Automatically Generated Code

If a code-generating tool is to be used, it is necessary to select an appropriate tool and undertake validation. Adherence to the requirements of this document may provide one criterion for assessing a tool.

Coding guidance varies depending on how code is generated and maintained. Categories of code include the following:

- Tool-generated, tool-maintained code that is specified and maintained in a higher level format from which language-specific source code is generated. The source code is generated from this higher level description and then provided as input to the language compiler. The generated source code is never viewed or modified by the programmer.
- Tool-generated, hand-maintained code that is specified and maintained in a higher level format from which language-specific source code is generated. It is expected or anticipated, however, that at some point in the development cycle, the tool will cease to be used and the generated source code will be visually inspected and/or manually modified and maintained.
- Hand-coded code is manually written by a programmer using a text editor or interactive development environment; the programmer maintains source code directly in the source-code format provided to the compiler.

Source code that is maintained by hand must have the following properties:

- Readability
- Program comprehension

These requirements are not applicable for source code that is never directly handled by a programmer, although requirements for correct behavior still apply. Reading and comprehension requirements apply to code that is tool generated and hand maintained but do not apply to code that is tool generated and tool maintained. Tool-generated, tool-maintained code can impose consistent constraints that ensure the safety of some constructs that are risky in hand-generated code.