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Version 2022-02

Certification Report

xFusion FusionDirector 1.7.1.SPC3

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Foreword

The Netherlands Scheme for Certification in the Area of IT Security (NSCIB) provides a third-party evaluation and certification service for determining the trustworthiness of Information Technology (IT) security products. Under this NSCIB, TÜV Rheinland Nederland B.V. has the task of issuing certificates for IT security products, as well as for protection profiles and sites.

Part of the procedure is the technical examination (evaluation) of the product, protection profile or site according to the Common Criteria assessment guidelines published by the NSCIB. Evaluations are performed by an IT Security Evaluation Facility (ITSEF) under the oversight of the NSCIB Certification Body, which is operated by TÜV Rheinland Nederland B.V. in cooperation with the Ministry of the Interior and Kingdom Relations.

An ITSEF in the Netherlands is a commercial facility that has been licensed by TÜV Rheinland Nederland B.V. to perform Common Criteria evaluations; a significant requirement for such a licence is accreditation to the requirements of ISO Standard 17025 “General requirements for the accreditation of calibration and testing laboratories”.

By awarding a Common Criteria certificate, TÜV Rheinland Nederland B.V. asserts that the product or site complies with the security requirements specified in the associated (site) security target, or that the protection profile (PP) complies with the requirements for PP evaluation specified in the Common Criteria for Information Security Evaluation. A (site) security target is a requirements specification document that defines the scope of the evaluation activities.

The consumer should review the (site) security target or protection profile, in addition to this certification report, to gain an understanding of any assumptions made during the evaluation, the IT product's intended environment, its security requirements, and the level of confidence (i.e., the evaluation assurance level) that the product or site satisfies the security requirements stated in the (site) security target.

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Recognition of the Certificate

The presence of the Common Criteria Recognition Arrangement (CCRA) and the SOG-IS logos on the certificate indicates that this certificate is issued in accordance with the provisions of the CCRA and the SOG-IS Mutual Recognition Agreement (SOG-IS MRA) and will be recognised by the participating nations.

International recognition

The CCRA was signed by the Netherlands in May 2000 and provides mutual recognition of certificates based on the Common Criteria (CC). Since September 2014 the CCRA has been updated to provide mutual recognition of certificates based on cPPs (exact use) or STs with evaluation assurance components up to and including EAL2+ALC_FLR.

For details of the current list of signatory nations and approved certification schemes, see http://www.commoncriteriaportal.org.

European recognition

The SOG-IS MRA Version 3, effective since April 2010, provides mutual recognition in Europe of Common Criteria and ITSEC certificates at a basic evaluation level for all products. A higher recognition level for evaluation levels beyond EAL4 (respectively E3-basic) is provided for products related to specific technical domains. This agreement was signed initially by Finland, France, Germany, The Netherlands, Norway, Spain, Sweden and the United Kingdom. Italy joined the SOG-IS MRA in December 2010.

For details of the current list of signatory nations, approved certification schemes and the list of technical domains for which the higher recognition applies, see https://www.sogis.eu.

1 Executive Summary

This Certification Report states the outcome of the Common Criteria security evaluation of the xFusion FusionDirector 1.7.1.SPC3. The developer of the xFusion FusionDirector 1.7.1.SPC3 is xFusion Digital Technologies Co., Ltd. located in Zhengzhou, Peoples Republic of China and they also act as the sponsor of the evaluation and certification. A Certification Report is intended to assist prospective consumers when judging the suitability of the IT security properties of the product for their particular requirements.

The TOE is a software TOE used for unified server hardware operation and maintenance (O&M) and server management, including server query, status monitoring, configuration, firmware upgrade and OS deployment functions

Public cloud and enterprise customers can use the TOE to perform simple and efficient O&M.

The TOE implements visualized management and fault diagnosis for servers, and provides lifecycle management capabilities such as device management, device configuration, firmware upgrade, device monitoring, and OS deployment for xFusion servers.

The TOE has been evaluated by UL located in Leiden, The Netherlands. The evaluation was completed on 24 July 2023 with the approval of the ETR. The certification procedure has been conducted in accordance with the provisions of the Netherlands Scheme for Certification in the Area of IT Security *[NSCIB]*.

The scope of the evaluation is defined by the security target *[ST]*, which identifies assumptions made during the evaluation, the intended environment for the xFusion FusionDirector 1.7.1.SPC3, the security requirements, and the level of confidence (evaluation assurance level) at which the product is intended to satisfy the security requirements. Consumers of the xFusion FusionDirector 1.7.1.SPC3 are advised to verify that their own environment is consistent with the security target, and to give due consideration to the comments, observations and recommendations in this certification report.

The results documented in the evaluation technical report *[ETR]* [1] for this product provide sufficient evidence that the TOE meets the EAL2: augmented (EAL2+) assurance requirements for the evaluated security functionality. This assurance level is augmented with ALC_FLR.1 (Basic Flaw Remediation)

The evaluation was conducted using the Common Methodology for Information Technology Security Evaluation, Version 3.1 Revision 5 *[CEM]* for conformance to the Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 5 *[CC]* (Parts I, II and III).

TÜV Rheinland Nederland B.V., as the NSCIB Certification Body, declares that the evaluation meets all the conditions for international recognition of Common Criteria Certificates and that the product will be listed on the NSCIB Certified Products list. Note that the certification results apply only to the specific version of the product as evaluated.

[1] The Evaluation Technical Report contains information proprietary to the developer and/or the evaluator, and is not available for public review.

2 Certification Results

2.1 *Identification of Target of Evaluation*

The Target of Evaluation (TOE) for this evaluation is the xFusion FusionDirector 1.7.1.SPC3 from xFusion Digital Technologies Co., Ltd. located in Zhengzhou, Peoples Republic of China.

The TOE is comprised of the following main components:

Delivery item type	Identifier	Version
Software	FusionDirector_1.7.1.SPC3_ENT_x86-64.qcow2	1.7.1.SPC3

To ensure secure usage a set of guidance documents is provided, together with the xFusion FusionDirector 1.7.1.SPC3. For details, see section 2.5 “Documentation” of this report.

2.2 *Security Policy*

The TOE provides the following security features:

- Authentication
- Authorization
- Access Control
- Auditing
- Communication Security
- Cryptographic Functions
- Digital Signature for Software Integrity
- Protocol Security:
    - SSHv2: provided by open-source software openssl in FusionDirector
    - SFTP: provided by open-source software openssl in FusionDirector
    - NTP: provided by open-source software ntp in FusionDirector
    - NFS: provided by open-source software nfs-utils in FusionDirector
    - HTTPS(TLS1.2/1.3): provided by open-source software Nginx in FusionDirector
    - Docker swarm overlay network with vxlan: provided by Docker Engine

2.3 *Assumptions and Clarification of Scope*

2.3.1 Assumptions

The assumptions defined in the Security Target are not covered by the TOE itself. These aspects lead to specific Security Objectives to be fulfilled by the TOE-Environment. For detailed information on the security objectives that must be fulfilled by the TOE environment, see section 4.2 of the *[ST]*.

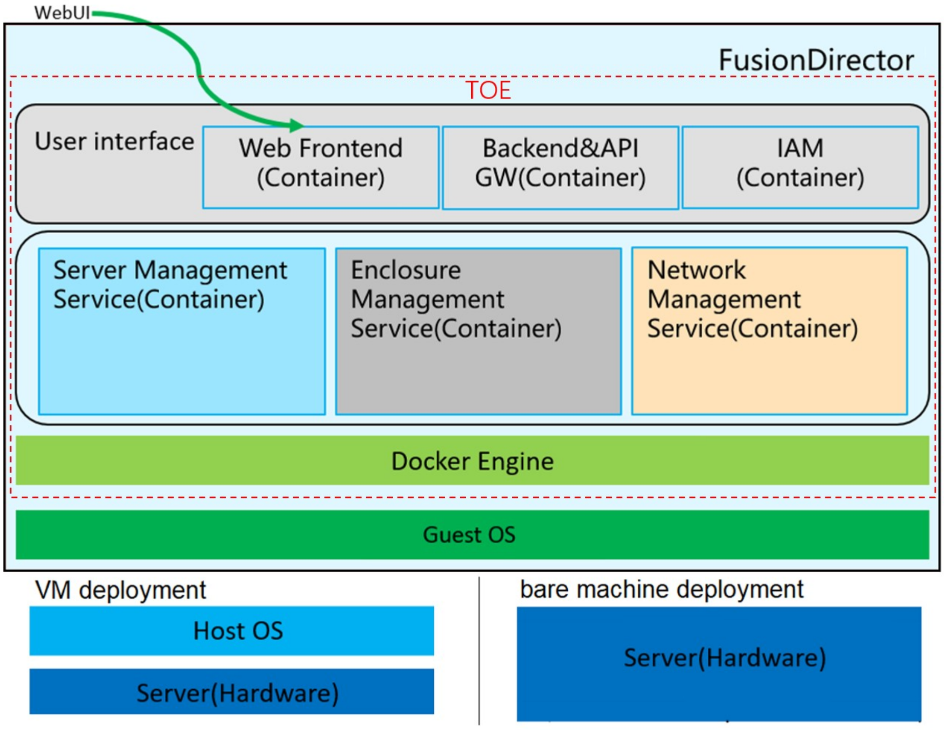
2.3.2 Clarification of scope

The evaluation did not reveal any threats to the TOE that are not countered by the evaluated security functions of the product.

2.4 Architectural Information

The TOE consists of the “FusionDirector” software except the underlying OS (Guest) (indicated by the red box in the diagram below).

The TOE is a server management software. Its main function is to implement server status monitoring, configuration, firmware upgrade, OS deployment functions. The TOE can run on a virtual machine like KVM, VMware, Windows Hyper-V. The TOE can also operate on hardware servers like 1288H V5 or 2288H V5. Specific installation environment requirements are in the installation guidance.



2.5 Documentation

The following documentation is provided with the product by the developer to the customer:

Identifier	Version
xFusion FusionDirector 1.7.1.SPC3 - Operational User Guidance	v1.10
xFusion FusionDirector 1.7.1.SPC3 - Preparative Procedures for Users	V1.6

2.6 IT Product Testing

The evaluators examined the developer’s testing activities documentation and verified that the developer has met their testing responsibilities.

2.6.1 Testing approach and depth

The evaluators concluded that the testing approach used by the developer provided the correct depth and adequacy for this assurance level. For coverage, the developer tested 73% of the TSFI’s. The remaining TSFI’s were covered by evaluator testing.

The repetition of developer testing was performed using developer's tools at the evaluators' premise.

Sampling was done on the developer test cases based on the TFSIs. Test cases selected covered more than the 50% of the original developer testing and also fully covered all of the TSFIs tested by the developer.

2.6.2 Independent penetration testing

The evaluators performed a vulnerability analysis using a vulnerability-centric approach. The evaluator also performed a public vulnerability search, including a literature review.

The search provided the evaluator with a view of the vulnerabilities at the time of the TOE analysis.

In combination with the search for known vulnerabilities (referred to as "public domain vulnerabilities") the evaluator performed an independent vulnerability analysis of the TOE documentation.

After all the analysis evaluator has performed, evaluator derived a number of different penetration tests that cover concerns of public vulnerability and vulnerability analysis.

The attacks are based on Authentication Policy, Communication Protocols, Man in the Middle, Replay attack, Integrity check and Information Disclose.

All of the attacks performed, their analysis and results have been presented in the Vulnerability Analysis.

The total test effort expended by the evaluators was 3 weeks. During that test campaign, 100% of the total time was spent on 100% on logical tests.

2.6.3 Test configuration

The configuration of the sample used for independent evaluator testing and penetration testing was the same as described in the [ST].

2.6.4 Test results

The testing activities, including configurations, procedures, test cases, expected results and observed results are summarised in the *[ETR]*, with references to the documents containing the full details.

The developer's tests and the independent functional tests produced the expected results, giving assurance that the TOE behaves as specified in its *[ST]* and functional specification.

No exploitable vulnerabilities were found with the independent penetration tests.

The algorithmic security level of cryptographic functionality has not been rated in this certification process, but the current consensus on the algorithmic security level in the open domain, i.e., from the current best cryptanalytic attacks published, has been taken into account.

2.7 Reused Evaluation Results

There is no reuse of evaluation results in this certification.

2.8 Evaluated Configuration

The TOE is defined uniquely by its name and version number xFusion FusionDirector 1.7.1.SPC3.

2.9 Evaluation Results

The evaluation lab documented their evaluation results in the *[ETR]*, which references an ASE Intermediate Report and other evaluator documents.

The verdict of each claimed assurance requirement is "**Pass**".

Based on the above evaluation results the evaluation lab concluded the xFusion FusionDirector 1.7.1.SPC3, to be **CC Part 2 extended, CC Part 3 conformant**, and to meet the requirements of **EAL 2 augmented with ALC_FLR.1**. This implies that the product satisfies the security requirements specified in Security Target *[ST]*.

2.10 Comments/Recommendations

The user guidance as outlined in section 2.5 “Documentation” contains necessary information about the usage of the TOE. Certain aspects of the TOE’s security functionality, in particular the countermeasures against attacks, depend on accurate conformance to the user guidance of both the software and the hardware part of the TOE. There are no particular obligations or recommendations for the user apart from following the user guidance. Please note that the documents contain relevant details concerning the resistance against certain attacks.

In addition, all aspects of assumptions, threats and policies as outlined in the Security Target not covered by the TOE itself must be fulfilled by the operational environment of the TOE.

The customer or user of the product shall consider the results of the certification within his system risk management process. For the evolution of attack methods and techniques to be covered, the customer should define the period of time until a re-assessment for the TOE is required and thus requested from the sponsor of the certificate.

The strength of the cryptographic algorithms and protocols was not rated in the course of this evaluation. This specifically applies to the following proprietary or non-standard algorithms, protocols and implementations: <none>.

3 Security Target

The xFusion FusionDirector 1.7.1.SPC3 Security Target, V1.11, 10 July 2023 *[ST]* is included here by reference.

4 Definitions

This list of acronyms and definitions contains elements that are not already defined by the CC or CEM:

IT	Information Technology
ITSEF	IT Security Evaluation Facility
NSCIB	Netherlands Scheme for Certification in the area of IT Security
TOE	Target of Evaluation
LAN	Local Area Network
SSH	Secure Shell
SSL	Secure Sockets Layer

5 Bibliography

This section lists all referenced documentation used as source material in the compilation of this report.

[CC]	Common Criteria for Information Technology Security Evaluation, Parts I, II and III, Version 3.1 Revision 5, April 2017
[CEM]	Common Methodology for Information Technology Security Evaluation, Version 3.1 Revision 5, April 2017
[ETR]	xFusion FusionDirector 1.7.1.SPC3 Evaluation Technical Report, UL14366853/ETR, Version 3.0, 11 July 2023
[NSCIB]	Netherlands Scheme for Certification in the Area of IT Security, Version 2.5, 28 March 2019
[ST]	xFusion FusionDirector 1.7.1.SPC3 Security Target, V1.11, 10 July 2023

(This is the end of this report.)