National Information Assurance Partnership

Common Criteria Evaluation and Validation Scheme

TM

Validation Report

For

Imperva SecureSphere 9.0

Report Number: CCEVS-VR-10466-2012
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ACKNOWLEDGEMENTS

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1 Executive Summary

The evaluation of **Imperva SecureSphere 9.0** was performed by SAIC, in the United States and was completed in September 2012. The evaluation was carried out in accordance with the Common Criteria Evaluation and Validation Scheme (CCEVS) process and scheme. The criteria against which the Imperva SecureSphere 9.0 TOE was judged are described in the Common Criteria for Information Technology Security Evaluation, Version 3.1, revision 3. The evaluation methodology used by the evaluation team to conduct the evaluation was available in the Common Methodology for Information Technology Security Evaluation versions 3.1, revision 3.

Science Applications International Corporation (SAIC) determined that the product satisfies evaluation assurance level (EAL) 2 as defined within the Common Criteria (CC). The product, when configured as specified in the installation guides and user guides, satisfies all of the security functional requirements stated in the Imperva SecureSphere 9.0 Security Target, version 0.8, September, 2012.

This Validation Report applies only to the specific version of the TOE as evaluated. In this case the TOE Imperva SecureSphere 9.0 software running on two or more Imperva Appliances including:

Gateway Appliances:
X1000
X2000
X2500
X4500
X6500
Management Server Appliances
M100
M150

The TOE is also provided in the form of Virtual Appliance images that are run on a VMware ESX/ESXi Hypervisor. The VMware Hypervisor and underlying hardware is considered to be outside of the boundaries of the TOE.

The evaluation has been conducted in accordance with the provisions of the NIAP Common Criteria Evaluation and Validation Scheme (CCEVS) and the conclusions of the testing laboratory in the evaluation technical report are consistent with the evidence adduced. This Validation Report is not an endorsement of Imperva SecureSphere 9.0 by any agency of the US Government and no warranty of the product is either expressed or implied.

The validation team monitored the activities of the evaluation team, examined evaluation evidence, provided guidance on technical issues and evaluation processes, and reviewed the individual work units and versions of the ETR. Also, at some discrete points during the evaluation, validators formed a Validation Oversight Review panel in order to review the Security Target and other

evaluation evidence materials along with the corresponding evaluation findings in detail. The validation team found that the evaluation showed that the product satisfies all of the security functional and assurance requirements stated in the Security Target (ST). Therefore the validation team concludes that the testing laboratory's findings are accurate, the conclusions justified, and the conformance results are correct. The conclusions of the testing laboratory in the evaluation technical report are consistent with the evidence produced.

The technical information included in this report was obtained from the Final Evaluation Technical Report for Imperva SecureSphere 9.0 ETR parts 1 and 2 and the associated test report produced by SAIC.

1.1 Evaluation Details

Evaluated Product:	Imperva SecureSphere 9.0
Sponsor & Developer:	Imperva Inc. 3400 Bridge Parkway, Suite 200 Redwood Shores, CA 94065
CCTL:	Science Applications International Corporation Common Criteria Testing Laboratory 6841 Benjamin Franklin Drive Columbia, MD 21046
Completion Date:	December 2012
CC:	Common Criteria for Information Technology Security Evaluation, Version 3.1, Revision 3, September 2009
Interpretations:	There were no applicable interpretations used for this evaluation.
CEM:	Common Methodology for Information Technology Security Evaluation: Version 3.1, Revision 3, September 2009
PP:	U.S. Government Protection Profile Intrusion Detection System System for Basic Robustness Environment, Version 1.7, July 25, 2007
Evaluation Class:	Evaluation Assurance Level (EAL) 2 Augmented with ALC_FLR.3
Description	The TOE is categorized as an IDS/IPS type product. Imperva SecureSphere 9.0 protects file, Web and database servers by analyzing network traffic flowing to and from protected servers and applications, detecting requests that may be indicative of intrusion, and reacting by reporting the events and/or blocking the suspected traffic. In addition, SecureSphere 9.0 provides a Database Discovery and Assessment (DAS) capability for scanning databases for vulnerabilities and policy violations.
Disclaimer	The information contained in this Validation Report is not an endorsement of the Imperva SecureSphere 9.0 by any agency of the U.S. Government and no warranty of Imperva SecureSphere 9.0 is either expressed or implied.

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2 Identification

The CCEVS is a joint National Security Agency (NSA) and National Institute of Standards and Technology (NIST) effort to establish commercial facilities to perform trusted product evaluations. Under this program, security evaluations are conducted by commercial testing laboratories called Common Criteria Testing Laboratories (CCTLs) using the Common Evaluation Methodology (CEM) for Evaluation Assurance Level (EAL) 1 through EAL 4 in accordance with National Voluntary Laboratory Assessment Program (NVLAP) accreditation. Note that assurance requirements outside the scope of EAL 1 through EAL 4 are addressed at the discretion of the CCEVS.

The NIAP Validation Body assigns Validators to monitor the CCTLs to ensure quality and consistency across evaluations. Developers of information technology products desiring a security evaluation contract with a CCTL and pay a fee for their product's evaluation. Upon successful completion of the evaluation, the product is added to NIAP's Validated Products List.

The following table serves to identify the evaluated Security Target and TOE.

Table 1 ST and TOE identification

ST Title:	Imperva SecureSphere 9.0 Security Target, Version 0.8, September, 2012
TOE Identification:	Imperva SecureSphere 9.0 software running on two or more Imperva Appliances
Operating Platform:	The Imperva Appliances included in the TOE are: Gateway Appliances: X1000 X2000 X2500 X4500 X6500 Management Server Appliances M100 M150 The TOE is also provided in the form of Virtual Appliance images that are run on a VMware ESX/ESXi Hypervisor.

Threats to Security

The following are the threats that the evaluated product addresses:

2.1 TOE Threats

2.1.1 IDS-related Threats

The following threats are identified in [IDSSPP]

T.COMINT	An unauthorized user may attempt to compromise the integrity of the data collected and produced by the TOE by bypassing a security mechanism.
T.COMDIS	An unauthorized user may attempt to disclose the data collected and produced by the TOE by bypassing a security mechanism.
T.LOSSOF	An unauthorized user may attempt to remove or destroy data collected and produced by the TOE.
T.NOHALT	An unauthorized user may attempt to compromise the continuity of the System's collection and analysis functions 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
T.IMPCON	An unauthorized user may inappropriately change the configuration of the TOE causing potential intrusions to go undetected.
T.INFLUX	An unauthorized user may cause malfunction of the TOE by creating an influx of data that the TOE cannot handle.
T.FACCNT	Unauthorized attempts to access TOE data or security functions may go undetected.
T.FALACT	The TOE may fail to react to identified or suspected vulnerabilities or inappropriate activity.
T.FALREC	The TOE may fail to recognize vulnerabilities or inappropriate activity based on IDS data received from each data source.
T.FALASC	The TOE may fail to identify vulnerabilities or inappropriate activity based on association of IDS data received from all data

	sources.
T.MISUSE	Unauthorized accesses and activity indicative of misuse may occur on an IT System the TOE monitors.
T.INADVE	Inadvertent activity and access may occur on an IT System the TOE monitors.
T.MISACT	Malicious activity, such as introductions of Trojan horses and viruses, may occur on an IT System the TOE monitors.

3 Assumptions

The following assumptions are identified in the Security Target:

3.1 Physical Assumptions

The following conditions are assumed to exist in the operational environment. Each of these assumptions is consistent with the explicit or implicit assumptions made in each of the PPs for which conformance is claimed: [IDSSPP].

A.ACCESS	The TOE has access to all the IT System data it needs to perform its functions.
A.ASCOPE	The TOE is appropriately scalable to the IT System the TOE monitors.
A.DYNMIC	The TOE will be managed in a manner that allows it to appropriately address changes in the IT System the TOE monitors.
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.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.

4 Organizational Security Policies

The following OSPs are identified in the Security Target:

4.1 IDS System PP OSPs

The following OSPs are defined in [IDSSPP]. [IDSSPP] does not identify which organization and which organizational security policy any of these OSPs are drawn from.

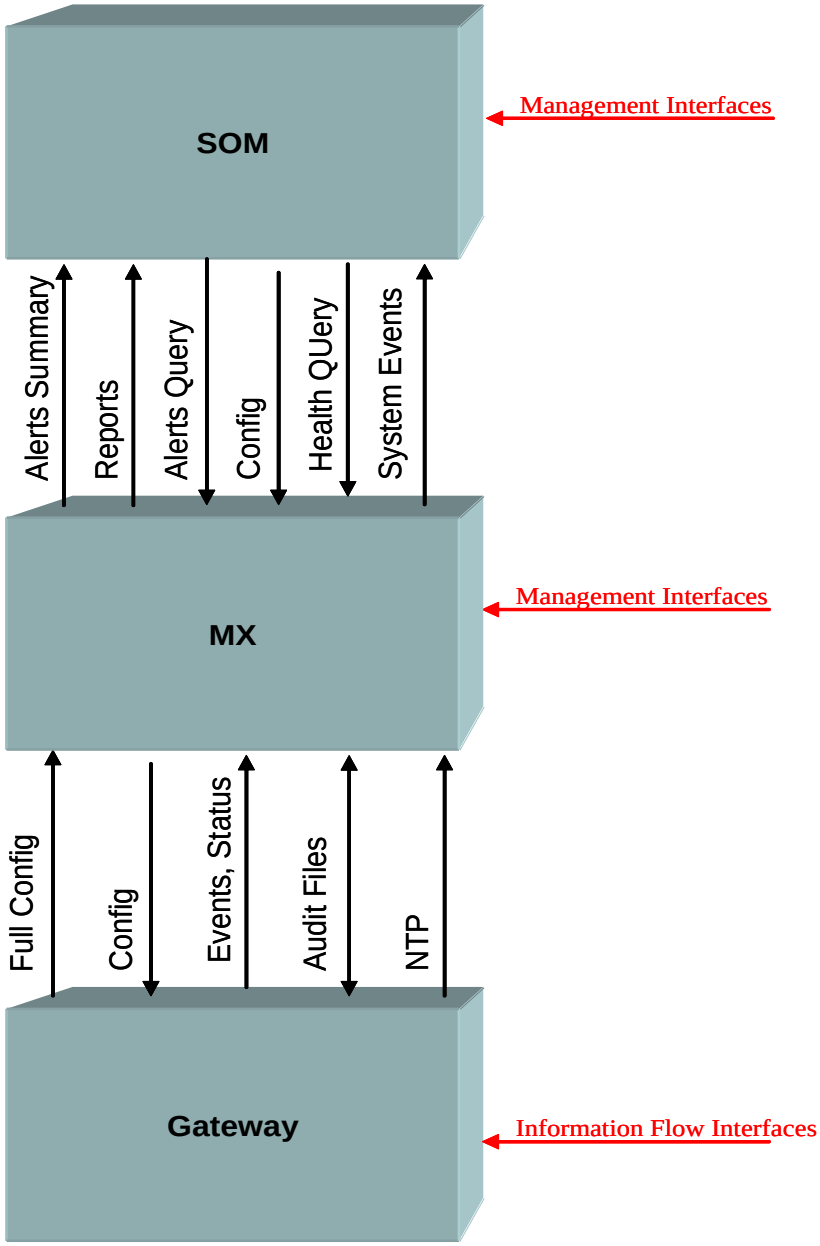
P.DETECT	Static configuration information that might be indicative of the potential for a future intrusion or the occurrence of a past intrusion of an IT System or events that are indicative of inappropriate activity that may have resulted from misuse, access, or malicious activity of IT System assets must be collected.
P.ANALYZ	Analytical processes and information to derive conclusions about intrusions (past, present, or future) must be applied to IDS data and appropriate response actions taken.
P.MANAGE	The TOE shall only be managed by authorized users.
P.ACCESS	All data collected and produced by the TOE shall only be used for authorized purposes.
P.ACCACT	Users of the TOE shall be accountable for their actions within the IDS.
P.INTGTY	Data collected and produced by the TOE shall be protected from modification.
P.PROTCT	The TOE shall be protected from unauthorized accesses and disruptions of TOE data and functions.

5 Architectural Information

SecureSphere 9.0 is a TOE in parts, composed of three types of appliances: Gateways, and management servers including MX and SOM. The TOE subsystems correspond to these appliance types; inter-subsystem interfaces are manifested as network protocols.

Instances of TOE subsystems may be physical appliances, or virtual appliances running on a VMware ESX/ESXi Hypervisor (outside the TOE).

Figure 5-1 - TOE Subsystem Decomposition



Gateway — The Gateway subsystem handles IDS System processing for all information flow interfaces. It collects and records network traffic and analyses it for suspected intrusions, generating Alerts and/or blocking the traffic. Alerts and audit files are sent to the MX subsystem for storage, reporting, and profile generation. The Gateway also reports its health and operational status to the MX. Configuration information is received from the MX subsystem.

MX — The MX subsystem manages one or more Gateways and provides TOE management interfaces. It pushes administrator defined configuration information to the Gateway subsystem, and collects and stores network events (for Alerts, profiling,

monitoring) and database or file audit information for generating reports and invoking action interfaces.

SOM — The SOM subsystem (if installed) provides a Manager-of-Managers paradigm for TOE management interfaces. It pushes administrator-defined configuration information to instances of the MX subsystem, and collects System Events and Gateway and MX health status information for review by the SOM administrator.

5.1 Physical Boundaries

The Target of Evaluation (TOE) is Imperva SecureSphere 9.0 A given Imperva SecureSphere 9.0 configuration includes one or more Gateway appliances, and one or more Management Server (MX) appliances. Configurations with more than one MX appliances may also include Security Operations Manager (SOM) appliance. Each Imperva SecureSphere 9.0 appliance is a self-contained hardware appliance device or VM image designed to interact with its environment via network connections (real or virtual).

The Target of Evaluation includes the following components:

- One MX Management Server appliance;
- One or more Gateway appliances; and optionally:
- One SecureSphere Operations Manager (SOM) Management Server appliance

6 Documentation

Imperva SecureSphere 9.0 offers a number of guidance documents, including CC-specific installation and configuration instructions describing the installation process for the TOE as well as guidance for subsequent use and administration of the applicable security features.

The documentation for the TOE is:

- **Imperva SecureSphere9.0 Common Criteria Evaluated Configuration Guide , Version 0.3**
- Imperva SecureSphere Database Security User Guide, version 9.0
- Imperva SecureSphere File Security User Guide, version 9.0
- Imperva SecureSphere Administration Guide, version 9.0
- Imperva SecureSphere Operation Manager User Guide, version 9.0
- Imperva SecureSphere Web Application Security User Guide, version 9.0

The security target used is:

- Imperva SecureSphere 9.0 Security Target, Version 0.8, September 19, 2012

IT Product Testing

The purpose of this activity was to determine whether the TOE behaves as specified in the design documentation and in accordance with the TOE security functional requirements specified in the ST for an EAL2 evaluation.

6.1 Developer Testing

The developer created test procedures specifically to fulfill the test requirements for an EAL2 evaluation. The tests were developed to provide good coverage of the security functions related to each of the security requirements in the Security Target. The developer has documented their tests in a test plan where the results of the tests are presented as prose conclusions, notes, screen shots, and summaries for each of the applicable test platforms.

6.2 Independent Testing

Independent testing took place at the developer's location in Redwood shores, CA from September 10 through September 13, 2012.

The evaluators received the TOE in the form that normal customers would receive it, installed and configured the TOE (in three distinct but representative configurations) in accordance with the provided guidance, and exercised a representative subset of the developers test plan on equipment configured in the testing laboratory.

This effort involved configuring the Imperva SecureSphere 9.0 components using the CC specific instructions described in the Setup guides. Subsequently, the evaluators exercised a subset of the available developer's test procedures for the Imperva SecureSphere TOE. The subset of tests was selected in order to ensure that each of the claimed security functions was meaningfully sampled.

Also, the evaluators devised independent tests to ensure that start-up and shutdown operations were audited, to verify that changes of the audit configuration while the audit function is enabled is properly audited, that all user accesses to the audit records are audited, to verify the TOE's authentication capabilities, to verify that communication between TOE components is protected using FIPS-compliant encryption, to verify restrictions on custom roles, to verify that the TSF will restrict management of user attributes to the authorized administrator role, and to verify the ThreatRadar capabilities.

In addition to the use of developer provided and independently devised security functional tests, the evaluators also explored the possibility to penetrate or bypass the security mechanisms. Much of this work was based on analysis of the design, source code, and actual configuration information derived from the installed and configured products. However, the evaluators also devised some tests including scans of the installed products (for open ports) attempts at account harvesting, and also examination of actual network traffic between the client and server products

Given the complete set of test results from test procedures exercised by the developer and the sample of tests directly exercised by the evaluators, the testing requirements for EAL2 are fulfilled.

7 Evaluated Configuration

The TOE is Imperva SecureSphere 9.0 installed and configured according to the Imperva SecureSphere 9.0 Common Criteria Evaluated Configuration Guide, version 0.3.

8 Results of the Evaluation

The Evaluation Team conducted the evaluation in accordance with the CC, the CEM, and the CCEVS

The Evaluation Team assigned a Pass, Fail, or Inconclusive verdict to each work unit of each EAL2 assurance component. For Fail or Inconclusive work unit verdicts, the Evaluation Team advised the developer of the issue that needed to be resolved or the clarification that needed to be made to the particular evaluation evidence.

The Evaluation Team accomplished this by providing notes, comments, or vendor actions in the draft ETR sections for an evaluation activity (e.g., ASE, ADV) that recorded the Evaluation Team's evaluation results and that the Evaluation Team provided to the developer. The Evaluation Team also communicated with the developer by telephone and electronic mail. If applicable, the Evaluation Team re-performed the work unit or units affected. In this way, the Evaluation Team assigned an overall Pass verdict to the assurance component only when all of the work units for that component had been assigned a Pass verdict. Verdicts were not assigned to assurance classes.

Section 5, Results of Evaluation, in the Evaluation Team's ETR, Part I, states:

The results of the assurance requirements are generally described in this section and are presented in detail in the proprietary part of the ETR (see Chapter 15).

> A verdict for an assurance component is determined by the resulting verdicts assigned to the corresponding evaluator action elements. The evaluation was conducted based upon CC version 3.1 [1], [2], [3] and CEM version 3.1 [4]. The evaluation determined the TOE to be Part 2 conformant, and to meet the Part 3 Evaluation Assurance Level (EAL 2) requirements. The rationale supporting each CEM work unit verdict is recorded in the "Evaluation Technical Report For Imperva SecureSphere 9.0 Part 2" which is considered proprietary.

Section 6, Conclusions, in the Evaluation Team's ETR, Part 1, states:

> *Section 6.1, ST Evaluation:* "Each verdict for each CEM work unit in the ASE ETR is a 'PASS'. Therefore, the ST is a CC compliant ST."

Section 6.2, TOE Evaluation: "The verdicts for each CEM work unit in the ETR sections included in the proprietary part of the ETR (see Chapter 15) are each 'PASS'. Therefore, the TOE (see below product identification) satisfies the Security Target, when configured according to the following guidance documentation:

Imperva SecureSphere 9.0 Common Criteria Evaluated Configuration Guide, Version 0.3.

The following documents are available for additional guidance:

- Imperva SecureSphere Database Security User Guide, version 9.0
- Imperva SecureSphere File Security User Guide, version 9.0
- Imperva SecureSphere Administration Guide, version 9.0
- Imperva SecureSphere Operation Manager User Guide, version 9.0
- Imperva SecureSphere Web Application Security User Guide, version 9.0

Additionally, the evaluation team's performance of developer tests, independent tests, and penetration tests further demonstrates the accuracy of the claims in the ST.

9 Validator Comments/Recommendations

Components in the environment, including those components that support the Virtual Appliance, are considered outside the boundaries of the TOE are not within the scope of this evaluation. Hardware and Software in the environment that was not within the scope of the evaluation include the VMware Hypervisor and underlying hardware, the web browser for the SecureSphere GUI Management Interface and the Secure Wiping Tool for Persistent RSA Keys.

10 Annexes

Not applicable.

11 Security Target

Imperva SecureSphere 9.0 Security Target, Version 0.8, September 19, 2012

12 Acronym List

CC	Common Criteria
CCTL	CC Testing Laboratory
CI	Configuration Item
CM	Configuration Management
CMP	Configuration Management Plan
CVE	Common Vulnerabilities and Exposures
CVS	Concurrent Versioning System
DoD	Department of Defense
EAL	Evaluation Assurance Level
FSP	Functional Specification
GUI	Graphical User Interface
HLD	High-level Design
ID	Identity/Identification
IP	Internet Protocol
IT	Information Technology
NIAP	National Information Assurance Partnership
NIST	National Institute of Standards and Technology
NSA	National Security Agency
OS	Operating System
PP	Protection Profile
SAIC	Science Applications International Corporation
SAR	Security Assurance Requirement
SFR	Security Functional Requirement
ST	Security Target
TOE	Target of Evaluation
TSF	TOE Security Functions
TSS	TOE Summary Specification

13 Bibliography

The Validation Team used the following documents to produce this Validation Report:

[1] Common Criteria for Information Technology Security Evaluation Part 1: Introduction, Version 3.1, Revision 3, July 2009.

[2] Common Criteria for Information Technology Security Evaluation Part 2: Security Functional Requirements, Version 3.1 Revision 3, July 2009.

[3] Common Criteria for Information Technology Security Evaluation Part 3: Security assurance components, Version 3.1 Revision 3, July 2009.

[4] Common Methodology for Information Technology Security Evaluation, Evaluation Methodology, Version 3.1, Revision 3, July 2009.

[5] Imperva SecureSphere 9 Security Target, Version 0.8, September 19, 2012.

[6] Common Criteria Evaluation and Validation Scheme - Guidance to CCEVS Approved Common Criteria Testing Laboratories, Version 2.0, 8 Sep 2008.

[7] Evaluation Technical Report For Imperva SecureSphere 9.0 parts 1 and 2 (and associated test report), version 0.1, October, 2012.