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# Practices for Secure Software Report

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## Document Revision History

| **Version** | **Date** | **Author** | **Comments** |
| --- | --- | --- | --- |
| **1.0** | **8-13-25** | **Bryan Dailey** |  |

## Client



## Developer

Bryan Dailey

## Algorithm Cipher

For Artemis Financial I would recommend SHA-256 as our algorithm cipher. Given the sensitive nature of the information, it makes the most sense to err on the side of security vs performance. When using this cipher for data hashing it helps to have a bigger bit size as it will reduce collisions where two files have the same hash value. It is a one-way function that creates a public and private key. Our certificate with the public key allows an end user to validate that we are source of the webpage. SHA-256 is a secure and highly used cipher function. It is the current recommended standard from the NIST

## Certificate Generation

A screenshot of a computer

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

## Deploy Cipher

A screenshot of a computer

AI-generated content may be incorrect.

## Secure Communications

Insert a screenshot below of the web browser that shows a secure webpage.

A screenshot of a computer

AI-generated content may be incorrect.

## Secondary Testing

Insert screenshots below of the refactored code executed without errors and the dependency-check report.

A screenshot of a computer

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

## Functional Testing

Insert a screenshot below of the refactored code executed without errors.

A screenshot of a computer

AI-generated content may be incorrect.

A screen shot of a computer

AI-generated content may be incorrect.

## Summary

In summary we were able to implement the SHA-256 algorithm to create a certificate using the public-private keys that we can use to implement a https connection between Artemis Financials’ web resources and their end clients. This will allow the end users to trust that their connection the website and resources is secure and trustworthy. Something that is incredibly important for a financial institution.

## Industry Standard Best Practices

Using a well trusted and vetted algorithm is a good practice because you are building on many years to trust and security. Implementing something new or creating something new can introduce security issues. It also helps build trust which is the entire point of our project. If a customer cannot trust they are in contact with the actual Artemis Financial or if they don’t believe that Artemis Financial is taking security seriously it could be a serious issue that would cause customer to look elsewhere for their services.

**Resources**

**Manico, J., & Detlefsen, A. (2014). Iron-clad Java: Building secure web applications. McGraw Hill Computing.**