# CWE Detail – CWE-1322

## Description

The product uses a non-blocking model that relies on a single threaded process  
 for features such as scalability, but it contains code that can block when it is invoked.

## Extended Description

When an attacker can directly invoke the blocking code, or the blocking code can be affected by environmental conditions that can be influenced by an attacker, then this can lead to a denial of service by causing unexpected hang or freeze of the code. Examples of blocking code might be an expensive computation or calling  
 blocking library calls, such as those that perform exclusive file operations or require a successful network operation. Due to limitations in multi-thread models, single-threaded  
 models are used to overcome the resource constraints that are caused by using  
 many threads. In such a model, all code should generally be  
 non-blocking. If blocking code is called, then the event loop will  
 effectively be stopped, which can be undesirable or dangerous. Such  
 models are used in Python asyncio, Vert.x, and Node.js, or other  
 custom event loop code.

## Threat-Mapped Scoring

Score: 1.9

Priority: P3 - Important (Medium)

## Related Attack Patterns (CAPEC)

* CAPEC-25

## Attack TTPs

**•** T1499.004: Application or System Exploitation (Tactics: impact)

## Modes of Introduction

**•** Implementation: N/A

## Common Consequences

**•** Impact: DoS: Resource Consumption (CPU) — Notes: An unexpected call to blocking code can trigger an infinite loop, or a large loop that causes the software to pause and wait indefinitely.

## Potential Mitigations

**•** Implementation: Generally speaking, blocking calls should be  
 replaced with non-blocking alternatives that can be used asynchronously.  
 Expensive computations should be passed off to worker threads, although  
 the correct approach depends on the framework being used. (Effectiveness: N/A)

**•** Implementation: For expensive computations, consider breaking them up into  
 multiple smaller computations. Refer to the documentation of the  
 framework being used for guidance. (Effectiveness: N/A)