MISRA C++:2023 compliance checklist

Strengthen your MISRA C++ codebase compliance with SonarQube

Modern safety-critical development, particularly in automotive, aerospace, and medical devices, increasingly relies on the performance features of C++17. However, adopting modern C++ introduces complexity that must be managed to ensure functional safety. The MISRA C++:2023 guidelines provide the necessary standard for using C++17 safely in regulated environments.

7 steps to streamline MISRA C++:2023 compliance:

1. **Achieve 100% guideline coverage:** Gain full coverage of all 179 MISRA C++:2023 guidelines required to assess compliance.
2. **Centralize enforcement across the organization:** Enforce code quality and code security checks at scale. This helps disparate teams working on large codebases find and fix compliance issues consistently, ensuring a single, verifiable standard for all code.
3. **Enforce standards in the IDE:** Empower developers to use SonarQube for IDE in connected mode (paired with SonarQube Server Enterprise or Data Center). This "start-left" approach provides instant feedback on MISRA violations as code is written, preventing non-compliant code from entering the repository.
4. **Reduce false positives with high-precision analysis:** Leverage advanced analysis that applies deep contextual reasoning and data flow analysis to minimize noise. This eliminates developer friction and builds trust in the verification process, ensuring teams focus only on genuine safety and quality issues.
5. **Automate compliance at enterprise scale:** Integrate seamlessly into CI/CD pipelines to allow for automated enforcement on every branch and pull request.
6. **Stop non-compliant code with quality gates:** Use configurable quality gates to ensure that only code meeting the MISRA C++:2023 standard is promoted to production.
7. **Consolidate tooling:** Replace expensive, fragmented, and siloed specialized tools by integrating compliance directly into the existing developer workflow, reducing total cost of ownership.

Compliance is often a non-negotiable prerequisite for certification, and SonarQube serves as the essential code verification layer to streamline this process without sacrificing developer velocity and ensure that the force multiplier factor of AI-assisted coding doesn't become a risk multiplier.

Learn more about SonarQube for compliance

Availability: MISRA C++:2023 compliance capabilities (100% coverage of all 179 guidelines) are supported in enterprise editions of SonarQube.