

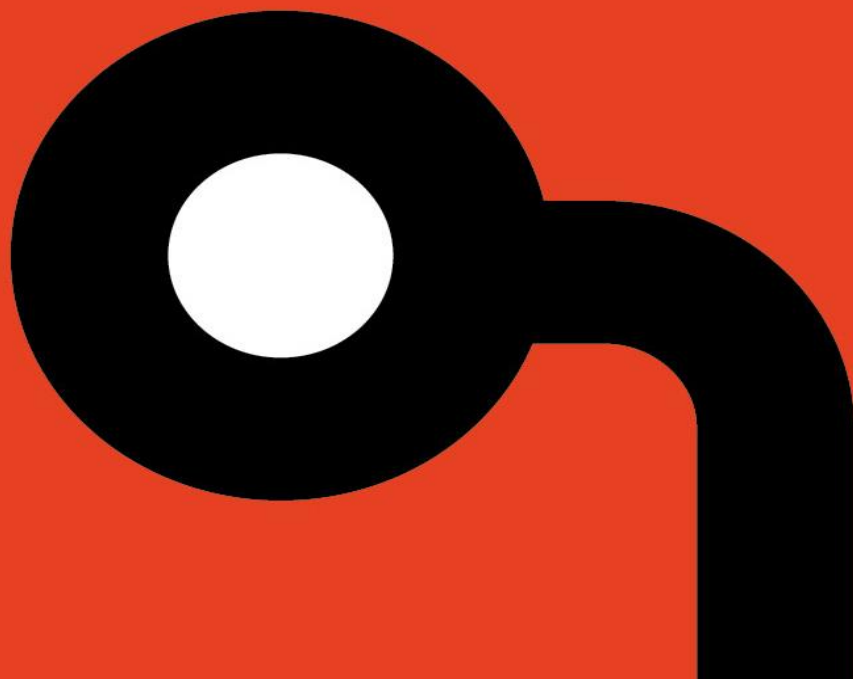
**Applied  
Risk**

**AR2019009**

# **Computrols CBAS-Web 19.0.0 Multiple Vulnerabilities**

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**Release Date: May 10, 2019**



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## OVERVIEW

Multiple vulnerabilities were found in the Computrols CBAS-Web Building Management System (BMS). These findings include Cross-Site Scripting, Cross-Site Request Forgery, Username Enumeration, Source Code Disclosure, Default Credentials, Hard-coded Encryption Key, Authenticated Blind SQL Injection, Authentication Bypass, Authenticated Command Injection and Mishandling of Password Hashes.

## AFFECTED PRODUCTS

Computrols CBAS;

The following versions are affected:

- ◆ 19.0.0 and below

The vulnerabilities have been discovered and validated in Computrols CBAS-Web 19.0.0. Older versions are affected too.

## IMPACT

An unauthenticated user can gain full system access.

## BACKGROUND

Computrols was founded in 1983 and first began as a service business, providing maintenance for the large building automation systems of the day. Computrols Building Automation Software (CBAS) is the simplest building automation system software to install, program, maintain, and operate.

## VULNERABILITY DETAILS

### Default Credentials

Attackers can easily obtain default passwords and identify Internet-connected target systems. Passwords can be found in product documentation and compiled lists available on the Internet. It is possible to identify exposed systems using search engines like Shodan, and it is feasible to scan the entire IPv4 internet.

Applied Risk has calculated a CVSSv3 score of 9.8 for this vulnerability. The CVSS vector string is CVSS:3.0/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:H/A:H.

### Cross-Site Request Forgery

The affected application allows users to perform certain actions via HTTP requests without performing any validity checks to verify the requests. This can be exploited to perform certain actions with administrative privileges if a logged-in user visits a malicious web site.

Applied Risk has calculated a CVSSv3 score of 5.0 for this vulnerability. The CVSS vector string is CVSS:3.0/AV:N/AC:H/PR:N/UI:R/S:U/C:L/I:L/A:L.

## **Username Enumeration**

The application suffers from a username enumeration weakness. The device behaves differently or sends different responses in a way that exposes security-relevant information about the state of the product, such as whether a particular operation was successful or not.

Applied Risk has calculated a CVSSv3 score of 5.3 for this vulnerability. The CVSS vector string is CVSS:3.0/AV:N/AC:L/PR:N/UI:N/S:U/C:L/I:N/A:N.

## **Cross-Site Scripting**

The application suffers from a reflected XSS vulnerability. The issue occurs when input passed via several parameters to several scripts is not sanitized before being returned to the user. This can be exploited to execute arbitrary HTML and script code in a user's browser session in context of an affected site.

Applied Risk has calculated a CVSSv3 score of 5.4 for this vulnerability. The CVSS vector string is CVSS:3.0/AV:N/AC:L/PR:N/UI:R/S:U/C:L/I:L/A:N.

## **Command Injection**

The application constructs an OS command using externally-influenced input from an upstream component, but incorrectly neutralizes special elements that could modify the intended OS command when it is sent to a downstream component. This could allow authenticated attackers to execute unexpected, dangerous commands directly on the operating system.

Applied Risk has calculated a CVSSv3 score of 8.8 for this vulnerability. The CVSS vector string is CVSS:3.0/AV:N/AC:L/PR:L/UI:N/S:U/C:H/I:H/A:H.

## **Source Code Disclosure**

The application has an unprotected Subversion directory that anyone can access. This allows an attacker to download the entire firmware codebase and disclose sensitive information about the innerworkings of the underlying OS. Directory indexing was also enabled for several directories disclosing various scripts and sensitive information.

Applied Risk has calculated a CVSSv3 score of 7.5 for this vulnerability. The CVSS vector string is CVSS:3.0/AV:N/AC:L/PR:N/UI:N/S:U/C:H/I:N/A:N.

## **Hard-coded Encryption Key**

The application suffers from a hard-coded encryption key for database backup file decryption. The issue resides in several scripts obtained with direct access or by downloading the exposed Subversion directory. This can aid an authenticated attacker to gain access to the full database of the device and disclose sensitive information.

Applied Risk has calculated a CVSSv3 score of 6.5 for this vulnerability. The CVSS vector string is CVSS:3.0/AV:N/AC:L/PR:L/UI:N/S:U/C:H/I:N/A:N.

## **Authenticated Blind SQL Injection**

The vulnerability exists due to insufficient filtration of multiple HTTP GET and POST parameters passed to different scripts. A remote authenticated attacker can execute arbitrary SQL commands in the application's database.

Applied Risk has calculated a CVSSv3 score of 6.3 for this vulnerability. The CVSS vector string is CVSS:3.0/AV:N/AC:L/PR:L/UI:N/S:U/C:L/I:L/A:L.

### **Authentication Bypass**

The application suffers from an authentication bypass vulnerability. Calling agg\_post action in auth.php script will trigger the AggregatePost function. This function expects a code-parameter and it will check it against a list of views. If the view code matches, the cookie's session will get the username 'aggregate' set and the application will enable the auth flag. This allows an unauthenticated attacker to bypass authentication and have full control of the device.

Applied Risk has calculated a CVSSv3 score of 8.1 for this vulnerability. The CVSS vector string is CVSS:3.0/AV:N/AC:H/PR:N/UI:N/S:U/C:H/I:H/A:H.

### **Mishandling of Password Hashes**

The application stores the passwords in the database using the MD5 hash. The MD5 algorithm is vulnerable to known cryptographic attacks.

Applied Risk has calculated a CVSSv3 score of 5.3 for this vulnerability. The CVSS vector string is CVSS:3.0/AV:N/AC:L/PR:N/UI:N/S:U/C:L/I:N/A:N.

## **MITIGATION**

Computrols is aware of the reported vulnerabilities and has addressed the issues with a new firmware version.

## **REFERENCES**

Vendor website

<http://www.computrols.com/>

Product page

<http://www.computrols.com/building-automation-software/>

Common Vulnerability Exposure (CVE):

<https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-10846>

<https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-10847>

<https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-10848>

<https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-10849>

<https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-10850>

<https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-10851>

<https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-10852>

<https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-10853>

<https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-10854>

<https://cve.mitre.org/cgi-bin/cvename.cgi?name=CVE-2019-10855>

Vendor Advisories:

<http://www.computrols.com/support/documentation/>

<http://www.computrols.com/wp-content/uploads/2019/05/CBAS-Web-Advisory-2019-5-9.pdf>

## CONTACT DETAILS

For any questions related to this report, please contact Applied Risk Research team at:

Email: [research@applied-risk.com](mailto:research@applied-risk.com)

PGP Public Key:

```
-----BEGIN PGP PUBLIC KEY BLOCK-----
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