

MUSIC Certification

Certification Level:
MUSIC 2007-1 Foundation Level

Device Certified:
ABB AC800M-PM865 Modular
Industrial Controller

Certification Date:
14-Sept-2007

Certificate Identifier:
MUSIC-Foundation-Aug07-1

Certification Tests Conducted By:
ABB

Certifying Entity:
Mu Dynamics, Inc.

Executive Summary

MUSIC is the certification program for Industrial Control offered by Mu Dynamics, Inc. The program is based on a regimen of vendor testing with independent verification and certification. The Foundation-level certification requires the use of the Mu-4000 analyzer to test the supported protocols from the following list: ARP, DHCP, ICMPv4, IEEE 802.1p/Q, IPv4, TCP, TFTP and UDP. The ABB AC800M-PM865 Modular Industrial Controller was tested at ABB's Corporate Research Center in Billingstad, Norway with the independent verification being provided by Mu Dynamics.

The ABB AC800M-PM865 Modular Industrial Controller was tested using a Mu-4000 for security and robustness issues using the complete suite of Foundation-level protocols supported by the AC800M-PM865. No faults were detected during the running of the analysis. The AC800M-PM865 controller was tested without a firewall.

The analyses were run using the attacks available for each protocol on the Mu-4000 analyzer. ABB carried out the certification testing and the results were independently verified and certified by Mu Dynamics, Inc.

Analysis Details

- **Device tested:** ABB AC800M-PM865 Modular Industrial Controller - Software Release 5.0 SP1
- **Test location:** ABB's Corporate Research Center in Billingstad, Norway
- **Analysis completion date:** 9th September 2007
- **Tests conducted by:** ABB
- **Tests verified by:** Mu Dynamics, Inc.
- **Certification specification:** MUSIC-Foundation 2007-1
- **Filters used in Mu-4000 Attack Vector Set:** None. All attack vectors were run during the testing.
- **Mu-4000 Analysis Mode:** Mutation Analysis (Endpoint-mode)
- **Testbed Description:** The Mu-4000 analyzer was directly connected to the AC800M-PM865 Modular Industrial Controller using an Ethernet connection. All attacks were transported using IP version 4.



Protocols Tested

In Mu terminology, attacks are hierarchically divided into Protocols, Suites and Variants. A Variant is the lowest level in the hierarchy, and is a collection of attacks using a common method of attack. A Suite is a collection of Variants that generally involves a single message or transaction type. A Protocol consists of a collection of Suites. An Analysis can consist of one or more Protocols.

The following protocols were tested during this analysis:

Protocol	Suites Run	Mu Protocol Version
ARP	All	2.3.3832
DHCP	None*	n/a
ICMPv4	All	2.3.3832
IEEE 802.1p/Q	None*	n/a
IPv4	All	2.3.3832
TCP	All	2.3.3832
TFTP	None*	n/a
UDP	All	2.3.3832

*Not supported by the ABB AC800M-PM865 Modular Industrial Controller

About the MUSIC Certification Program

The MUSIC certification is based on the philosophy of vendor-driven testing (either at their own facility or using an approved Mu partner lab) with independent verification, an approach that already works well in many industries. Mu Dynamics provides negative tests designed to expose implementation flaws in implementations of all protocols that are part of the certification. Mu Dynamics' customers who own or rent the Mu-4000 and the relevant protocols that comprise the MUSIC test package may run through the certification tests as part of their development and quality assurance processes and submit authenticated Mu-4000-generated reports to Mu Dynamics or MUSIC consulting partners for verification. They may also engage Mu Security or its consulting partners to perform the testing and verification. The tests themselves are accessible to anyone with access to a Mu-4000 analyzer. Mu Dynamics or its partner labs will archive all analyses in such a manner that they can be reproduced at any time if the certified device is available.

MUSIC Certification consists of a Foundation Level and an Advanced Level. Protocols available for testing and certification at the Foundation Level include ARP, DHCP, ICMPv4, IEEE 802.1p/Q, IPv4, TCP, TFTP and UDP. Customers will need to test all applicable supported protocols on the device under test for the target certification level. Protocols available for testing at the Advanced Level include DNP3, FTP, HTTP, MMS, MODBUS/TCP, Telnet and SNMP. Customers may choose to certify individual protocols for the Advanced Level certifications.

Certification details are posted under the Mu Secure Critical Infrastructure solution page at <http://www.mudynamics.com/solutions/customers/endusers.html#critical> and will include:

- Product Name
- Product Version tested
- Protocols tested
- Unique Test identifier
- Test location
- Date of testing
- Expiration date of certification

Mu Dynamics fully supports the work of ISA SP99 and IEC 61508 in their efforts to define and promulgate security standards within the industrial control systems markets (DCS, MES, SCADA, etc.) and commits to shipping automated test suites corresponding to these evolving security standards as soon as (or before, if possible) they become available, in addition to the MUSIC test suites available today. Complete details on the MUSIC program may be obtained from <http://www.mudynamics.com/music>.

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Analysis performed using Mu Dynamics' analyzer product is consistent with current industry best practices. Vulnerabilities may exist in products in spite of such testing. Mu Dynamics, Inc. and its partner laboratories cannot guarantee that certified products are free of all vulnerabilities. Mu Dynamics and/or its partners also cannot guarantee that testing was carried out on the specific device and version listed unless Mu or the partner lab is the entity listed as carrying out the actual testing. In cases where Mu or a partner lab did not carry out the actual testing, vendors of the products being certified provided a signed affidavit that the testing was actually performed on the device(s) and software version that were submitted for certification. This MUSIC Certification is not an endorsement or warranty of the certified device. Mu Dynamics does not warrant the operation, performance or functionality of the certified device or that the certified device will be suitable for the end user's application or will satisfy the end user's requirements.

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