Certification Report

BMC Server Automation v8.3

Issued by:

Communications Security Establishment

Certification Body

Canadian Common Criteria Evaluation and Certification Scheme

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DISCLAIMER

The Information Technology (IT) product identified in this certification report, and its associated certificate, has been evaluated at an approved evaluation facility – established under the Canadian Common Criteria Evaluation and Certification Scheme (CCS) – using the *Common Methodology for Information Technology Security Evaluation, Version 3.1 Revision 4*, for conformance to the *Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 4*. This certification report, and its associated certificate, applies only to the identified version and release of the product in its evaluated configuration. The evaluation has been conducted in accordance with the provisions of the CCS, and the conclusions of the evaluation facility in the evaluation report are consistent with the evidence adduced. This report, and its associated certificate, are not an endorsement of the IT product by the Communications Security Establishment, or any other organization that recognizes or gives effect to this report, and its associated certificate, and no warranty for the IT product by the Communications Security Establishment, or any other organization that recognizes or gives effect to this report, and its associated certificate, is either expressed or implied.

FOREWORD

The Canadian Common Criteria Evaluation and Certification Scheme (CCS) provides a third-party evaluation service for determining the trustworthiness of Information Technology (IT) security products. Evaluations are performed by a commercial Common Criteria Evaluation Facility (CCEF) under the oversight of the CCS Certification Body, which is managed by the Communications Security Establishment.

A CCEF is a commercial facility that has been approved by the CCS Certification Body to perform Common Criteria evaluations; a significant requirement for such approval is accreditation to the requirements of *ISO/IEC 17025:2005, the General Requirements for the Competence of Testing and Calibration Laboratories*. Accreditation is performed under the Program for the Accreditation of Laboratories - Canada (PALCAN), administered by the Standards Council of Canada.

The CCEF that carried out this evaluation is EWA-Canada.

By awarding a Common Criteria certificate, the CCS Certification Body asserts that the product complies with the security requirements specified in the associated security target. A security target is a requirements specification document that defines the scope of the evaluation activities. The consumer of certified IT products should review the security target, in addition to this certification report, in order to gain an understanding of any assumptions made during the evaluation, the IT product's intended environment, the evaluated security functionality, and the testing and analysis conducted by the CCEF.

This certification report is associated with the certificate of product evaluation dated 10 March 2015, and the security target identified in Section 4 of this report.

The certification report, certificate of product evaluation and security target are posted on the CCS Certified Products list (CPL) and the Common Criteria portal (the official website of the Common Criteria Project).

This certification report makes reference to the following trademarks or registered trademarks:

- Linux is a registered trademark of Linus Torvalds Inc.;
- BMC and BMC Software are registered trademarks of BMC Software, Inc.;
- IBM and DB2 are registered trademarks of International Business Machines Corporation;
- Microsoft, Windows and Windows Server are registered trademarks of Microsoft Corporation;
- BSAFE is a registered trademark of RSA Security;
- Oracle and Java are registered trademarks of Oracle; and
- UNIX is a registered trademark of The Open Group.

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Executive Summary

BMC Server Automation v8.3, from BMC Software, Inc., is the Target of Evaluation. The results of this evaluation demonstrate that BMC Server Automation v8.3 meets the requirements of Evaluation Assurance Level (EAL) 2 augmented for the evaluated security functionality.

BMC Server Automation v8.3 is a system for the initial provisioning and ongoing automated management of data center servers. Using this system, administrators can provision and configure servers by deploying operating systems, applications, files, and configuration information. BMC Server Automation allows administrators to manage servers, regardless of whether the servers are physical or virtual.

BMC Server Automation v8.3 integrates configuration automation and compliance assurance, enabling the implementation of policy-based automation and providing a single platform for managing physical and virtual servers. The solution addresses three main areas: configuration, provisioning, and compliance.

EWA-Canada is the CCEF that conducted the evaluation. This evaluation was completed on 10 March 2015 and was carried out in accordance with the rules of the Canadian Common Criteria Evaluation and Certification Scheme (CCS).

The scope of the evaluation is defined by the security target, which identifies assumptions made during the evaluation, the intended environment for BMC Server Automation v8.3, and the security functional/assurance requirements. Consumers are advised to verify that their operating environment is consistent with that specified in the security target, and to give due consideration to the comments, observations and recommendations in this certification report.

Communications Security Establishment, as the CCS Certification Body, declares that the BMC Server Automation v8.3 evaluation meets all the conditions of the *Arrangement on the Recognition of Common Criteria Certificates* and that the product will be listed on the CCS Certified Products list (CPL) and the Common Criteria portal (the official website of the Common Criteria Project).

1 Identification of Target of Evaluation

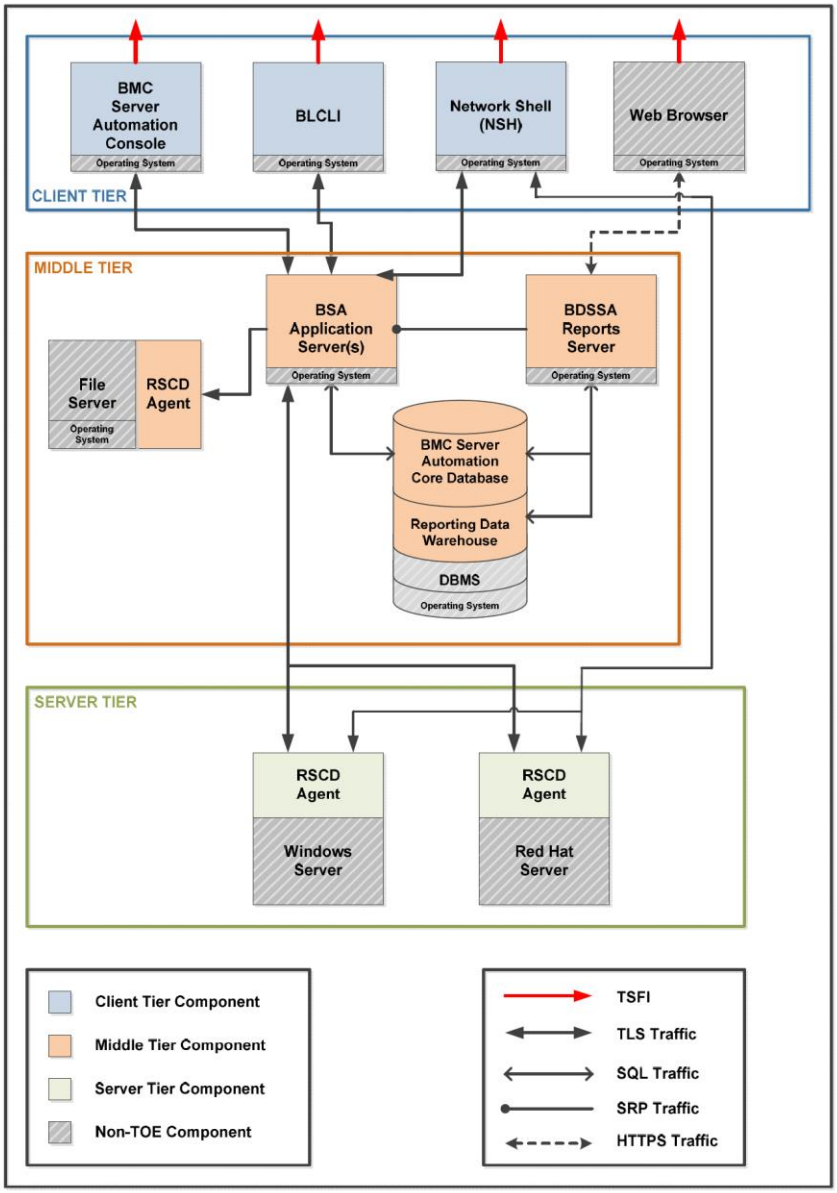
The Target of Evaluation (TOE) for this EAL 2+ evaluation is BMC Server Automation v8.3 (hereafter referred to as BMC Server Automation v8.3), from BMC Software, Inc.

2 TOE Description

BMC Server Automation v8.3 is a system for the initial provisioning and ongoing automated management of data center servers. Using this system, administrators can provision and configure servers by deploying operating systems, applications, files, and configuration information. BMC Server Automation allows administrators to manage servers, regardless of whether the servers are physical or virtual.

BMC Server Automation v8.3 integrates configuration automation and compliance assurance, enabling the implementation of policy-based automation and providing a single platform for managing physical and virtual servers. The solution addresses three main areas: configuration, provisioning, and compliance.

A diagram of the BMC Server Automation v8.3 architecture is as follows:



3 Security Policy

BMC Server Automation v8.3 implements a role-based access control policy to control administrative access to the system. In addition, BMC Server Automation v8.3 implements policies pertaining to the following security functional classes:

Security Audit;
Cryptographic Support;

User Data Protection;

Identification and Authentication;

Security Management;

Protection of the TSF;

Trusted Path/Channels; and

Compliance Management.

The following cryptographic modules were evaluated to the FIPS 140-2 standard:

Cryptographic Module	**Certificate**
OpenSSL FIPS Object Module	*1051*
RSA BSAFE Crypto-J JCE Provider Module	*1048*

4 Security Target

The ST associated with this Certification Report is identified below:

BMC Server Automation v8.3 Security Target, v0.15, 10 March 2015.

5 Common Criteria Conformance

The evaluation was conducted using the *Common Methodology for Information Technology Security Evaluation, Version 3.1 Revision 4,* for conformance to the *Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 4.*

BMC Server Automation v8.3 is:

a. EAL 2 augmented, containing all security assurance requirements listed, as well as the following:

- *ALC_FLR.2 Flaw reporting procedures.*

b. *Common Criteria Part 2 extended; with functional requirements based upon functional components in Part 2, except for the following explicitly stated requirements defined in the ST:*

- FCM_AST_EXT - Automated Server Management;
- FCM_SMR_EXT - Server Management Review; and
- FCM_CRP_EXT - Compliance Reporting.

c. *Common Criteria Part 3 conformant,* with security assurance requirements based only upon assurance components in Part 3.

6 Assumptions and Clarification of Scope

Consumers of BMC Server Automation v8.3 should consider assumptions about usage and environmental settings as requirements for the product's installation and its operating environment. This will ensure the proper and secure operation of the TOE.

6.1 Secure Usage Assumptions

The following Secure Usage Assumptions are listed in the ST:

- One or more authorised administrators will be assigned to install, configure and manage the TOE and the security of the information it contains;
- TOE Administrators have reviewed the documentation provided by BMC for secure delivery and management of the TOE;
- Users of the TOE are not careless, willfully negligent, or hostile and will follow and abide by the instructions provided by the guidance documentation; and
- The network servers that the TOE will monitor and manage are isolated from any other network, either by physical separation or using logical protection such as a firewall.

6.2 Environmental Assumptions

The following Environmental Assumptions are listed in the ST:

- The operational environment will protect audit data stored using the TOE's underlying operating system, files stored in the file server and TSF data (including audit trail data) stored in the database;
- The operational environment will provide a reliable time source for audit record generation; and
- Hotfix and patch files required to perform patching and other compliance activities will be available to the TOE from the operational environment.

7 Evaluated Configuration

The evaluated configuration for BMC Server Automation v8.3 comprises:

- *BMC Server Automation Console v8.3.03.190;*
- *Network Shell v8.3.03.190;*
- *BMC Server Automation Application Server v8.3.03.190; and*
- *BMC BladeLogic Decision Support for Server Automation v8.3.03.1220.*

all running on Windows 2008 R2 with

- *BMC Server Automation Remote System Call Daemon Agent v8.3.03.190 running on either Windows 2008 R2 or Red Hat Enterprise Linux 6.*

The publications entitled:

- *BMC Server Automation 8.3, 25 February 2014;*
- *BMC BladeLogic Decision Support for Server Automation 8.3, 05 September 2013;*
- *BMC Server Automation Command Line Interface 8.3, 28 July 2013; and*
- *BMC Server Automation v8.3 Guidance Supplement, Version 0.03.*

describe the procedures necessary to install and operate BMC Server Automation v8.3 in its evaluated configuration.

8 Documentation

The BMC Software, Inc. documents provided to the consumer are as follows:

- BMC Server Automation 8.3, 25 September 2014;
- BMC BladeLogic Decision Support for Server Automation 8.3, 05 September 2013;
- BMC Server Automation Command Line Interface 8.3, 28 July 2013; and
- BMC Server Automation v8.3 Guidance Supplement, Version 0.03.

9 Evaluation Analysis Activities

The evaluation analysis activities involved a structured evaluation of BMC Server Automation v8.3, including the following areas:

Development: The evaluators analyzed the BMC Server Automation v8.3 functional specification and design documentation; they determined that the design completely and accurately describes the TOE security functionality (TSF) interfaces, the TSF subsystems and how the TSF implements the security functional requirements (SFRs). The evaluators analyzed the BMC Server Automation v8.3 security architectural description and determined that the initialization process is secure, that the security functions are protected against tamper and bypass, and that security domains are maintained. The evaluators also independently verified that the correspondence mappings between the design documents are correct.

Guidance Documents: The evaluators examined the BMC Server Automation v8.3 preparative user guidance and operational user guidance and determined that it sufficiently and unambiguously describes how to securely transform the TOE into its evaluated configuration and how to use and administer the product. The evaluators examined and tested the preparative and operational guidance, and determined that they are complete and sufficiently detailed to result in a secure configuration.

Life-cycle support: An analysis of the BMC Server Automation v8.3 configuration management system and associated documentation was performed. The evaluators found that the BMC Server Automation v8.3 configuration items were clearly marked.

The evaluators examined the delivery documentation and determined that it described all of the procedures required to maintain the integrity of BMC Server Automation v8.3 during distribution to the consumer.

The evaluators reviewed the flaw remediation procedures used by developer for the BMC Server Automation v8.3. During a site visit, the evaluators also examined the evidence generated by adherence to the procedures. The evaluators concluded that the procedures are adequate to track and correct security flaws, and distribute the flaw information and corrections to consumers of the product.

All these evaluation activities resulted in **PASS** verdicts.

10 ITS Product Testing

Testing consists of the following three steps: assessing developer tests, performing independent functional tests, and performing penetration tests.

10.1 Assessment of Developer Tests

The evaluators verified that the developer has met their testing responsibilities by examining their test evidence, and reviewing their test results, as documented in the ETR[1].

The evaluators analyzed the developer's test coverage analysis and found it to be complete and accurate. The correspondence between the tests identified in the developer's test documentation and the functional specification was complete.

10.2 Independent Functional Testing

During this evaluation, the evaluator developed independent functional tests by examining design and guidance documentation.

All testing was planned and documented to a sufficient level of detail to allow repeatability of the testing procedures and results. Resulting from this test coverage approach is the following list of test goals:

a. Repeat of Developer's Tests: The objective of this test goal is to repeat a subset of the developer's tests;

b. Account Lockout: The objective of this test goal is to show the TOE will lock out an account after a predetermined number of failed login attempts;

c. Account Lockout Parameters: The objective of this test goal is to verify that account lockout parameters are configurable;

d. Password Parameters: and

    a. Minimum Password Length: The objective of this test goal is to demonstrate that the administrator can set the minimum password length and that it is enforced;

    b. Maximum Password Age: The objective of this test goal is to demonstrate that the TOE will prompt to change password after a configurable amount of time;

    c. Password Complexity: The objective of this test goal is to demonstrate that the TOE enforces set password complexity parameters;

e. Trusted Path: The objective of this test goal is to verify communication is secure when running BLCLI (BMC Server Automation Command Line Interface) Commands.

10.3 Independent Penetration Testing

Subsequent to the independent review of public domain vulnerability databases and all evaluation deliverables, limited independent evaluator penetration testing was conducted. The penetration tests focused on:

[1] The ETR is a CCS document that contains information proprietary to the developer and/or the evaluator, and is not releasable for public review.

a. Use of automated vulnerability scanning tools to discover potential network, platform and application layer vulnerabilities; and
    a. Use Nessus to scan for potential vulnerabilities. Run tests for Heartbleed, POODLE, and Shellshock specifically;
    b. Use nmap to scan for services running on open ports;
    c. Use Nexpose to scan for potential vulnerabilities on open ports; and
    d. Use Internet Search engines to identify potential vulnerabilities.
b. Information Leakage Verification: The objective of this test goal is to determine if there is any leakage during start-up, shutdown, login, and other scenarios where there is communication between parts of the TOE.

The independent penetration testing did not uncover any exploitable vulnerabilities in the intended operating environment.

10.4 Conduct of Testing

BMC Server Automation v8.3 was subjected to a comprehensive suite of formally documented, independent functional and penetration tests. The testing took place at the Information Technology Security Evaluation and Test Facility. The CCS Certification Body witnessed a portion of the independent testing. The detailed testing activities, including configurations, procedures, test cases, expected results and observed results are documented in a separate Test Results document.

10.5 Testing Results

The developer's tests and the independent functional tests yielded the expected results, providing assurance that BMC Server Automation v8.3 behaves as specified in its ST and functional specification.

11 Results of the Evaluation

This evaluation has provided the basis for an EAL 2+ level of assurance. The overall verdict for the evaluation is **PASS**. These results are supported by evidence in the ETR.

12 Evaluator Comments, Observations and Recommendations

The evaluator recommends that operators of the TOE familiarize themselves with the ST and relevant setup documentation.

13 Acronyms, Abbreviations and Initializations

Acronym/Abbreviation/ Initialization	Description
BLCLI	BMC Server Automation Command Line Interface
CCEF	Common Criteria Evaluation Facility
CCS	Canadian Common Criteria Evaluation and Certification Scheme
CPL	Certified Products list
EAL	Evaluation Assurance Level
ETR	Evaluation Technical Report
FIPS	Federal Information Processing Standards
IT	Information Technology
ITSET	Information Technology Security Evaluation and Testing
PALCAN	Program for the Accreditation of Laboratories - Canada
SFR	Security Functional Requirement
ST	Security Target
TOE	Target of Evaluation
TSF	TOE Security Function

14 References

This section lists all documentation used as source material for this report:

a. CCS Publication #4, Technical Oversight, Version 1.8, October 2010.

b. Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 4, September 2012.

c. Common Methodology for Information Technology Security Evaluation, CEM, Version 3.1 Revision 4, September 2012.

d. BMC Server Automation v8.3 Security Target, v0.15, 10 March 2015.

e. Evaluation Technical Report BMC Server Automation v8.3, v1.0, 10 March 2015.