ECI LightSOFT v15.5, STMS v9.5 and Apollo Software v9.5 on OPT9603, OPT9608, OPT9624, OPT9904X, OPT9914, and OPT9932 Security Target

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DOCUMENT INTRODUCTION

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REVISION HISTORY

Rev	Description
1.0	January 10, 2020, Initial release
1.1	January 15, 2020, Incorporated ECI comments
1.2	November 1, 2020, SFR changes
1.3	January 10, 2021, Additional SFR changes

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS LIST

CDE	Common Desktop Environment
CLI	Command Line Interface
CMIP	Common Management Information Protocol
CORBA	Common Object Request Broker Architecture
DBMS	DataBase Management System
DWDM	Dense Wavelength Division Multiplexing
EAL	Evaluation Assurance Level
EML	Element Management Layer
EMS	Element Management System
GCT	GUI Cut Through
GUI	Graphical User Interface
HTTP	HyperText Transfer Protocol
I&A	Identification & Authentication
ME	Managed Element
MEF	Metro Ethernet Forum
NE	Network Element
NEL	Network Element Layer
NML	Network Management Layer
NMS	Network Management System
OPT	OPtical Transport
OSS	Operations Support System
OTN	Optical Transport Network
RDR	Remote Database Replicator
ROADM	Reconfigurable Optical Add-Drop Multiplexer
SAR	Security Assurance Requirement
SDH	Synchronous Digital Hierarchy
SFP	Security Function Policy
SFR	Security Functional Requirement
SML	Service Management Layer
SONET	Synchronous Optical NETworking
SP	Service Provider

ST	Security Target
STMS	ShadeTree Management Suite
TOE	Target of Evaluation
TSF	TOE Security Function
VNC	Virtual Network Computing

1. Security Target Introduction

This Security Target (ST) describes the objectives, requirements and rationale for the ECI LightSOFT, STMS and Apollo Software. The language used in this Security Target is consistent with the *Common Criteria for Information Technology Security Evaluation, Version 3.1, Revision 5*. As such, the spelling of terms is presented using the internationally accepted English.

1.1 Security Target Reference

ECI LightSOFT v15.5, STMS v9.5 and Apollo Software v9.5 on OPT9603, OPT9608, OPT9624, OPT9904X, OPT9914, and OPT9932 Security Target, Version 1.3, dated January 10, 2021.

1.2 TOE Reference

Composite system comprised of ECI LightSOFT Software Version 15.5 (build 06301) along with required fixes as mentioned in Annex A; STMS Software Version 9.5R02.00 (build 354237) along with required fixes as mentioned in Annex A; Apollo Software Version 9.5R02.00 (build 355612).

The Apollo Software executes on the following Apollo platforms: OPT9603, OPT9608, OPT9624, OPT9904X, OPT9914, OPT9932.

1.3 Evaluation Assurance Level

Assurance claims conform to EAL2 (Evaluation Assurance Level 2) from the *Common Criteria for Information Technology Security Evaluation*, Version 3.1 Revision 5.

1.4 TOE Overview

1.4.1 Usage and Major Security Features

The TOE consists of the LightSOFT and STMS TOE components providing control and monitoring functions for the Apollo components (executing on supported appliances) that provide packet transport services. These systems are intended for use in Service Provider (SP) environments.

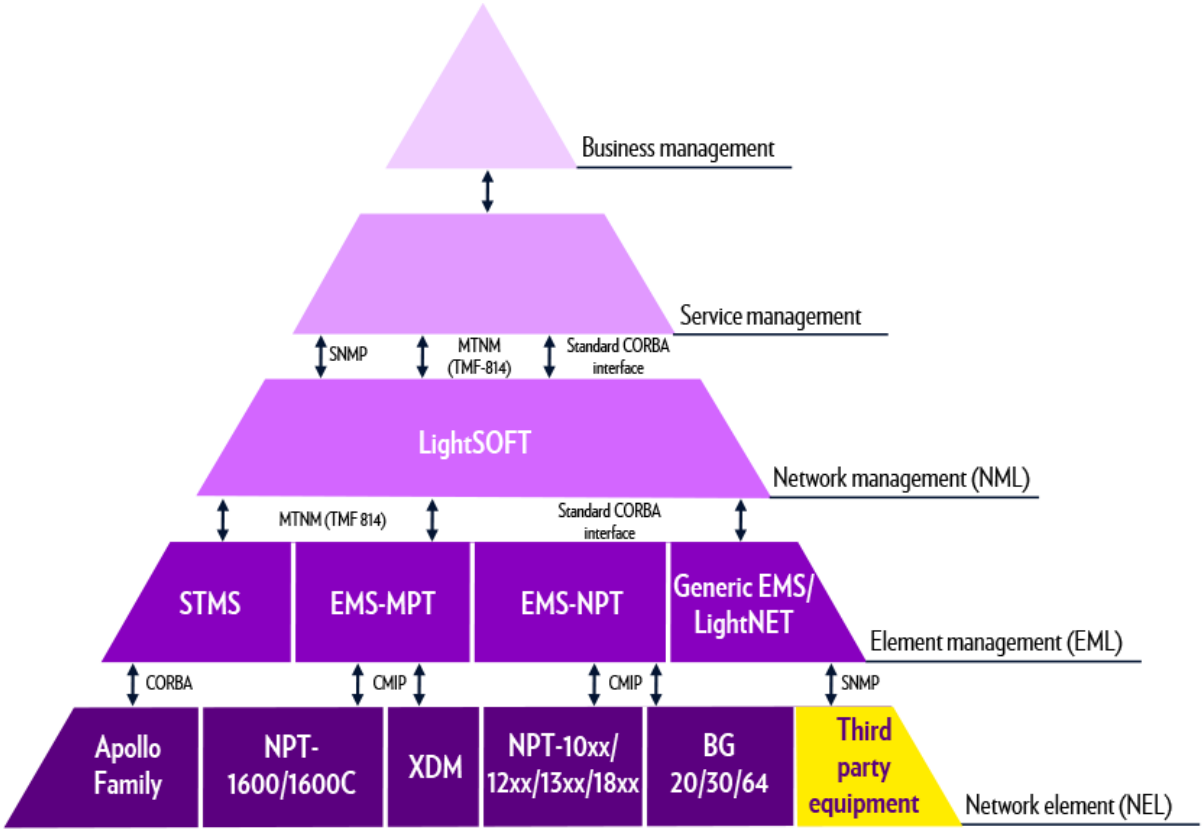
1.4.1.1 LightSOFT

LightSOFT is a Network Management System (NMS) providing the control and monitoring of all ECI products deployed by an SP. LightSOFT, when integrated with an Element Management System (EMS), enables SPs to manage multiple technologies (SDH/SONET, DWDM-based optical, ROADM, Carrier Ethernet, and MPLS) independently of the physical layer. LightSOFT simultaneously provisions, monitors, and controls many network layers with multiple transmission technologies. It does this from one application, using the same software platform and database. LightSOFT provides an elegantly simple, secure, robust solution to the complexities of network management.

The LightSOFT management concept is based on a layered architecture in accordance with the ITU-T M.3010 standard for compliant layer architecture. Separate layers make up the management structure. The lowest level, the Network Element Layer (NEL), constitutes the embedded agent software of the NEs. The second layer, the Element Management Layer (EML), controls many individual NEs, while the third layer, the Network Management Layer (NML),

controls the main network management functions. This architecture is illustrated in the following figure.

Figure 1 - Management Architecture



LightSOFT functions at the NML, while a variety of different Element Management Systems (EMSs) controlled through the LightSOFT umbrella function at the EML. Each EMS (e.g. STMS) is tailored to a specific type of NE. For this evaluation, only the STMS (for the Apollo platforms) is used with LightSOFT, and the only NEL types managed are the Apollo OPT9603, OPT9608, OPT9624, OPT9904X, OPT9914 and OPT9932.

A northbound interface connects either the EMS or LightSOFT to the SP's Operations Support System (OSS) at the Service Management Layer (SML). However, this interface is not included in the evaluation. The interface between the EMS and NMS is included in the evaluation.

The user interface to LightSOFT is via a GUI provided by a client-side application, which communicates with the centralized server. The client-side application may execute on the same system as the server and be accessed remotely, or it can execute on Solaris or Linux workstations. The client-side application and server communicate via CORBA.

Users of the GUI must successfully complete an Identification & Authorization process to LightSOFT. User accounts are defined within LightSOFT, and only authorized users are able to utilize the LightSOFT functionality. Each user is associated with a profile (role). LightSOFT has a default set of profiles providing typical levels of access. Users may also define custom profiles in order to meet specific requirements.

LightSOFT permits SPs to partition their networks according to their organizational and logistical needs. User access to EMSs and NEs can be limited by associating a user with a specific partition.

Configuration operations performed by users are audited, and the audit records may be viewed by authorized users.

Configuration information and audit records are stored in an Oracle database running on a separate zone of the Solaris server hosting LightSOFT.

1.4.1.2 STMS

The STMS is an advanced EMS designed to manage the Apollo products. It has an advanced architecture which supports multiple operating systems for integrated management, either standalone or with the NMS. For this evaluation, the STMS is always integrated with the NMS and is only used to manage the Apollo family (and specifically the Apollo OPT9603, OPT9608, OPT9624, OPT9904X, OPT9914 and OPT9932).

The STMS consists of a centralized server system as well as a client-side application. For this evaluation, the server-side of the STMS always executes on the same server as LightSOFT, but in a separate logical domain. Multiple instances of the STMS server may be deployed for scalability with extremely large networks; this functionality is not included in the evaluation.

Users access the STMS functions via the LightSOFT GUI. LightSOFT automatically invokes STMS functionality to perform user-requested operations involving NEs. LightSOFT also provides a GUI Cut Through (GCT) capability to enable users to open a direct STMS session.

STMS user accounts are maintained separately from LightSOFT user accounts. However, for this evaluation, all user accounts are managed in LightSOFT and accounts are automatically uploaded from LightSOFT to STMS. Each user is associated with one of the STMS default roles (specified via the LightSOFT profile) to limit the functions that may be performed.

Configuration operations performed by users are audited, and the audit records may be viewed by authorized users.

Configuration information and audit records are stored in an Oracle database. The Oracle DBMS instance used for LightSOFT (running in a separate zone of the Solaris server) is shared, with a separate database instance for STMS.

1.4.1.3 Apollo Platforms

The Apollo OPT9603, OPT9608, OPT9624, OPT9904X, OPT9914 and OPT9932 are NE appliances that provide Optical Transport (OPT) services within the SP network. The Apollo software is the software executing on the appliances. The appliances are a family of carrier-class Dense Wave Division Multiplexing (DWDM) and Optical Transport Networking (OTN) platforms providing multiservice layer 1 transport with integrated layer 2 services.

The Apollo family members included in the evaluation are:

1. OPT9603 – 2 RU converged solution platform supporting 1.6T of Ethernet, SDH, and Fiber Channel interfaces for Access networks, and WDM with ROADM functionality.
2. OPT9608 – 5 RU converged solution platform supporting 4.8T of Ethernet, SDH, and Fiber Channel interfaces for Metro/Access networks, and WDM with ROADM functionality.

3. OPT9624 – 15 RU converged solution platform supporting 14.4T of Ethernet, SDH, and Fiber Channel interfaces for Core/Metro networks, and WDM with ROADM functionality.
4. OPT9904X – 5 RU multiservice platform integrates 2.8T ODU cross connect of Ethernet/MPLS, SDH, and Fiber Channel interfaces for metro access networks.
5. OPT9914 – 22 RU multiservice platform integrate 5.6T ODU cross connect of Ethernet/MPLS, SDH, and Fiber Channel interfaces.
6. OPT9932 – Full rack multiservice platform integrate 16T ODU cross connect of Ethernet/MPLS, SDH, and Fiber Channel interfaces.

The security functionality of all of the family members is identical. The family members differ in their targeted environment, the number and types of interfaces, and aggregate throughput.

The Apollo platforms send Alarm notifications to the STMS for operational conditions that occur.

For management, the Apollo platforms support a CLI user interface as well as CMIP from LightSOFT/STMS. For this evaluation, once installed the appliances are managed solely via LightSOFT/STMS. Each Apollo platform is configured with the IP address of the STMS instance that may manage it.

1.4.2 Required Non-TOE Hardware/Software/Firmware

The TOE consists of LightSOFT and STMS software executing on one or more dedicated Solaris servers, (optionally) the LightSOFT client-side application executing on Solaris or Linux workstations, and the Apollo software executing on supported appliances. The dependencies for each of the components are described in subsequent paragraphs.

The Solaris server that hosts the server side of the LightSOFT NMS and STMS software components of the TOE is supplied by ECI. The following table provides details of the server as supplied. The Oracle DB is in a dedicated zone on the Solaris server.

Table 1 - LightSOFT/STMS Server Minimum Requirements

Item	Requirements
Base Hardware	7 virtual CPUs
Memory	48 GB
Hard Disk	85 GB
Operating System	Hardened Solaris x86 11.3 Rev 10
Desktop	CDE 5.10, X11 Version 1.0.3
CORBA	Orbix 6.3.7
DBMS	Oracle 12.1

The client-side application of LightSOFT can be installed on the same system as the server component (in a separate zone) and be accessed remotely by users. The client-side application also may execute on Solaris workstations. In this mode the application establishes remote CORBA connections to the server. The following table provides minimum requirements for workstations hosting the client-side application.

Table 2 - LightSOFT Client-Side Application Minimum Requirements

Item	Requirements
Base Hardware	.5 virtual CPUs
Memory	1 GB
Hard Disk	2 GB
Operating System	Solaris x86 11.3 Rev 10
CORBA	Orbix 6.3.7

The NEs managed by LightSOFT/STMS may be any combination of the Apollo platforms.

The TOE components communicate with one another via a segregated management network to prevent disclosure or modification of the data exchanged between TOE components. It is the responsibility of the operational environment to protect the traffic on the management network from other (non-TOE) devices.

Each of the Apollo appliances provides a dedicated network interface for management interactions. The management interface must be connected to the segregated management network.

1.5 TOE Description

The TOE provides network packet transport functionality in metro environments via a family of appliances, as well as management functionality to securely control and monitor those devices. The management functionality provides multiple roles in order to enable multiple levels of access for users.

The TOE consists of:

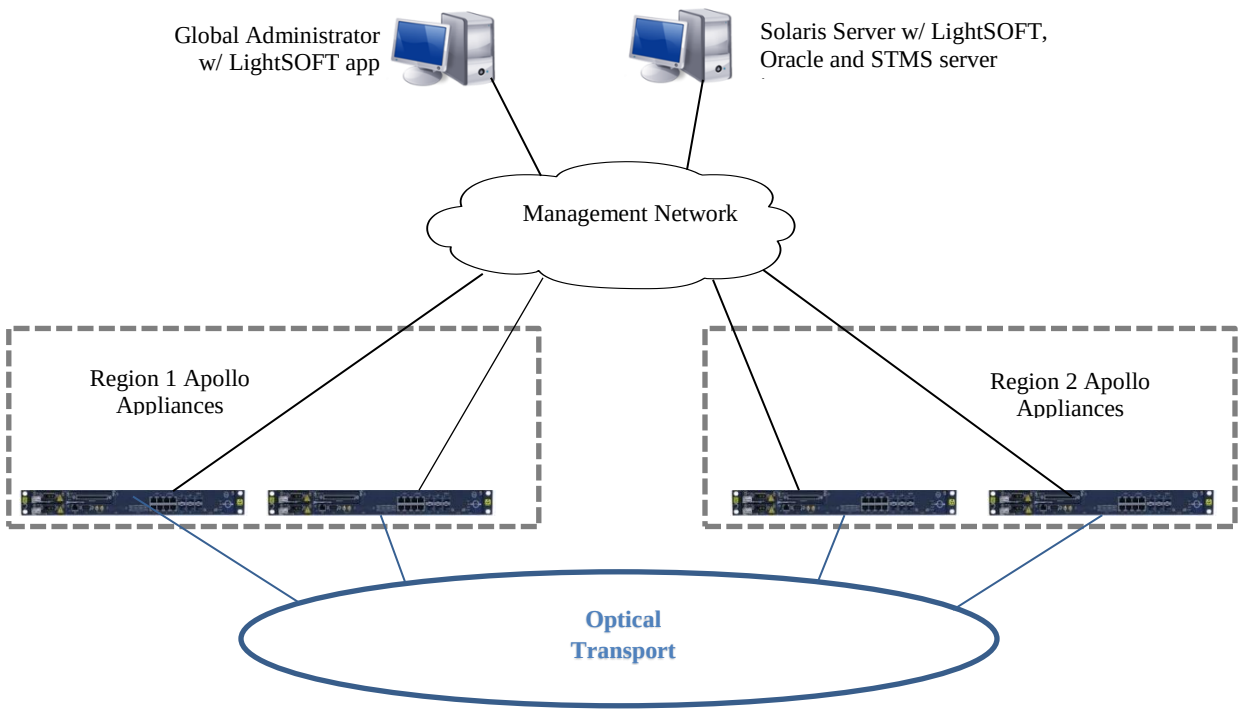
1. One instance of the LightSOFT server component and one or more instances of the STMS server component executing on a dedicated Solaris server with Solaris OS and supported by Oracle database and Orbix.
2. One or more instances of the LightSOFT client-side application executing on Solaris workstation or server with Solaris OS and supported by Orbix.
3. One or more instances of Apollo platforms software executing on supported appliances.

Software installation by ECI personnel is included in the purchase of these products. The TOE software is not available on public repositories. ECI personnel download the binary images for LightSOFT, STMS and Apollo software from repositories on the ECI Intranet and deliver them to the customer during the installation process.

The software is installed on appliances by ECI. The modular appliances may be populated via any supported combination of modules/cards.

A representative deployment for these components is shown in the following diagram.

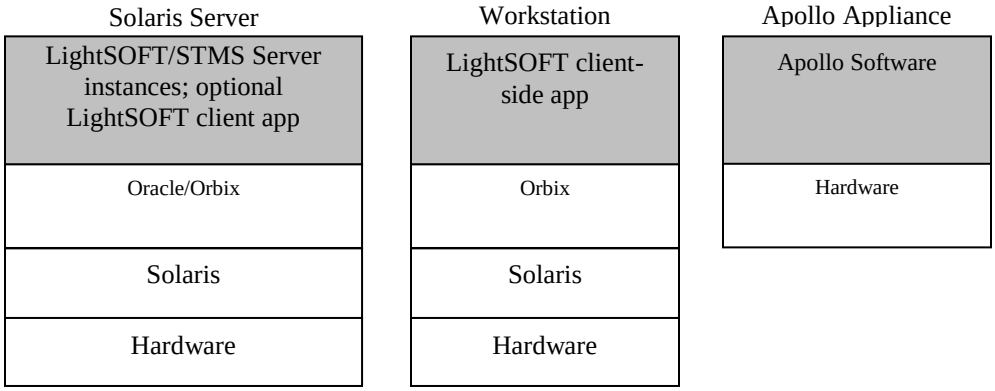
Figure 2 - Representative TOE Deployment



1.5.1 Physical Boundary

The physical boundary of the TOE is depicted in the following diagram (shaded items are within the TOE boundary).

Figure 3 - Physical Boundary



The physical boundary includes the following guidance documentation:

1. *LightSOFT Getting Started & Administration Guide Version 15.5*
2. *LightSOFT Fault Management and Performance Monitoring Guide Version 15.5*
3. *LightSOFT Version 15.5 Installation Guide*

4. *STMS Getting Started and Administration Guide Version 9.5*
5. *STMS User Guide Version 9.5*
6. *STMS Performance Management Guide Version 9.5*
7. *STMS Installation/Upgrade/Migration V9.1 to V9.5*
8. *Apollo Version 9.5 Reference Manual*
9. *LCT-STMS Getting Started & Administration Guide Version 9.5*
10. *ECI LightSOFT, STMS and Apollo Software Common Criteria Supplement*
11. *Common Phase 11.4 Activities for Preparation, Installation and Upgrade of Management Systems Infrastructure*
12. *Common Management HW Preparation and Configuration Activities*
13. *Oracle DB v19 - Installation and Upgrade Procedure*

All TOE documentation is provided as PDF files that are downloaded from ECI's Customer Portal.

1.5.2 Logical Boundary

1.5.2.1 Audit

Audit records are generated for specific actions performed by users. The audit records are saved and may be reviewed by authorized administrators.

1.5.2.2 Management

The TOE provides functionality for administrators to configure and monitor the operation of the TOE via the client-side GUI application. The LightSOFT and STMS products support multiple roles to enable different users to be assigned different permissions. Access to the NEs may be restricted on a per-user basis.

1.5.2.3 I&A

The TOE identifies and authenticates users of the client-side GUI application before they are granted access to any TSF functions or data. When valid credentials are presented, security attributes for the user are bound to the session.

1.5.3 TOE Data

The following table describes the TOE data.

Table 3 - TOE Data Descriptions

TOE Data	Description
STMS Activity Log	Contains audit records of configuration actions by users of STMS.
STMS Alarms	Alarms from the NEs or STMS for operational conditions.
LightSOFT Activity Log	Contains audit records of configuration actions by users of LightSOFT.
LightSOFT Alarm Configurations	Configuration of Alarm generation in TOE components.
LightSOFT Alarms	Alarms from the NEs or STMS for operational conditions.

TOE Data	Description
LightSOFT Profiles	Define the access permissions (capabilities) to be associated with a user. The capabilities also specify the STMS Role (or none) for associated users.
LightSOFT Resource Domains	Define the resource domains the managed elements may be grouped into. Attributes include: • Resource Domain Name • Associated MEs
LightSOFT Security Log	Contains audit records of logins/logouts for user access and automated account actions such as disabling idle user accounts.
LightSOFT Security Preferences	Define the security parameters that apply to all users. Attributes include: • Minimum Password Length • Default Password Expiration • Password Reuse History • Maximum Unsuccessful Login Attempts • Login Reactivation Time • Default Inactivity Timeout • Inactivity Timeout Action • Strong Password Enforcement • Account Becomes Idle Time • Action Upon Becoming Idle
LightSOFT User Accounts	Define the authorized users of LightSOFT. Attributes include: • Username • Password • Associated User Group • Account Lock Status • Password Expiration Date • Inactivity Timeout Value • Account Idle Value • Consecutive Unsuccessful Login Count • STMS associated Role (or none)
LightSOFT User Groups	Define user groups within LightSOFT. Attributes include: • Group name • Associated Users • Associated Profile • Associated Resource Domains
NE Authorized STMS Instance	IP address of the STMS instance that is authorized to manage the NE, as specified via a management firewall rule,
STMS Network Elements	Specify the Apollo appliances that are managed and their configuration.
STMS Security Log	Contains audit records of logins/logouts for user access.
STMS Services	Defines the configuration of Services within NEs.
STMS User Accounts	Define the authorized users of an STMS instance. Note that user accounts are managed via LightSOFT. Attributes include: • Username • Assigned Role

1.6 Evaluated Configuration

The following configuration restrictions apply to the evaluated configuration:

1. The default Profiles in LightSOFT are not modified and the associations between those Profiles and pre-defined User Groups are not changed. Additional Profiles and User Groups may be created to provide customized Roles.
2. Only the default Roles are used in STMS, and the permissions for those Roles are not modified.
3. User Accounts are defined in LightSOFT and synced between LightSOFT and STMS.
4. A single Network Operator is defined in LightSOFT. Support for multiple SPs in a single LightSOFT instance is not included in this evaluation.
5. All control and monitoring of NEs after they have been installed is performed via LightSOFT/STMS only. The CLI available on the NEs is used during installation only.
6. The Inactivity Timeout for all User Accounts is configured as a numeric value (not "Unlimited") to force inactive sessions to be locked or terminated.
7. The LightSOFT client supports remote access via Xterminal. Remote Xterminal access can be configured for VNC and/or HTTP (web). In the evaluated configuration, only VNC access is used.
8. The LightSOFT client must not be installed in the same Solaris zone as the LightSOFT server.
9. The following Solaris user account names are created in multiple of the Solaris zones used with the LightSOFT server, LightSOFT client, STMS and Oracle DB components: root, enm, nms, ems, stms, bgf, ora, and sshd. The passwords specified for these user accounts must not be common between the zones.
10. Password complexity and usage settings should be consistent with enterprise policy. At minimum, the following settings must be configured:
    a. Minimum Password Length: 8
    b. Default Password expiration: 45 days
    c. Password Reuse History: 5
    d. Max Unsuccessful Login Attempts: 3
    e. Login Reactivation: 5 minutes
    f. Default Inactivity Timeout: 10 minutes
    g. Strong Password Enforcement: Enable
    h. Becoming Idle If No Login: 6 months
    i. Action Upon Becoming Idle: Log and Delete User

1.7 Functionality Excluded from the Evaluation

The following functionality or the TOE is excluded from the evaluation:

1. Remote Database Replicator (RDR) option for server redundancy
2. LightSOFT interface to a higher-level OSS

3. LightSOFT interface to third party EMS instances
4. LightSOFT integration with enterprise user authentication servers (Central User Administration)
5. LightSOFT support for multiple carriers within a single LightSOFT instance (Customer Network Management)
6. Management of the NEs via any mechanisms other than LightSOFT and STMS.
7. HTTP for remote Xterminal access
8. LightSOFT Two Factor Authentication - This functionality is only available via an additional license that is not typically obtained by users
9. Cryptographic solutions & Diffie Helman groups for STMS - This functionality is limited to specific traffic cards in Apollo
10. STMS as a Certificate Authority - This functionality pertains to communication between STMS and NEs, and is not relevant to the evaluated configuration since the management traffic is otherwise protected (OE.MGMTNETWORK)
11. Built-in LightSOFT user roles for Level 1, Level 2, Exclusive Admin, Exclusive Provisioning, Exclusive Monitor, and NBSP. More information about these user roles can be found in Annex B

2. Conformance Claims

2.1 Common Criteria Conformance

Common Criteria version: Version 3.1 Revision 5, dated April 2017

Common Criteria conformance: Part 2 conformant and Part 3 conformant

2.2 Security Requirement Package Conformance

EAL2

The TOE does not claim conformance to any security functional requirement packages.

2.3 Protection Profile Conformance

No conformance to any registered protection profile is claimed.

3. Security Problem Definition

3.1 Introduction

This chapter defines the nature and scope of the security needs to be addressed by the TOE. Specifically this chapter identifies:

A) assumptions about the environment,

B) threats to the Devices and

C) organisational security policies.

This chapter identifies assumptions as A.*assumption,* threats as T.*threat* and policies as P.*policy*.

3.2 Assumptions

The specific conditions listed in the following subsections are assumed to exist in the Operational Environment.

Table 4 - Assumptions

A.Type	Description
A.ECI	Administrators perform installation of the TOE in conjunction with ECI personnel.
A.LOCATE	The processing resources of the TOE will be located within controlled access facilities, which will prevent unauthorized physical access.
A.MANAGE	There will be one or more competent individuals assigned to manage the TOE and the security of the information it contains.
A.MGMTNETWORK	The TOE components will be interconnected by a private, segregated management network that protects the intra-TOE traffic from disclosure to or modification by untrusted systems or users, and limits traffic from entering the management network.
A.NOEVIL	The authorized administrators are not careless, willfully negligent, or hostile, and will follow and abide by the instructions provided by the TOE documentation.
A.NOTRST	The TOE can only be accessed by authorized users.
A.PROTCT	The TOE hardware and software critical to security policy enforcement will be protected from unauthorized physical modification.
A.ORACLE	The Oracle DBMS protects the confidentiality and integrity of the TSF data for LightSOFT and STMS.
A.ORBIX	Orbix provides reliable communication for TSF data transmitted between LightSOFT and STMS.
A.SOLARIS	Solaris provides separation between LightSOFT, STMS and Oracle zones on a single physical server.

3.3 Threats

The threats identified in the following table are addressed by the TOE and the Operational Environment.

Table 5 - Threats

T.Type	Description
T.COMINT	An unauthorized person may attempt to compromise the integrity of TOE data by bypassing a security mechanism.
T.LOSSOF	An unauthorized person may attempt to remove or destroy data from the TOE.
T.NOHALT	An unauthorized person may attempt to compromise the continuity of the TOE's functionality by halting execution of the TOE.
T.PRIVIL	An unauthorized user may gain access to the TOE and exploit system privileges to gain access to TOE security functions and data.

3.4 Organisational Security Policies

The Organisational Security Policies identified in the following table are addressed by the TOE and the Operational Environment.

Table 6 - Organisational Security Policies

P.Type	Description
P.ACCACT	Users of the TOE shall be accountable for their actions within the TOE.
P.MANAGE	The TOE shall only be managed by authorized users.
P.PROTCT	The TOE shall be protected from unauthorized accesses and disruptions of activities.

4. Security Objectives

This section identifies the security objectives of the TOE and the TOE's Operational Environment. The security objectives identify the responsibilities of the TOE and the TOE's Operational Environment in meeting the security needs. Objectives of the TOE are identified as *O.objective*. Objectives that apply to the operational environment are designated as *OE.objective*.

4.1 Security Objectives for the TOE

The TOE must satisfy the following objectives.

Table 7 - Security Objectives for the TOE

O.Type	Description
O.ACCESS	The TOE must allow authorized users to access only appropriate TOE functions and data.
O.AUDITS	The TOE must record audit records for data accesses and use of the TOE functions.
O.EADMIN	The TOE must include a set of functions that allow effective management of its functions and data.
O.IDAUTH	The TOE must be able to identify and authenticate authorized users prior to allowing access to TOE functions and data.
O.PROTCT	The TOE must protect itself from unauthorized modifications and access to its functions and data.

4.2 Security Objectives for the Operational Environment

The TOE's operational environment must satisfy the following objectives.

Table 8 - Security Objectives of the Operational Environment

OE.Type	Description
OE.ECI	Administrators perform installation of the TOE in conjunction with ECI personnel.
OE.CREDEN	Those responsible for the TOE must ensure that all access credentials are protected by the users in a manner which is consistent with IT security.
OE.INSTAL	Those responsible for the TOE must ensure that the TOE is delivered, installed, managed, and operated in a manner which is consistent with IT security.
OE.MGMTNETWORK	The operational environment will provide a private, segregated management network interconnecting the TOE components that protects the intra-TOE traffic from disclosure to or modification by untrusted systems or users.
OE.PERSON	Personnel working as authorized administrators shall be carefully selected and trained for proper operation of the TOE.
OE.PHYCAL	Those responsible for the TOE must ensure that those parts of the TOE critical to security policy are protected from any physical attack.
OE.TIME	The IT Environment will provide reliable timestamps to the TOE.
OE.ORACLE	The Oracle DBMS protects the confidentiality and integrity of the TSF data for LightSOFT and STMS.
OE.ORBIX	Orbix provides reliable communication for TSF data transmitted between LightSOFT and STMS.
OE.SOLARIS	Solaris provides separation between LightSOFT, STMS and Oracle zones on a single physical server.

5. Extended Components Definition

5.1 Extended Security Functional Components

None

5.2 Extended Security Assurance Components

None

6. Security Requirements

This section contains the functional requirements that are provided by the TOE. These requirements consist of functional components from Part 2 of the CC.

The CC defines operations on security requirements. The font conventions listed below state the conventions used in this ST to identify the operations.

Assignment: indicated in italics

Selection: indicated in underlined text

Assignments within selections: indicated in italics and underlined text

Refinement: indicated with bold text

Iterations of security functional requirements may be included. If so, iterations are specified at the component level and all elements of the component are repeated. Iterations are identified by numbers in parentheses following the component or element (e.g., FAU_ARP.1(1)).

6.1 TOE Security Functional Requirements

The functional requirements are described in detail in the following subsections. Additionally, these requirements are derived verbatim from Part 2 of the *Common Criteria for Information Technology Security Evaluation* with the exception of completed operations.

6.1.1 Security Audit (FAU)

6.1.1.1 FAU_GEN.1 Audit Data Generation

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

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

b) All auditable events for the not specified level of audit; and

c) *The events in the following tables.*

Application Note: The LightSOFT server and each STMS server instance maintains separate audit trails and the audit functionality is always active. The following tables identify the types of audit records generated for each server type.

Application Note: The servers maintain Activity/Action Logs and Security Logs. In the following tables, the audit record description is preceded by "A:" or "S:" to identify which log the audit record is stored in. The audit records for startup of the audit function are stored in the NMSGF.log file.

Table 9 - LightSOFT Auditable Events

Event	Audit Record Event	Details
Successful login	S: Login	
Failed login due to invalid user name	S: Invalid user name	Supplied user name
Failed login due to invalid password	S: Invalid password	
User Account locked due to repeated failed login attempts	S: Password is blocked	
Logout	S: Logout	
User Account disabled due to idle period expiration	S: Idle user disabled	User Account

Event	Audit Record Event	Details
User Account automatically re-enabled	S: User password reopened	User Account
User Account created	A: Create User '*username*'	User Account
User Account deleted	A: Delete User '*username*'	User Account
User Account modified	A: Edit User '*username*'	User Account
Security Preferences modified	A: Edit Security Rules	
Data item created	A: Create *item type "item name'*	Item name
Data item deleted	A: Create *item type "item name'*	Item name
Data item created	A: Create *item type "item name'*	Item name

Table 10 - STMS Auditable Events

Event	Audit Record Event + Result	Details
NE (or NE component) created, deleted, or modified	A: *action* - Successful	NE or component identifier, type of item, all configuration parameter values for the item
Service created, deleted, or modified	A: *action* - Successful	Service or component identifier, type of item, all configuration parameter values for the item

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

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

b) For each audit event type, based on the auditable event definitions of the functional components included in the PP/ST, *the hostname/IP address of the client-side application*.

6.1.1.2 FAU_SAR.1 Audit Review

FAU_SAR.1.1 The TSF shall provide *authorized users with the Admin or Security Administrator Role (Profile)* with the capability to read *all Security Log and Activity/Action Log information* from the audit records.

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

6.1.1.3 FAU_SAR.2 Restricted Audit Review

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

6.1.1.4 FAU_STG.2 Guarantees of Audit Data Availability

FAU_STG.2.1 The TSF shall protect the stored audit records from unauthorised deletion.

FAU_STG.2.2 The TSF shall be able to prevent unauthorised modifications to the stored audit records in the audit trail.

FAU_STG.2.3 The TSF shall ensure that *all of the most recent, maintaining the configured number of records,* stored audit records will be maintained when the following conditions occur: audit storage exhaustion.

Application Note: The audit logs are automatically archived according to a configured time interval (in days). When the archival is performed, the content of the log is reduced to the configured number of records.

6.1.2 Identification and Authentication (FIA)

6.1.2.1 FIA_AFL.1 Authentication Failure Handling

FIA_AFL.1.1 The TSF shall detect when an administrator configurable positive integer within *the range 1-5* unsuccessful authentication attempts occur related to *consecutive login failure attempts of an individual User Account*.

FIA_AFL.1.2 When the defined number of unsuccessful authentication attempts has been met, the TSF shall *lock the User Account for an administrator configured amount of time*.

6.1.2.2 FIA_ATD.1 User Attribute Definition

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

a) User name;

b) Password;

c) Associated User Group (which specifies the LightSOFT capabilities and STMS Role);

d) Account Lock Status;

e) Password Expiration Value;

f) Inactivity Timer Value;

g) Account Idle Value;

h) Consecutive Unsuccessful Login Count.

6.1.2.3 FIA_UAU.1 Timing of Authentication

FIA_UAU.1.1 The TSF shall allow *no actions* on behalf of the user to be performed before the user is authenticated.

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

6.1.2.4 FIA_UID.1 Timing of Identification

FIA_UID.1.1 The TSF shall allow *no actions* on behalf of the user to be performed before the user is identified.

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

6.1.2.5 FIA_UAU.7 Protected Authentication Feedback

FIA_UAU.7.1 The TSF shall provide only *one dot for each supplied character* to the user while the authentication is in progress.

6.1.3 Security Management (FMT)

6.1.3.1 FMT_MTD.1(1) Management of TSF Data in LightSOFT

FMT_MTD.1.1(1) The TSF shall restrict the ability to query, modify, delete, *create* the *TSF data in LightSOFT identified in the following table* to *the authorised roles identified in the following table*.

Application Note: To conserve space, the following abbreviations are used for the allowed operations: Query = Q, Modify = M, Delete = D, and Create = C.

Application Note: Customized Profiles may be configured as well to create customized Roles.

Table 11 - LightSOFT TSF Data Access Details

TSF Data	Admin	Security	Config.	Provis.	Maint.	Obser.
Alarms (M:Acknowledge Alarms)	Q,M	Q	Q,M	Q,M	Q	Q
Alarm Counters	Q,M,D,C	Q,M,D,C	Q	Q	Q	Q
Alarm Indicators	Q,M,D,C	Q,M,D,C	Q	Q	Q	Q
Fault Mgmt Administration – Event Log Configuration	Q,M,C	Q,M,C				
Fault Mgmt Administration – Alarm Forwarder Configuration	Q,M,D,C	Q,M,D,C				
Activity Log	Q	Q				
Security Administration	Q,M,D,C	Q,M,D,C	Q	Q	Q	
Security Log	Q	Q				
Active Users* (M: force logout operation)	Q,M	Q,M	Q	Q	Q	

Application Note: All users may change their own password, which is one element of the User Account.

*Application Note **: Modify/Delete/Create operations are allowed for Trail management via import of XML files only.*

6.1.3.2 FMT_MTD.1(2) Management of TSF Data in STMS

FMT_MTD.1.1(2) The TSF shall restrict the ability to query, modify, delete, *create* the *TSF data in STMS identified in the following table* to *the authorised roles identified in the following table*.

Table 12 - STMS TSF Data Access Details

TSF Data	Admin	Config.	Provis.	Maint.	Obs.
STMS Activity Log	Query	n/a	n/a	n/a	n/a
STMS Alarms	Query Modify*	Query Modify*	Query Modify*	Query Modify*	Query
STMS Network Elements	Query, Modify, Delete, Create	Query	Query	Query	Query
STMS Security Log	Query	n/a	n/a	n/a	n/a
STMS Services	Query, Modify, Delete, Create	Query, Modify, Delete, Create	Query, Modify, Delete, Create	Query	Query
STMS User Accounts	Managed via LightSOFT**				

Application Note: NMS user accounts with the Admin and Security profile have the same STMS access permissions (Admin in the table above). The STMS Security role is only relevant when the STMS is accessed independently from LightSOFT. Since the STMS is only accessed via LightSOFT GCT functionality in the evaluated configuration, the STMS Security role is not relevant.

*Application Note *: The Modify operation for STMS Alarms refers to acknowledging the Alarms.*

*Application Note **: The Admin user can view user accounts in STMS, but user accounts are managed via LightSOFT.*

6.1.3.3 FMT_SMF.1 Specification of Management Functions

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

a) Security configuration (including User Accounts) management;

b) Log management;

c) NE management;

d) Service management;

e) Alarms management;

f) NE Authorized STMS Instance management.

6.1.3.4 FMT_SMR.1 Security Roles

FMT_SMR.1.1 The TSF shall maintain the roles *Admin, Security Administrator, Configuration, Provisioning, Maintenance, Observer*..

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

Application Note: In LightSOFT, Roles are assigned to users via User Group association, which in turn have associated Profiles which define the capabilities for users. The Profiles also specify the STMS Role associated with users.

6.1.4 Protection of the TOE (FPT)

6.1.4.1 FPT_TEE.1 Testing of External Entities

FPT_TEE.1.1 The TSF shall run a suite of tests *whenever management traffic is received* to check the fulfillment of [*the IP source address matches the address of the configured address for the authorized STMS instance*].

FPT_TEE.1.2 If the test fails, the TSF shall *discard the management traffic*.

6.2 TOE Security Assurance Requirements

The TOE meets the assurance requirements for EAL2. These requirements are summarised in the following table.

Table 13 - EAL2 Assurance Requirements

Assurance Class	Component ID	Component Title
Security Target	ASE_CCL.1	Conformance claims
	ASE_ECD.1	Extended components definition
	ASE_INT.1	ST introduction
	ASE_OBJ.2	Security objectives
	ASE_REQ.2	Derived security requirements
	ASE_SPD.1	Security problem definition
	ASE_TSS.1	TOE summary specification
Development	ADV_ARC.1	Security architecture description
	ADV_FSP.2	Security-enforcing functional specification
	ADV_TDS.1	Basic design
Guidance Documents	AGD_OPE.1	Operational user guidance
	AGD_PRE.1	Preparative procedures
Life-Cycle Support	ALC_CMC.2	Use of a CM system
	ALC_CMS.2	Parts of the TOE CM coverage
	ALC_DEL.1	Delivery procedures
Tests	ATE_COV.1	Evidence of coverage
	ATE_FUN.1	Functional testing
	ATE_IND.2	Independent testing - sample
Vulnerability Assessment	AVA_VAN.2	Vulnerability analysis

6.3 CC Component Hierarchies and Dependencies

This section of the ST demonstrates that the identified SFRs include the appropriate hierarchy and dependencies. The following table lists the TOE SFRs and the SFRs each are hierarchical to, dependent upon and any necessary rationale.

Table 14 - TOE SFR Dependency Rationale

SFR	Hierarchical To	Dependency	Rationale
FAU_GEN.1	No other components.	FPT_STM.1	Satisfied by the operational environment (OE.TIME).
FAU_SAR.1	No other components.	FAU_GEN.1	Satisfied
FAU_SAR.2	No other components.	FAU_SAR.1	Satisfied
FAU_STG.2	FAU_STG.1	FAU_GEN.1	Satisfied
FIA_AFL.1	No other components.	FIA_UAU.1	Satisfied
FIA_ATD.1	No other components.	None	n/a
FIA_UAU.1	No other components.	FIA_UID.1	Satisfied
FIA_UAU.7	No other components.	FIA_UAU.1	Satisfied
FIA_UID.1	No other components.	None	n/a
FMT_MTD.1	No other components.	FMT_SMF.1, FMT_SMR.1	Satisfied Satisfied
FMT_SMF.1	No other components.	None	n/a
FMT_SMR.1	No other components.	FIA_UID.1	Satisfied
FPT_TEE.1	No other components.	None	n/a

7. TOE Summary Specification

7.1 FAU_GEN.1, FAU_SAR.1, FAU_SAR.2

Audit records for the events specified in the tables included with the FAU_GEN.1 are generated. The LightSOFT and STMS servers generate audit records for actions taken by their users and maintain a separate audit trail. The audit trail consists of Security Logs and Activity/Action Logs; audit records for startup of the audit function are stored in the NMSGF.log file in the /sdh_home/nms/logs directory. The contents of the audit records are described in FAU_GEN.1.

The client-side GUI application provide authorized users with the LightSOFT Role of Admin or Security Administrator with the ability to review audit records in a human readable form in LightSOFT. Users with the STMS Role of Admin may review audit records in a human readable form in LightSOFT. Users that do not have those capabilities or roles do not have access to any audit record information.

7.2 FAU_STG.2

Separate audit trails are maintained for LightSOFT and STMS.

The user access functionality of the TOE does not provide any mechanism to modify audit records. On a configured periodic basis, audit records are automatically archived. This prunes the audit log to the configured number of records, with the most recent records being retained.

Users with the Security Administration capability in LightSOFT, or the Admin or Security Admin role in STMS, may delete audit records via archiving.

7.3 FIA_AFL.1

Consecutive login failures for each defined user account are tracked. If the administrator configured number of consecutive failures is met for a user account, that user account is automatically locked. After an administrator configured number of minutes, the account is automatically unlocked. Administrators may manually unlock the account as well.

7.4 FIA_ATD.1

The TOE maintains the following information for each LightSOFT user account:

- User name
- Password
- Associated User Group (which specifies the Role)
- Account Lock Status
- Password Expiration Value
- Inactivity Timer Value
- Account Idle Value
- Consecutive Unsuccessful Login Count

The TOE maintains the following information for each STMS user account:

- User name
- Associated Role

7.5 FIA_UAU.1, FIA_UID.1, FIA_UAU.7

The TOE requires all users of the client-side GUI application to successfully identify and authenticate themselves before access is granted to any TSF data or functions. User credentials are collected via the GUI and validated by the TOE. When a password is supplied, the TOE echoes a single dot for each supplied character to obscure the user input. If an invalid password is supplied, the count of unsuccessful login attempts for the User Account is incremented. If the supplied password is valid, the count is reset to 0.

7.6 FMT_MTD.1

The GUI grants access to TSF data according to the Roles specified in the table included with FMT_MTD.1(1) and the Roles specified in the table included with FMT_MTD.1(2). Access is further limited by the Resource Domains associated with the User Account. Access to TSF data other than that specified in the table is prevented.

7.7 FMT_SMF.1

LightSOFT and STMS provide functionality for authorized users to manage the following items:

- Security configuration (including User Accounts)
- Log management
- NEs
- Services
- Alarms

7.8 FMT_SMR.1

All interactive users of the client-side GUI applications are required to successfully complete I&A, at which time the role configured for the user account is associated with the user session. For LightSOFT, the Role is determined by the capabilities configured in the user's associated Profile (which is associated with the user account via the User Group). LightSOFT provides default Roles, and customized Roles may also be configured (via customized Profiles and User Groups). The STMS Role is also configured via the capabilities. For STMS, only the default Roles are supported.

7.9 FPT_TEE.1

Whenever management traffic is received by an NE, the source IP address is validated against the configured IP address of the STMS that is authorized to manage that NE. If the IP address does not match, that management traffic is discarded.

8. Protection Profile Claims

No conformance to any registered protection profile is claimed.

9. Rationale

This chapter provides the rationale for the selection of the IT security requirements, objectives, assumptions and threats. It shows that the IT security requirements are suitable to meet the security objectives, Security Requirements, and TOE security functional.

9.1 Rationale for IT Security Objectives

This section of the ST 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.

The following table identifies for each organizational security policy, threat and assumption, the security objective(s) that address it.

Table 15 - Security Objectives Mapping

	O.ACCESS	O.AUDITS	O.EADMIN	O.IDAUTH	O.PROTCT	OE.ECI	OE.CREDEN	OE.INSTAL	OE.MGMTNETWORK	OE.PERSON	OE.PHYCAL	OE.TIME	OE.ORACLE	OE.ORBIX	OE.SOLARIS
A.ECI						X									
A.LOCATE											X				
A.MANAGE										X					
A.MGMTNETWORK									X						
A.NOEVIL							X	X			X				
A.NOTRST							X				X				
A.PROTCT											X				
A.ORACLE													X		
A.ORBIX														X	
A.SOLARIS															X
T.COMINT	X			X	X										
T.LOSSOF	X			X	X										
T.NOHALT	X			X											
T.PRIVIL	X			X											
P.ACCACT		X		X								X			
P.MANAGE	X		X	X	X		X	X		X					
P.PROTCT											X				

The following table describes the rationale for the security objectives mappings.

Table 16 - Rationale For Security Objectives Mappings

*.TYPE	Security Objectives Rationale
A.ECI	The OE.ECI objective requires that ECI personnel participate in TOE installation.
A.LOCATE	The OE.PHYCAL provides for the physical protection of the TOE.

*.TYPE	Security Objectives Rationale
A.MANAGE	The OE.PERSON objective ensures all authorized administrators are qualified and trained to manage the TOE.
A.MGMTNETWORK	The OE.MGMTNETWORK objective ensures that a private, segregated network will protect the intra-TOE traffic and limit the traffic entering the segregated network from the general enterprise network.
A.NOEVIL	The OE.INSTAL objective ensures that the TOE is properly installed and operated and the OE.PHYCAL objective provides for physical protection of the TOE by authorized administrators. The OE.CREDEN objective supports this assumption by requiring protection of all authentication data.
A.NOTRST	The OE.PHYCAL objective provides for physical protection of the TOE to protect against unauthorized access. The OE.CREDEN objective supports this assumption by requiring protection of all authentication data.
A.PROTCT	The OE.PHYCAL provides for the physical protection of the TOE hardware and software.
A.ORACLE	The OE.ORACLE objective ensures that the Oracle DBMS protects the confidentiality and integrity of the TSF data for LightSOFT and STMS.
A.ORBIX	The OE.ORBIX objective ensures that Orbix provides reliable communication for TSF data transmitted between LightSOFT and STMS.
A.SOLARIS	The OE.SOLARIS objective ensures that Solaris provides separation between LightSOFT, STMS and Oracle zones on a single physical server.
T.COMINT	The O.IDAUTH objective provides for authentication of users prior to any TOE data access. The O.ACCESS objective builds upon the O.IDAUTH objective by only permitting authorized users to access TOE data. The O.PROTCT objective addresses this threat by providing TOE self-protection.
T.LOSSOF	The O.IDAUTH objective provides for authentication of users prior to any TOE data access. The O.ACCESS objective builds upon the O.IDAUTH objective by only permitting authorized users to access TOE data. The O.PROTCT objective addresses this threat by providing TOE self-protection.
T.NOHALT	The O.IDAUTH objective provides for authentication of users prior to any TOE function accesses. The O.ACCESS objective builds upon the O.IDAUTH objective by only permitting authorized users to access TOE functions.
T.PRIVIL	The O.IDAUTH objective provides for authentication of users prior to any TOE function accesses. The O.ACCESS objective builds upon the O.IDAUTH objective by only permitting authorized users to access TOE functions.
P.ACCACT	The O.AUDITS objective implements this policy by requiring auditing of all data accesses and use of TOE functions. The O.IDAUTH objective supports this objective by ensuring each user is uniquely identified and authenticated. OE.TIME will provided a time stamp for each audit.
P.MANAGE	The OE.PERSON objective ensures competent administrators will manage the TOE and the O.EADMIN objective ensures there is a set of functions for administrators to use. The OE.INSTAL objective supports the OE.PERSON objective by ensuring administrator follow all provided documentation and maintain the security policy. The O.IDAUTH objective provides for authentication of users prior to any TOE function accesses. The O.ACCESS objective builds upon the O.IDAUTH objective by only permitting authorized users to access TOE functions. The OE.CREDEN objective requires administrators to protect all authentication data. The O.PROTCT objective provides for TOE self-protection.
P.PROTCT	The OE.PHYCAL objective protects the TOE from unauthorized physical modifications.

9.2 Security Requirements Rationale

9.2.1 Rationale for Security Requirements of the TOE Objectives

This section provides rationale for the Security Functional Requirements and/or Security Assurance Requirements demonstrating that the SFRs/SARs are suitable to address the security objectives.

The following table identifies for each TOE security objective, the SFR(s) and/or SAR(s) that address it.

Table 17 - SFRs/SARs to Security Objectives Mapping

	O.ACCESS	O.AUDITS	O.EADMIN	O.IDAUTH	O.INVFLW	O.PROTCT
FAU_GEN.1		X				
FAU_SAR.1			X			
FAU_SAR.2	X			X		
FAU_STG.2	X			X		X
FIA_AFL.1	X			X		
FIA_ATD.1				X		
FIA_UAU.1	X			X		
FIA_UAU.7	X			X		
FIA_UID.1	X			X		
FMT_MTD.1	X			X		X
FMT_SMF.1			X			
FMT_SMR.1				X		
FPT_TEE.1						X

The following table provides the detail of TOE security objective(s).

Table 18 - Security Objectives to SFR Rationale

Security Objective	SFR and Rationale
O.ACCESS	The TOE is required to restrict the review of audit data to those granted with explicit read-access [FAU_SAR.2]. The TOE is required to protect the audit data from deletion as well as guarantee the availability of the audit data in the event of storage exhaustion, failure or attack [FAU_STG.2]. Users authorized to access the TOE are validated using an identification and authentication process [FIA_UID.1, FIA_UAU.1]. This process is supported by defined actions when repeated invalid credentials are supplied [FIA_AFL.1]. The I&A process is also supported by protecting the supplied password from view [FIA_UAU.7]. Only authorized administrators of the TOE may access TSF data and functions, and only according to their permissions [FMT_MTD.1].
O.AUDITS	Security-relevant events must be defined and auditable for the TOE [FAU_GEN.1].

Security Objective	SFR and Rationale
O.EADMIN	The TOE must provide the ability to review the audit trail [FAU_SAR.1]. The TOE must provide the ability for authorized administrators to effectively manage the TOE [FMT_SMF.1].
O.IDAUTH	The TOE is required to restrict the review of audit data to those granted with explicit read-access [FAU_SAR.2]. The TOE is required to protect the stored audit records from unauthorized deletion [FAU_STG.2]. Security attributes of subjects use to enforce the authentication policy of the TOE must be defined [FIA_ATD.1]. Users authorized to access the TOE are validated using an identification and authentication process [FIA_UID.1, FIA_UAU.1]. The process includes defined actions when repeated invalid credentials are supplied [FIA_AFL.1]. The I&A process is also supported by protecting the supplied password from view [FIA_UAU.7]. Only authorized administrators may access TSF data and functions, and only according to their permissions [FMT_MTD.1]. The TOE must be able to recognize the different roles that exist for the TOE [FMT_SMR.1].
O.PROTCT	The TOE is required to protect the audit data from deletion as well as guarantee the availability of the audit data in the event of storage exhaustion, failure or attack [FAU_STG.2]. Only authorized administrators may access TSF data and functions, and only according to their permissions [FMT_MTD.1]. Each NE only accepts management traffic from the STMS instance it is configured to be managed by [FPT_TEE.1].

9.2.2 Security Assurance Requirements Rationale

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:

A) 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.

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

Annex A Available Updates

At the time of the evaluation, the following updates are available for LightSOFT and STMS.

Fix	Build #	Release date
NG1550_6301-050	15	Feb 28, 2021
NG1550_6301-100	36	May 30, 2021
NG1550_6301-200	21	June 30, 2021
NSx1550_6301-050	15	Feb 28, 2021
NSx1550_6301-100	36	May 30, 2021
NSx1550_6301-200	21	June 30, 2021
NC1550_6301-050	15	Feb 28, 2021
NC1550_6301-100	36	May 30, 2021
NC1550_6301-200	21	June 30, 2021

Annex B Excluded User Roles

LightSOFT includes built-in profiles (user roles) covering a range of access levels that are sufficient to meet the needs of most user environments: Admin, Security Admin, Configuration, Provisioning, Maintenance, and Observer. These roles can be assigned to individual user accounts to provide the appropriate level of access for each user.

In addition to the roles identified above, LightSOFT incudes other built-in roles that have been excluded from the Common Criteria evaluation. This document describes those roles and provides rationale for their exclusion.

Level 1 and Level 2: These roles are intended to be starting points for the rare user environments that require specialized roles beyond those provided by the built-in profiles. In their initial configuration, they have the same permissions as Observer for security-relevant data access. Additional permissions could be added to these two profiles to create customized roles; however, the evaluated configuration states that the built-in profiles are used as is. Therefore, these two profiles are considered equivalent to Observer.

Exclusive Admin, Exclusive Provisioning and Exclusive Monitor: The set of "Exclusive" built-in profiles have roughly comparable permissions to the Admin, Provisioning and Observer roles. However, they are intended for use in environments where a Service Provider using LightSOFT creates distinct resource domains for multiple customers, also known as Customer Network Management (CNM). An Exclusive role is assigned to a user associated with a specific resource domain, and that user can only access information about resources in that resource domain. Since Customer Network Management functionality is excluded from the evaluation, the Exclusive set of profiles is also excluded.

NBSP: This role is not intended to be assigned to any user. Rather, it is intended to be assigned to the credential used by the automated Operations Support System (OSS) running above LightSOFT in the back-office user environment. The architectural model for this layering is provided in Figure 1 of the Security Target. The OSS application is excluded from the evaluation. Therefore, the NBSP profile is also excluded.