

Mozilla Addon Builder

Definition of the Package Building System

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*This document is written in L^AT_EX*¹

If in doubts, please take a look at the accompanied document:

<http://github.com/zalun/FlightDeck/raw/master/Docs/Addon%20Builder%20-%20Build%20System.pdf>.

1 Syntax

1.1 Objects

x, y, z — represents $[a..z]$

m, n — represents $[0..9]^+$

Ux is the specific User (identified by *User:name*)

Px is the specific Package (identified by *Package:name*)

It should always be used within its **type** context as Lx — Library or Ax — Addon

Every Package has an associated PackageRevision² (identified by a triplet $Ux:Py.n$ *User/Package/PackageRevision:revision*)

Mx is the Module (identified by $Ux:Py.n:Mz$ *PackageRevision/Module:name*³)

1.2 Object identification — revision numbers and HEAD

$Ux:Py.n$ defines revision of the Package.

$Ua:La.1$ — First revision of Library La saved by Ua .

$Ux:Py.n:Mz$ defines the precise Module revision — a Module inside the PackageRevision.

$Ua:La.1:Ma$ — Module Ma inside the first revision of Library La saved by Ua .

$Px \Rightarrow Uy:Px.n$ is the HEAD revision of the Package

$La \Rightarrow Ua:La.1$ — La 's HEAD points to the first revision of Library La saved by Ua .

$Ux:Py.n \supset \{Ux:Py.m:Mz, \dots\}$ Modules inside the Package revision.

$Ua:La.2 \supset \{Ua:La.1:Ma, Ub:La.2:Mb\}$ — Second revision of Library La saved by Ua contains Ma saved by Ua in his La 's first revision and Mb saved by Ub in his second La 's revision.

¹For quick doc please follow to <http://web.mit.edu/olh/Latex/ess:Latex.html>, All used symbols may be found here:
<http://www.artofproblemsolving.com/Wiki/index.php/LaTeX:Symbols>

²PackageRevision is not the same as Package version. The latter is just meta-data, a text field of PackageRevision object used only in exported XPI. It will no longer be used for data identification.

³Every data object is identified by a PackageRevision. The concept is similar to *git*'s commits. In essence, for every saved Module change, a new PackageRevision is created.

2 Editing Library and its Modules

2.1 Starting point

$\text{La} \Rightarrow \text{Ua:La.1} \supset \{\text{Ua:La.1:Ma}\}$

Package **La** is created by User **Ua**.

La's HEAD is PackageRevision identified as **Ua:La.1**

It contains only one module - **Ma**

Following steps had to happen to achieve above status:

1. **Ua** creates a package **La**
 $\text{La} \Rightarrow \text{Ua:La.0}$
 $\text{Ua:La.0} \supset \{\}$
2. **Ua** adds **Ma** to **La**
 $\text{Ua:La.1} \supset \{\text{Ua:La.1:Ma}\}$
3. **Ua** sets the HEAD
 $\text{La} \Rightarrow \text{Ua:La.1}$

2.2 Scenario (1 Module, 2 Users, no dependencies)

Ua and **Ub** are working on **La**

Ub modified one module

1. **Ub** modifies **Ma**
 $\text{Ub:La.0} \supset \{\text{Ua:La.1:Ma}\}$ — automatic fork of **La**
 $\text{Ub:La.1} \supset \{\text{Ub:La.1:Ma}\}$
2. **Ub** sends *request* to **La**'s creator (**Ua**) to upgrade **La** from **Ub:La.1**
3. **Ua** accepts the request by setting the HEAD to **Ub**'s version
 $\text{La} \Rightarrow \text{Ub:La.1}$
4. Result: $\text{La} \Rightarrow \text{Ub:La.1} \supset \{\text{Ub:La.1:Ma}\}$

2.3 Scenario (2 Modules, 2 Users, no dependencies)

Ua and **Ub** are working on **La**

Ua created module **Mb**

Ub is working on **Mb**

1. **Ua** adds a new module **Mb** to **La**
 $\text{Ua:La.2} \supset \{\text{Ua:La.1:Ma}, \text{Ua:La.2:Mb}\}$
2. **Ua** sets the HEAD
 $\text{La} \Rightarrow \text{Ua:La.2}$
3. **Ub** modifies **Mb**
 $\text{Ub:La.0} \supset \{\text{Ua:La.1:Ma}, \text{Ua:La.2:Mb}\}$ — automatic fork of **La**
 $\text{Ub:La.1} \supset \{\text{Ua:La.1:Ma}, \text{Ub:La.1:Mb}\}$
4. **Ub** sends request to **Ua** to upgrade **La** from **Ub:La.1**
5. **Ua** modifies **Ma**
 $\text{Ua:La.3} \supset \{\text{Ua:La.3:Ma}, \text{Ua:La.2:Mb}\}$

6. Ua accepts Ub's request
 $\text{Ua:La.4} \supset \{\text{Ua:La.3:Ma}, \text{Ub:La.1:Mb}\}$
7. Ua sets the HEAD
 $\text{La} \implies \text{Ua:La.4}$
8. Result: $\text{La} \rightarrow \text{Ua:La.4} \supset \{\text{Ua:La.3:Ma}, \text{Ub:La.1:Mb}\}$

2.4 Scenario (2 Modules, 2 Users, no dependencies)

Ua and Ub are working on La
 Ub created module Mb

1. Ub adds a new module Mb to La
 $\text{Ub:La.0} \supset \{\text{Ua:La.1:Ma}\}$ — automatic fork of La
 $\text{Ub:La.1} \supset \{\text{Ua:La.1:Ma}, \text{Ua:La.1:Mb}\}$
2. Ub modifies Mb
 $\text{Ub:La.2} \supset \{\text{Ua:La.1:Ma}, \text{Ub:La.2:Mb}\}$
3. Ub sends request to Ua to upgrade La from Ub:La.2
4. Ua modifies Ma
 $\text{Ua:La.2} \supset \{\text{Ua:La.2:Ma}\}$
5. Ua accepts Ub's request
 $\text{Ua:La.3} \supset \{\text{Ua:La.2:Ma}, \text{Ub:La.2:Mb}\}$
6. Ua sets the HEAD
 $\text{La} \implies \text{Ua:La.3}$
7. Result: $\text{La} \implies \text{Ua:La.3} \supset \{\text{Ua:La.2:Ma}, \text{Ub:La.2:Mb}\}$

2.5 Scenario with conflict (2 Modules, 2 Users, no dependencies)

Ua and Ub are working on La
 Ua created module Mb
 Ua and Ub are working on Mb
 Conflict arises...

1. Ua adds a new module Mb to La
 $\text{Ua:La.2} \supset \{\text{Ua:La.1:Ma}, \text{Ua:La.2:Mb}\}$
2. Ua sets the HEAD
 $\text{La} \implies \text{Ua:La.2}$
3. Ub modifies Mb
 $\text{Ub:La.0} \supset \{\text{Ua:La.1:Ma}, \text{Ua:La.2:Mb}\}$ — automatic fork of La
 $\text{Ub:La.1} \supset \{\text{Ua:La.1:Ma}, \text{Ub:La.1:Mb}\}$
4. Ua modifies Mb
 $\text{Ua:La.3} \supset \{\text{Ua:La.1:Ma}, \text{Ua:La.2:Mb}\}$
5. **CONFLICT**
 At the time we've got two versions of La.Mb which came out from the same version

6. Ua sets the HEAD
 $La \supset Ua:La.3$
7. Ub receives info that his source is behind the HEAD
 $Ub:La.1:Mb$ (and $Ub:La.1$) is marked as *conflicted*
 Ub can't send the update request
8. Ub manually solves conflict by editing the Mb and removing the *conflict flag*
 $Ub:La.2 \supset \{Ua:La.1, Ub:La.2:Mb\}$
9. Ub sends request to Ua to upgrade La from $Ub:La.2$
10. Ua accepts Ub 's request
 $Ua:La.4 \supset \{Ua:La.3:Ma, Ub:La.2:Mb\}$
11. Ua sets the HEAD
 $La \implies Ua:La.4$
12. Result: $La \implies Ua:La.4 \supset \{Ua:La.3:Ma, Ub:La.2:Mb\}$

Draft/Ideas

update Library if Library HEAD has been changed something should tell the User that an update is possible. It should then (on request) change the versions of all Modules which are not in conflict with updating Library. In essence, if

$Ua:La.1 \supset \{Ua:La.1:Ma, Ub:La.2:Mb\}$ is a Library to be updated and
 $La \implies Uc:La.3 \supset \{Ub:La.1:Ma, Uc:La.3:Mb, Uc:La.1:Mc\}$ is current HEAD, then
 $Ub:La.2:Mb$ should be updated to $Uc:La.3:Mb$ and $Uc:La.1:Mc$ should be added.
 User should receive a notification that $Ua:La.1:Ma$ is not in sync with HEAD.

forking Consider forcing users to create their copy of a Package before entering to edit mode (as in *github*), find a better name if needed ...

revision graphs should be created inside this documentation.

To be continued...