

# Checklist for Error Handling In Embedded Systems

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# ChecklistforErrorHandlingBestPracticesinEmbeddedSystems

## Checklist for Error Handling Best Practices in Embedded Systems:

### 1. Validate Inputs:

- Before processing any data, make sure it meets your predefined criteria. Invalid or corrupted data can lead to unexpected behavior and system crashes. Always sanitize and validate inputs to maintain system integrity.

### 2. Use Asserts:

- During the development phase, use assertions to catch errors as early as possible. Asserts halt the program if a given condition is not met, making it easier to identify and fix issues before they escalate.

### 3. Error Codes:

- Implement a well-defined set of error codes that cover all possible failure scenarios. This makes it easier for developers and support teams to diagnose issues and take corrective action quickly.

### 4. Logging:

- Maintain detailed logs that capture the sequence of events leading up to an error. This historical data is invaluable for debugging and understanding the root cause of issues, especially in complex systems.

### 5. Fail Safely:

- Design your system so that if an error occurs, it fails in a safe state. This minimizes the risk of catastrophic outcomes and allows for more graceful recovery procedures.

### 6. Exception Handling:

- Use try-catch blocks to handle exceptions effectively. This allows you to isolate sections of code that might cause errors and deal with them in a controlled manner, without crashing the entire system.

## 7. Test Extensively:

- Simulate all possible error scenarios during the testing phase. This helps you identify weaknesses in your error-handling strategy and make necessary adjustments before deployment.

## 8. Code Reviews:

- Make error-handling a focal point during code reviews. Ensure that all team members understand the importance of robust error-handling and are aligned on best practices.