# Dead Code: Unused Field Development Mitigation SOP

A field is never accessed, except perhaps by dead code.

## Defense Against Dead Code: Unused Field

Dead code is defined as code that is never directly or indirectly executed by a public method. It is likely that the field is simply left over from code, which has since been removed. It is also possible that the unused field points out a bug. In any case, it is an indication of problems with the source code that needs to be fixed and is an indication of poor quality.

## Example

public class AnnotationMetaData {

…

private boolean dirty;

}

## Explanation

The private boolean field dirty is declared but never assigned a value and never called by public getter and setter methods.

**Explanation**

This field is never accessed, except perhaps by dead code. Dead code is defined as code that is never directly or indirectly executed by a public method. It is likely that the field is simply vestigial, but it is also possible that the unused field points out a bug.  
  
**Example 1**   
public class Dead {  
 String glue;  
 public String getGlue() {  
 return "glue";  
 }  
}  
**Explanation**

The field named glue is not used in the following class. The author of the class has accidentally put quotes around the field name, transforming it into a string constant.

**Example 2**

public class Dead {  
 String glue;  
 private String getGlue() {  
 return glue;  
 }  
}

**Explanation**

The field named glue is used in the following class, but only from a method that is never called.

## Recommendations

Repair or remove dead code. To repair dead code, execute the dead code directly or indirectly through a public method. Dead code causes additional complexity and maintenance burden without contributing to the functionality of the program.

## References

1. Standards Mapping - Common Weakness Enumeration - (CWE), CWE ID 561
2. Standards Mapping - Security Technical Implementation Guide Version 3.1 - (STIG 3.1), APP3050 CAT II
3. Standards Mapping - Security Technical Implementation Guide Version 3.4 - (STIG 3.4), APP3050 CAT II