

## 5.1.10 Encapsulation

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Encapsulation separates externally observable behavior and [Interfaces](#) from implementation internals. This separation supports independently developed implementations that can interoperate and, when they satisfy the same applicable Interface Contracts and conformance conditions, substitute for one another.

## Requirements

| Requirement                                                                             | Level       | Statement                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">GPR-018 — Independent, Substitutable, and Interoperable Implementations</a> | Mandatory   | The proposed specification SHALL define externally observable behavior, <a href="#">Interfaces</a> , and conformance conditions that permit independently developed implementations to be substitutable and <a href="#">Interoperable</a> . |
| <a href="#">GPR-019 — Implementation Replacement Without Client Changes</a>             | Recommended | An implementation SHOULD be replaceable by an alternative implementation satisfying the same applicable <a href="#">Interface Contracts</a> and conformance conditions without requiring changes to conforming clients.                     |

## Notes for Editors

The requirement Statements displayed in this section are transcluded from their authoritative Annex C requirement records and are not independently maintained copies.

GPR-018 is mandatory because it uses SHALL.

GPR-019 is recommended because it uses SHOULD.

Substitutability does not require implementations to have identical internal designs, technologies, performance characteristics, or deployment configurations. It requires them to satisfy the same applicable externally observable behavior, Interface Contracts, and conformance conditions.

GPR-019 applies to conforming clients that rely only on the standardized Interfaces, behavior, and capabilities defined by the proposed specification. A client that relies on implementation-specific extensions or undocumented behavior may require modification when its implementation is replaced.

Make changes to a Statement on its corresponding Annex C requirement page.

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