

# UML Profile Diagrams

**Profile diagram** is **structure diagram** which describes **lightweight extension mechanism** to the UML by defining custom **stereotypes**, **tagged values**, and constraints. Profiles allow adaptation of the UML metamodel for different:

- *platforms*, such as Java Platform, Enterprise Edition (Java EE) or Microsoft .NET Framework, or
- *domains*, such business process modeling, service-oriented architecture, medical applications, etc.

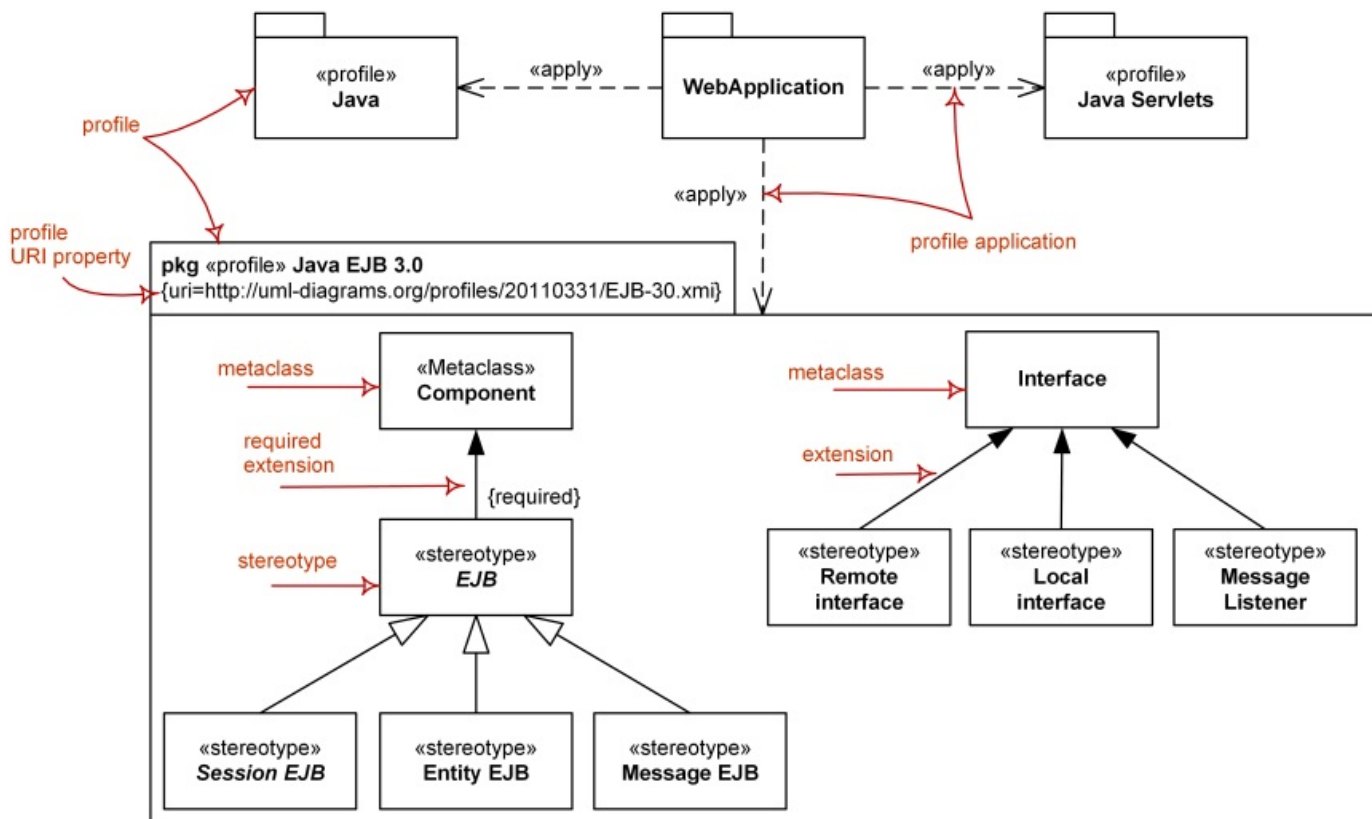
For example, semantics of standard UML metamodel elements could be specialized in a profile. In a model with the profile "Java model," generalization of classes should be able to be restricted to single inheritance without having to explicitly assign a stereotype «Java class» to each and every class instance.

The profiles mechanism is not a first-class extension mechanism. It does not allow to modify existing metamodels or to create a new metamodel as MOF does. Profile only allows adaptation or customization of an existing metamodel with constructs that are specific to a particular domain, platform, or method. It is not possible to take away any of the constraints that apply to a metamodel, but it is possible to **add new constraints** that are specific to the profile.

Metamodel customizations are defined in a profile, which is then applied to a package. **Stereotypes** are specific metaclasses, **tagged values** are standard metaattributes, and **profiles** are specific kinds of packages.

Profiles can be dynamically applied to or retracted from a model. They can also be dynamically combined so that several profiles will be applied at the same time on the same model.

Graphical nodes and edges used on profile diagrams are: **profile**, **metaclass**, **stereotype**, **extension**, **reference**, **profile application**.



Major elements of UML profile diagram - **profile**, **stereotype**, **metaclass**, **extension**, **profile application**.

## Revisions

Profiles were present in UML 1.x. Profile diagrams were introduced in **UML 2.0** but first appeared on "official" taxonomy of UML diagrams in **UML 2.2** ( **[UML 2.2 - Superstructure]**, Figure A.5).

*Noticed a spelling error? Select the text using the mouse and press Ctrl + Enter.*

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This document describes UML versions up to **UML 2.5** and is based on the corresponding **OMG™ Unified Modeling Language™ (OMG UML®)** specifications. UML diagrams were created in **Microsoft® Visio®** 2007-2016 using **UML 2.x Visio Stencils**. **Lucidchart** is a nice, free UML tool that I recommend for students.

You can send your comments and suggestions to [webmaster](#) at [webmaster@uml-diagrams.org](mailto:webmaster@uml-diagrams.org).

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