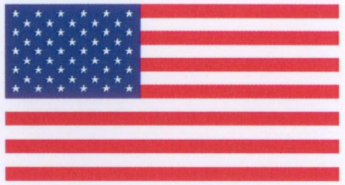
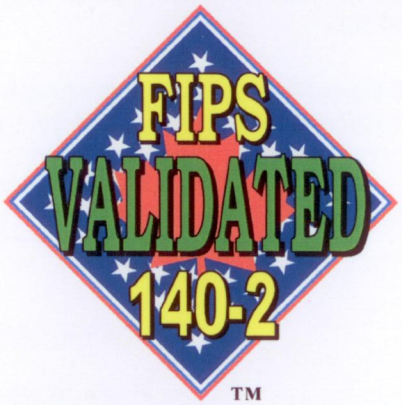
FIPS 140-2 Validation Certificate



The National Institute of Standards and Technology of the United States of America



The Communications Security Establishment of the Government of Canada

Certificate No. **1384**

The National Institute of Standards and Technology, as the United States FIPS 140-2 Cryptographic Module Validation Authority; and the Communications Security Establishment, as the Canadian FIPS 140-2 Cryptographic Module Validation Authority; hereby validate the FIPS 140-2 testing results of the Cryptographic Module identified as:

Red Hat Enterprise Linux 5 OpenSSH-Server Cryptographic Module *by* Red Hat®, Inc.

(When operated in FIPS mode. This module contains the embedded module Red Hat Enterprise Linux 5 OpenSSL Cryptographic Module validated to FIPS 140-2 under Cert. #1320 operating in FIPS mode. When obtained, installed, and initialized as specified in Section 9.1 of the provided Security Policy. Section 1 of the provided Security Policy specifies the precise RPM file containing this module. The integrity of the RPM is automatically verified during the installation and the Crypto officer shall not install the RPM file if the RPM tool indicates an integrity error. Any deviation from the specified verification, installation and initialization procedures will result in a non FIPS 140-2 compliant module.)

in accordance with the Derived Test Requirements for FIPS 140-2, Security Requirements for Cryptographic Modules. FIPS 140-2 specifies the security requirements that are to be satisfied by a cryptographic module utilized within a security system protecting *Sensitive Information* (United States) or *Protected Information* (Canada) within computer and telecommunications systems (including voice systems).

Products which use the above identified cryptographic module may be labeled as complying with the requirements of FIPS 140-2 so long as the product, throughout its life cycle, continues to use the validated version of the cryptographic module as specified in this certificate. The validation report contains additional details concerning test results. No reliability test has been performed and no warranty of the products by both agencies is either expressed or implied.

This certificate includes details on the scope of conformance and validation authority signatures on the reverse.

FIPS 140-2 provides four increasing, qualitative levels of security: Level 1, Level 2, Level 3, and Level 4. These levels are intended to cover the wide range and potential applications and environments in which cryptographic modules may be employed. The security requirements cover eleven areas related to the secure design and implementation of a cryptographic module. The scope of conformance achieved by the cryptographic modules as tested in the product identified as:

Red Hat Enterprise Linux 5 OpenSSH-Server Cryptographic Module *by* Red Hat®, Inc.
(*Software Version: 1.0;* Software)

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and tested by the Cryptographic Module Testing accredited laboratory: ***atsec information security corporation, NVLAP Lab Code 200658-0***
CRYPTIK Version 7.0

is as follows:

Cryptographic Module Specification:	Level 1	*Cryptographic Module Ports and Interfaces:*	Level 1
Roles, Services, and Authentication:	Level 1	*Finite State Model:*	Level 1
Physical Security: (Multi-Chip Standalone)	Level N/A	*Cryptographic Key Management:*	Level 1
EMI/EMC:	Level 1	*Self-Tests:*	Level 1
Design Assurance:	Level 1	*Mitigation of Other Attacks:*	Level N/A
Operational Environment:	Level 1	*tested in the following configuration(s):*	Red Hat Enterprise Linux 5.4 (in single-user mode)

The following FIPS approved Cryptographic Algorithms are used: **AES (Certs. #1160, #1161 and #1162); Triple-DES (Certs. #839, #840 and #841); DSA (Certs. #378, #379 and #380); RNG (Certs. #642, #643 and #644); RSA (Certs. #549, #550 and #552); HMAC (Certs. #661, #662 and #663)**

The cryptographic module also contains the following non-FIPS approved algorithms: **Diffie-Hellman (key agreement; key establishment methodology provides between 80 and 192 bits of encryption strength); RSA (key wrapping; key establishment methodology provides between 80 and 150 bits of encryption strength)**

Overall Level Achieved: 1

Signed on behalf of the Government of the United States

Signature: _____

Dated: Aug 12, 2010

Chief, Computer Security Division
National Institute of Standards and Technology

Signed on behalf of the Government of Canada

Signature: _____

Dated: August 10, 2010

Director, Industry Program Group
Communications Security Establishment Canada