# NetIQ® Sentinel™ 8.5.1.0
# Security Target

| | |
|---|---|
| *Date:* | *February 10, 2023* |
| *Version:* | 0.15 |
| *Prepared By:* | *OpenText* |
| *Prepared For:* | *OpenText*<br>*275 Frank Tompa Drive*<br>*Waterloo ON N2L 0A1*<br>*Canada* |


## Abstract

This document provides the basis for an evaluation of a specific Target of Evaluation (TOE), Sentinel 8.5.1.0. 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.

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# 1 Introduction

This section identifies the Security Target (ST), Target of Evaluation (TOE), Security Target organization, document conventions, and terminology. It also includes an overview of the evaluated product.

## 1.1 ST Reference

| | |
|---|---|
| **ST Title** | NetIQ® Sentinel™ 8.5.1.0[1] Security Target |
| **ST Revision** | 0.15 |
| **ST Publication Date** | February 10, 2023 |
| **Author** | Michael F. Angelo |

## 1.2 TOE Reference

**TOE Reference** Sentinel™ 8.5.1.0-5968

**Note**: The official name of the product is: Sentinel Enterprise 8.5.1.0 (aka Sentinel 8.5.1.0 Enterprise). The released product can be uniquely identified as: Sentinel Enterprise 8.5.1.0-5968, or Sentinel 8.5.1.0-5968. The product name may also be referred to as Sentinel 8.5.1.0 and abbreviated as simply Sentinel. While the branding transition is still occurring, NetIQ Sentinel, Micro Focus Sentinel and OpenText Sentinel may be associated with the product. For the purpose of this document all the above references are equivalent, and the document may refer to the product simply as Sentinel or the TOE.

## 1.3 Document Organization

This Security Target follows the following format:

| SECTION | TITLE | DESCRIPTION |
|---|---|---|
| 1 | Introduction | Provides an overview of the TOE and defines the hardware and software that make up the TOE as well as the physical and logical boundaries of the TOE |
| 2 | Conformance Claims | Lists evaluation conformance to Common Criteria versions, Protection Profiles, or Packages where applicable |
| 3 | Security Problem Definition | Specifies the threats, assumptions and organizational security policies that affect the TOE |
| 4 | Security Objectives | Defines the security objectives for the TOE/operational environment and provides a rationale to demonstrate that the security objectives satisfy the threats |
| 5 | Extended Components Definition | Describes extended components of the evaluation (if any) |
| 6 | Security Requirements | Contains the functional and assurance requirements for this TOE |

[1] Note: Marketing changed the product name from NetIQ® Sentinel™ to just Sentinel™

| SECTION | TITLE | DESCRIPTION |
|---|---|---|
| 7 | TOE Summary Specification | Identifies the IT security functions provided by the TOE and identifies the assurance measures targeted to meet the assurance requirements. |

**Table 1 – ST Organization and Section Descriptions**

## 1.4 Document Conventions

The notation, formatting, and conventions used in this Security Target are consistent with those used in Version 3.1 of the Common Criteria. Selected presentation choices are discussed here to aid the Security Target reader. The Common Criteria allows several operations to be performed on functional requirements: The allowable operations defined in Part 2 of the Common Criteria are *refinement, selection, assignment* and *iteration*.

- The assignment operation is used to assign a specific value to an unspecified parameter, such as the length of a password. An assignment operation is indicated by showing the value in square brackets, i.e. [assignment_value(s)].
- The refinement operation is used to add detail to a requirement, and thus further restricts a requirement. Refinement of security requirements is denoted by bold text. Any text removed is indicated with a strikethrough format (Example: TSF).
- The selection operation is picking one or more items from a list in order to narrow the scope of a component element. Selections are denoted by italicized text.
- Iterated functional and assurance requirements are given unique identifiers by appending to the base requirement identifier from the Common Criteria an iteration number inside parenthesis, for example, FMT_MTD.1.1 (1) and FMT_MTD.1.1 (2) refer to separate instances of the FMT_MTD.1 security functional requirement component.

When not embedded in a Security Functional Requirement, italicized text is used for both official document titles and text meant to be emphasized more than plain text.

## 1.5 Document Terminology

The following table describes the acronyms used in this document:

| TERM | DEFINITION |
|---|---|
| CC | Common Criteria version 3.1 |
| EAL | Evaluation Assurance Level |
| EOE | Events Originating External to the TOE |
| ISO | International Standards Organization. When referring to a CD or DVD it means ISO-9660 |
| NTP | Network Time Protocol |
| OSP | Organizational Security Policy |
| OVF | Open Virtualization Format |
| SFP | Security Function Policy |
| SFR | Security Functional Requirement |
| ST | Security Target |
| TOE | Target of Evaluation |
| TSF | TOE Security Function |

**Table 2 – Acronyms Used in Security Target**

## 1.6 TOE Overview

The TOE is Sentinel™ 8.5.1.0. Sentinel™ 8.5.1.0 is a Security Information and Event Management Solution (SIEM) as well as a compliance monitoring solution. Sentinel acts as an aggregator, as well as a consolidator for information from multiple systems (applications, databases, servers, storage, and security devices). It analyzes and correlates the data and reduces the data to the point where it can be acted on, either automatically or manually.

Sentinel automates log collection, analysis, and the reporting processes to ensure that IT controls are effective in supporting threat detection and audit requirements. Sentinel provides automated monitoring of security and compliance events as well as IT controls. Finally, Sentinel provides real-time reporting which allows one to take immediate action if there is a security breach or non-compliant event.

Sentinel is different from an Intrusion Detection System (IDS) in that Sentinel monitors, analyzes, and reacts to events from multiple systems (applications, databases, servers, storage, and security devices).

## 1.7 TOE Description

### 1.7.1 Overview

The TOE consists of the following components:

- Console
- Sentinel Server
- Data Collector
- Correlation Engine (CE)

The basic configuration is depicted in the figure[2] below:

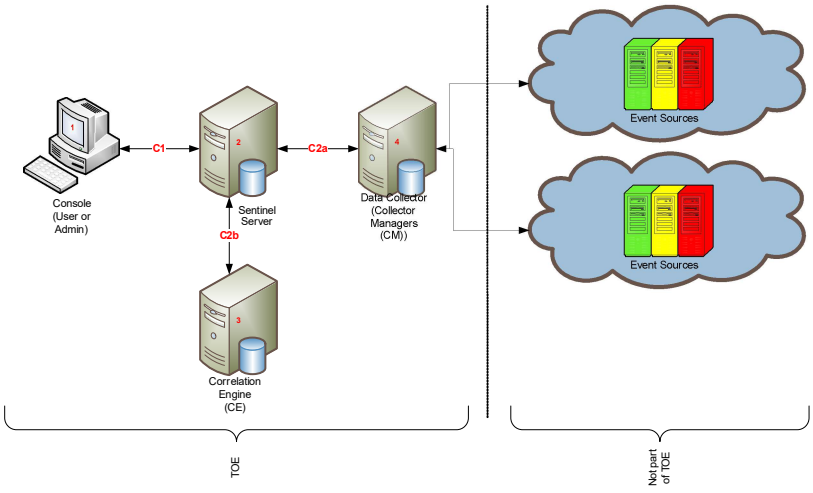



**Figure 1 – Basic Sentinel 8.5.1.0 Configuration**

[2] Components that are not part of the TOE are to the right of the dotted line. These components are included in this diagram for completeness of documentation.

The figure below depicts the TOE in a complex environment.

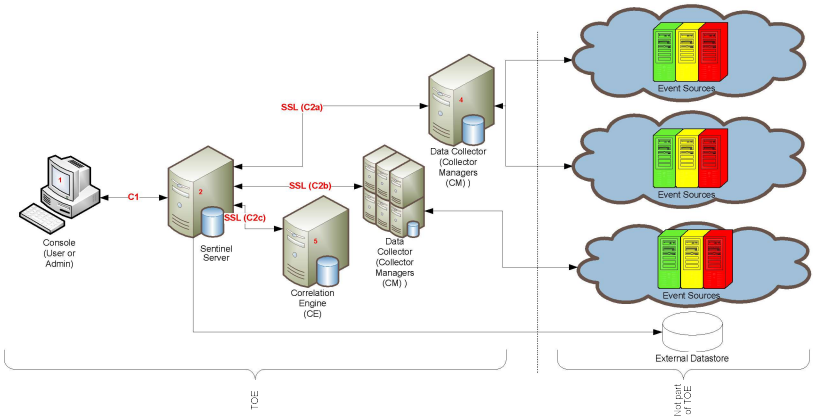



**Figure 2 – Sentinel 8.5.1.0 Configuration with External Datastore**

The following depicts the TOE in an appliance configuration:

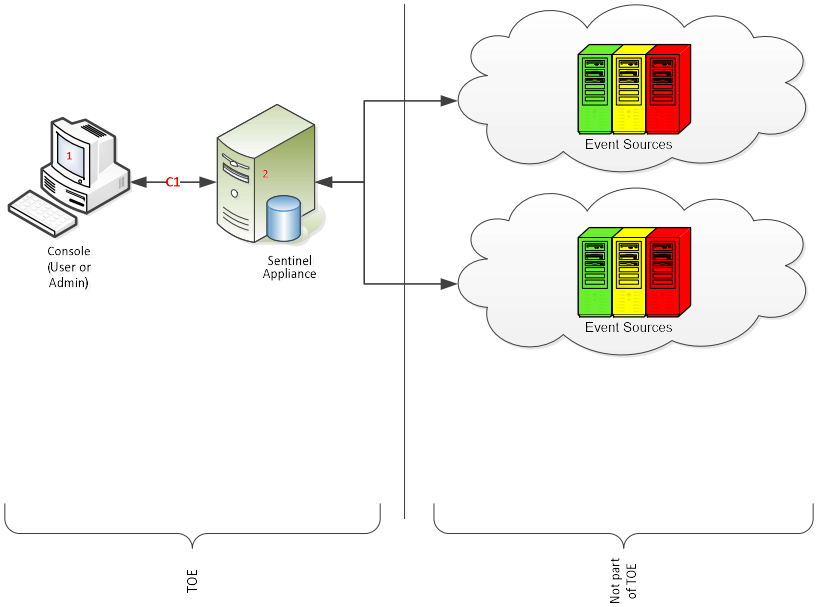



**Figure 3 – Sentinel 8.5.1.0 Appliance Configuration**

It is important to note that all components in the Sentinel architecture can scale with multiple instances of the components. Note the appliance contains all components in the Sentinel Architecture (Sentinel Server, Data Collector, and Correlation Engine (CE)).

The following diagram reflects the functional blocks in the configuration:

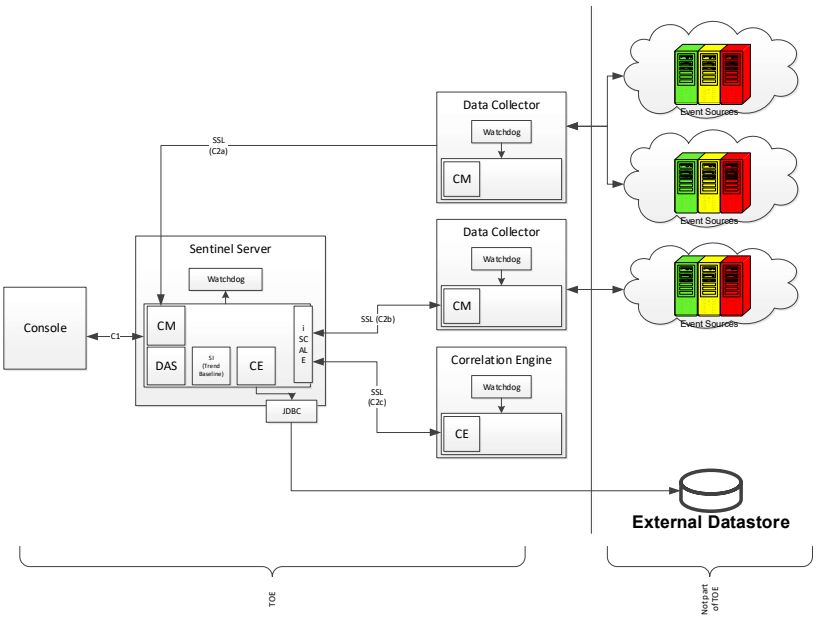



**Figure 4 – Functional Block Diagram**

Sentinel works by:

1. Gathering logs, events, and security information from the configured event sources in the IT environment.
2. Normalizing the collected logs, events, and security information into a common format.
3. Adding the normalized information to a message bus (figure 4) that can move thousands of message packets per second. Scalability is achieved by allowing all of the Sentinel components to communicate through the message bus
4. Sentinel provides information by enabling the hierarchically linking of multiple Sentinel systems, NetIQ Sentinel, and NetIQ Sentinel Rapid Deployment.

**Figure 5 – Sentinel Conceptual Architecture**

This architecture enables Sentinel to:

5. Provide event searches across the entire Sentinel infrastructure. i.e. on Sentinel servers distributed across the globe.
6. Perform statistical analysis to establish baselines. These can then be used to compare the events that are currently occurring to determine if there are masked or not obvious problems.
7. Correlate sets of similar, or comparable, events in a given period to determine a pattern.
8. Organization of events into incidents for efficient response management and tracking.
9. Report based on real time and historical events.

One of the key features of Sentinel is a concept known as the iSCALE™ Message Bus. The iSCALE Message Bus allows for independent scaling of individual components while also allowing for standards-based integration with external applications. The key to scalability is that unlike other distributed software, no two peer components communicate with each other directly. All components communicate through the message bus, which is capable of moving thousands of

message packets per second. Leveraging the message bus's unique features, the high-throughput communication channel can maximize and sustain a high data throughput rate across the independent components of the system. Events are compressed and encrypted on the wire for secure and efficient delivery from the edge of the network or collection points to the hub of the system, where real-time analytics are performed. The iSCALE message bus employs a variety of queuing services that improve the reliability of the communication beyond the security and performance aspects of the platform. Using a variety of transient and durable queues, the system offers unparalleled reliability and fault tolerance. For instance, important messages in transit are saved (by being queued) in case of a failure in the communication path. The queued message is delivered to the destination after the system recovers from failure state.

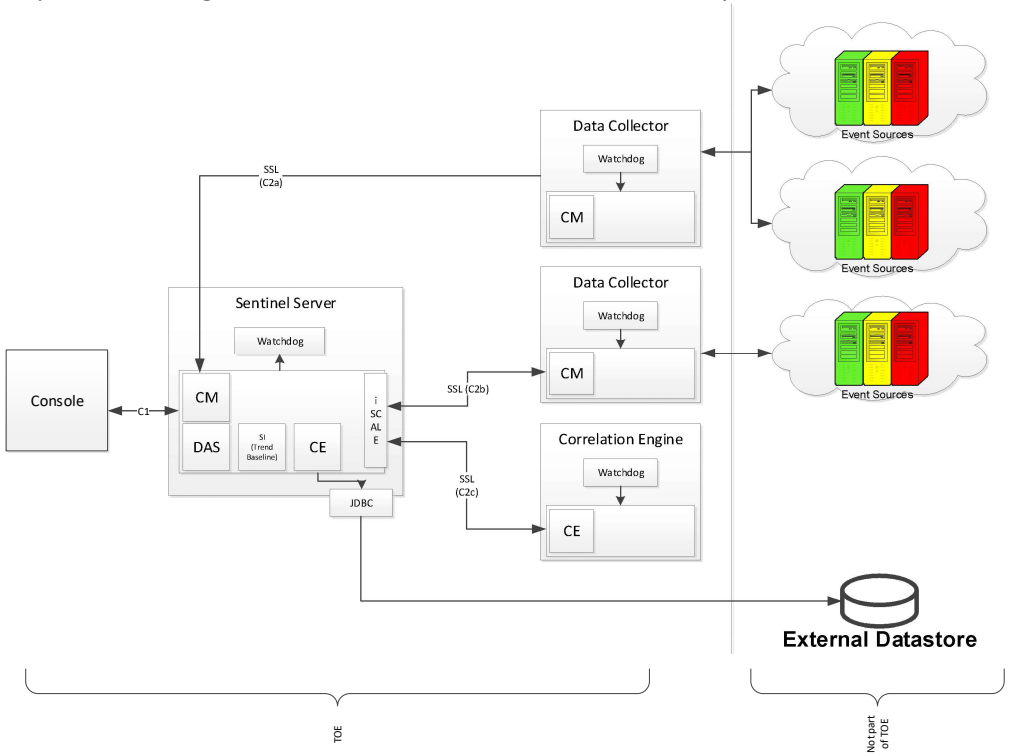



**Figure 6 – Sentinel Sample Data Flow**

### 1.7.2 Console[3]

The Console serves two functions. The first is to enable the configuration of the system. The second is to allow for the review and output from the product. Outputs include alerts (indicating anomalies) and reports indicating status and events. The Console is a web-based interface accessed through supported web browsers. Access to Administrator or User functions are allowed based on user roles.

[3] Note: The console is used for management and operational user functions and may be referred to as User Console or Administrator Console depending on the functions it is performing. It may also be referred to as the Sentinel Web Interface in a generic form.

### 1.7.3 Sentinel Server

The Sentinel Server is used to aggregate information. The Sentinel Server is composed of several sub-components including:

- Sentinel Service Wrapper (Watchdog)
- Collector Manager (CM)
- Data Access Service (DAS)
- Correlation Engine (CE)
- iSCALE

#### 1.7.3.1 Sentinel Service Wrapper (Watchdog)

Wrapper is a Sentinel Process that manages other Sentinel Processes. If a process other than Wrapper stops, Wrapper will report this and will then restart that process.

If this service is stopped, it will stop all Sentinel processes on that machine. It executes and reports health of other Sentinel processes. This process is launched by the “Sentinel” UNIX service.

#### 1.7.3.2 Collector Manager (CM)

Collector Manager manages the Collectors, monitors system status messages, receives events from external event sources, and performs event filtering as needed. Main functions of the Collector Manager include transforming events, adding business relevance to events through taxonomy, performing global filtering on events, routing events and sending health messages to the Sentinel server.

#### 1.7.3.3 Data Access Service (DAS):

The Data Access Service (DAS) process is Sentinel Server's persistence service and provides an interface to the database. It provides data driven access to the database backend.

DAS receives requests from the different Sentinel processes, converts them to a search against the database, processes the result from the database and converts it that back to a reply. It supports requests to retrieve events for Search and Event Drill Down, to retrieve vulnerability information and advisor information and to manipulate configuration information. DAS also handles logging of all events being received from the Collector Manager and requests to retrieve and store configuration information.

#### 1.7.3.4 Correlation Engine (CE)

The Correlation Engine process receives events from the Collector Manager and publishes correlated events based on user-defined correlation rules.

#### 1.7.3.5 iSCALE

The iSCALE is a message-oriented middleware that provides the communication platform for all other Sentinel processes.

### 1.7.4 Data Collector

To improve overall performance, Data Collectors service, process, and send events to the Sentinel Server. In addition, there is a Wrapper service that monitors and manages the Data Collector. Data Collectors are distributed systems running the Collector Manager software.

#### 1.7.4.1 Collector Manager

Collector Manager as a sub-component of the Data Collector has the same functionality as the Collector Manager sub-component of the Sentinel Server.

### 1.7.5 Correlation Engine (CE)

While there is a Correlation Engine in the Sentinel Server, for load balancing there can be multiple correlation engines deployed on separate systems. In addition to the CE, the watchdog component also keeps track of the CE.

### 1.7.6 Physical Boundary

The TOE is a software TOE and includes the following components:

- Console
- Sentinel Server
- Data Collector
- Correlation Engine (CE)

The following figure presents the TOE diagram. The elements in the section not part of TOE.

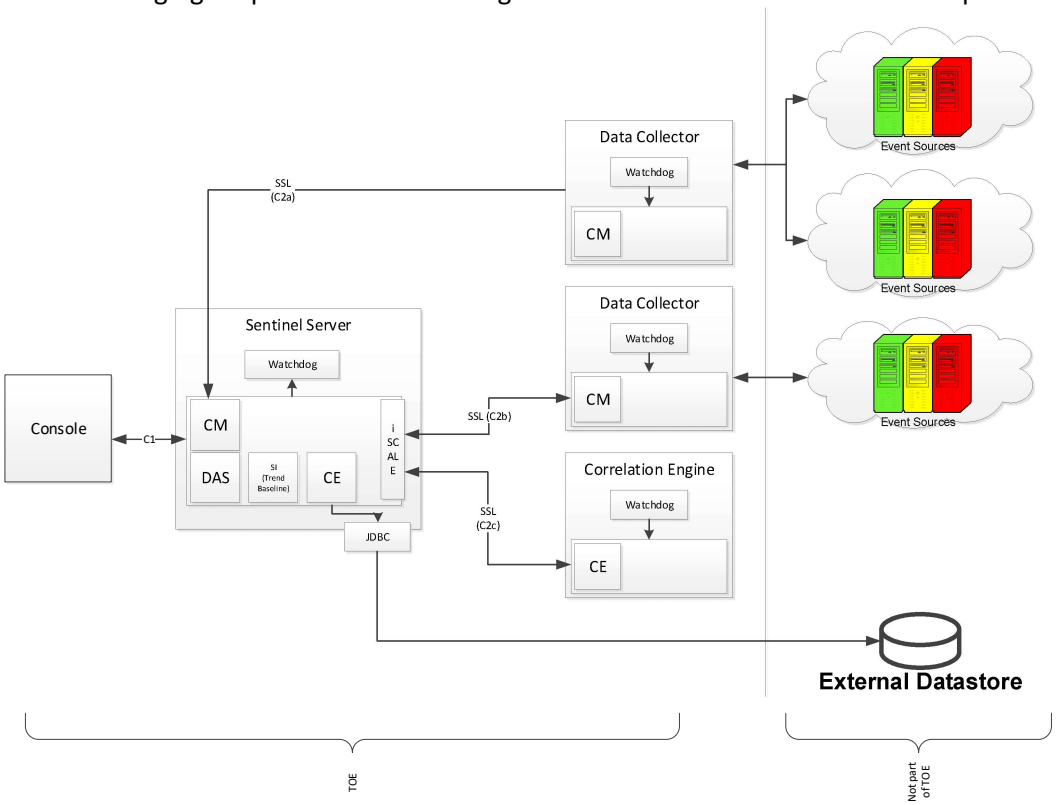



**Figure 7 – TOE Boundary**

The evaluation consists of two configurations for the product. The first configuration consists of the Basic Sentinel Server product as depicted in Figure 1. The second configuration is a virtual appliance in the form of an OVF as depicted in Figure 3.

| COMPONENT | VERSION NUMBER |
|---|---|
| Sentinel Server | Version 8.5.1.0-5968 |
| Sentinel Appliance | Version 8.5.1.0-5968 |

**Table 3 – Evaluated Configurations for the TOE**

Note the following constraints for the evaluated configuration:

- The hardware, operating systems and third-party support software (e.g. DBMS) on each of the systems are excluded from the TOE boundary.
- Sentinel plugins can be used in the evaluated configuration as they are not security relevant. Plugins are part of the TOE and are not a separate / distinct entity.
- The Report Development Utility is excluded from evaluation
- The Advisor functionality is excluded from evaluation.
- The command line interface is excluded from evaluation.

Note the Webyast and SSHD facilities are explicitly excluded from the certification configuration.

### 1.7.7 Hardware and Software Supplied by the IT Environment

The TOE consists of a set of software applications. The hardware, operating systems and all third-party support software (e.g., DBMS) on the systems on which the TOE executes are excluded from the TOE boundary.

The TOE requires the following minimum hardware and software configuration:

| TOE COMPONENT | TYPE | VERSION/MODEL NUMBER |
|---|---|---|
| Sentinel Server | Operating System | SUSE Linux Enterprise Server (SLES) 12 SP5 64-bit<br>Red Hat Enterprise Linux Server (RHEL) 7.9 64-bit |
| | CPU | Two Intel(R) Xeon(R) CPU ES2650 O@ 2.00GHz (4 core) CPUs (8 cores total), without Intel HT Technology |
| | Memory | 24GB |
| | Storage | 500 GB 7.2k RPM drive |
| | Optional External Datastore | Microsoft SQL Server 2017 |
| Data Collector | Operating System | SLES 12 SP5 64-bit |
| | CPU | Intel(R) Xeon(R) CPU E5-2650 O@ 2.00GHz, 4 cores (virtual machine) |
| | Memory | 4 GB |
| | Storage | 100 GB (RAID 1) |
| Correlation Engine | Operating System | SLES 12 SP5 64-bit |
| | CPU | Intel(R) Xeon(R) CPU E5-2650 O@ 2.00GHz, 4 cores (virtual machine) |
| | Memory | 8 GB |
| | Storage | 100 GB |
| Console | Operating System | Windows 10 (Microsoft Edge, Google Chrome, Mozilla Firefox, Microsoft Internet Explorer 11) |

| TOE COMPONENT | TYPE | VERSION/MODEL NUMBER |
|---|---|---|
| | Operating System | SLES 12 SP5 / RHEL 7.9 64 (Mozilla Firefox) |

**Table 4 – IT Environment**

The Sentinel appliance requires the following minimum hardware configuration:

| TOE COMPONENT | TYPE | VERSION/MODEL NUMBER |
|---|---|---|
| Sentinel Server Appliance | Appliance installation: | VMware ESX 6.7 (OVF) |
| | Operating System | SUSE Linux Enterprise Server (SLES) 12 SP5 64-bit |
| | CPU | Intel(R) Xeon(R) CPU E5420@ 2.50GHz (8 CPU cores), without Intel HT Technology |
| | Memory | 24 GB |
| | Storage | 500 GB 7.2k RPM drive |

**Table 5 - Appliance Minimum Hardware**

### 1.7.8 Logical Boundary

This section outlines the boundaries of the security functionality of the TOE; the logical boundary of the TOE includes the security functionality described in the following table:

| TSF | DESCRIPTION |
|---|---|
| Security Management | The TOE provides administrators with the capabilities to configure, monitor and manage the TOE to fulfill the Security Objectives. Security Management principles relate to management of access control policies as well as management of events and incidents. Administrators configure the TOE with the Console via Web-based connection. The TOE provides an inactivity timeout mechanism. |
| Security Audit | The TOE generates reports on the event analysis activities. Additionally, the TOE supports the provision of log data from each system component, such as user login/logout and incident/ticket management actions. It also records security events such as failed login attempts, etc. Audit trails can be stored for later review and analysis. Audit data is also collected by the TOE from the various devices that send event data, and the TOE analyzes this information against a set of correlation rules and filters. |
| Identification and Authentication | The TOE enforces individual I&A in conjunction with group/role based I&A mechanisms. Operators must successfully authenticate using a unique identifier and password prior to performing any actions on the TOE. |

**Table 6 – Logical Boundary Descriptions**

### 1.7.9 TOE Security Functional Policies

The TOE supports the following Security Functional Policy:

#### 1.7.9.1 Administrative Access Control SFP

The TOE implements an access control SFP named *Administrative Access Control SFP*. This SFP determines and enforces the privileges associated with user roles. An authorized administrator can define specific privileges available to administrators and users via the Console.

#### 1.7.9.2 User Roles SFP

The TOE implements user roles via defined collections of privileges. These privileges are defined and assigned by the administrator. Users can only have a single role at one time.

### 1.7.10 TOE Product Documentation

The TOE includes the following product documentation[4]:

- Sentinel™ 8.51.0 Release Notes October 31
- Sentinel™ 8.5.1.0 Administration Guide October 2022
- Sentinel™ 8.5.1.0 User Guide October 2022
- Sentinel™ 8.5.1.0 Installation and Configuration Guide October 2022
- Sentinel™ 8.5.1.0 System Requirements October 2022

[4] Documentation can be found here: https://www.microfocus.com/documentation/sentinel/8.5/

# 2 Conformance Claims

## 2.1 CC Conformance Claim

The TOE is conformant to Common Criteria Version 3.1 CC Revision 5, April 2017 Part 2 extended and Part 3 conformant.

## 2.2 PP Claim

The TOE does not claim conformance to any registered Protection Profile.

## 2.3 Package Claim

The TOE claims conformance to the EAL3 assurance package defined in Part 3 of the Common Criteria Version 3.1 Revision 5 (April 2017)). The TOE does not claim conformance to any functional package. The TOE EAL3 assurance package is augmented with ALC_FLR.1.

## 2.4 Conformance Rationale

No conformance rationale is necessary for this evaluation since this Security Target does not claim conformance to a Protection Profile.

# 3 Security Problem Definition

In order to clarify the nature of the security problem that the TOE is intended to solve, this section describes the following:

- Any known or assumed threats to the assets against which specific protection within the TOE or its environment is required
- Any organizational security policy statements or rules with which the TOE must comply
- Any assumptions about the security aspects of the environment and/or of the manner in which the TOE is intended to be used.

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

## 3.1 Threats

The following are threats identified for the TOE and the IT System the TOE monitors. The TOE itself has threats and the TOE is also responsible for addressing threats to the environment in which it resides. The assumed level of expertise of the attacker for all threats is unsophisticated.

The TOE addresses the following threats:

| THREAT | DESCRIPTION |
|---|---|
| T.NO_AUTH | An unauthorized user may gain access to the TOE and alter the TOE configuration. The asset is the configuration of the TOE. |
| T.NO_PRIV | An authorized user of the TOE exceeds his/her assigned security privileges resulting in unauthorized modification of the TOE configuration and/or data. The assets are the configuration of the TOE, data that is collected, and the resultant analysis by the TOE. |

**Table 7 – Threats Addressed by the TOE**

## 3.2 Organizational Security Policies

The TOE meets the following organizational security policies:

| ASSUMPTION | DESCRIPTION |
|---|---|
| P.EVENTS | All events from network-attached devices shall be monitored and reported. This enables the detection of potential events that may represent a security issue or other issues that may require additional analysis and mitigation. |
| P.INCIDENTS | Security events correlated and classified as incidents should be managed to resolution. This enables the detection and potential prevention of harm to the TOE or the infrastructure the TOE is used to monitor and or protect. |

**Table 8 – Organizational Security Policies**

## 3.3 Assumptions

This section describes the security aspects of the environment in which the TOE is intended to be used. The TOE is assured to provide effective security measures in a co-operative non-hostile environment only if it is installed, managed, and used correctly. The following specific conditions are assumed to exist in an environment where the TOE is employed.

| ASSUMPTION | DESCRIPTION |
|---|---|
| A.MANAGE | Administrators of the TOE are assumed to be appropriately trained (and competent) to undertake the installation, configuration and management of the TOE in a secure and trusted manner. |
| A.NOEVIL | Administrators of the TOE and users on the local area network are not careless, willfully negligent, nor hostile, and will follow and abide by the instructions provided by the TOE documentation |
| A.LOCATE | The processing platforms on which the TOE resides are assumed to be located within a facility that provides controlled access |
| A.DS_PROTECT | The External Datastore(s) are located within a facility that provides physical and logical controlled access. |
| A.CONFIG | The TOE is configured to receive all events from network-attached devices. |
| A.TIMESOURCE | The TOE has a trusted source for system time via NTP server |
| A.UPDATE | The TOE environment is regularly updated to address potential and actual vulnerabilities. |

**Table 9 – Assumptions**

# 4 Security Objectives

## 4.1 Security Objectives for the TOE

The IT security objectives for the TOE are addressed below:

| OBJECTIVE | DESCRIPTION |
|---|---|
| O.CAPTURE_EVENT | The TOE shall collect data (in the form of events) from security and non-security products with accurate timestamps and apply analytical processes to derive conclusions about events. The collected data is critical to the analysis and tracking of events in the environment which might indicate security issues. |
| O.MANAGE_INCIDENT | The TOE shall provide a workflow to manage events and incidents. This workflow enables the TOE to provide responses that authorized users may execute to analyze and expedite potential security events and issues. Thus enabling TOE users to respond faster. |
| O.SEC_ACCESS | The TOE shall ensure that only those authorized users and applications are granted access to security functions and associated data. This prevents unauthorized users from performing actions that may disable the TOE and result in undetected security events and issues. |

**Table 10 – TOE Security Objectives**

## 4.2 Security Objectives for the Operational Environment

The security objectives for the operational environment are addressed below:

| OBJECTIVE | DESCRIPTION |
|---|---|
| OE.TIME | The TOE operating environment shall provide an accurate timestamp (via reliable NTP server). |
| OE.ENV_PROTECT | The TOE operating environment shall provide mechanisms to isolate the TOE Security Functions (TSF) and assure that TSF components cannot be tampered with or bypassed. |
| OE.PERSONNEL | Authorized administrators are non-hostile and follow all administrator guidance and must ensure that the TOE is delivered, installed, managed, and operated in a manner that maintains the TOE security objectives. Any operator of the TOE must be trusted to not disclose their authentication credentials.<br>Authorized administrators are also required to manage and administer the TOE in a secure manner. Authorized administrators must be competent and security aware personnel in accordance with the administrator documentation. |
| OE.PHYSEC | The facility surrounding the processing platform in which the TOE resides must provide a controlled means of access into the facility |
| OE.DS_PROTECT | The facility surrounding the External Datastore platform must provide physical and logical controlled access. |
| OE.UPDATE | The TOE environment is regularly updated to address potential and actual vulnerabilities. |

**Table 11 – Operational Environment Security Objectives**

## 4.3 Security Objectives Rationale

This section provides the summary that all security objectives are traced back to aspects of the addressed assumptions, threats, and Organizational Security Policies.

| OBJECTIVES / ASSUMPTIONS/ THREATS/ POLICIES | O.CAPTURE_EVENT | O.MANAGE_INCIDENT | O.SEC_ACCESS | OE.TIME | OE.ENV_PROTECT | OE.PERSONNEL | OE.PHYSEC | OE.DS_ PROTECT | OE.UPDATE |
|---|---|---|---|---|---|---|---|---|---|
| A.CONFIG | | | | | | ✓ | | | |
| A.MANAGE | | | | | | ✓ | | | |
| A.NOEVIL | | | | | | ✓ | | | |
| A.LOCATE | | | | | | | ✓ | | |
| A.TIMESOURCE | | | | ✓ | | | | | |
| A.DS_PROTECT | | | | | | | | ✓ | |
| A.UPDATE | | | | | | | | | ✓ |
| T.NO_AUTH | | | ✓ | | ✓ | ✓ | ✓ | | |
| T.NO_PRIV | | | ✓ | | | | | | |
| P.EVENTS | ✓ | | | ✓ | | ✓ | | | |
| P.INCIDENTS | | ✓ | | ✓ | | ✓ | | | |

**Table 12 – Mapping of Assumptions, Threats, and OSPs to Security Objectives**

### 4.3.1 Rationale for Security Threats to the TOE

| ASSUMPTION/ THREAT/ POLICY | RATIONALE |
|---|---|
| A.CONFIG | This assumption is addressed by<br>• OE.PERSONNEL, which ensures that the TOE is managed and administered in a secure manner by competent and security aware personnel in accordance with the administrator documentation. This objective also ensures that those responsible for the TOE install, manage, and operate the TOE in a secure manner |
| A.MANAGE | This assumption is addressed by<br>• OE.PERSONNEL, which ensures that the TOE is managed and administered in a secure manner by a competent and security aware personnel in accordance with the administrator documentation. This objective also ensures that those responsible for the TOE install, manage, and operate the TOE in a secure manner |
| A.NOEVIL | This assumption is addressed by OE.PERSONNEL, which ensures that the TOE is managed and administered in a secure manner by competent and security aware personnel in accordance with the administrator documentation. This objective also ensures that those responsible for the TOE install, manage, and operate the TOE in a secure manner |
| A.LOCATE | This assumption is addressed by OE.PHYSEC which ensures that the facility surrounding the processing platform in which the TOE resides provides a controlled means of access into the facility |

| ASSUMPTION/ THREAT/ POLICY | RATIONALE |
|---|---|
| A.TIMESOURCE | This assumption is addressed by OE.TIME, which ensures the provision of an accurate time source. |
| A.DS_PROTECT | This assumption is addressed by OE.DS_ PROTECT, which ensures that the facility surrounding the External Datastore platform has both physical and logical controlled access. |
| A.UPDATE | This assumption is addressed by OE.UPDATE.<br>• OE.UPDATE which requires the TOE environment be updated regularly to address potential and actual operational security issues. |
| T.NO_AUTH | This threat is countered by the following:<br>• O.SEC_ACCESS, which ensures that the TOE allows access to the security functions, configuration, and associated data only by authorized users and applications and<br>• OE.ENV_PROTECT, which ensures that TSF components cannot be tampered with or bypassed and<br>• OE.PERSONNEL, which ensures that the TOE is managed and administered in a secure manner by competent and security aware personnel in accordance with the administrator documentation. This objective also ensures that those responsible for the TOE install, manage, and operate the TOE in a secure manner and<br>• OE.PHYSEC, which ensures that the facility surrounding the processing platform in which the TOE resides provides a controlled means of access into the facility |
| T.NO_PRIV | This threat is countered by O.SEC_ACCESS, which ensures that the TOE allows access to the security functions, configuration, and associated data only by authorized users and applications. |
| P.EVENTS | This organizational security policy is enforced by<br>• O.CAPTURE_EVENT, which ensures that the TOE collects security events from security products and non-security products deployed within a network and applies analytical processes to derive conclusions about the events and<br>• OE.TIME, which provides support for enforcement of this policy by ensuring the provision of an accurate time source and<br>• OE.PERSONNEL, which ensures that authorized administrators are non-hostile and follow all administrator guidance and ensures that the TOE is delivered, installed, managed, and operated in a manner that maintains the TOE security objectives. Any operator of the TOE must be trusted not to disclose their authentication credentials to any individual not authorized for access to the TOE. |

| ASSUMPTION/ THREAT/ POLICY | RATIONALE |
|---|---|
| P.INCIDENTS | This organizational security policy is enforced by<br>• O.MANAGE_INCIDENT, which ensures that the TOE will provide the capability to provide workflow functionality to manage the resolution of incidents and<br>• OE.TIME, which ensures that the TOE operating environment shall provide an accurate timestamp (via reliable NTP server) and<br>• OE.PERSONNEL, which ensures that authorized administrators are non-hostile and follow all administrator guidance and ensures that the TOE is delivered, installed, managed, and operated in a manner that maintains the TOE security objectives. Any operator of the TOE must be trusted not to disclose their authentication credentials to any individual not authorized for access to the TOE. |

**Table 13 – Mapping of Threats, Policies, and Assumptions to Objectives**

# 5 Extended Components Definition

A class of Security Information and Event Management (SIEM) requirements was created to specifically address the data collected, analyzed, and managed by a SIEM solution. The purpose of this class is to address the unique nature of SIEM solutions and provide requirements about collecting events and managing incidents. These requirements have no dependencies since the stated requirements embody all the necessary security functions.

## 5.1 Definition of Extended Components

### 5.1.1 Class SIEM: Incident Management

Incident Management functions provide the capability to analyze security event data and incident workflow.

#### 5.1.1.1 Event Analysis SIEM_ANL_EXT

**Family Behavior**

This family defines the requirements for security event analysis functionality.

**Component Leveling**


SIEM_ANL_EXT Event Analysis provides the analysis of security event data.

**Management: SIEM_ANL_EXT.1**

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

a) Configuration of the analysis to be performed

**Audit: SIEM_ANL_EXT.1**

There are no auditable events foreseen.

**SIEM_ANL_EXT.1 Event Analysis**

Hierarchical to: No other components
Dependencies: No dependencies

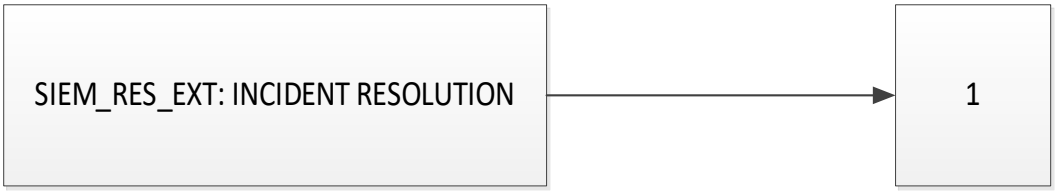
SIEM_ANL_EXT.1.1 The TSF shall perform [assignment: list of analysis functions] analysis function(s) on data collected from security and non-security products within a network.

#### 5.1.1.2 Incident Resolution SIEM_RES_EXT

**Family Behavior**

This family defines the requirements for security incident functionality.

**Component Leveling**




SIEM_RES_EXT provides the incident resolution workflow functionality.

**Management: SIEM_RES**_EXT.1

There are no management activities foreseen.

**Audit: SIEM_RES**_EXT.1

There are no auditable events foreseen.

**Incident Resolution: SIEM_RES_EXT.1**

Hierarchical to: No other components
Dependencies: No dependencies

SIEM_RES_EXT.1.1 The TSF shall provide a means to track work items that are necessary to resolve an incident.

### 5.1.2 Class FTA: TOE Access

TOE Access functions provide facilities and controls for access to the TOE.

#### 5.1.2.1 Session locking and termination FTA_SSL_EXT

**Component Leveling**


FTA_SSL_EXT TSF-initiated session locking includes system initiated locking of an interactive session after an administrator configured of user inactivity time interval has expired, but does not include clearing or overwriting the display.

**Management:** FTA_SSL_EXT.1

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

a) specification of the time of user inactivity after which termination of the interactive session occurs for an individual user;

**Audit:** FTA_SSL_EXT.1

The following actions should be auditable if FAU_GEN Security audit data generation is included in the PP/ST:

a) Minimal: Locking of an interactive session by the session locking mechanism.

b) Minimal: Successful unlocking of an interactive session.

c) Basic: Any attempts at unlocking an interactive session.

FTA_SSL_EXT.1

Hierarchical to: No other components
Dependencies: FIA_UAU.1 Timing of authentication

| | |
|---|---|
| FTA_SSL_EXT.1.1 | The TSF shall lock an interactive session [after an administrator-configured user inactivity time interval has expired] by disabling any user's actions other than unlocking the session |
| FTA_SSL_EXT.1.2 | The TSF shall require the following events to occur prior to unlocking the session [the user must re-authenticate to the TOE]. |

# 6 Security Requirements

The security requirements that are levied on the TOE and the IT environment are specified in this section of the ST.

## 6.1 Security Functional Requirements

The functional security requirements for this Security Target consist of the following components from Part 2 of the CC, which are summarized in the following table:

| CLASS HEADING | CLASS_FAMILY | DESCRIPTION |
|---|---|---|
| Security Audit | FAU_GEN.1 | Audit Data Generation |
| | FAU_SAR.1 | Audit Review |
| User Data Protection | FDP_ACC.1 | Subset Access Control |
| | FDP_ACF.1 | Security Attribute Based Access Control |
| Identification and Authentication | FIA_ATD.1 | User Attribute Definition |
| | FIA_UAU.2 | User Authentication before Any Action |
| | FIA_UID.2 | User Identification before Any Action |
| Security Management | FMT_MSA.1 | Management of Security Attributes |
| | FMT_MSA.3 | Static Attribute Initialization |
| | FMT_MTD.1 | Management of TSF Data |
| | FMT_SMF.1 | Specification of Management Functions |
| | FMT_SMR.1 | Security Roles |
| | FTA_SSL_EXT.1 | TSF-initiated session locking |
| | FTA_SSL.4 | User-initiated termination |
| Incident Management | SIEM_ANL_EXT.1 | Event Analysis |
| | SIEM_RES_EXT.1 | Incident Resolution |

**Table 14 – TOE Security Functional Requirements**

### 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) [User login/logout of the TOE;
d) Login failures;
e) Events from security products and non-security products]

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, [no other audit relevant information].

#### 6.1.1.2 FAU_SAR.1 Audit Review

FAU_SAR.1.1 The TSF shall provide [the Administrator, and designated operators] with the capability to read [all audit data generated within the TOE, all data received / processed] 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.

### 6.1.2 Information Flow Control (FDP)

#### 6.1.2.1 FDP_ACC.1 Subset Access Control

FDP_ACC.1.1 The TSF shall enforce the [Administrative Access Control SFP] on [

Subjects: All users

Objects: System reports, component audit logs, configuration

Operations: all user actions[5]]

#### 6.1.2.2 FDP_ACF.1 Security Attribute Based Access Control

FDP_ACF.1.1 The TSF shall enforce the [Administrative Access Control SFP] to objects based on the following: [
Subjects: All users
Subject Attributes: User Identity, Roles
Objects: System reports, component audit logs, configuration[6],
Object Attributes: source of data.
Operations: View, Manage, Search, Run Reports, Share]

FDP_ACF.1.2 The TSF shall enforce the following rules to determine if an operation among controlled subjects and controlled objects is allowed: [Role association based on user authentication and source of data (i.e. role)].

FDP_ACF.1.3 The TSF shall explicitly authorize access of subjects to objects based on the following additional rules: [no additional rules].

FDP_ACF.1.4 The TSF shall explicitly deny access of subjects to objects based on the following additional rules: [No Additional Rules].

### 6.1.3 Identification and Authentication (FIA)

#### 6.1.3.1 FIA_ATD.1 – User Attribute Definition

FIA_ATD.1.1 The TSF shall maintain the following list of security attributes belonging to individual users: [User Identity, Password, Roles].

[5] For example - Run report, schedule report, create role, create a user,
[6] Configurations include the establishment and access to Correlation Engine/Rules, Reports, incidents, Event Actions

#### 6.1.3.2 FIA_UAU.2 User Authentication before Any Action

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

#### 6.1.3.3 FIA_UID.2 User Identification before Any Action

FIA_UID.2.1 The TSF shall require each user to be successfully identified before allowing any other TSF-mediated actions on behalf of that user.

### 6.1.4 Security Management (FMT)

#### 6.1.4.1 FMT_MSA.1 Management of security attributes

FMT_MSA.1.1 The TSF shall enforce the [Administrative Access Control SFP] to restrict the ability to [*change_default values, query, modify, delete*] the security attributes [User identity or Roles] to [Administrator].

#### 6.1.4.2 FMT_MSA.3 Static Attribute Initialization

FMT_MSA.3.1 The TSF shall enforce the [Administrative Access Control SFP] to provide [*restrictive*] default values for security attributes that are used to enforce the SFP.

FMT_MSA.3.2 The TSF shall allow the [Administrator] to specify alternative initial values to override the default values when an object or information is created.

*Application Note: All Roles must be explicitly granted by the Administrator. The default is to deny access to privileges not associated with Roles. <see Appendix B>*

#### 6.1.4.3 FMT_MTD.1 Management of TSF Data

FMT_MTD.1.1 The TSF shall restrict the ability to [*perform the functions listed in Table 15*] the [*data described in the Table 15*] to [Administrator]:

| ROLE DATA | CHANGE_DEFAULT | QUERY | MODIFY | DELETE |
|---|---|---|---|---|
| User Role | ✓ | ✓ | ✓ | ✓ |
| User Account Attributes | | ✓ | ✓ | |

**Table 15 – Management of TSF data**

#### 6.1.4.4 FMT_SMF.1 Specification of Management Functions

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

a) Create accounts
b) Modify accounts
c) Define User Rolls
d) Change Default, Query, Modify the attributes associated with the Administrative Access Control SFP
e) Modify the behavior of the Administrative Access Control SFP
f) Manage security incidents
g) Manage correlation rules

h) Manage Reports and Searches
i) Change the user inactivity timeout [7]interval].

*Application Note: Security incidents are groups of events that represent an actionable security incident, plus associated state and meta-information. Incidents are created manually or through Correlation rules.*

#### 6.1.4.5 FMT_SMR.1 Security Roles

FMT_SMR.1.1 The TSF shall maintain the roles [Administrator, Other Roles as described in Appendix A].

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

### 6.1.5 TOE Access (FTA)

#### 6.1.5.1 FTA_SSL_EXT.1 TSF-initiated session locking

FTA_SSL_EXT.1.1 The TSF shall lock an interactive session [after an administrator-configured user inactivity time interval has expired] by disabling any user actions other than unlocking the session

FTA_SSL_EXT.1.2 The TSF shall require the following events to occur prior to unlocking the session: [the user must re-authenticate to the TOE].

#### 6.1.5.2 FTA_SSL.4 User-initiated termination

FTA_SSL.4.1 The TSF shall allow user-initiated termination of the user's own interactive session

### 6.1.6 Incident Management (SIEM)

#### 6.1.6.1 SIEM_ANL_EXT.1 Event Analysis

SIEM_ANL_EXT.1.1 The TSF shall perform [filtering and correlation] analysis function(s) on data collected from security and non-security products within a network.

#### 6.1.6.2 SIEM_RES_EXT.1 Incident Resolution

SIEM_RES_EXT.1.1 The TSF shall provide a means to track work items that are necessary to resolve an incident.

## 6.2 Security Assurance Requirements

The Security Assurance Requirements for this evaluation are listed in Section 6.3.4 – Security Assurance Requirements.

[7] The variable is userSessionManager expireTime in server.xml – note for ATE work. TBR prior to publication.

## 6.3 Security Requirements Rationale

### 6.3.1 Security Functional Requirements

The following table provides the correspondence mapping between security objectives for the TOE and the requirements that satisfy them.

| SFR \ OBJECTIVE | O.CAPTURE_EVENT | O.MANAGE_INCIDENT | O.SEC_ACCESS |
|---|---|---|---|
| FAU_GEN.1 | ✓ | ✓ | |
| FAU_SAR.1 | ✓ | ✓ | |
| FDP_ACC.1 | | | ✓ |
| FDP_ACF.1 | | | ✓ |
| FIA_ATD.1 | | | ✓ |
| FIA_UAU.2 | | | ✓ |
| FIA_UID.2 | | | ✓ |
| FMT_MSA.1 | | | ✓ |
| FMT_MSA.3 | | | ✓ |
| FMT_MTD.1 | | | ✓ |
| FMT_SMF.1 | | | ✓ |
| FMT_SMR.1 | | | ✓ |
| FTA_SSL_EXT.1 | | | ✓ |
| FTA_SSL.4 | | | ✓ |
| SIEM_ANL_EXT.1 | ✓ | | |
| SIEM_RES_EXT.1 | | ✓ | |

**Table 16 – Mapping of TOE Security Functional Requirements and Objectives**

### 6.3.2 Dependency Rationale

This ST satisfies all the security functional requirement dependencies of the Common Criteria. The table below lists each SFR to which the TOE claims conformance with a dependency and indicates whether the dependent requirement was included. As the table indicates, all dependencies have been met.

| SFR CLAIM | DEPENDENCIES | DEPENDENCY MET | RATIONALE |
|---|---|---|---|
| FAU_GEN.1 | FPT_STM.1 | YES | Satisfied by the Operational Environment (OE.TIME) |
| FAU_SAR.1 | FAU_GEN.1 | YES | |
| FDP_ACC.1 | FDP_ACF.1 | YES | |
| FDP_ACF.1 | FDP_ACC.1<br>FMT_MSA.3 | YES | |
| FIA_ATD.1 | N/A | N/A | |

| SFR CLAIM | DEPENDENCIES | DEPENDENCY MET | RATIONALE |
|---|---|---|---|
| FIA_UAU.2 | FIA_UID.1 | YES | Although FIA_ UID.1 is not included, FIA_ UAU.2, which is hierarchical to FIA_ UID.1 is included. This satisfies this dependency. |
| FIA_UID.2 | N/A | N/A | |
| FMT_MSA.1 | FDP_ACC.1<br>FMT_SMF.1<br>FMT_SMR.1 | YES | |
| FMT_MSA.3 | FMT_MSA.1<br>FMT_SMR.1 | YES | |
| FMT_MTD.1 | FMT_SMF.1<br>FMT_SMR.1 | YES | |
| FMT_SMF.1 | N/A | N/A | |
| FMT_SMR.1 | FIA_UID.1 | YES | Although FIA_UID.1 is not included, FIA_UID.2, which is hierarchical to FIA_UID.1 is included. This satisfies this dependency. |
| FPT_STM.1 | N/A | N/A | |
| FTA_SSL_EXT.1 | FIA_UAU.1 | Yes | Satisfied by FIA_UAU.2, which is hierarchical to FIA_UAU.1 |
| FTA_SSL.4 | N/A | N/A | |
| SIEM_ANL_EXT.1 | N/A | N/A | |
| SIEM_RES_EXT.1 | N/A | N/A | |

### 6.3.3 Sufficiency of Security Requirements

The following table presents a mapping of the rationale of TOE Security Requirements to Objectives.

| Objective | RATIONALE |
|---|---|
| O.CAPTURE_EVENT | The objective to ensure that the TOE will collect events from security products and non-security products deployed within a network and applies analytical processes to derive conclusions about the events is met by the following security requirements:<br>• FAU_GEN.1 and FAU_SAR.1 define the auditing capability for events and administrative access control and requires that authorized users will have the capability to read and interpret data stored in the audit logs<br>• SIEM_ANL_EXT.1 ensures that the TOE performs analysis on all security events received from network devices |

| Objective | RATIONALE |
|---|---|
| O.MANAGE_INCIDENT | The objective to ensure that the TOE provides a workflow to manage incidents is met by the following security requirements:<br>• FAU_GEN.1 and FAU_SAR.1 define the auditing capability for incidents and administrative access control and requires that authorized users will have the capability to read and interpret data stored in the audit logs<br>• SIEM_RES_EXT.1 ensures that the TOE provides the capability to manage status and track action items in the resolution of incidents |
| O.SEC_ACCESS | This objective ensures that the TOE allows access to the security functions, configuration, and associated data only by authorized users and applications.<br>• FDP_ACC.1 requires that all user actions resulting in the access to TOE security functions and configuration data are controlled<br>• FDP_ACF.1 supports FDP_ACC.1 by ensuring that access to TOE security functions, configuration data, audit logs, and account attributes is based on the user roles and their allowable actions<br>• FIA_UAU.2 requires the TOE to enforce authentication of all users prior to configuration of the TOE<br>• FIA_UID.2 requires the TOE to enforce identification of all users prior to configuration of the TOE<br>• FIA_ATD.1 specifies security attributes for users of the TOE<br>• FMT_MTD.1 restricts the ability to perform the functions listed in Table 15 on TSF data to the Administrator.<br>• FMT_MSA.1 specifies that only privileged administrators can manage security attributes.<br>• FMT_MSA.3 ensures that all default values of security attributes are restrictive in nature as to enforce the access control policy for the TOE. The Administrator can specify alternative initial values that will override default values.<br>• FMT_SMF.1 and FMT_SMR.1 support the security functions relevant to the TOE and ensure the definition of an authorized administrator role.<br>• FTA_SSL_EXT.1 requires the TSF lock after a period of inactivity.<br>• FTA_SSL.4 requires the user be able to initiate a session termination. |

**Table 17 – Rationale for TOE SFRs to Objectives**

### 6.3.4 Security Assurance Requirements

The assurance security requirements for this Security Target are taken from Part 3 of the CC. These assurance requirements compose an Evaluation Assurance Level 3 (EAL3). The assurance components are summarized in the following table:

| CLASS HEADING | CLASS_FAMILY | DESCRIPTION |
|---|---|---|
| ADV: Development | ADV_ARC.1 | Security Architecture Description |
| | ADV_FSP.3 | Functional Specification with Complete Summary |
| | ADV_TDS.2 | Architectural Design |
| AGD: Guidance Documents | AGD_OPE.1 | Operational User Guidance |
| | AGD_PRE.1 | Preparative Procedures |

| CLASS HEADING | CLASS_FAMILY | DESCRIPTION |
|---|---|---|
| ALC: Lifecycle Support | ALC_CMC.3 | Authorization Controls |
| | ALC_CMS.3 | Implementation representation CM coverage |
| | ALC_DEL.1 | Delivery Procedures |
| | ALC_DVS.1 | Identification of Security Measures |
| | ALC_LCD.1 | Developer defined life-cycle model |
| | ALC_FLR.1 | Flaw Remediation Procedures |
| ASE: Security Target evaluation | ASE_CCL.1 | Conformance claims |
| | ASE_ECD.1 | Extended components definition |
| | ASE_INT.1 | ST introduction |
| | ASE_OBJ.2 | Security objectives |
| | ASE_REQ.2 | Derived security requirements |
| | ASE_SPD.1 | Security problem definition |
| | ASE_TSS.1 | TOE summary specification |
| ATE: Tests | ATE_COV.2 | Analysis of Coverage |
| | ATE_DPT.1 | Testing: Basic Design |
| | ATE_FUN.1 | Functional Testing |
| | ATE_IND.2 | Independent Testing - Sample |
| AVA: Vulnerability Assessment | AVA_VAN.2 | Vulnerability Analysis |

**Table 18 – Security Assurance Requirements at EAL3**

### 6.3.5 Security Assurance Requirements Rationale

The ST specifies Evaluation Assurance Level 3. EAL3 was chosen because it is based upon good commercial development practices with thorough functional testing. EAL3 provides the developers and users a moderate level of independently assured security in conventional commercial TOEs. The threat of malicious attacks is not greater than low, the security environment provides physical protection, and the TOE itself offers a very limited interface, offering essentially no opportunity for an attacker to subvert the security policies without physical access.

### 6.3.6 Security Assurance Requirements Evidence

This section identifies the measures applied to satisfy CC assurance requirements.

| SECURITY ASSURANCE REQUIREMENT | EVIDENCE TITLE |
|---|---|
| ADV_ARC.1 Security Architecture Description | Sentinel™ 8.5.1.0 Security Architecture (ADV_ARC) |
| ADV_FSP.3 Functional Specification with Complete Summary | NetIQ® Sentinel™ 8.5.1.0 Functional Specification |
| ADV_TDS.2 Architectural Design | Sentinel™ 8.5.1.0 Architectural Design |
| AGD_OPE.1 Operational User Guidance | Sentinel™ 8.5.1.0 Administration Guide October 2022<br>Sentinel™ 8.5.1.0 User Guide October 2022<br>Sentinel™ 8.5.1.0 Installation and Configuration Guide October 2022<br>Sentinel™ 8. 8.5.1.0 Operational User Guidance and Preparative Procedures Supplement |

| SECURITY ASSURANCE REQUIREMENT | EVIDENCE TITLE |
|---|---|
| AGD_PRE.1 Preparative Procedures | Sentinel 8.5.1.0 Release Notes October 2022<br>Sentinel™ 8.5.1.0 Administration Guide October 2022<br>Sentinel™ 8.5.1.0 User October 2022<br>Sentinel™ 8.5.1.0 Installation and Configuration Guide October 2022<br>Sentinel™ 8.5.1.0 System Requirements October 2022<br>Sentinel™ 8.5.1.0 Operational User Guidance and Preparative Procedures Supplement |
| ALC_CMC.3 Authorization Controls | Sentinel™ 8.5.1.0 Configuration Management Processes and Procedures (ALC_CM) |
| ALC_CMS.3 Implementation representation CM coverage | Sentinel™ 8.5.1.0 Configuration Management Processes and Procedures (ALC_CM) |
| ALC_DEL.1 Delivery Procedures | Sentinel™ 8.5.1.0 Secure Delivery Processes and Procedures: (ALC_DEL) |
| ALC_DVS.1 Identification of Security Measures | Sentinel™ 8.5.1.0 Development Security Measures (ALC_DVS) |
| ALC_LCD.1 Developer defined life-cycle model | Sentinel™ 8.5.1.0 Life Cycle Development Process (ALC_LCD) |
| ALC_FLR.1: Flaw Remediation Procedures | Sentinel™ 8.5.1.0 Basic Flaw Remediation Procedures (ALC_FLR) |
| ATE_COV.2 Analysis of Coverage | Sentinel™ 8.5.1.0 Test Plan and Coverage Analysis |
| ATE_DPT.1 Testing: Basic Design | Sentinel™ 8.5.1.0 Test Plan and Coverage Analysis |
| ATE_FUN.1 Functional Testing | Sentinel™ 8.5.1.0 Test Plan and Coverage Analysis |

**Table 19 – Security Assurance Rationale and Measures**

# 7 TOE Summary Specification

This section presents the Security Functions implemented by the TOE.

## 7.1 TOE Security Functions

The security functions performed by the TOE are as follows:

- Security Audit
- Identification and Authentication
- Security Management

## 7.2 Security Audit

**Events Originating External to the TOE (EOE)**: These external events are collected, either via a push or pull, from the various event sources. Event sources may include and are not limited to, remote operating systems, firewalls, routers, and other security devices.

These events are consumed by the TOE and are normalized into a common schema and classification taxonomy. This data is then correlated and used to detect abnormal behavior and anomalies within your infrastructure. These may also include alerts that indicate interesting events such as those dealing with security or threshold violations.

EOE includes timestamps, origin, event information, completion status of the event, and other data as specified in the report.

**System Events**: System events are a means to report on the status and status change of the TOE. While the TOE accepts events from outside, it can generate three classes of events:

- Internal Events: These are informational and describe a single state or change of state in the system. They report when a user logs in or fails to authenticate, when a process is started, or a correlation rule is activated.
- Performance Events: These are generated on a periodic basis and describe average resources used by different parts of the system
- Audit Events: These are generated internally. Each time an audited method is called, or an audited data object is modified, audit framework generates audit events. There are two types of Audit Events. One which monitors user actions for example, user login/out, add/delete user and another which monitors system actions/health, for example, process start/stop. Audit Events can be logged into log files, saved into database, and sent out as Audit Event at the same time. (Internal Events are only sent out as events.).

System Events record the date and time of the event, type of event, event subject identity and outcome of the event.

The TOE generates the following audit data:

- Start-up and shutdown of the audit functions (instantiated by start-up of the TOE)
- User login/logout
- Login failures

**Audit Handing:** The TOE provides the Administrator with the capability to read all audit data generated within the TOE via the Console or via the external event sources. The GUI provides a suitable means for an Administrator to interpret the information from either the audit log or EOE as configured.

The TOE provides users with the capability to filter security event data queries and searches. Filter expressions are simple math expressions and simple evaluations. Filters work on selection sets by matching events against the specified criteria. Filters are applied to data collected by the TOE. The Correlation Engine provides the capability for users to correlate security events. Correlation automates analysis of event data to find patterns of interest. The TOE enables users to define correlations between events through the definition of rules that define these patterns of interest.

The A.TIMESOURCE is added to the assumptions on operational environment, and OE.TIME is added to the operational environment security objectives. The time and date are provided by the operational environment. The TOE ensures that the audit trail data is stamped when recorded with a dependable date and time received from the OE (operating system). In this manner, accurate time and date is maintained on the TOE.

The Security Audit function is designed to satisfy the following security functional requirements:

- FAU_GEN.1
- FAU_SAR.1
- SIEM_ANL_EXT.1

## 7.3 Identification and Authentication

The Console provides user interfaces that administrators may use to manage TOE functions. The Console provides web-based access to TOE functions through supported web browsers. The TOE enforces individual identification and authentication and provides a centralized authentication mechanism. Operators with management access must successfully authenticate themselves using a unique identifier and authenticator prior to performing any actions on the TOE. The TOE maintains authorization information that determines which TOE functions an authenticated administrator or user (of a given role) may perform.

The TOE maintains the following list of security attributes belonging to individual users:

- User Identity (i.e., username)
- Password
- Roles

The Identification and Authentication function is designed to satisfy the following security functional requirements:

- FIA_ATD.1
- FIA_UAU.2
- FIA_UID.2

## 7.4 Security Management

Security Management is provided by enforcement of roles. Each role consists of a series of privileges. Roles can have privileges added to or removed from them. These roles are then assigned to individuals. Note a user may only have one role at a time.

The TOE provides the following management functions. The associated SFRs are noted in the table below.

| Functional Description | SFR |
|---|---|
| The TOE enforces the Administrative Access Control SFP by only allowing Administrators or accounts with appropriate roles (Appendix A) to perform activities (Appendix B). | FDP_ACC.1 |
| The TOE enforces the Administrative Access Control SFP by verifying user identity and roles. | FDP_ACF.1 |
| Only Administrators have the capability to change default values, query, modify, or delete users or roles. | FMT_MSA.1 |
| The TOE provides restrictive default values for security attributes by requiring the Administrator to explicitly allow access to Users. Only the Administrator may be able to change defaults. | FMT_MSA.3 |
| Only the Administrator can control user privileges and user accounts attributes. | FMT_MTD.1 |
| The TOE supports the following management functions:<br>a) Create accounts<br>b) Modify accounts<br>c) Define User Roles<br>**Note**: Roles allow you define user actions and what data they can view. Permissions are granted to the role, and then the user is assigned to the role.<br>d) Change Default, Query, Modify, Delete, Clear the attributes associated with the Administrative Access Control SFP<br>e) Modify the behavior of the Administrative Access Control SFP<br>f) Manage security incidents<br>g) Manage correlation rules.<br>h) Manage Reports and Searches<br>i) Change the user inactivity timeout [8]interval] | FMT_SMF.1 |
| The TOE provides multiple user roles. For a complete list of default roles, refer to Appendix A.<br>Administrator functions are defined in FMT_SMF.1. User privileges may be modified by the Administrator. By default, the User role allows limited viewing of events. | FMT_SMR.1 |
| The TOE provides the capability for TSF initiated locking of interactive sessions after a specified period of user inactivity. | FTA_SSL_EXT.1 |
| The TOE provides the capability for user-initiated termination of interactive sessions. | FTA_SSL.4 |
| The TOE provides the capability for automating and tracking incident response processes. The TOE tracks security problems from identification through resolution by allowing the creation of "workflows". Workflows are designed to provide a simple, flexible solution for automating and tracking an enterprise's incident response processes. See Sentinel™ User Guide for more information. | SIEM_RES_EXT.1 |

**Table 20 – Security Management Functions and SFRs**

[8] The variable is userSessionManager expireTime in server.xml – note for ATE work. TBR prior to publication.

# 8 Appendix A – Default Sentinel Roles[9]

| Role | Description |
|---|---|
| **Administrator:** | A user in this role has administrative rights in the Sentinel system. You cannot delete users in this role. Administrative rights include the ability to perform user administration, data collection, data storage, search operations, rules, report, dashboard, and license management. You cannot modify or delete the administrator role. |
| **Database Administrator:** | A user in this role has access to events coming from database event sources. The Collector parsing the data from the event source determines the type of the event source (database). A user in this role can view data that matches filter `rv32:"DB"` and search data targets. |
| **Data Proxy User:** | This is a system role for proxy users. This role is critical to setting up another Sentinel system to access your local Sentinel system using the Data Federation feature. |
| **Incident Administrator:** | A user in this role can manage incidents in the system and control incidents being handled by other users. |
| | |
| **Network Administrator:** | A user in this role can administer network infrastructure devices, such as routers, switches, and VPNs. This role has access to events coming from devices in the category `NETD` or `VPN` (as determined by the Collector parsing the data) or from event sources with the `Network` tag. Set the `Network` tag on network infrastructure event sources to allow users in this role to view the events. A user in this role can view data that matches filter `rv32:"NETD" OR rv32:"VPN" OR rv145:"Network" and` can search data targets. |
| **Network Security Administrator:** | A user in this role can administer network security infrastructure devices, such as firewalls, Ides, and Web proxies. This role has access to events coming from devices in the category AV, FW, or IDS (as determined by the Collector parsing the data) or from event sources with the `NetworkSecurity` tag. Set the `NetworkSecurity` tag on network infrastructure event sources to allow users in this role to view the events. A user in this role can view data that matches filter `rv32:"AV" OR rv32:"FW" OR rv32:"IDS" OR rv145:"NetworkSecurity" and` can search data targets. |
| **Operator:** | A user in this role can manage alerts, view Security Intelligence Dashboards, share alert and event views, run reports, view and rename reports, and delete report results. The Threat Response Dashboard allows Operators to triage alerts quickly and efficiently. |
| **PCI Compliance Auditor:** | A user in this role has access to view events that are tagged with at least one of the regulation tags such as PCI, SOX, HIPAA, NERC, FISMA, GLBA, NISPOM, JSOX, and ISO/IEC_27002:2005, and can view system events, view the Sentinel configuration data, and search data targets. |

[9] Section 4 Administrative Manual. Configuring Roles and Users, Overview

| Role | Description |
|---|---|
| **Report Administrator:** | A user in this role can run reports, view, rename and delete report results, add and delete report templates and report results, run reports on configuration database, export all reports, and save search results as a report. A Report Administrator can also tag report templates and report results. The Report Administrator can search report templates and report results based on these tags. |
| **Security Policy Administrator:** | A user in this role can implement the security policies within the system for users to access anomaly detection, correlation, incident remediation, and iTRAC workflows. |
| **System Event Monitor:** | A user in this role can monitor the Sentinel system for errors or outages. This role has access only to events coming from Sentinel systems. A user in this role can also access data coming from event sources that Sentinel is dependent on. For example, you can tag operating systems on which Sentinel and the Collector Managers are running with a Sentinel event source tag so that the users in this role can monitor problems in the operating systems. A user in this role can view data that matches filter `rv145:"Sentinel"`, view system events, and search data targets. |
| **Unix Administrator:** | A user in this role has access to events from operating system event sources that are not Windows computers. The type of the event source is determined by verifying the Collector parsing data and also by verifying if a `Windows` tag is present. A user in this role can view data that matches filter `(rv32:"OS" NOT (("Microsoft? Active?Directory*" NOT msg:"Microsoft?Active?Directory*") OR ("Microsoft?Windows*" NOT msg:"Microsoft?Windows*"))) NOT rv145:"Windows"` and search data targets. |
| **User:** | A user in this role can manage dashboards, run reports, view and rename reports, and delete report results. |
| **Windows Administrator:** | A user in this role can administer Windows computers. This role has access to data generated by Windows event sources. The type of the event source is determined by verifying the Collector parsing the data. If data from a Windows event source is not being processed by the Active Directory or the Windows Collector, add the `Windows` tag to event sources to indicate that Windows data is being collected from the event source. This enables the Windows administrator to access the data. A user in this role can view data that matches filter `(rv32:"OS" AND (("Microsoft?Active?Directory*" NOT msg:"Microsoft?Active?Directory*") OR ("Microsoft?Windows*" NOT msg:"Microsoft?Windows*"))) OR rv145:"Windows"` and search data targets. |

# 9 Appendix B

Listed Privileges that can be assigned to a role.

Events

- View all event data (including raw data)
    - Manage Correlation Engines/Rules
    - Manage and View Security Intelligence Dashboards
    - View Security Intelligence Dashboards

View the following data:

- Only events matching the criteria: <Custom Filter>
- Search Data Targets
- View asset data
- View asset vulnerability data
- View data in the embedded database
- View people browser
- View system events

Reports

- Allow users to access reports
    - Manage reports
        - Import reports
    - Run reports

Alerts

- Allow users to manage alerts
    - Manage all alerts
    - Manage only alerts that match the following criteria: <Custom alert>

Incidents

- View incidents (restricted)
- Create incidents (restricted)
- Modify incidents (restricted)
- Manage incidents (all)

Sharing

- Share alert views
- Share event views
- Share reports
- Share search filters

Miscellaneous

- Create and use Event Views
- Edit knowledge base
- Manage Tags
- Manage roles and users
- Proxy for Authorized Data Requestors
- Solution Designer access
- View and execute event actions
- View detailed internal system state data
- View knowledge base

# 10 Appendix C

Setting auto timeout

The *server.xml, collector_mgr.xml*, and *correlation*_engine.xml files include advanced Configuration options. If you need to modify the default values, it is important to set the values using the instructions described in this section because these XML files automatically get replaced during upgrade, which results in any modifications getting overwritten.

Consider an example where you want to customize the tokenExpireTime property in the AuthenticationService component below, which is present in the server.xml file:

```
<obj-component id="AuthenticationService">
<class>esecurity.ccs.comp.auth.AuthenticationService</class>
<property name="handler">esecurity.login.request</property>
<property name="maxThreads">100</property>
<property name="tokenExpireTime">86400000</property>
</obj-component>
```

To ensure that the modifications do not get overwritten during the upgrade, create a file in the /etc/opt/novell/sentinel/config/ directory with its name in the format: obj-component.<objcomponent id>.properties. In the properties file, set the property to the value you desire in the format <property name>=<value>.