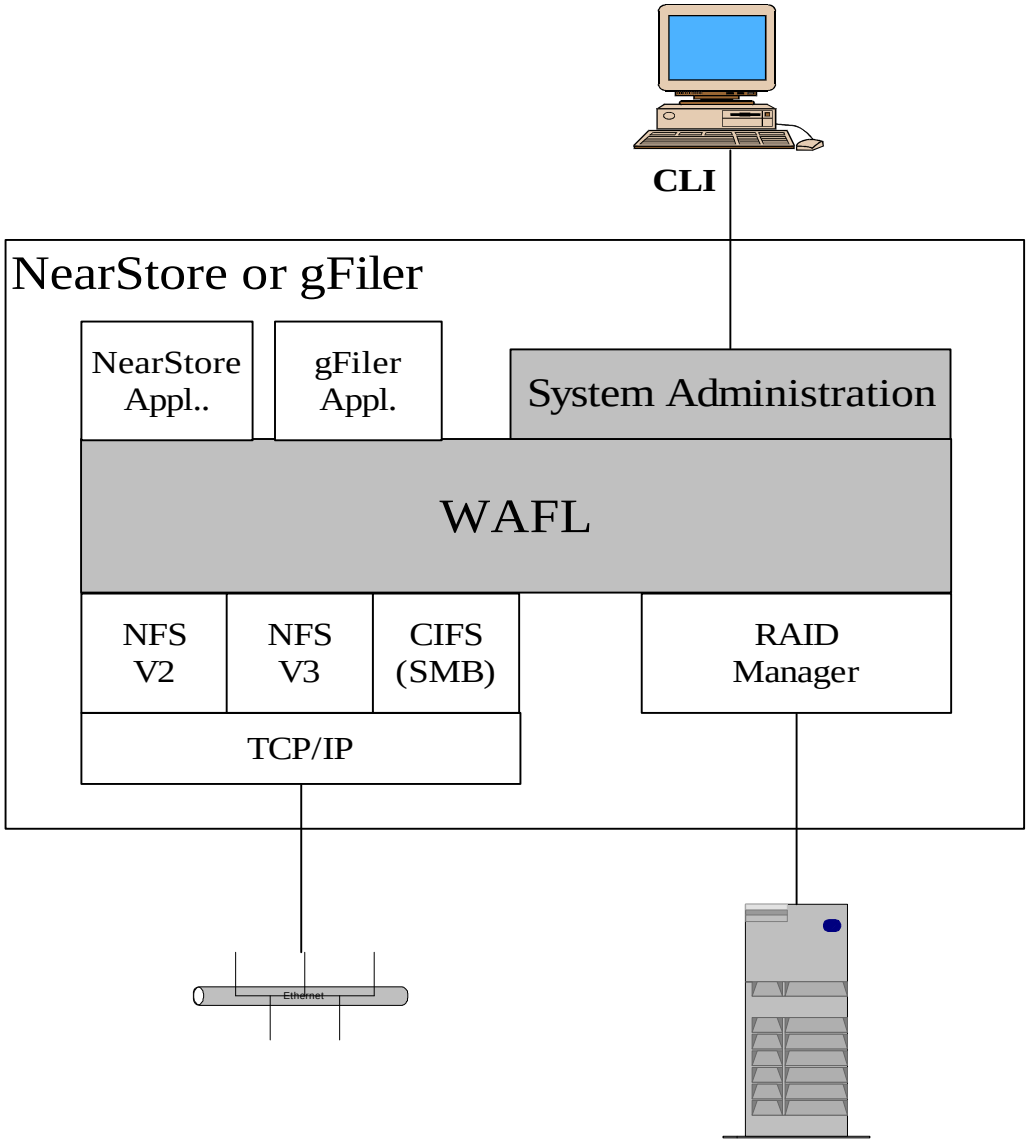
2.2 Physical Boundary

Data ONTAP is divided into two modules: System Administration and WAFL. The two modules are described below.

WAFL	The TOE's WAFL module is responsible for implementing the TOE's DAC SFP. The DAC SFP includes enforcing access rules to user data; based on client type, client security attributes, file types, file security attributes and access request (create, read, write, execute, delete, change permission, and change owner).
System Administration	The System Administration module includes providing an operator interface supporting operator functions including enforcing identification and authentication, user roles and providing the necessary user interface commands that enable an operator to support the TOE's security functionality.

Figure 1 depicts the TOE's physical boundaries. The shaded areas indicate the TOE physical boundaries.

Figure 1 - Physical Boundary



2.3 Logical Boundary

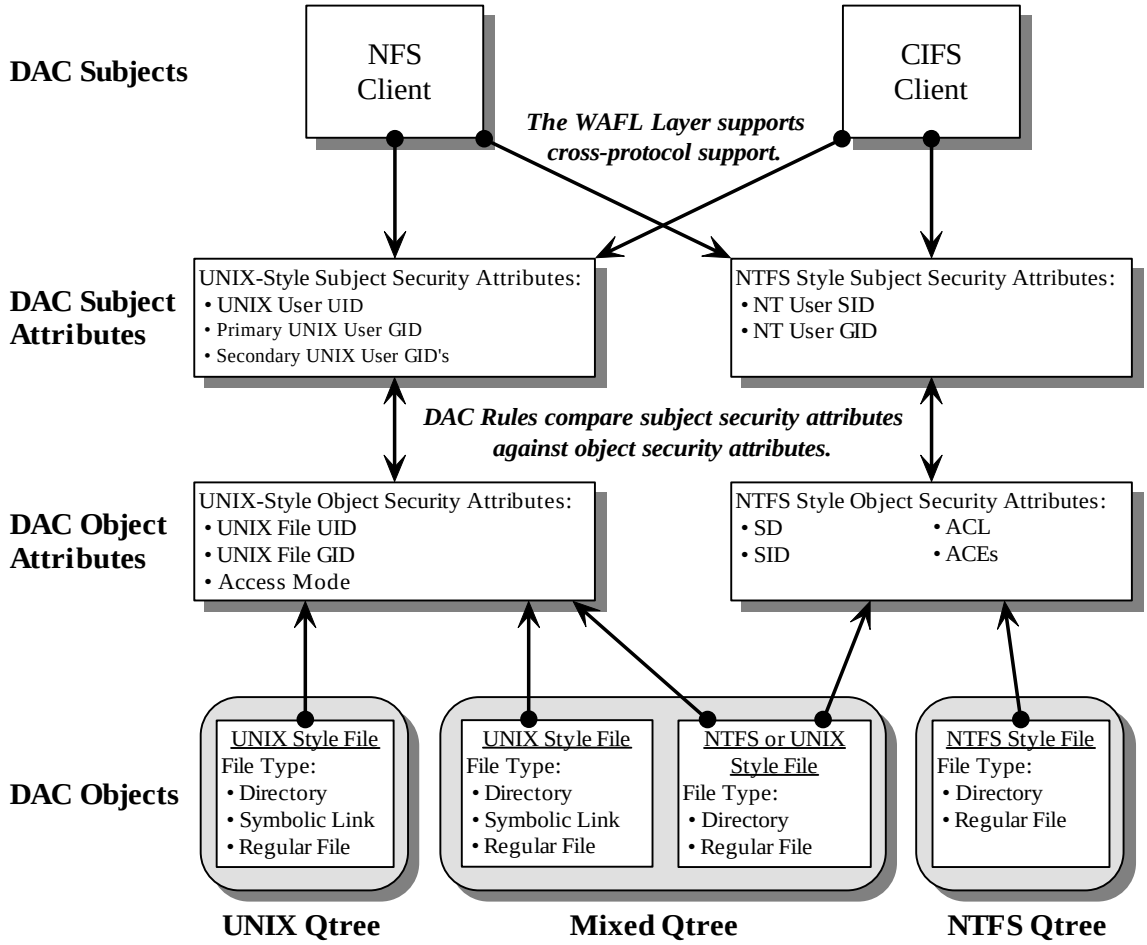
The logical boundaries of the TOE include DAC and Administrative functionality. The logical boundary is described below and in more detail in the following sections.

DAC	The DAC logical boundary includes enforcing access rules to data based on client type, client security attributes, file type, file security attributes and operation. DAC is implemented by the TOE's WAFL module.
Administrative	The Administrative functionality provided by the TOE includes supporting operator functions including enforcing identification and authentication, user roles and providing the necessary user interface commands that enable an operator to support the TOE's security functionality.

2.3.1 DAC

The DAC SFP protects User data. The DAC SFP uses the subject, the subject's security attributes, the object, the object's security attributes and the access mode to determine if access is granted. Figure 2 depicts the DAC SFP.

Figure 2 - DAC SFP Subjects and Objects



2.3.1.1 DAC Subjects

The TOE supports two subjects: NFS Clients and CIFS Clients. Both subjects access the TOE via remote system client software that interfaces to the IT Environment's NFS or CIFS server implementation. The TOE interfaces to the IT Environment's NFS and CIFS servers.

To determine if access is allowed, the TOE compares a client's security attributes with the file's (object's) security attributes. The type of subject security attributes (UNIX-Style or NTFS-Style) required by the DAC SFP depends on the type of security attributes maintained by the object and the operation requested. The object or operation will require UNIX-Style subject security attributes, NTFS-Style subject security attributes or both. If the DAC requires UNIX-Style security attributes for a client, the TOE will attempt to obtain the subject's UNIX User UID, primary UNIX User GID and any secondary UNIX User GIDs. If the DAC requires NTFS-Style subject security attributes,

the TOE will attempt to acquire the subject's NT User SID and an NT User GID. Because of the native operating systems of the two clients, NFS clients are associated with UNIX-Style security attributes and CIFS Clients are associated with NTFS-Style security attributes. However, the TOE also supports cross-protocol access: NFS Clients can be mapped to NTFS-Style security attributes and CIFS Clients can be mapped to UNIX-Style security attributes.

The resolution of subject security attributes is processed differently by the TOE for each type of client because the two protocols are different. NTFS-Style security attributes for a CIFS client are resolved when the CIFS client logged onto the remote system and joined the NT domain (which the TOE is a member of). Therefore, NTFS-Style security attributes for a CIFS client is completed before the TOE receives a CIFS request. Alternatively, NFS client security attributes are resolved per NFS request. The UNIX User UID is passed in each NFS request and this UID is used to resolve the required subject security attributes.

Cross-protocol access requires additional TSF data (usernames) to resolve the appropriate subject security attributes. UNIX User UIDs and NT User UIDs (NT User SIDs) are not directly mapped by the TOE. Instead, UIDs are mapped to the username associated with the UID, the username is then mapped to the other protocol's username and then this new username is used to find the new protocol's UID.

2.3.1.2 DAC Objects

The TSF User Data that is covered by the DAC SFP are files (objects). Each file maintained by the TOE has a file style associated with it. The TOE maintains two styles of files: UNIX-Style files and NTFS-Style files. UNIX-Style files have UNIX-Style object security attributes and NTFS-Style files have NTFS-Style object security attributes. Additionally, a file may be both a UNIX-Style file and an NTFS-Style file.

In addition to a file style, each file has a file type. The file types may be directories, symbolic links or regular files. UNIX-Style files may be a directory, a symbolic link or a regular file. NTFS-Style files do not have symbolic links, therefore, the file type will be either directory or regular file.

In addition to the file type, the TOE maintains three different storage types: UNIX qtrees, NTFS qtrees or Mixed qtrees. A qtree is a disk space partition. UNIX qtrees store UNIX-Style files with UNIX-Style security attributes. NTFS qtrees and Mixed qtrees store both style of files. Files stored in NTFS and Mixed qtrees always have the security attributes associated with the client that was last used to change their access permissions or ownership.

A file's security attributes are determined when the file is created. The TOE will create UNIX-Style security attributes for a file stored in an NTFS or Mixed qtree based on the ACL. However, the TOE will not create an ACL based on UNIX-Style security attributes. Therefore, files in NTFS and mixed qtrees always have UNIX-Style security attributes but may not have an ACL (NTFS-Style security attributes).

2.3.1.3 DAC Operations and Rules

In general the TOE supports access to all objects from subjects. However, the following exceptions apply:

Client: The DAC SFP supports client cross-protocol support for create, read, write, execute, delete and change permission operations. The DAC SFP does not support cross-protocol support of the change owner command. Only NFS Clients can change owner of files in a UNIX qtree or mixed qtree. Only CIFS Clients can change permission or change owner of files in an NTFS qtree or mixed qtree.

File Style: The file style (UNIX-Style or NTFS-Style) is considered in the TOE's DAC SFP Rules because the type of security attributes maintained by the object determines the type of security attributes required by the client. If a file has NTFS-Style security attributes (an ACL) they are considered first for create, read, write, execute, delete and change permission - regardless of client type.

File Type: The file type (directory, symbolic link or regular file) is considered when determining if object access is allowed for a subject. The CIFS protocol does not know about symbolic links. Therefore, CIFS Clients will not request an operation for a symbolic link; the only operations for objects with file type of symbolic link applicable to the DAC SFP are NFS Client operations for UNIX-Style files.

Additional Data: As well as client security attributes and object security attributes, certain operations require the TOE to examine the security attributes of other objects to determine if access is allowed, specifically, the object's parent directory. The TOE examines the security attributes of an object's parent directory for create, delete and change directory operations.

Operation: The operations supported by the DAC (Create, Read, Write, Execute, Change Permissions, Change Owner). The execute command is treated differently for the different file styles and file types. Executing an NTFS directory has no effect. Executing a UNIX-Style directory means to traverse the directory; change the working directory or access a file or subdirectory in the directory.

2.4 Data ONTAP Evaluated Configuration

2.4.1 Data ONTAP Evaluated Configuration Systems

The evaluated configuration will include the three Network Appliance products: gFiler, NearStore, and Filer. The products are distributed with Data ONTAP 6.5.2R1 and are described below.

gFiler: The gFiler product family provides unified NAS and SAN access to data stored in Fibre Channel SAN storage arrays enabling data centered storage deployment.

NearStore: NearStore is a disk-based nearline storage solution and offers additional functionality including simplified backup, accelerated recovery and robust remote disaster recovery.

Filer: The Filer product family provides unified NAS and SAN access.

2.4.2 Data ONTAP Evaluated Configuration Options

The following sections describe the evaluated configuration options.

2.4.2.1 Access Protocol Options

The IT Environment supports multiple protocol servers. The evaluated configuration supports NFS and CIFS clients only. The following servers are disabled: telnet, tftp, ftp, ndmp and http.

2.4.2.2 Name Service Options

The evaluated configuration supports both local and remote resolution (NIS or LDAP) of TSF Data used to support the DAC SFP, but does not support remote resolution of authentication data (nsswitch.conf passwd file).

2.4.2.3 Miscellaneous

A) The wafl.root_only_chown option for the evaluated configuration is disabled. Enabled, only a root user has permission to change the owner of a file. Disabled, the wafl.root_only_chown option enables the owner of a file to change ownership of a file.

B) Shared level ACLs are not evaluated

C) The password field in the /etc/groups file is not used (should be blank).

D) The evaluated configuration will not include the bypass traverse checking option.

E) Primary and secondary UNIX primary GIDs are evaluated; Multiple client UNIX User GIDs are included in the evaluated configuration.

F) The evaluated configuration does not support changing a qtrees style once the qtree is configured.

G) The evaluation configuration disables CIFS and NFS access to the /etc directory

CHAPTER 3

3. Security Environment

This chapter identifies the following:

A) Significant assumptions about the TOE's operational environment.

B) IT related threats to the organization countered by the TOE.

C) Environmental threats requiring controls to provide sufficient protection.

D) Organizational security policies for the TOE as appropriate.

This document uses the following naming conventions to identify the assumptions and threats: Assumptions are identified by an A. and followed by the assumption name (e.g. A.PEER). Threats are identified by a T. and followed by the threat name (e.g. T.ADMIN).

3.1 Assumptions

The specific conditions listed in the following subsections are assumed to exist in the TOE's IT Environment. This includes information about the connectivity, personnel, and physical of the environment.

3.1.1 Connectivity Assumptions

The TOE intended for use in areas that have physical control and monitoring. It is assumed that the following connectivity conditions will exist.

Table 1 - Connectivity Assumptions

Assumption	Assumption Description (Connectivity)
A.PEER	Any other systems with which the TOE communicates are assumed to be under the same management control and operate under the same security policy constraints.

3.1.2 Personnel Assumptions

The TOE intended to be managed by competent non-hostile individuals. It is assumed that the following personnel conditions will exist.

Table 2 - Personnel Assumptions

Assumption	Assumption Description (Personnel)
A.MANAGE	There will be one or more competent individuals assigned to manage the TOE and the security of the information it contains.
A.NO_EVIL_ADM	The system administrative personnel are not careless, willfully negligent or hostile and will follow and abide the instructions provided by the administrator documentation.
A.COOP	Authorized users possess the necessary authorization to access at least some of the information managed by the TOE and are expected to act in a cooperating manner in a benign environment.

3.1.3 Physical Assumptions

The TOE intended for use in areas that have physical control and monitoring. It is assumed that the following physical conditions will exist.

Table 3 - Physical Assumptions

Assumption	Assumption Description (Physical)
A.LOCATE	The processing resources of the TOE will be located within controlled access facilities that will prevent unauthorized physical access.
A.PROTECT	The processing resources of the TOE critical to the security policy enforcement will be protected from unauthorized physical modification by potentially hostile outsiders.
A.CONNECT	All devices on which the TOE resides and their connections will be housed within a controlled access facility.

3.2 Threats

Table 4 identifies the threats against the TOE and the TOE's operational environment.

Table 4 - Threats

Threat	Threat Description
T.ADMIN_ERROR	Improper administration may result in defeat of specific security features.
T.CONFIG_CORRUPT	Configuration data or other trusted data may be tampered with by unauthorized users due to failure of the system to protect this data.
T.UNAUTH_ACCESS	An unauthorized user may attempt to access TOE data or Security Functions by bypassing a security mechanism.
T.USER_CORRUPT	User data may be tampered with by other users.

3.3 Organizational Security Policies

There are no Organizational Security Policies identified for this TOE.

CHAPTER 4

4. Security Objectives

The chapter identifies the security objectives for the TOE, the IT Environment and the non-IT Environment.

This document uses the following naming conventions to identify the security objectives: Security Objectives for the TOE are identified by an O. and followed by the security objective name (e.g. O.ACCESS). Security Objectives for the IT Environment are identified by an O.E. and followed by the security objective name (e.g. O.E.ACCESS). Security Objectives for the non-IT Environment are identified by an O.N. and followed by the security objective name (e.g. O.N.ACCESS).

4.1 Security Objectives for the TOE

Table 5 lists the security objectives for the TOE and their descriptions. These objectives describe the security functionality that is to be achieved by the TOE.

Table 5 - Security Objectives for the TOE

Security Objective (TOE)	TOE Security Objective Description
O.ACCESS	The TOE will ensure that users gain only authorized access to the TOE and to the data the TOE manages.
O.ADMIN_ROLES	The TOE will provide administrative roles to isolate administrative actions.
O.DAC_ACC	The TOE will control accesses to user data based on the identity of users and groups of users.
O.ENFORCE	The TOE is designed and implemented in a manner that insures the organizational policies are enforced in the target environment.
O.I&A	The TOE will require users to identify and authenticate themselves.
O.MANAGE	The TSF will provide functions and facilities necessary to support the authorized administrators that are responsible for the management of TOE security.

4.2 Security Objectives for the Environment

The following sections describe the objectives for the TOE's environment. These objectives describe properties of the operational environment of the TOE necessary in order for the TOE to be able to provide its security functionality.

4.2.1 Security Objectives for the IT Environment

Table 6 identifies the security objectives for the TOE's IT Environment.

Table 6 - Security Objectives for the IT Environment

Security Objective (IT Environment)	IT Environment Security Objective Description
O.E.ACCESS	The IT Environment will ensure that users gain only authorized access to the data the IT Environment manages.

Security Objective (IT Environment)	IT Environment Security Objective Description
O.E.ADMIN_ROLES	The IT Environment will provide administrative roles to isolate administrative actions.
O.E.I&A	The IT Environment must allow authorized users to access only appropriate TOE functions and data.
O.E.SUBJECTDATA	The IT Environment will provide the TOE with the appropriate subject security attributes.

4.2.2 Security Objectives for the Non-IT Environment

Table 7 identifies the security objectives for the TOE's Non-IT Environment. These objectives describe properties of the non-IT operational environment of the TOE necessary in order for the TOE to be able to provide its security functionality.

Table 7 - Security Objectives for the Non-IT Environment

Security Objective (Non-IT Environment)	Non-IT Environment Security Objective Description
O.N.CREDEN	Those responsible for the TOE must ensure that all access credentials, such as passwords, are protected by the users in a manner that maintains IT security objectives.
O.N.INSTALL	Those responsible for the TOE and hardware required by the TOE, must ensure that the TOE is delivered, installed, configured, managed, and operated in a manner which maintains IT security objectives.
O.N.PHYSICAL	Those responsible for the TOE must ensure that those parts of the TOE critical to security policy are protected from any physical attack that might compromise the IT security objectives.
O.N.TRAINED	Those responsible for the TOE will be properly trained and provided the necessary information that ensures secure management of the TOE and the IT Environment.

CHAPTER 5

5. Security Requirements

This section identifies the Security Functional Requirements for the TOE and for the IT Environment. The Security Functional Requirements included in this section are derived verbatim from Part 2 of the *Common Criteria for Information Technology Security Evaluation, Version 2.1* and all National Information Assurance Partnership (NIAP) and international interpretations with the exception of the items listed below.

The CC defines operations on Security Functional Requirements: assignments, selections, assignments within selections and refinements. This document uses the following font conventions to identify the operations defined by the CC.

Assignments: *indicated in italics.*

Selections: indicated in underlined text.

Assignments within selections: *indicated in italics and underlined text*.

Refinements: **indicated with bold text.**

Multiple Security Functional Requirement instances (iterations) are identified by the Security Functional Requirement component identification followed by the instance number in parenthesis (e.g. FAU_SAR.1(1)) and the Security Functional Requirement element name followed by the instance number in parenthesis (e.g. FAU_SAR.1.1(1)). This document continues the iteration numbering for Security Functional Requirements that apply to both the TOE and the IT Environment.

5.1 TOE Security Functional Requirements

This section identifies the Security Functional Requirements for the TOE. The TOE Security Functional Requirements that appear in Table 8 are described in more detail in the following subsections.

Table 8 - Security Functional Requirements of the TOE

Security Functional Requirement (TOE)	Security Functional Requirement Name
FDP_ACC.1	Subset Access Control
FDP_ACF.1	Security Attribute Based Access Control
FIA_ATD.1	User Attribute Definition
FIA_UAU.2	User Authentication Before any Action
FIA_UID.2	User Identification Before any Action
FIA_USB.1	User-Subject Binding
FMT_MSA.1	Management of Security Attributes
FMT_MSA.3	Static Attribute Initialisation
FMT_MTD.1	Management of TSF Data
FMT_SMF.1	Specification of Management Functions

Security Functional Requirement (TOE)	Security Functional Requirement Name
FMT_SMR.1	Security Roles
FPT_RVM.1	Non-Bypassability of the TSP

5.1.1 User Data Protection (FDP)

5.1.1.1 FDP_ACC.1(1) Subset Access Control

FDP_ACC.1.1(1) The TSF shall enforce the *Discretionary Access Control (DAC) SFP* on *the subjects, objects, and operations among subjects and objects listed below.*

Table 9 - FDP_ACC.1.1(1) Detail

Subject	Object			Operation among Subject and Object covered by the DAC SFP
	File Style	File Type	Qtree Type	
NFS Client	*UNIX-Style file*	*Directory, Symbolic link, Regular file*	*UNIX Qtree or Mixed Qtree*	*Create, read, write, execute, delete, change permissions, change ownership*
	NTFS-Style file	*Directory, Regular file*	*NTFS Qtree or Mixed Qtree*	*Create, read, write, execute, delete, change permissions, change ownership*
CIFS Client	*NTFS-Style file*	*Directory, Regular file*	*NTFS Qtree or Mixed Qtree*	*Create, read, write, execute, delete, change permissions, change ownership*
	UNIX-Style file	*Directory, Regular file*	*UNIX Qtree or Mixed Qtree*	*Create, read, write, execute, delete, change permissions, change ownership*
Administrators	*UNIX-Style file*	*Directory, Symbolic link, Regular file*	*UNIX Qtree or Mixed Qtree*	*Create, read, write, execute, delete, change permissions, change ownership*
	NTFS-Style file	*Directory, Regular file*	*NTFS Qtree or Mixed Qtree*	*Create, read, write, execute, delete, change permissions, change ownership*

5.1.1.2 FDP_ACF.1(1) Security Attribute Based Access Control

FDP_ACF.1.1(1) The TSF shall enforce the *DAC SFP* to objects based on the following:

Table 10 - FDP_ACF.1.1(1) Detail

Operation	Subject	Object	Subject		Object (file)	Other Objects and Security Attribute used for DAC SFP
			Security Attribute	Other TSF Data	Security Attribute	
Create	*NFS Client*	*UNIX-Style file*	*UNIX User UID, Primary UNIX User GID and Secondary UNIX User GIDs*	*None*	*N/A*	*Parent directory's UNIX file UID, UNIX file GID and access mode*
	CIFS Client		*UNIX User UID, Primary UNIX User GID and Secondary UNIX User GIDs*	*NT Username, UNIX Username*	*N/A*	*Parent directory's UNIX file UID, UNIX file GID and access mode*
	NFS Client	*NTFS-Style File*	*UNIX User UID, NT User SID, NT User GID*	*UNIX Username, NT Username*	*None*	*Parent directory's SID and ACEs*
	CIFS Client		*NT User SID, NT User GID*	*NT Username*	*None*	*Parent directory's SID and ACEs*
Read, Write, Execute	*NFS Client*	*UNIX- Style file*	*UNIX User UID, Primary UNIX User GID and Secondary UNIX User GIDs*	*None*	*UNIX file UID, UNIX file GID, access mode*	*None*

Operation	Subject	Object	Subject		Object (file)	Other Objects and Security Attribute used for DAC SFP
			Security Attribute	Other TSF Data	Security Attribute	
	CIFS Client		*UNIX User UID, Primary UNIX User GID and Secondary UNIX User GIDs*	*NT Username, UNIX Username*	*UNIX file UID, UNIX file GID, access mode*	*None*
	NFS Client	*NTFS-Style File*	*UNIX User UID, NT User SID, NT User GID*	*UNIX Username, NT Username*	*SID and ACEs*	*None*
	CIFS Client		*NT User SID, NT User GID*	*NT Username*	*SID and ACEs*	*None*
Delete	*NFS Client*	*UNIX- Style file stored in a UNIX qtree*	*UNIX User UID, Primary UNIX User GID and Secondary UNIX User GIDs*	*None*	*None*	*Qtree type, Parent directory's UNIX File UID, UNIX file GID and access mode*
	NFS Client or CIFS Client	*NTFS-Style File in a NTFS qtree*	*NT User SID, NT User GID, UNIX User UID, Primary UNIX User GID and Secondary UNIX User GIDs*	*UNIX Username, NT Username*	*SID and ACEs*	*Parent directory's SID and ACEs,* *UNIX File UID, UNIX file GID and access mode*

Operation	Subject	Object	Subject		Object (file)	Other Objects and Security Attribute used for DAC SFP
			Security Attribute	Other TSF Data	Security Attribute	
	NFS Client or CIFS Client	*UNIX-Style File in a NTFS qtree*	*UNIX User UID, NT User SID, NT User GID, Primary UNIX User GID and Secondary UNIX User GIDs*	*UNIX Username, NT Username*	*None*	*Parent directory's SID and ACEs or Parent directory's UNIX File UID, UNIX file GID and access mode*
		UNIX-Style file stored in a Mixed qtree				
		UNIX- Style file stored in a Mixed qtree	*UNIX User UID, NT User SID, NT User GID, Primary UNIX User GID and Secondary UNIX User GIDs*	*UNIX Username, NT Username*	*None*	*Qtree type, Parent directory's SID and ACEs or Parent directory's UNIX File UID, UNIX file GID and access mode.*
Change Permission	*NFS Client*	*UNIX- Style file*	*UNIX User UID, Primary UNIX User GID and Secondary UNIX User GIDs*	*None*	*UNIX File UID, UNIX file GID and access mode*	*Parent directory's UNIX File UID, UNIX file GID and access mode*

Operation	Subject	Object	Subject		Object (file)	Other Objects and Security Attribute used for DAC SFP
			Security Attribute	Other TSF Data	Security Attribute	
	CIFS Client		*NT User SID, NT User GID*	*NT Username*	*SID and ACEs*	*Parent directory's SID and ACEs*
	NFS Client	*NTFS- Style file*	*NT User SID, NT User GID*	*NT Username*	*SID and ACEs*	*Parent directory's SID and ACEs*
	CIFS Client		*NT User SID, NT User GID*	*NT Username*	*SID and ACEs*	*Parent directory's SID and ACEs*
Change Owner	*Change Owner*	*UNIX- Style file*	*UNIX User UID*	*None*	*None*	*None*

FDP_ACF.1.2(1) The TSF shall enforce the following rules to determine if an operation among controlled subjects and controlled objects is allowed: *access is granted if one of the following conditions is true:*

Table 11 - FDP_ACF.1.2(1) Detail

Subject	Operation	Object				DAC Rule
		Qtree Style	File Style	Parent Directory has an ACL	File (object) has an ACL	
NFS Client or CIFS Client	*Create*	*UNIX*	*N/A*	*N/A*	*N/A*	*1. The subject is the owner of the parent directory and the owner has been granted Write and Execute access (UNIX-Style security attributes).* *2. The subject is not the owner of the parent directory but is a member of the parent directory's group and the group has Write and Execute access (UNIX-Style security attributes).* *3. The subject is neither the owner of the parent directory nor a member of the parent directory's group but Write and Execute access has been granted to all subjects (UNIX-Style security attributes).*
		NTFS or Mixed	*N/A*	*Yes*	*N/A*	*4. There is no parent directory ACE that denies Write or Execute access to the subject and parent directory ACEs exists that grant Write and Execute permission to the subject (NTFS-Style security attributes).* *5. There is no parent directory ACE that denies Write or Execute access to any group that the subject is a member of and parent directory ACEs exist that grant Write and Execute permission to any group the subject is a member of (NTFS-Style security attributes).*
		NTFS or Mixed	*N/A*	*No*	*N/A*	*6. Rule 1, 2 or 3 above is true (subject has Write and Execute UNIX-Style permission for parent directory).*

Subject	Operation	Object				DAC Rule
		Qtree Style	File Style	Parent Directory has an ACL	File (object) has an ACL	
	Read, Write, Execute	*UNIX, NTFS or Mixed*	*UNIX-Style file*	*N/A*	*No*	*7. The subject is the owner of the file and the owner has been granted access for the specific operation (UNIX-Style security attributes).* *8. The subject is not the owner of the file but is a member of the object's group and the object's group has access for the specific operation (UNIX-Style security attributes).* *9. The subject is neither the owner of the file nor a member of the object's group but the specific access request has been granted to all subjects (UNIX-Style security attributes)*
		NTFS or Mixed	*NTFS-Style file*	*N/A*	*Yes*	*10. There is no ACE that denies access to the subject for the specific operation and an ACE exists that grants permission to the subject for the specific operation (NTFS-Style security attributes).* *11. There is no ACE that denies access for the specific operation to any group that the subject is a member of and an ACE exists that grants permission to any group the subject is a member of for the specific operation (NTFS-Style security attributes).*
	Delete	*UNIX*	*UNIX-Style file*	*N/A*	*N/A*	*12. Rule 1, 2 or 3 above is true (subject has Write and Execute UNIX-Style permission for parent directory).*

Subject	Operation	Object				DAC Rule
		Qtree Style	File Style	Parent Directory has an ACL	File (object) has an ACL	
		NTFS	*NTFS-Style file*	*Yes*	*Yes*	*13. Rule 10 or 11 above is true for Delete operation (subject has Delete NTFS-Style permission for object).* *14. Rule 13 above fails and Rule 15 or 16 below is true (subject has Delete Child NTFS-Style permission for parent directory).*
		NTFS	*UNIX-Style file*	*Yes*	*No*	*15. There is no parent directory ACE that denies Delete Child access to the subject and a parent directory ACE exists that grants Delete Child permission to the subject (NTFS-Style security attribute).* *16. There is no parent directory ACE that denies Delete Child access to any group that the subject is a member of and an object ACE exists that grants Delete Child permission to a group the subject is a member of (NTFS-Style security attribute).*
		NTFS	*NTFS-Style file*	*No*	*Yes*	*17. Rule 10 or 11 above is true for Delete operation (subject has Delete NTFS-Style permission for object).* *18. Rule 17 above fails and Rule 1, 2 or 3 above is true (subject has Write and Execute UNIX-Style permission for parent directory).*
		NTFS	*UNIX-Style file*	*No*	*No*	*19. Rule 1, 2 or 3 above is true (subject has Write and Execute UNIX-Style permission for parent directory).*
		Mixed	*NTFS-Style file*	*Yes*	*Yes*	*20. Rule 10 or 11 above is true (subject has Delete NTFS-Style access for the object).* *22. Rule 15 or 16 above is true (subject has Delete Child NTFS-Style permission for the parent directory).*

Subject	Operation	Object				DAC Rule
		Qtree Style	File Style	Parent Directory has an ACL	File (object) has an ACL	
		Mixed	*UNIX-Style file*	*Yes*	*No*	*23. Rule 10 or 11 above is true (subject has Delete NTFS-Style access for the object).* *24. Rule 15 or 16 above is true (subject has Delete Child NTFS-Style permission for the parent directory).* *25. Rule 3, 4 or 5 above is true (subject has Write and Execute UNIX-Style permission for parent directory).*
		Mixed	*NTFS-Style file*	*No*	*Yes*	*26. Rule 10 or 11 above is true (subject has Delete NTFS-Style access for the object).*
		Mixed	*UNIX-Style file*	*No*	*No*	*27. Rule 3, 4 or 5 above is true (subject has Write and Execute UNIX-Style permission for parent directory).*
	Change Permission	*UNIX*	*UNIX-Style file*	*N/A*	*N/A*	*28. Rule 1, 2 or 3 above is true (subject has Write and Execute UNIX-Style permission for parent directory) and rule 7, 8 or 9 above is true for Write operation (UNIX-Style permission for object).*
		NTFS or Mixed	*NTFS-Style file*	*Yes*	*Yes*	*29. Rule 4 or 5 above is true (subject has Write and Execute NTFS-Style permission for parent directory) and rule 10 or 11 above is true for Change Permission operation (NTFS-Style permission for object).*
		NTFS or Mixed	*UNIX-Style file*	*Yes*	*No*	*30. Rule 4 or 5 above is true (subject has Write and Execute NTFS-Style permission for parent directory) and rule 7, 8 or 9 above is true for Write operation (UNIX-Style permission for object).*

Subject	Operation	Object				DAC Rule
		Qtree Style	File Style	Parent Directory has an ACL	File (object) has an ACL	
		NTFS or Mixed	*UNIX-Style file*	*No*	*Yes*	*31. Rule 1, 2 or 3 above is true (subject has Write and Execute UNIX-Style permission for parent directory) and rule 10 or 11 above is true for Change Permission operation (NTFS-Style permission for object).*
		NTFS or Mixed	*UNIX-Style file*	*No*	*No*	*32. Rule 1, 2 or 3 above is true (subject has Write and Execute UNIX-Style permission for parent directory) and rule 7, 8 or 9 above is true for Write operation (UNIX-Style permission for object).*
CIFS Client	*Change Owner*	*NTFS or Mixed*	*NTFS-Style file*	*N/A*	*Yes*	*33. Rule 10 or 11 above is true for Change Owner operation (subject has Change Owner NTFS-Style permission for object).*

FDP_ACF.1.3(1) The TSF shall explicitly authorize access of subjects to objects **based** on the following additional rules: *access is granted if one of the following conditions is true:*

Table 12 - FDP_ACF.1.3(1) Detail

Subject	Operation	Object	DAC Rule
Administrator	*All*	*All*	*Access is allowed*
NFS Client	*Change Owner*	*UNIX- Style file*	*The subject is root*
CIFS Client	*Change Owner*	*NTFS-Style file without an ACL*	*Access is allowed.*

FDP_ACF.1.4(1) The TSF shall explicitly deny access of subjects to objects based on the following additional rules: *access is denied if one of the following conditions is true.*

Table 13 - FDP_ACF.1.4(1) Detail

Subject	Operation	Object	DAC Rule
NFS Client	*Change Owner*	*NTFS-Style file stored in a NTFS qtree*	*Request denied*
CIFS Client	*Change Owner*	*UNIX-Style file stored in a UNIX qtree*	*Request denied*

5.1.2 Identification and Authentication (FIA)

5.1.2.1 FIA_ATD.1(1) User Attribute Definition

FIA_ATD.1.1(1) The TSF shall maintain the following list of security attributes belonging to individual users: *UNIX User UID and Primary UNIX User GID.*

Application note: the evaluated configuration provides an option to maintain UNIX username/UNIX User UID/UNIX User GID mapping either via a local TOE managed file (/etc/passwd) or via the IT Environment (NIS or LDAP). This SFR applies when the evaluated configuration is selected for local administration.

5.1.2.2 FIA_ATD.1(2) User Attribute Definition

FIA_ATD.1.1(2) The TSF shall maintain the following list of security attributes belonging to individual users: *Secondary UNIX User GIDs.*

Application note: the evaluated configuration provides an option to maintain Secondary UNIX User GIDs either via a local TOE managed file (/etc/groups) or via the IT Environment (NIS or LDAP). This SFR applies when the evaluated configuration is selected for local administration.

5.1.2.3 FIA_UAU.2(1) User Authentication Before any Action

FIA_UAU.2.1(1) The TSF shall require each user to be successfully authenticated before allowing any other TSF-mediated actions on behalf of that user.

5.1.2.4 FIA_UID.2(1) User Identification Before any Action

FIA_UID.2.1(1) The TSF shall require each user to identify itself before allowing any other TSF-mediated actions on behalf of that user.

5.1.2.5 FIA_USB.1 User-Subject Binding

FIA_USB.1.1 The TSF shall associate the appropriate user security attributes with subjects acting on behalf of that user.

5.1.3 Security Management (FMT)

5.1.3.1 FMT_MSA.1(1) Management of Security Attributes

FMT_MSA.1.1(1) The TSF shall enforce the *Discretionary Access Control (DAC) SFP* to restrict the ability to modify, delete, *add* the security attributes *UNIX User UID and Primary UNIX User GID maintained locally by the TOE* to *an administrator*.

Application note: the evaluated configuration provides an option to maintain UNIX username/UNIX User UID/UNIX User GID mapping either via a local TOE managed file (/etc/passwd) or via the IT Environment (NIS or LDAP). This SFR applies when the evaluated configuration is selected for local administration.

5.1.3.2 FMT_MSA.1(2) Management of Security Attributes

FMT_MSA.1.1(2) The TSF shall enforce the *Discretionary Access Control (DAC) SFP* to restrict the ability to modify, delete, *add* the security attributes *Secondary UNIX User GIDs maintained locally by the TOE* to *an administrator*.

Application note: the evaluated configuration provides an option to maintain Secondary UNIX User GIDs either via a local TOE managed file (/etc/groups) or via the IT Environment (NIS or LDAP). This SFR applies when the evaluated configuration is selected for local administration.

5.1.3.3 FMT_MSA.3(1) Static Attribute Initialisation

FMT_MSA.3.1(1) The TSF shall enforce the *DAC SFP* to provide restrictive default values for security attributes that are used to enforce the SFP.

FMT_MSA.3.2(1) The TSF shall allow the *none* to specify alternative initial values to override the default values when an object or information is created.

5.1.3.4 FMT_MTD.1(1) Management of TSF Data

FMT_MTD.1.1(1) The TSF shall restrict the ability to modify, delete, *add* the *UNIX Username stored in /etc/passwd* to *administrators*.

5.1.3.5 FMT_MTD.1(2) Management of TSF Data

FMT_MTD.1.1(2) The TSF shall restrict the ability to modify, delete, *add* the *UNIX User Password stored in /etc/passwd* to *administrators*.

5.1.3.6 FMT_MTD.1(3) Management of TSF Data

FMT_MTD.1.1(3) The TSF shall restrict the ability to modify, delete, *add* the *NT Username and UNIX Username mapping stored in /etc/usermap.cfg* to *administrators*.

5.1.3.7 FMT_MTD.1(4) Management of TSF Data

FMT_MTD.1.1(4) The TSF shall restrict the ability to modify, delete, *add* the *UNIX Username stored in the wafl.default_unix_user file* to a*dministrators*.

5.1.3.8 FMT_MTD.1(5) Management of TSF Data

FMT_MTD.1.1(5) The TSF shall restrict the ability to modify, delete, *add* the *NT Username stored in the wafl.default_nt_user file* to *administrators*.

5.1.3.9 FMT_SMF.1 Specification of Management Functions

FMT_SMF.1.1 The TSF shall be capable of performing the following security management functions:

1) *Provides a CLI management interface accessible via the TOE's hardware serial port that provides an interface to enable an administrator to manage TSF Data and configure TSF Functions.*
2) *Provides I&A functions that require administrators to identify and authenticate themselves to the TOE before allowing any modifications of TSF Data.*
3) *Provides a CLI function that enables a user to specify DAC subject security attribute resolution via locally maintained TOE files or via the IT Environment (NIS or LDAP).*

5.1.3.10 FMT_SMR.1(1) Security Roles

FMT_SMR.1.1(1) The TSF shall maintain the roles *administrator and non-administrator.* .

FMT_SMR.1.2(1) The TSF shall be able to associate users with roles.

5.1.4 Protection of the TSF (FPT)

5.1.4.1 FPT_RVM.1 Non-Bypassability of the TSP

FPT_RVM.1.1 The TSF shall ensure that TSP enforcement functions are invoked and succeed before each function within the TSC is allowed to proceed.

5.2 Security Functional Requirements for the IT Environment

This section describes the Security Functional Requirements for the IT Environment. The Security Functional Requirements identified in Table 14 and are described in more detail in the following subsections.

Table 14 - Security Functional Requirements of the IT Environment

Security Functional Requirement (IT Environment)	Security Functional Requirement Name
FDP_ACC.1	Subset Access Control
FDP_ACF.1	Security Attribute Based Access Control
FIA_ATD.1	User Attribute Definition
FIA_UAU.2	User Authentication Before any Action

Security Functional Requirement (IT Environment)	Security Functional Requirement Name
FIA_UID.2	User Identification Before any Action
FMT_MSA.1	Management of Security Attributes
FMT_MSA.3	Static Attribute Initialisation
FMT_MTD.1	Management of TSF Data
FMT_SMR.1	Security Roles
FPT_SEP.1	TSF Domain Separation

5.2.1 User Data Protection (FDP)

5.2.1.1 FDP_ACC.1(2) Subset Access Control

FDP_ACC.1.1(2) The **IT Environment** shall enforce the *IT Environment UAC SFP* on *IT Administrators (subjects), files containing the UNIX username/UNIX User UID/Primary UNIX User GID/Secondary UNIX User GID/ NT User SID/NT User GID/NT Username (objects), read and write access (operations).*

5.2.1.2 FDP_ACF.1(2) Security attribute based access control

FDP_ACF.1.1(2) The **IT Environment** shall enforce the *IT Environment UAC SFP* to objects based on the following: *only IT Administrators can have read and write access to files containing the UNIX username/UNIX User UID/Primary UNIX User GID/Secondary UNIX User GID/ NT User SID/NT User GID/NT Username.*.

FDP_ACF.1.2(2) The **IT Environment** shall enforce the following rules to determine if an operation among controlled subjects and controlled objects is allowed: *only IT Administrators can have read and write access to files containing the UNIX username/UNIX User UID/Primary UNIX User GID/Secondary UNIX User GID/ NT User SID/NT User GID/NT Username*.

FDP_ACF.1.3(2) The **IT Environment** shall explicitly authorise access of subjects to objects based on the following additional rules: *no additional rules.*

FDP_ACF.1.4(2) The **IT Environment** shall explicitly deny access of subjects to objects based on the *no additional rules*.

5.2.2 Identification and Authentication (FIA)

5.2.2.1 FIA_ATD.1(3) User Attribute Definition

FIA_ATD.1.1(3) The **IT Environment** shall maintain the following list of security attributes belonging to individual users: *UNIX User UID and Primary UNIX User GID.*

Application note: the evaluated configuration provides an option to maintain UNIX username/UNIX User UID/Primary UNIX User GID mapping either via a local TOE managed file (/etc/passwd) or via the IT Environment (NIS or LDAP). This SFR applies when the evaluated configuration is selected for IT Environment administration.

5.2.2.2 FIA_ATD.1(4) User Attribute Definition

FIA_ATD.1.1(4) The **IT Environment** shall maintain the following list of security attributes belonging to individual users: *Secondary UNIX User GIDs.*

Application note: the evaluated configuration provides an option to maintain Secondary UNIX User GIDs either via a local TOE managed file (/etc/groups) or via the IT Environment (NIS or LDAP). This SFR applies when the evaluated configuration is selected for IT Environment administration.

5.2.2.3 FIA_ATD.1(5) User Attribute Definition

FIA_ATD.1.1(5) The **IT Environment** shall maintain the following list of security attributes belonging to individual users: *NT User SID and NT User GID.*

5.2.2.4 FIA_UAU.2(2) User Authentication Before any Action

FIA_UAU.2.1(2) The **IT Environment** shall require each user to be successfully authenticated before allowing any other TSF-mediated actions on behalf of that user.

5.2.2.5 FIA_UID.2(2) User Identification Before any Action

FIA_UID.2.1(2) The **IT Environment** shall require each user to identify itself before allowing any other TSF-mediated actions on behalf of that user.

5.2.3 Security Management (FMT)

5.2.3.1 FMT_MSA.1(3) Management of Security Attributes

FMT_MSA.1.1(3) The **IT Environment** shall enforce the *IT Environment UAC SFP* to restrict the ability to <u>modify, delete, *add*</u> the security attributes *UNIX User UID received in the NFS Request* to *an IT administrator.*

5.2.3.2 FMT_MSA.1(4) Management of Security Attributes

FMT_MSA.1.1(4) The **IT Environment** shall enforce the *IT Environment UAC SFP* to restrict the ability to <u>modify, delete, *add*</u> the security attributes *UNIX User UID and Primary UNIX User GID* to *an IT administrator***.**

Application note: the evaluated configuration provides an option to maintain UNIX username/UNIX User UID/Primary UNIX User GID mapping either via a local TOE managed file or via the IT Environment (NIS). This SFR applies when the evaluated configuration is selected for IT administration.

5.2.3.3 FMT_MSA.1(5) Management of Security Attributes

FMT_MSA.1.1(5) The **IT Environment** shall enforce the *IT Environment UAC SFP* to restrict the ability to modify, delete, *add* the security attributes *Secondary UNIX User GIDs* to *an IT administrator***.**

Application note: the evaluated configuration provides an option to maintain Secondary UNIX User GIDs either via a local TOE managed file or via the IT Environment. This SFR applies when the evaluated configuration is selected for IT administration.

5.2.3.4 FMT_MSA.1(6) Management of Security Attributes

FMT_MSA.1.1(6) The **IT Environment** shall enforce the *IT Environment UAC SFP* to restrict the ability to modify, delete, *add* the security attributes *NT User SID and NT User GID maintained by the domain controller* to *an IT administrator.*

5.2.3.5 FMT_MSA.3(2) Static attribute initialisation

FMT_MSA.3.1(2) The **IT Environment** shall enforce the *IT Environment UAC SFP* to provide restrictive default values for security attributes that are used to enforce the SFP.

FMT_MSA.3.2(2) The **IT Environment** shall allow the *IT administrator* to specify alternative initial values to override the default values when an object or information is created.

Application note: FMT_MSA.3(2) applies to the security attributes defined for the IT Environment by FMT_MSA.1.

5.2.3.6 FMT_MTD.1(6) Management of TSF Data

FMT_MTD.1.1(6) The **IT Environment** shall restrict the ability to modify, delete, *add* the *UNIX Username maintained by the IT Environment* to *an IT administrator.*

Application note: the evaluated configuration provides an option to maintain UNIX username/UNIX User UID/Primary UNIX User GID mapping either via a local TOE managed file (/etc/passwd) or via the IT Environment (NIS or LDAP). This SFR applies when the evaluated configuration is selected for IT administration.

5.2.3.7 FMT_MTD.1(7) Management of TSF Data

FMT_MTD.1.1(7) The **IT Environment** shall restrict the ability to modify, delete, *add* the *NT Username maintained by a CIFS Client* to *an IT administrator.*

5.2.3.8 FMT_MTD.1(8) Management of TSF Data

FMT_MTD.1.1(8) The **IT Environment** shall restrict the ability to modify, delete, *add* the *NT Username maintained by the IT Environment's Domain Controller* to *an IT administrator.*

5.2.3.9 FMT_SMR.1(2) Security Roles

FMT_SMR.1.1(2) The **IT Environment** shall maintain the roles *IT administrator*.

FMT_SMR.1.2(2) The **IT Environment** shall be able to associate users with roles.

5.2.4 Protection of the TSF (FPT)

5.2.4.1 FPT_SEP.1 TSF Domain Separation

FPT_SEP.1.1 The **IT Environment** shall maintain a security domain for its own execution that protects it from interference and tampering by untrusted subjects.

FPT_SEP.1.2 The **IT Environment** shall enforce separation between the security domains of subjects in the TSC.

5.3 TOE Security Assurance Requirements

The TOE meets the assurance requirements for EAL2. These requirements are summarised in Table 15 below.

Table 15 - Assurance Requirements

Assurance Class	Component ID	Component Description
Configuration Management	ACM_CAP.2	Version Numbers and Configuration Items
Delivery and Operation	ADO_DEL.1	Delivery Procedures
	ADO_IGS.1	Installation, Generation, and Start-up Procedures
Development	ADV_FSP.1	Functional Specification
	ADV_HLD.1	Descriptive High-Level Design
	ADV_RCR.1	Informal Correspondence Demonstration
Guidance Documents	AGD_ADM.1	Administrator Guidance
	AGD_USR.1	User Guidance
Tests	ATE_COV.1	Evidence of Coverage
	ATE_FUN.1	Functional Testing
	ATE_IND.2	Independent Testing
Vulnerability Assessment	AVA_SOF.1	Strength of Function
	AVA_VLA.1	Developer Vulnerability Analysis

5.4 TOE Strength of Function Claim

Common Criteria for Information Technology Security Evaluation, Part 1: Introduction and General Model, August 1999, defines “Strength of Function (SOF)” in terms of the minimum efforts assumed necessary to defeat the expected security behavior of a TOE security function.

The only probabilistic or permutational mechanism in the TOE is the Identification and Authentication (I&A) security function, which uses a probabilistic or permutational mechanism when comparing passwords to authenticate TOE local users accessing the TOE via a serial connection.

The TOE minimum strength of function claim is SOF-basic. SOF-basic is defined in CC Part 1 section 2.3 as: "A level of the TOE strength of function where analysis shows that the function provides adequate protection against casual breach of TOE security by attackers possessing a low attack potential." The rationale for the chosen level is based on the low attack potential of the threat agents identified in this ST and the strength of the minimum password length. The SOF-basic strength level is sufficient to meet the objectives of the TOE, given the security environment described in this ST.

CHAPTER 6

6. TOE Summary Specification

This Chapter describes the Security Functions implemented by the TOE.

6.1 TOE Security Functions

This section identifies and describes the Security Functions implemented by the TOE.

6.1.1 Administrative (ADMIN) Security Function

The CLI Administrative interface provides the necessary operator functions to allow an administrator to manage and support the TSF.

The TOE maintains two roles for users: administrators and non-administrators.

The TOE enforces local human users (administrators) to identify and authenticate themselves to the TOE before allowing any modifications to TOE managed TSF Data.

The TOE ensures that only administrators can delete, modify, or add to the local files that contain identification and authentication data and files that contain security attributes necessary for enforcement of the DAC SFP.

The TOE ensures that all functions are invoked and succeed before the next function is invoked.

6.1.2 Discretionary Access Control (DAC) Security Function

The TSF mediates access of subjects and objects.

The subjects covered by the DAC SFP are NFS Clients and CIFS Clients.

The objects covered by the DAC SFP are files (TSF user data). The TOE maintains files with either NTFS-Style security attributes or UNIX-Style security attributes or both.

The access modes covered by the DAC SFP are: create, read, write, execute, change permission and change owner.

6.2 Security Function Strength of Function Claim

The I&A security function uses a probabilistic or permutational mechanism when comparing passwords for authentication. This mechanism is SOF-basic.

CHAPTER 7

7. Protection Profile Claims

This chapter provides detailed information in reference to the Protection Profile conformance identification that appears in Chapter 1, Section 1.4 Protection Profile Conformance.

7.1 Protection Profile Reference

This Security Target does not claim conformance to any registered Protection Profile.

7.2 Protection Profile Refinements

This Security Target does not claim conformance to any registered Protection Profile.

7.3 Protection Profile Additions

This Security Target does not claim conformance to any registered Protection Profile.

7.4 Protection Profile Rationale

This Security Target does not claim conformance to any registered Protection Profile.

CHAPTER 8

8. Rationale

Section 8.1 provides the rationale of objectives to threats and assumptions.

Section 8.2 provides the rationale of Security Functional Requirements to objectives.

Section 8.3 provides the rationale of the Security Functions to Security Functional Requirements.

Section 8.4 provides the rationale Security Functional Requirements proving hierarchy and dependencies.

Section 8.5 provides PP rationale.

Section 8.6 provides Assurance Measures Rationale for TOE Assurance Requirements

8.1 Security Objectives Rationale

This section demonstrates that the identified security objectives are covering all aspects of the security needs. This includes showing that each threat and assumption is addressed by a security objective. Table 16 demonstrates the correspondence between the security objectives identified in Chapter 4 to the assumptions and threats identified in Chapter 3. Table 17 provides the rationale proving that each threat and assumption is addressed.

Table 16 - Threats and Assumptions to Security Objectives Mapping

Threat/Assumption	TOE, IT Environment and Non-IT Environment Objectives													
	O.ACCESS	O.ADMIN_ROLES	O.DAC_ACC	O.ENFORCE	O.I&A	O.MANAGE	O.E.ACCESS	O.E.ADMIN_ROLES	O.E.I&A	O.E.SUBJECTDATA	O.N.CREDEN	O.N.INSTALL	O.N.PHYSICAL	O.N.TRAINED
T.ADMIN_ERROR		X				X								X
T.CONFIG_CORRUPT	X	X			X		X	X	X					
T.UNAUTH_ACCESS	X	X		X	X		X	X	X					
T.USER_CORRUPT	X	X	X		X		X	X	X	X				
A.CONNECT													X	
A.COOP											X			
A.LOCATE													X	
A.MANAGE												X		
A.NO_EVIL_ADM												X		
A.PEER												X		
A.PROTECT													X	

Table 17 - Threats and Assumptions to Security Objectives Rationale

Threat/Assumption	Security Objective Rationale (TOE, IT Environment and Non-IT Environment)
T.ADMIN_ERROR	O.N.TRAINED – this object addresses this threat by requiring users to be trained. Therefore, reducing the threat of improper administration by an unknowledgeable or incompetent administrator. O.ADMIN_ROLES – this objective addresses this threat by isolating the amount of damage an users can perform by requiring authorized roles for administrators to perform administrative procedures. O.MANAGE – this objective addresses this threat by providing the necessary functions that enable proper administrative support of the TOE's security functionality.
T.CONFIG_CORRUPT	O.ACCESS – The TOE will monitor attempts to access configuration data or other trusted data that could result in system failure resulting in unauthorized access to trusted data. O.I&A - The TOE will monitor attempts to access configuration data or other trusted data that could result in system failure resulting in unauthorized access to trusted data. Users are required to identify and authenticate themselves to the TOE before attempting to modify TSF data or administrative functions. O.ADMIN_ROLES – The TOE will monitor attempts to access configuration data or other trusted data that could result in system failure resulting in unauthorized access to trusted data. Authorized roles are required for users to perform administrative procedures, thus isolating the amount of damage a user can perform. O.E.ACCESS – The TOE will monitor attempts to access configuration data or other trusted data that could result in system failure resulting in unauthorized access to trusted data. O.E.I&A – The TOE will monitor attempts to access configuration data or other trusted data that could result in system failure resulting in unauthorized access to trusted data. Users are required to identify and authenticate themselves to the TOE before attempting to modify TSF data or administrative functions. O.E.ADMIN_ROLES – The TOE will monitor attempts to access configuration data or other trusted data that could result in system failure resulting in unauthorized access to trusted data. Authorized roles are required for users to perform administrative procedures, thus isolating the amount of damage a user can perform.
T.UNAUTH_ACCESS	O.ACCESS – this objective addresses this threat by enforcing a DAC SFP that defines and enforces restrictive access and modification rules for security attributes and TSF Data managed by the TOE. O.I&A - this objective builds on the O.ACCESS objective by requiring users to identify and authenticate themselves to the TOE before attempting to

Threat/Assumption	Security Objective Rationale (TOE, IT Environment and Non-IT Environment)
	modify TSF data or security attributes via a telnet or serial connection. O.ADMIN_ROLES – this objective supports the O.ACCESS by requiring authorized roles for users to perform administrative procedures therefore, isolating the amount of damage a user can perform. O.E.ACCESS – this objective builds on O.ACCESS objective by providing an IT Environment enforced UAC SFP that defines and enforces restrictive access and modification rules for security attributes and TSF Data managed by the IT Environment and used by the TOE to enforce the DAC SFP. O.E.I&A - this objective builds on the O.E.ACCESS objective by requiring users to identify and authenticate themselves to the IT Environment before attempting to modify TSF data or security attributes managed by the IT Environment. O.E.ADMIN_ROLES – this objective supports the O.E.ACCESS objective by requiring authorized roles for users to perform administrative procedures therefore, isolating the amount of damage a user can perform.
T.USER_CORRUPT	O.DAC_ACC – this objective addresses this threat by defining a DAC SFP that defines and enforces access rules for user data managed by the TOE based on subjects, objects, subject security attributes, object security attributes and operations. O.ACCESS – this objective supports the O.DAC_ACC objective by enforcing a DAC SFP that defines and enforces restrictive access and modification rules for security attributes and TSF Data managed by the TOE . O.I&A - this objective supports the O.ACCESS objective by requiring users to identify and authenticate themselves to the TOE before attempting to modify TSF data and security attributes managed by the TOE. O.ADMIN_ROLES – this objective supports the O.ACCESS by requiring authorized roles for administrators to perform administrative procedures therefore, isolating the amount of damage a user can perform. O.E.SUBJECTDATA – this objective supports the O.DAC_ACC objective by requiring the IT Environment to provide the security attributes and TSF data managed by the IT Environment and used by the TOE to enforce the DAC SFP to the TOE. O.E.ACCESS – this objective builds on O.SUBJDATA objective by providing an IT Environment enforced UAC SFP that defines and enforces restrictive access and modification rules for security attributes and TSF Data managed by the IT Environment and used by the TOE to enforce the DAC SFP. O.E.I&A - this objective builds on the O.E.ACCESS objective by requiring users to identify and authenticate themselves to the IT Environment before attempting to modify TSF data or security attributes managed by the IT

Threat/Assumption	Security Objective Rationale (TOE, IT Environment and Non-IT Environment)
	Environment and used by the TOE to enforce the DAC SFP. O.E.ADMIN_ROLES – this objective supports the O.E.ACCESS objective by requiring authorized roles for users to perform administrative procedures therefore, isolating the amount of damage a user can perform.
A.CONNECT	O.N.PHYSICAL – this objective provides for the physical protection of the TOE.
A.COOP	O.N.CREDEN - this objective provides for the physical protection of the TOE's authentication data.
A.LOCATE	O.N.PHYSICAL – this objective provides for the physical protection of the TOE.
A.MANAGE	O.N.INSTALL - this objective ensures that the TOE will be managed appropriately.
A.NO_EVIL_ADM	O.N.INSTALL - this objective ensures that the TOE will be managed appropriately.
A.PEER	O.N.INSTALL - this objective ensures that the TOE will be managed appropriately.
A.PROTECT	O.N.PHYSICAL – this objective provides for the physical protection of the TOE.

8.2 Security Functional Requirements Rationale

8.2.1 Rationale for Security Functional Requirements of the TOE Objectives

This section provides rationale for the Security Functional Requirements demonstrating that the Security Functional Requirements are suitable to address the security objectives. Table 18 identifies for each Security Functional Requirement identified in Section 5.1, the TOE security objective(s) identified in Section 4.1 that address it. Table 19 provides the rationale proving that each security objective is addressed by a Security Functional Requirement.

Table 18 - TOE SFRs to TOE Security Objectives Mapping

Security Functional Requirement (TOE)	TOE Objective					
	O.ACCESS	O.ADMIN_ROLES	O.DAC_ACC	O.ENFORCE	O.I&A	O.MANAGE
FDP_ACC.1(1)			X			

Security Functional Requirement (TOE)	TOE Objective					
	O.ACCESS	O.ADMIN_ROLES	O.DAC_ACC	O.ENFORCE	O.I&A	O.MANAGE
FDP_ACF.1(1)			X			
FIA_ATD.1(1)			X			
FIA_ATD.1(2)			X			
FIA_UAU.2(1)					X	
FIA_UID.2(1)					X	
FIA_USB.1			X			
FMT_MSA.1(1)	X					X
FMT_MSA.1(2)	X					X
FMT_MSA.3(1)			X			
FMT_MTD.1(1)	X					X
FMT_MTD.1(2)	X					X
FMT_MTD.1(3)	X					X
FMT_MTD.1(4)	X					X
FMT_MTD.1(5)	X					X
FMT_SMF.1						X
FMT_SMR.1(1)		X				
FPT_RVM.1				X		

Table 19 - TOE SFRs to TOE Security Objectives Rationale

Objective (TOE)	TOE Security Objectives Rationale	
	Note	Rationale
O.ACCESS		FMT_MSA.1(1) – Defines the restrictions to modify a client's UNIX-Style security attributes (UNIX User UID and Primary UNIX User GID) managed by the TOE and used to enforce the DAC SFP. FMT_MSA.1(2) – Defines the restrictions to modify a client's UNIX-Style security attributes (Secondary UNIX User GIDs) managed by the TOE and used to enforce the DAC SFP. FMT_MTD.1(1) – Defines the restrictions to modify UNIX usernames (/etc/passwd) managed by the TOE and used to enforce the DAC SFP and I&A. FMT_MTD.1(2) – Defines the restrictions to modify UNIX

Objective (TOE)	TOE Security Objectives Rationale	
	Note	**Rationale**
		passwords (/etc/passwd) managed by the TOE and used to enforce the I&A. FMT_MTD.1(3) – Defines the restrictions to modify UNIX username and NT username mappings (/etc/usermap.cfg) managed by the TOE and used to enforce the DAC SFP FMT_MTD.1(4) – Defines the restrictions to modify the default UNIX username (wafl.default_unix_user) managed by the TOE and used to enforce the DAC SFP. FMT_MTD.1(5) – Defines the restrictions enforced to modify the default NT username (wafl.default_nt_user) managed by the TOE and used to enforce the DAC SFP.
O.ADMIN_ROLES		FMT_SMR.1(1) – Defines the user roles implemented by the DAC SFP requiring authorized roles for administrators to perform administrative procedures.
O.DAC_ACC	DAC Subjects	FDP_ACC.1(1) – Identifies the subjects covered by the DAC SFP. FDP_ACF.1(1) – Identifies the subject security attributes used to enforce the DAC SFP. FIA_ATD.1(1) – Identifies the TOE maintained subject security attributes (UNIX User UID and Primary UNIX User GID) used to enforce the DAC SFP. FIA_ATD.1(2) – Identifies the TOE maintained subject security attributes (Secondary UNIX User GID) used to enforce the DAC SFP. FIA_USB.1 – Ensures that the appropriate security attributes are used for the subjects (client processes) acting on behalf of the users.
	DAC Objects	FDP_ACC.1(1) – Identifies the objects covered by the DAC SFP. FDP_ACF.1(1) – Identifies the object security attributes used to enforce the DAC SFP. FMT_MSA.3(1) – Ensures restrictive default values are defined for the TOE's object security attributes used to enforce the DAC SFP.
	DAC Operations	FDP_ACC.1(1) – Identifies the operations (access requests) of subjects on objects covered by the DAC SFP.
	DAC Rules	FDP_ACF.1(1) – Defines the DAC rules enforced by the TOE that define access rules for TOE managed user data.
O.ENFORCE		FPT_RVM.1 - The TOE ensures that all functions are invoked and succeed before the next function may proceed.
O.I&A		FIA_UID.2(1) – Ensures that users must identify themselves before any TSF mediated access to the TOE functions or TSF data is allowed. FIA_UAU.2(1) – Ensures that users must authenticate themselves before any TSF mediated access to the TOE functions or TSF data

Objective (TOE)	TOE Security Objectives Rationale	
	Note	Rationale
		is allowed.
O.MANAGE		FMT_SMF.1 – Defines the TSF management functions provided by the TOE that ensures the TOE's SFPs can be enforced. FMT_MSA.1(1) Only authorized administrators responsible for the management of TOE security may modify, delete or add the UNIX-style security attributes (UNIX User UID and Primary UNIX User GID) maintained locally by the TOE and used to enforce the DAC SFP. FMT_MSA.1(2) Only authorized administrators responsible for the management of TOE security may modify, delete or add the UNIX-style security attributes (Secondary UNIX User GIDs) maintained locally by the TOE and used to enforce the DAC SFP. FMT_MTD.1(1) – Defines the restrictions enforced by the DAC SFP to modify UNIX usernames (/etc/passwd) managed by the TOE and used to enforce the DAC SFP and I&A. FMT_MTD.1(2) – Defines the restrictions enforced by the DAC SFP to modify UNIX passwords (/etc/passwd) managed by the TOE and used to enforce the I&A. FMT_MTD.1(3) – Defines the restrictions enforced by the DAC SFP to modify UNIX username and NT username mappings (/etc/usermap.cfg) managed by the TOE and used to enforce the DAC SFP FMT_MTD.1(4) – Defines the restrictions enforced by the DAC SFP to modify the default UNIX username (wafl.default_unix_user) managed by the TOE and used to enforce the DAC SFP. FMT_MTD.1(5) – Defines the restrictions enforced by the DAC SFP to modify the default NT username (wafl.default_nt_user) managed by the TOE and used to enforce the DAC SFP

8.2.2 Rationale for Security Functional Requirements of the IT Environment

This section provides rationale for the IT Environment's Security Functional Requirements demonstrating that the IT Environment's Security Functional Requirements are suitable to address the IT Environment's security objectives. Table 20 identifies for each IT Environment Security Functional Requirement identified in Section 5.2, the IT Environment's security objective(s) identified in Section 4.2 that address it. Table 21 provides the rationale proving that each IT Environment security objective is addressed by an IT Environment Security Functional Requirement.

Table 20 - IT Environment Security Functional Requirements to IT Environment Objectives Mapping

Security Functional Requirements (IT Environment)	IT Environment Objective			
	O.E.ACCESS	O.E.ADMIN_ROLES	O.E.I&A	O.E.SUBJECTDATA
FIA_ATD.1(3)				X
FIA_ATD.1(4)				X
FIA_ATD.1(5)				X
FIA_UAU.2(2)			X	
FIA_UID.2(2)			X	
FDP_ACC.1(2)	X			
FDP_ACF.1(2)	X			
FMT_MSA.1(3)	X			
FMT_MSA.1(4)	X			
FMT_MSA.1(5)	X			
FMT_MSA.1(6)	X			
FMT_MSA.3(2)	X			
FMT_MTD.1(6)	X			
FMT_MTD.1(7)	X			
FMT_MTD.1(8)	X			
FMT_SMR.1(2)		X		
FPT_SEP.1	X			

Table 21 - IT Environment Security Functional Requirements to IT Environment Objectives Rationale

Objective (IT Environment)	IT Environment Security Objectives Rationale
O.E.ACCESS	FDP_ACC.1(2) and FDP_ACF.1(2) – Defines the IT Environment UAC SFP to access TSF data managed by the IT Environment FMT_MSA.1(3) – Defines the restrictions enforced by the IT Environment's UAC SFP to modify UNIX User UIDs received in an NFS request and used by the TOE to enforce the DAC SFP. FMT_MSA.1(4) – Defines the restrictions enforced by the IT Environment's UAC SFP to modify UNIX User UIDs and Primary UNIX User GIDs maintained by the IT Environment and used by the TOE to enforce the DAC

Objective (IT Environment)	IT Environment Security Objectives Rationale
	SFP. FMT_MSA.1(5) – Defines the restrictions enforced by the IT Environment's UAC SFP to modify Secondary UNIX User GIDs maintained by the IT Environment and used by the TOE to enforce the DAC SFP. FMT_MSA.1(6) – Defines the restrictions enforced by the IT Environment's UAC SFP to modify NT User SIDs and NT User GIDs maintained by the IT Environment's Domain Controller and used by the TOE to enforce the DAC SFP. FMT_MSA.3(2) – Defines the restrictions that the IT Administrator is only able to set default values or modify the default values for the files containing the TSF data. FMT_MTD.1(6) – Defines the restrictions enforced by the IT Environment's UAC SFP to modify UNIX usernames (NFS or LDAP) managed by the IT Environment and used to enforce the DAC SFP. FMT_MTD.1(7) – Defines the restrictions enforced by the IT Environment's UAC SFP to modify NT usernames managed by the IT Environment's CIFS Server and used to enforce the DAC SFP. FMT_MTD.1(8) – Defines the restrictions enforced by the IT Environment's UAC SFP to modify NT usernames (from Domain Controller) managed by the IT Environment's Domain Controller and used to enforce the DAC SFP. FPT_SEP.1 – Ensures that the TSF is protected from interference that would prevent it from performing its functions.
O.E.ADMIN_ROLES	FMT_SMR.1(2) – Defines the user roles implemented by the IT Environment's UAC SFP requiring authorized roles for administrators to perform administrative procedures.
O.E.I&A	FIA_UID.2(2) – Ensures that users must identify themselves to the IT Environment before allowing any TSF mediated access to the TOE functions or TSF data. FIA_UAU.2(2) - Ensures that users must authenticate themselves to the IT Environment before allowing any TSF mediated access to the TOE functions or TSF data.
O.E.SUBJECTDATA	FIA_ATD.1(3) - Identifies the subject security attributes (UNIX User UID and Primary UNIX User GID) maintained by the IT environment and used by the TOE to enforce the DAC SFP. FIA_ATD.1(4) - Identifies the subject security attributes (Secondary UNIX User GIDs) maintained by the IT environment and used by the TOE to enforce the DAC SFP. FIA_ATD.1(5) - Identifies the subject security attributes (NT User SID and NT User GID) maintained by the IT environment and used by the TOE to enforce the DAC SFP.

8.3 TOE Summary Specification Rationale

This section demonstrates that the TOE's Security Functional Requirements identified in Section 5.1 completely and accurately meet the TOE's two Security Functions identified in Sections 6.1. Table 22 demonstrates the correspondence between the two Security

Functions and the TOE Security Functional Requirements. The subsequent sections describe the rationale proving that the Security Functional Requirements provide the functionality of the Security Functions. The table is also shows how the Security Functional Requirements meet different areas of the two Security Functions.

Table 22 - Security Functional Requirements to Security Functions Mapping

Security Functional Requirements (TOE)	ADMIN	DAC
FDP_ACC.1(1)		X
FDP_ACF.1(1)		X
FIA_ATD.1(1)		X
FIA_ATD.1(2)		X
FIA_UAU.2(1)	X	
FIA_UID.2(1)	X	
FIA_USB.1		X
FMT_MSA.1(1)	X	
FMT_MSA.1(2)	X	
FMT_MSA.3(1)		X
FMT_MTD.1(1)	X	
FMT_MTD.1(2)	X	
FMT_MTD.1(3)	X	
FMT_MTD.1(4)	X	
FMT_MTD.1(5)	X	
FMT_SMF.1	X	
FMT_SMR.1(1)	X	
FPT_RVM.1	X	

8.3.1 DAC Security Function

The DAC SFP protects user data (FDP_ACC.1(1)). The DAC SFP uses the subject type, subject's security attributes, the object, the object's security attributes and the access mode (operation) to determine if access is granted. The following sections describe the DAC SFP and provide the Security Functional Requirement that meet the Security Function.

8.3.1.1 DAC SFP Object Security Attributes

The TSF User Data that is covered by the DAC SFP are files (objects). Each file maintained by the TOE has a file style associated with it. The type of security attributes associated with the file defines a file style. The TOE maintains two styles of files: UNIX-Style files and NTFS-Style files. In general (), UNIX-Style files have UNIX-Style security attributes and NTFS-Style files have NTFS-Style security. Each file style is

assigned different security attributes that are used by the DAC SFP to determine if access is granted for a subject.

In addition to a file style, each file has a file type. The file types may be directories, symbolic links or regular files. UNIX-Style files may be a directory, a symbolic link or a regular file (FDP_ACC.1(1)). NTFS-Style files do not have symbolic links, therefore, the file type will be either directory or regular file (FDP_ACC.1(1)).

In addition to the file type, the TOE maintains three different storage types: UNIX qtrees, NTFS qtrees or mixed qtrees. A qtree is a disk space partition. UNIX qtrees store UNIX-Style files with UNIX-Style security attributes. NTFS qtrees store NTFS-Style files with NTFS-Style security attributes. Mixed qtrees store both style of files and in addition, the files may have both UNIX-Style security attributes and NTFS-Style security attributes associated with them or they may have only one type of security attributes associated with them. Files stored in mixed qtrees always have the security attributes associated with the client that was last used to change their access permissions or ownership. The following sections describe the security attributes associated with the objects.

8.3.1.1.1 UNIX-Style File Security Attribute Description

A UNIX-Style file managed by the TOE has eleven security attributes that are used to determine file access. The security attributes include a UNIX File UID, a UNIX file GID and a nine character access mode string. The UNIX File UID is the UID of the file's owner. The UNIX file GID is the GID associated with the file. The access mode is a subset of characters within the file's file permission string. The file permission string is represented in ten characters common to all UNIX files (e.g. drwxrwxrwx). The first character contains one of three characters that identifies the file type: d for directory, l for a symbolic link, or a dash (-) indicates the file is a regular file. The following 9 characters represent the access mode for the file in three sets of rwx triplets. The first triplet specifies the permission for the file's owner (UID). The next triplet specifies the permissions for the group associated with the file (UNIX file GID). The last three characters specify the permission for the users who are neither the owner nor members of the file's group. The rwx triplet identifies the permission for that set (owner, group, user). The three characters represent Read, write or execute privileges. If the character is a dash, the set does not have permissions to perform the specific action (FDP_ACF.1(1)).

To determine if a client has read, write or execute permission for a UNIX-Style file, the TOE first compares the client's UNIX User UID with the file's UID. If a match occurs (the client is the owner) and the file's access mode specifies permission for the specific access request (rwx), the request is allowed. If the owner does not have permission to perform the request, the request is denied. If the client is not the file's owner, the TOE determines if the client is a member of the file's group by comparing the client's Primary UNIX User GID and any Secondary UNIX User GIDs to the file's GID. If the client is a member of the file's group and the access mode specifies permission for the specific access request, the request is allowed. If the group does not have permission to perform the request, the request is denied. If the client is not the file's owner or a member of the file's group, the TOE then determines if all others (the last triplet) have permission to

perform the request. If all others have permission, the request is honored. Otherwise the request is denied (FDP_ACF.1(1)).

For the remainder of this document, when the DAC SFP rules state that the TOE determines if a client, using UNIX-Style security attributes, has access, the above steps are what the TOE performs: the TOE walks through the owner, group and user attributes to determine access.

8.3.1.1.2 NTFS-Style File Security Attributes Description

The TOE's NTFS-Style file security attributes are standard NT file security attributes. Each file has a data structure associated with it called a Security Descriptor (SD). This SD contains, the file owner's Security ID (SID) and an Access Control List (ACL). Each ACL consists of one or more Access Control Entries (ACEs). Each ACE explicitly allows or denies access to a single user or group. Access is allowed if there is no ACE that denies access to the user or any group that the user is a member of and if an ACE exists that grants permission to the user or any group the user is a member of.

For the remainder of this document, when the DAC SFP rules state that the TOE determines if a client, using NTFS-Style security attributes, has access, the above steps are what the TOE performs to determine access.

8.3.1.2 DAC SFP Access Requests

Access requests define what operation a subject requests to perform on an object. The TOE's DAC SFP addresses seven access requests: create, read, write, execute, delete, change permissions and change owner (FDP_ACC.1(1)). The following sections define the operations.

8.3.1.2.1 UNIX-Style Access Requests

The following table identifies the operations of subjects on UNIX-Style files (objects) covered by the DAC SFP and explains what each of the file access request means.

Table 23 - UNIX-Style File Access Requests

DAC SFP Operation	UNIX-Style File Types		
	Directory	**Symbolic Link**	**Normal File**
Create	Create a directory.	Create a symbolic link.	Create a file.
Read	Get info about the directory or its contents.	Read the file the symbolic link contains the name of.	Read the file.
Write	Add a file in the directory.	Write to the file the symbolic link contains the name of.	Append/write/truncate the file.

DAC SFP Operation	UNIX-Style File Types		
	Directory	Symbolic Link	Normal File
Execute	Traverse the directory; change the working directory or access a file or subdirectory in the directory.	Execute the file the symbolic link contains the name of.	Execute the file.
Delete	Add, delete or rename a file in the directory.	Write to the file the symbolic link contains the name of.	Delete the file.
Change Permission	Change the permission of the directory.	Change the permission of the symbolic link.	Change the permission of the file.
Change Owner	Become the directory's owner.	Become the file's owner.	Become the file's owner.

8.3.1.2.2 NTFS-Style File Access Requests

The NTFS-Style file security attributes define more access modes than UNIX does. There are, however, no symbolic links in NTFS-Style files. The following table identifies the operations of subjects on NTFS-Style files (objects) covered by the DAC SFP and explains what each of the basic file access request means.

Table 24 - NTFS-Style File Access Modes

DAC SFP Operation	NTFS-Style File Types	
	Directory	Normal File
Create	Create a directory.	Create a file.
Read	Get info about the directory or its contents	Read the file.
Write	Add a file in the directory.	Truncate, append, or overwrite the file.
Execute	No effect.	If the file has an extension of .exe or .com, attempt to execute it as a native binary. If it has an extension of .bat or .cmd, attempt to execute it as a batch or command file using the command interpreter.
Delete	Delete the directory. Delete privilege must be explicitly granted on the contained files and subdirectories before they can be deleted. A directory may	Delete the file.

DAC SFP Operation	NTFS-Style File Types	
	Directory	Normal File
	not be deleted unless it is empty.	
Change Permission	Change the permissions on the directory (change the directory's ACL).	Change the file's ACL.
Change Owner	Become the directory's owner.	Become the file's owner.

8.3.1.3 DAC SFP Subject Security Attributes

The subjects that apply to the DAC SFP are administrators, NFS Clients and CIFS Clients (FDP_ACC.1(1)). The latter two subjects access the TOE via remote systems (process acting on behalf of a user) (FIA_USB.1). To determine if access is permitted for an object, the TOE requires the security attributes associated with the client. These security attributes may be resolved by the TOE, the IT Environment or both.

The subject security attributes required by the DAC SFP depend on the type of security attributes maintained by the object; the object will require either UNIX-Style subject security attributes or NTFS-Style subject security attributes to determine if access is permitted. Based on the native systems, NFS clients are typically associated with UNIX-Style security attributes and CIFS Clients are associated with NTFS-Style security attributes. However, the TOE also supports multi-protocol access: NFS Clients can be mapped to NTFS-Style security attributes and CIFS Clients can be mapped to UNIX-Style security attributes. Administrators are always UNIX-style clients. The following sections describe the TOE's subject security attribute resolution used to enforce the DAC SFP.

8.3.1.3.1 UNIX-Style Client Security Attributes

If the TOE determines that UNIX-Style security attributes should be used to determine access for an object, the TOE requires a client's (subject's) UNIX User UID, primary UNIX User GID and any secondary UNIX User GIDs (FDP_ACF.1(1)).

If the access request is initiated by an administrator, the TOE determines the UNIX User UID and username from the I&A functionality. The TOE then searches the /etc/passwd file (or IT Environment) to get the Primary UNIX User GID. The TOE then uses the UNIX username to search the /etc/group file (or IT Environment) to obtain any secondary UNIX User GIDs (FDP_ACF.1(1)).

If the access request is initiated by an NFS Client, the TOE received the NFS Client's UNIX User UID in the NFS request (IT Environment). The TOE then searches the /etc/passwd file (or IT Environment) to get the Primary UNIX User GID and UNIX username. The TOE then uses the UNIX username to search the /etc/group file (or IT Environment) to obtain any secondary UNIX User GIDs (FDP_ACF.1(1)).

If the access request is initiated by a CIFS Client, the TOE obtained the CIFS Client's username (NT username) when the client logged onto the system and joined the NT Domain (IT Environment). To get UNIX-Style security attributes for the CIFS Client, the TOE searches the /etc/usermap.cfg file to find a UNIX username for the NT

username. If a match is found, the UNIX username is used. Otherwise, the TOE converts the NT username to lowercase and uses this name as a UNIX username. The TOE then looks up the UNIX username in the /etc/passwd file (or IT Environment) to find the UNIX User UID and Primary UNIX User GID. If no entry exists for the name, the TOE uses the UNIX User username specified in the wafl.default_unix_user file. The TOE then uses this name to obtain the UNIX User UID and Primary UNIX User GID from the /etc/passwd file (or IT Environment). The TOE then searches the /etc/group file (or IT Environment) for the UNIX username to find any Secondary UNIX User GIDs (FIA_ATD.1).

For the remainder of this document, when the documents states the DAC SFP rules state that the TOE uses UNIX-Style security attributes for the subject, the TOE performs the steps described above to obtain the security attributes. Paragraph one in section 8.3.1.3.1 describes UNIX-Style security attribute resolution for NFS clients. Paragraph two in section 8.3.1.3.1 describes UNIX-Style security attribute resolution for CIFS Clients.

8.3.1.3.2 NTFS-Style Client Security Attributes

If the TOE determines that NTFS-Style security attributes should be used to determine access for an object, the TOE requires two subject security attributes: an NT User SID and an NT User GID.

If the access request is initiated by a CIFS Client, the TOE obtained the CIFS Client's username (NT username) when the client logged onto the remote system and joined the NT Domain. In addition to this, the IT Environment queried the domain controller to obtain the NT User SID and the NT User GID.

If the access request is initiated by an NFS Client, the TOE received the client's UNIX User UID in the NFS request. To obtain the NTFS-Style subject security attributes for the NFS Client, the TOE first finds the UNIX username that maps to the UNIX User UID by searching the /etc/passwd file (or IT Environment) (FIA_ATD.1(1)). If a match is not found, access is denied. If a match is found, the TOE uses the UNIX username to find the NT username in the /etc/usermap.cfg file. If a match is not found, the TOE uses the NT username specified in the wafl.default_nt_user file. Given the NT username, the TOE finds the NT User SID and NT User GID by querying the IT Environment's Domain Controller.

For the remainder of this document, when the documents states the DAC SFP rules state that the TOE obtains NTFS-Style security attributes for the subject, the TOE performs the steps described above. Paragraph one in section 8.3.1.3.2 describes NTFS-Style security attribute resolution for CIFS clients. Paragraph two in section 8.3.1.3.2 describes NTFS-Style security attribute resolution for NFS Clients.

8.3.1.4 DAC SFP Rules

The DAC SFP rules that apply depend on the subject, the operation, and the object. In addition, the objects file type (directory, symbolic link and regular) file are used to determine access and the type of qtree the file is stored in is considered for cross-protocol access requests. The six access modes under the control of the TOE DAC SFP are described below.

Create Access Request

To determine if a client has permissions to create a file, the TOE first looks at the parent directory's security attributes.

If the parent directory has an ACL (an NTFS-Style file stored in an NTFS qtree or stored in a mixed qtree with and ACL), the TOE uses NTFS-Style security attributes for both subject and object to determine if access is permitted. If the client has write and execute privileges for the parent directory, the file is created (FDP_ACF.1(1)). The new file inherits the NTFS-Style security attributes from the parent directory (FMT_MSA.3(1)). If the client does not have write and execute privileges to the parent directory, the request is denied.

If the client requests to create a file in a directory that does not have an ACL (UNIX qtree or mixed qtree without an ACL), the TOE uses UNIX-Style security attributes for both subject and object to determine access. If the client has write and execute privileges for the parent directory, the file is created with the UNIX-Style security attributes inherited from the parent directory (FDP_ACF.1(1), FMT_MSA.3(1)). If the client does not have write and execute privileges to the parent directory, the request is denied.

Read, Write, Execute Access Requests

To determine if a client has permission to read, write or execute a file, the TOE first determines if the file has an ACL. If the file has an ACL (the file is an NTFS-Style file stored in an NTFS qtree or mixed qtree), the TOE uses NTFS-Style security attributes for both subject and object to determine access. The TOE determines if the file's ACEs allow permission for the specific request. If they do, access is granted (FDP_ACF.1(1)). If the ACEs do not grant permission, access is denied.

If the file does not have an ACL (the file is a UNIX-Style file stored in a UNIX qtree or stored in an NTFS or mixed qtree without an ACL), the TOE uses UNIX-Style security attributes for both subject and object to determine if the read, write or execute access request is permitted. If the client has read, write or execute permission for the file, access is permitted (FDP_ACF.1(1)). If the client does not have access, the request is denied.

Client Delete Access Request

To determine if a client has permission to delete a file, the TOE first looks at the type of qtree the file is stored in.

UNIX qtree

If the file is stored in a UNIX qtree, the TOE, using UNIX-Style security attributes for both subject and object, determines if the client has write and execute access for the file's parent directory. If the client does, the delete access is permitted (FDP_ACF.1(1)). Otherwise, access is denied.

NTFS qtree

If the file is stored in an NTFS qtree, the TOE first determines if the parent directory has an ACL. If the parent directory has an ACL, the TOE then determines is the file has an ACL. If the file does and the client has delete access to the file, access is granted (FDP_ACF.1(1)). If the file doesn't have an ACL or has an ACL but the ACEs do not

grant delete permission for the client, the TOE determines if the parent directory has a DC (Delete Child) ACE that grants access for the subject. If the parent does, delete access is permitted (FDP_ACF.1(1)). If the parent doesn't have a DC ACE, access is denied.

If the file is stored in an NTFS qtree and the parent doesn't have an ACL, the TOE determines if the file has an ACL. If the file does and the client has delete access to the file, access is granted (FDP_ACF.1(1)). If the file doesn't have an ACL or has an ACL but the ACEs do not grant delete permission to the client, the TOE uses UNIX-Style security attributes for both subject and object to determine if delete access is permitted. The TOE determines if the client has write and execute access for the file's parent directory. If the client does, the delete access is permitted (FDP_ACF.1(1)). Otherwise, access is denied.

Mixed qtree

If the file is stored in a mixed qtree, the TOE first determines if the parent directory has an ACL. If the parent directory has an ACL, the TOE then determines is the file has an ACL. If the file does and the client has delete access to the file, access is granted (FDP_ACF.1(1)). If the file doesn't have an ACL or has an ACL but the ACEs do not grant delete permission for the client, the TOE determines if the parent directory has a DC (Delete Child) ACE that grants access for the subject. If the parent does, delete access is permitted. If the parent doesn't have a DC ACE, the TOE then determines, using UNIX-Style security attributes for both subject and object, if the client has write and execute access for the file's parent directory. If the client does, the delete access is permitted (FDP_ACF.1(1)). Otherwise, access is denied.

If the file is stored in a mixed qtree and the parent does not have an ACL, the TOE determines if the file has an ACL. If the file has an ACL and the client has delete access to the file, access is granted (FDP_ACF.1(1)). If the client does not have delete access, access is denied. If the file does not have an ACL, the TOE then determines, using UNIX-Style security attributes for both subject and object, if the client has write and execute access for the file's parent directory. If the client does, the delete access is permitted (FDP_ACF.1(1)). Otherwise, access is denied.

Change Permission Access Requests

To determine if a client has change permission access permission the TOE first determines if the client has write and execute permission for the file's parent directory. The TOE uses NTFS-Style security attributes for a parent directory with an ACL and UNIX-Style security attributes for a parent directory without an ACL. If the TOE determines if the client does not have write and execute permissions for the file's directory, access is denied.

If the client has write and execute permission for the directory and the file is stored in a UNIX qtree or mixed qtree without an ACL, the TOE, using UNIX-Style security attributes for both subject and object, determines if the client has write access for the file. If the client doesn't, access is denied. If the client does, access is permitted (FDP_ACF.1(1)).

If the file has an ACL, the TOE uses NTFS-Style security attributes for both subject and object to determine if access is allowed. The TOE determines if the client has Change Permission permissions for the file. If the client doesn't, access is denied. If the client does, access is permitted and the file's security attributes are overwritten by the new attributes (FDP_ACF.1(1)).

Change Owner Access Requests

The DAC SFP distinguishes between the NFS Client Change Owner (chown) UNIX command and the CIFS Client Change Owner (Change Ownership) command. The TOE does not support cross-protocol support of the Change Owner access request. Only NFS Clients can change ownership of UNIX-Style files; Only CIFS Clients can change ownership of NTFS-Style files.

NFS Clients

If an NFS Client requests a Change Owner request (chown) for a file and the file is stored in an NTFS qtree, the request is denied (FDP_ACF.1(1)). If the file is stored in a UNIX qtree or mixed qtree, the TOE determines if the client is root (UNIX User UID is root UID). If the client is root, access is allowed (FDP_ACF.1(1)) and the TOE changes the object's owner to the owner specified in the chown request. If the object had an ACL (mixed qtree), the TOE removes the ACL. If the owner is not root, the request is denied.

CIFS Client

If a CIFS Client requests a Change Owner request for a file stored in a UNIX qtree, the request is denied (FDP_ACF.1(1)). If the file is stored in an NTFS qtree (the file has an ACL) or stored in a mixed qtree and has an ACL, the TOE determines if the client has Change Owner ACE privileges for the file. If the client does, access is allowed (FDP_ACF.1(1)). The TOE will replace the existing owner ACE with the new ACE sent in the command. If the file is stored in a mixed qtree, the TOE also creates UNIX-Style security attributes for the file. If the CIFS Client does not have Change Owner privileges, the request is denied.

If the file is stored in a mixed qtree and does not have an ACL, access is allowed (FDP_ACF.1(1)). The TOE creates an ACL including a new owner ACE and creates UNIX-Style security attributes for the file.

8.3.2 Administrative Security Function

The Administrative Security Function provides the necessary functions to allow an administrator to manage and support the TSF. Included in this functionality is the rules enforced by the TOE that defines access to TOE maintained TSF Data and TSF Functions. The TSF Data includes both authentication data (used to authenticate administrators), security attribute data (used for DAC SFP enforcement) and other TSF data (used for DAC SFP subject security attribute resolution).

8.3.2.1 CLI

The CLI Administrative interface provides the necessary operator functions to allow an administrator to manage and support the TSF (FMT_SMF.1).

8.3.2.2 Roles

The TOE maintains two roles for users: administrators and non-administrators (FMT_SMR.1(1)).

An administrator is any local human user who accesses the TOE via the serial port. Administrators are required to identify and authenticate themselves to the TOE. The authentication data used for I&A, username and password, is maintained locally by the TOE; administration of user authentication data by the IT Environment is not supported. Administrators are allowed to modify TOE managed TSF data including authentication data, security attributes and other TSF Data.

Non-administrators are users who access the TOE via a remote system using NFS or CIFS client software (process acting on behalf of a user). Non-administrators have access to TOE managed user data, but do not have authority to modify TOE managed TSF data. Access to TOE managed user data by non-administrators is covered by the TOE's DAC SFP.

8.3.2.3 I&A

The Administrative Security Function's I&A functionality enforces local human users (administrator role) to identify and authenticate themselves to the TOE before allowing any modifications to TOE managed TSF Data (FIA_UID.2(1), FIA_UAU.2(1)). Administrator's authentication data is maintained by the TOE in a local file (/etc/passwd). The file contains the username, password, username and the full name of each administrator.

8.3.2.4 TSF Data Management

The TOE's Administration Security Function includes TSF Data Management. The TSF Data Management includes management of both authentication data and security attributes. The following data is managed by the TOE:

1) UNIX Username Management
2) UNIX User secondary groups
3) UNIX Username to NT Username Mapping
4) Default usernames for cross protocol access requests.
5) Deny unauthorized administrative login attempts via Data ONTAP,
6) Implement a "Sleep Mode" function call to Data ONTAP to deny access and initiate a time out period for further login attempts, for brute force password guessing.

<u>UNIX Username Management</u>

The TOE maintains authentication data locally that is used to authenticate administrators (local human users) connecting via the serial port. This file, /etc/passwd, contains entries identifying a user's username, password, UNIX User UID, Primary UNIX User GID and a user's real name. The TOE uses this file to access authentication data for users and to optionally resolve DAC SFP security attributes (if local administration is selected). Specifically, the TOE uses this file to:

1) Validate a local human user's login id and password to allow local administration,

2) Find a Primary UNIX User GID given a UNIX User UID (UNIX-Style security attribute resolution for an NFS Client),

3) Find a UNIX User UID and Primary UNIX User GID given a UNIX Username (UNIX-Style security attribute resolution for a CIFS Client) and to

4) Find a UNIX Username given a UNIX User UID (NTFS-Style security attribute resolution for an NFS Client),

Only administrators may modify this file (FMT_MSA.1(1), FMT_MTD.1(1), FMT_MTD.1(2)).

Secondary UNIX GIDs

The TOE maintains a file, /etc/groups that contains names of groups, the group's GID (Secondary UNIX User GID), and the UNIX usernames of users who belong to the group. The TOE uses this file to find any Secondary UNIX User GIDs associated with a user.

Only authorized local human users administrators may modify this file (FMT_MSA.1(2), FMT_MTD.1(1), FMT_MTD.1(2)).

UNIX Usernames to NT Username Mapping

The TOE maintains a local /etc/usermap.cfg file that contains a mapping of UNIX Usernames to NT Usernames. The file is used to support the TOE's DAC Security Functionality for client cross protocol access requests. The TOE uses this file for NFS Clients requesting access to a file that requires NTFS-Style security attributes. Likewise, the TOE uses this file to resolve CIFS Clients requesting access to a file that requires UNIX-Style security attributes Only TOE administrators may modify the /etc/usermap.cfg file (FMT_MTD.1(3)).

Default Users

The TOE maintains two files that contain TOE maintained TSF data that is used resolve a client's username for cross protocol access. Wafl.default_unix_user contains the default UNIX username for CIFS Client. Wafl.default_nt_user contains the default NT username for NFS Client. Section 8.3.1.3.1 and 8.3.1.2.1 describe the access to the files. Only administrators may modify the two files (FMT_MTD.1(4) and FMT_MTD.1(5)).

8.3.2.5 TOE Separation

The TOE ensures that all functions are invoked and succeed before the next function may proceed (FPT_RVM.1).

8.4 CC Component Hierarchies and Dependencies

This section of the ST demonstrates that the ST identified TOE Security Functional Requirement Components include the appropriate dependencies.

Components each are each are hierarchical to and dependent upon and any necessary rationale. N/A means the Security Functional Requirements Component has no

dependencies and therefore, no dependency rationale is required. The term "Satisfied" means that the Security Functional Requirements dependency was included in the ST.

8.4.1 TOE Security Functional Component Hierarchies and Dependencies

This section of the ST demonstrates that the identified TOE and IT Security Functional Requirements include the appropriate hierarchical SFRs and dependent SFRs. Table 25 lists the TOE Security Functional Components and the Security Functional Components each are hierarchical to and dependent upon and any necessary rationale. Table 26 lists the IT Environment Security Functional Components and the Security Functional Components each are hierarchical to and dependent upon and any necessary rationale.

N/A in the Rationale column means the Security Functional Requirement has no dependencies and therefore, no dependency rationale is required. Satisfied in the Rationale column means the Security Functional Requirements dependency was included in the ST.

Table 25 - TOE Security Functional Requirements Dependency Rationale

Security Functional Requirement (TOE)	Hierarchical To	Dependency	Rationale
FDP_ACC.1	No Components	FDP_ACF.1	Satisfied
FDP_ACF.1	No Components	FDP_ACC.1, FMT_MSA.3	Satisfied Satisfied
FIA_ATD.1	No Components	No dependencies	N/A
FIA_UAU.2	FIA_UAU.1	FIA_UID.1	FIA_UID.2 is hierarchical to FIA_UID.1. FIA_UID.2 is included in the TOE therefore, this dependency is satisfied.
FIA_UID.2	FIA_UID.1	No dependencies	N/A
FIA_USB.1	No Components	FIA_ATD.1	Satisfied
FMT_MSA.1	No Components	[FDP_ACC.1 or FDP_IFC.1], FMT_SMR.1	Satisfied N/A Satisfied
FMT_MSA.3	No Components	FMT_MSA.1, FMT_SMR.1	Satisfied Satisfied

Security Functional Requirement (TOE)	Hierarchical To	Dependency	Rationale
FMT_MTD.1	No components.	FMT_SMR.1	Satisfied
FMT_SMF.1	No Components	No dependencies	N/A
FMT_SMR.1	No Components	FIA_UID.1	FIA_UID.2 is hierarchical to FIA_UID.1. FIA_UID.2 is included in the TOE therefore, this dependency is satisfied.
FPT_RVM.1	No Components	No dependencies	N/A

Table 26 - IT Environment SFRs Dependency Rationale

Security Functional Requirement (IT Environment)	Hierarchical To	Dependency	Rationale
FIA_ATD.1	No components.	No dependencies	N/A
FIA_UAU.2	FIA_UAU.1	FIA_UID.1	FIA_UID.2 is hierarchical to FIA_UID.1. FIA_UID.2 is included in the IT Environment therefore, this dependency is satisfied.
FIA_UID.2	FIA_UID.1	No dependencies	N/A
FDP_ACC.1	No components	FDP_ACF.1	Satisfied
FDP_ACF.1	No components	FDP_ACC.1, FMT_MSA.3	Satisfied Satisfied
FMT_MSA.1	No components.	[FDP_ACC.1 or FDP_IFC.1], FMT_SMR.1	Satisfied N/A Satisfied
FMT_MSA.3	No components.	FMT_MSA.1, FMT_SMR.1	Satisfied Satisfied

Security Functional Requirement (IT Environment)	Hierarchical To	Dependency	Rationale
FMT_MTD.1	No components.	FMT_SMR.1	Satisfied
FMT_SMR.1	No components.	FIA_UID.1	FIA_UID.2 is hierarchical to FIA_UID.1. FIA_UID.2 is included in the IT Environment therefore, this dependency is satisfied.
FPT_SEP.1	No Components	No dependencies	N/A

8.5 PP Claims Rationale

The rationale for the Protection Profile conformance claims is defined in Chapter 7, Section 7.4 Protection Profile Rationale.

8.6 Assurance Measures Rationale for TOE Assurance Requirements

The TOE stresses assurance through vendor actions that are within the bounds of current best commercial practice. The TOE provides, primarily via review of vendor-supplied evidence, independent confirmation that these actions have been competently performed.

The general level of assurance for the TOE is:

1) Consistent with current best commercial practice for IT development and provides a product that is competitive against non-evaluated products with respect to functionality, performance, cost, and time-to-market.

2) The TOE assurance also meets current constraints on widespread acceptance, by expressing its claims against EAL2 from part 3 of the Common Criteria.

Table 27 provides a reference between each TOE assurance requirement and the related vendor documentation that satisfies each requirement.

Table 27 - Assurance Measures

Assurance Class	Component ID	Documentation Satisfying Component
Configuration Management	ACM_CAP.2	SCM process for OnTAP 6.5.2R1 ontap65filelist.txt
Delivery and Operation	ADO_DEL.1	Delivery and Operations

Assurance Class	Component ID	Documentation Satisfying Component
	ADO_IGS.1	Istallation, Generation and Start Up Procedures
Development	ADV_FSP.1	DataONTAP 6.5.2R1 Functional Specification
	ADV_HLD.1	DataONTAP 6.5.2R1 High Level Design
	ADV_RCR.1	DataONTAP 6.5.2R1 Correspondence Mapping
Guidance Documents	AGD_ADM.1	Administrator and User guidance for DataONTAP Common Criteria deployments for DataONTAP 6.5.2R1 Net App Man Pages
	AGD_USR.1	Administrator and User guidance for DataONTAP Common Criteria deployments for DataONTAP 6.5.2R1 Net App Man Pages
Tests	ATE_COV.1	DataONTAP 6.5.2R1 Test Documentation for Common Criteria EAL2 Evaluation
	ATE_FUN.1	DataONTAP 6.5.2R1 Test Documentation for Common Criteria EAL2 Evaluation
	ATE_IND.2	DataONTAP 6.5.2R1 Test Documentation for Common Criteria EAL2 Evaluation
Vulnerability Assessment	AVA_SOF.1	Strength of Function Analysis for Common Criteria EAL2, Data ONTAP 6.5.2R1
	AVA_VLA.1	Developer Vulnerability Analysis Data ONTAP 6.5.2R1 Common Criteria