

National Information Assurance Partnership



Common Criteria Evaluation and Validation Scheme

Validation Report

Bodacion Technologies' HYDRA Server, Version 1.4

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1 Executive Summary

The evaluation of the Bodacion Technologies HYDRA Server Version 1.4 was performed by the COACT Inc. CCTL in the United States and was completed on 13 February 2003. The evaluation was conducted in accordance with the requirements of the Common Criteria, Version 2.1 and the Common Methodology for IT Security Evaluation (CEM) Version 1.0.

The Target of Evaluation (TOE) identified in this Validation Report has been evaluated at an accredited testing laboratory using the Common Methodology for IT Security Evaluation (Version 1.0) for conformance to the Common Criteria for IT Security Evaluation (Version 2.1). This Validation Report applies only to the specific version of the TOE as evaluated. The evaluation has been conducted in accordance with the provisions of the NIAP Common Criteria Evaluation and Validation Scheme and the conclusions of the testing laboratory in the evaluation technical report are consistent with the evidence adduced.

The COACT Inc. evaluation team concluded that the Common Criteria requirements for Evaluation Assurance Level (EAL1) have been met.

The technical information included in this report was obtained from the Evaluation Technical Report (ETR) Part 1 (non-proprietary) produced by COACT Inc.

Disclaimer: This Validation Report is not an endorsement of the HYDRA Server product by any agency of the U.S. Government and no warranty of the product is either expressed or implied.

1.1 Evaluation Details

- **Dates of Evaluation:** June 13, 2002 through February 13, 2003
- **Evaluated Product:** HYDRA Server Version 1.4
- **Developer:** Bodacion Technologies
- **CCTL:** COACT, Inc.
- **Evaluation Team:** Eric J. Grimes, Robert J. West, Tiffani A. Parsons, Todd R. Calvert
- **Evaluation Class:** EAL1
- **PP Conformance:** None

1.2 Interpretations

CC Identification: Common Criteria for Information Technology Security Evaluation, Version 2.1 August 1999, ISO/IEC 15408. **CEM Identification:** *Common Evaluation Methodology for Information Technology Security Evaluation, Part 1: Introduction and General Model, Version 0.6, January 1997; Common Methodology for Information Technology Security Evaluation, Part 2: Evaluation Methodology, Version 1.0, August*

1999. During the evaluation process these National and International Interpretations were used:

National Interpretations:

- **I-0393:** A Completely Evaluated ST Is Not Required When TOE Evaluation Starts
- **I-0411:** Guidance Includes AGD_ADM, AGD_USR, ADO And ALC_FLR
- **I-0412:** Configuration Items In The Absence Of Configuration Management
- **I-0422:** Clarification Of “Audit Records”
- **I-0423:** Some Modifications To The Audit Trail Are Authorized

International Interpretations:

- **RI #27:** Events And Actions
- **RI #37:** ACM On Product or TOE

2 Identification

2.1 ST and TOE Identification

- **ST:** Bodacion Technologies HYDRA Server (EAL1) Version 1.4, 14 February 2003.
- **TOE Identification:** HYDRA Server Version 1.4

2.2 Product Overview

The Target of Evaluation is the Bodacion Technologies’ HYDRA Sever Version 1.4. HYDRA Server 1.4 is a hard, real-time embedded system that provides secure web services including HTTP, HTTPS, FTP, and FTPS. A PowerPC based CompactPCI system card executes HYDRA Server’s firmware after loading it into RAM from FLASH memory. The HYDRA Server system card is contained in a standard 3U high CPCI chassis, along with a mass storage shelf containing an EIDE disk drive. This 3U high CPCI chassis has the capability to house and operate three HYDRA Server’s. In addition, the HYDRA has the ability to operate with an additional FLASH memory device; a FIPS approved SSL accelerator and a 4-port Ethernet NIC, all which are outside the scope of this evaluation. The HYDRA’s firmware will detect if any of these devices are used.

The HYDRA Server 1.4 eliminates much of the vulnerability in typical web servers through its design. The HYDRA Server 1.4 does not contain a general-purpose operating system; it includes a kernel that operates as a resource manager. The kernel contains no shell or command line that could lead to a hack attack. Since the HYDRA Server 1.4 does not execute from a hard drive, the HYDRA does not contain a standard file system (e.g. EXT3, NTFS, FAT32) that would be vulnerable to virus attacks. The HYDRA Server 1.4 contains a proprietary file system embedded within the hardware/firmware design and is

not vulnerable to virus attacks. The HYDRA Server 1.4 was designed to help mitigate vulnerability attacks.

The TOE performs Identification and Authentication for the administrative user of the TOE. The identification of the security administrator is done automatically and a password is required when the administrator uses the web console and an Enabler Code, which is similar to a password, is required via the serial port interface. Web developer administrators are identified and authenticated by a user name and password when accessing the TOE via the FTP server. Non-administrative users of the TOE are identified via their computers IP address strictly for communication purposes and are not part of the security functionality of the TOE.

3 Security Overview

3.1 Security Threats

The Security Target identified the following threats that the evaluated product addresses:

- **T.HACK:** A malicious computer user, or hacker can compromise the TSF and TOE security through a hack attack on the server's operating environment (the HYDRA Server 1.4 Kernel/OS).
- **T.VIRUS:** A computer virus could infect the TOE's operating environment's file system (proprietary file system within the HYDRA Server 1.4) and compromise the TSF and TOE security data.
- **T.ADMIN:** A non-administrative user could attempt to configure and manage the TOE/TSF as an administrator.

3.2 Security Objectives

The Security Target does not state an organizational security policy regarding Bodacion Technologies' HYDRA Server Version 1.4.

In order to counter the stated threats, the HYDRA Server has the following security objectives:

- **O.ADMIN:** The TOE will allow the administrators the capability to securely configure and manage the TOE/TSF data.
- **O.DESIGN:** The TOE will be designed in such a way as to prevent unauthorized users and data (i.e. files that could contain a virus) access to the TOE.
- **O.E.ACCESS:** Those responsible for the TOE must ensure that only users authorized to use the TOE are allowed physical access to the TOE and that the TOE is properly initially configured.

- **O.E.NET:** Those responsible for the TOE must ensure that the TOE is physically connected to an Ethernet interface such that it can serve web pages and have access to an NTP timeserver.

3.3 Usage Assumptions

The findings of the HYDRA Server evaluation are based upon the following usage assumptions:

- **A.ADMIN:** Administrators of the HYDRA Sever 1.4 shall be trained and trusted to enforce the security aspects of the HYDRA Server relevant to them.
- **A.SETUP:** The security administrator of the TOE shall immediately, upon installation, change the configuration of the TOE so the web console GUI operates on a HTTPS server and change the password after the first successful connection to the HTTPS web console GUI so it shall remain secure.

3.4 Environment Assumptions

The HYDRA Server was evaluated and it therefore recommended to be used in an environment meeting the following assumptions:

- **A.E.LOCATE:** The HYDRA Server 1.4 shall be located in a secure facility that mitigates against unauthorized physical access.
- **A.E.CONSOLE:** The environment and security mechanisms of the environment must ensure that only an authorized administrator has access to the TOE via the serial interface port.

4 Evaluated Configuration Information

Although the CPCI chassis has the capability to house multiple HYDRA systems, in the evaluated configuration, only one HYDRA Server will be installed in the chassis. The HYDRA Server has the capability to operate along side a hard drive system database for additional storage. In the evaluated version, the HYDRA Server will not use this feature. The HYDRA Server will be configured to operate with a test network.

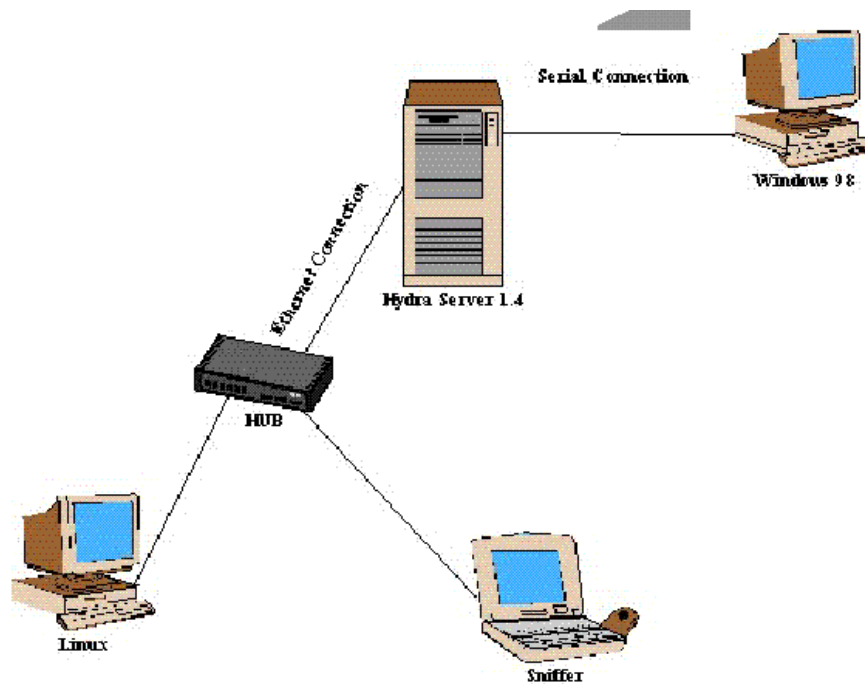
5 Documentation

The following documentation comes standard with the Bodacion Technologies HYDRA Server Version 1.4:

- HYDRA Server Version 1.4 User's Manual, Created March 27, 2002

6 IT Product Testing

This section provides a high level description of the subset of TSF tests required to confirm the TOE operates as specified. Simply put, testing of the TOE confirmed that various functions could be set accurately, that administrators could have full control of a secure system, and that secure web browsing and web transfers (e.g., FTP) could be completed successfully.



The above figure shows the configuration used in performing the independent evaluator testing.

6.1 Test Configuration

The evaluated configuration of Bodacion Technologies' HYDRA Server Version 1.4 was tested and evaluated on the following hardware and software:

6.2 System Hardware

- PowerPC based CompactPCI system card with Ethernet and Serial Ports
- RAM and FLASH memory
- Mass Storage EIDE disk drive

6.3 Installed System Software

- HYDRA Server Firmware version 1.4

6.4 Test Equipment

The following equipment was used in the testing of the HYDRA Server Version 1.4:

- A PC with Red Hat Linux installed
- A PC with Windows 98 and Ethereal sniffer software installed
- HYDRA Server 1.4
- A PC with Windows 98 and HyperTerminal program
- 4 port Ethernet hub
- 4 Ethernet cables
- 1 Serial cable

7 Results of the Evaluation

The Bodacion Technologies' HYDRA Server 1.4 was successfully evaluated at an EAL1 level of assurance. The results of this evaluation are presented in the following sections of this section based upon the work unit requirements defined in the Common Evaluation Methodology for EAL1.

- **ACM:** The evaluation team applied each EAL1 ACM CEM work unit. The ACM work units ensure that the TOE is accurately and uniquely identified such that the consumer is able to identify the evaluated TOE and discern one version from another.
- **ADO:** The evaluation team applied each EAL1 ADO CEM work unit. The ADO evaluation ensured the adequacy of the procedures to install, generate, and start up the TOE in a secure configuration.
- **ADV:** The evaluation team applied each EAL1 ADV CEM work unit. The evaluation team assessed the design documentation and found it adequate in understanding the interfaces to the security functions implemented by the TOE.
- **AGD:** The evaluation team applied each EAL1 AGD CEM work unit. The evaluation team ensured the adequacy of the administrator and user guidance in describing how to securely administer and use the TOE.
- **ATE:** The evaluation team applied each EAL1 ATE CEM work unit. The evaluation team tested the TOE to ensure that it performed as described in the functional specification and as stated in the TOE security functional requirements.

8 Evaluator Comments/Recommendations

The COACT, Inc. has no specific recommendations relative to this TOE.

9 Abbreviations

CC	Common Criteria
CPCI	Compact Peripheral Component Interconnect
EAL	Evaluation Assurance Level
EIDE	Enhanced Integrated Drive Electronics
EXT3	Third Extension File System (Linux)
FAT32	32-bit File Allocation Table
FLASH	Flashable non-volatile memory
FSP	Functional Specification
FTP	File Transfer Protocol
FTPS	File Transfer Protocol Secure
GUI	Graphical User Interface
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure Sockets
IP	Internet Protocol
IT	Information Technology
NIAP	National Information Assurance Partnership
NTFS	New Technology File System
NTP	Network Time Protocol
OS	Operating System
PP	Protection Profile
RAM	Random Access Memory
RCR	Representative Correspondence
SF	Security Function
SFP	Security Function Policy
SOF	Strength of Function
SSL	Secure Socket Layer
ST	Security Target
TOE	Target of Evaluation
TSC	TSC Scope of Control
TSF	TOE Security Function
TSFI	TSF Interface
TSS	TOE Summary Specification

10 Bibliography

Bodacion Technologies' Functional Specification for the EAL1 CC Evaluation, dated October 23, 2002

Common Criteria for Information Technology Security Evaluation, Part 1 Introduction and General Model, Version 2.1, dated August 1999

Common Criteria for Information Technology Security Evaluation, Part 2 Security Functional Requirements, Version 2.1, dated August 1999

Common Criteria for Information Technology Security Evaluation, Part 3 Security Assurance Requirements, Version 2.1, dated August 1999

Common Methodology for Information Technology Security Evaluation, Part 1, Version 0.6, dated January 1997

Common Methodology for Information Technology Security Evaluation, Part 2, Version 1.0, dated August 1999

EAL1 Testing Claim Document, dated August 29, 2002

HYDRA Server Version 1.4 Evaluation Technical Report, Document # E1-1102-018, dated November 25, 2002

HYDRA Server Version 1.4 Security Target, Document # E1-0602-003(3), dated September 5, 2002

HYDRA Server Version 1.4 User Manual, dated March 27, 2002

HYDRA System Architecture, dated September 3, 2002

HYDRA Versioning, dated August 29, 2002

Test Activity Document, dated August 29, 2002