Xtext + Sirius : <3

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Who am I?

CTO @ Obeo
Involved with Eclipse since 2006, Modeling PMC, Councils..
Strategic Member of the Eclipse Foundation

EcoreTools 2.x,
The Modeling Package,
Extended Editing Framework,
ATL
...

EMFCompare
Acceleo
Sirius
Focused on **domain specific modeling** technologies
50 people working on products and customer projects
Services: training, consulting and Open Innovation
Tool Vendor
Eclipse Sirius
« Sirius aims at providing specific multi-view workbenches through **diagram**, **table** or **tree** modeling editors.

Users can easily define **their own modeling workbench**, even with very little technical knowledge of Eclipse, while still being able to deeply customize it when needed. »
Sirius Principles
Sirius Principles

viewpoint specification model

MyDomain.ecore

Other.ecore

Viewpoint 1
diagram definition
diagram definition

Viewpoint 2
diagram definition

model.xmi
model2.xmi
model3.xmi
model4.xmi

diag 1

diag 1 - bis

diag 2

modeling project
Sirius Principles
Textual + Graphical?

Text is better:
- at operations and sequence
- when combining (expressions)
- ...
- for some users

Diagram is better:
- relationships
- analyzing a design
- ...
- for some users
Two views of the same model

File/Workspace level integration
DSL syntax used as the serialization format
DSL AST used in the Sirius Editor
The StateMachine Demo

Xtext 2.6.0
Sirius 1.0.0 RC1
Eclipse Luna

https://github.com/ObeoNetwork/Xtext-Sirius-integration
How To?

- Sirius Core Runtime 1.0.0.201405260918
- Sirius Documentation 1.0.0.201405260918
- Sirius IDE Support for Acceleo 1.0.0.201405260918
- Sirius Integration with EEF 1.0.0.201405260918
- Sirius Integration with XText 1.0.0.201405260918
- Sirius Runtime IDE 1.0.0.201405260918
- Sirius Runtime Support for Acceleo 3 1.0.0.201405260918
- Sirius Runtime Support for OCL 1.0.0.201405260918
- Sirius Samples 1.0.0.201405260918
- Sirius Specification Editor Support for Acceleo 1.0.0.201405260918
- Sirius Specification Environment 1.0.0.201405260918
Caveats: the referencing

href="my.statemachine#//@states.4"

href="my.statemachine#//@states[name='active']"
Caveats: Am I serializable?
Caveats: Am I serializable?

Provide graphical feedback ASAP
Tools should create serializable elements by default
Caveats: limitations being addressed

[430724] Sirius might Serialize a bit too much
[432931] Xtext prevent Serialization with false positives
[..] DSL's with Xbase
Embedding
Embedding syntax in a diagram
Embedding syntax in a diagram

```plaintext
state newState0
    actions {
        lockPanel
    }
end
```
Example and « base framework » here:
https://github.com/ObeoNetwork/Xtext-viewpoint-integration
Behind the Scene

```plaintext
commands unlockPanel UP lockPanel
end

state idle
    actions {
        unlockPanel newCommand
    }
    doorClosed => active
end

state active
    lightOn => waitingForDraw
    doorOpened => waitingForDraw
end

state Nboo
    doorClosed => active
    lightOn => unlockPanel
end

state waitingForDraw
    actions {
        unlockPanel
    }
    doorOpened => newStateA
end

state unlockedPanel
end
```
Behind the Scene

```plaintext
commands unlockPanel UP lockPanel
end

state idle
  actions {
    unlockPanel newCommand
  }
  doorClosed => active
end

state active
  lightOn => waitingForDraw
  doorOpened => waitingForDraw
end

state New
  doorClosed => active
  lightOn => unlockedPanel
end

state waitingForDraw
  actions {
    unlockPanel
  }
  doorOpened => newStateA
end

state unlockedPanel
end
```
Behind the Scene

delta

merge
Caveats: Merging

private void reconcile(Resource resourceInSirius, 
XtextResource resourceInEmbeddedEditor) {
    try {
        IComparisonScope scope = new DefaultComparisonScope(
            resourceInSirius, resourceInEmbeddedEditor, null);
        final Comparison comparison = EMFCompare.builder().build()
            .compare(scope);

        IMerger.Registry mergerRegistry = EMFCompareRCPPPlugin.getDefault()
            .getMergerRegistry();
        final IBatchMerger merger = new BatchMerger(mergerRegistry);

        final TransactionalEditingDomain editingDomain = TransactionUtil
            .getEditingDomain(originalResource);
        editingDomain.getCommandStack().execute(
            new RecordingCommand(editingDomain,
                "update resource after direct text edit") {
                @Override
                protected void doExecute() {
                    merger.copyAllRightToLeft(
                        comparison.getDifferences(),
                        new BasicMonitor());
                }
            });
    } catch (Exception e) {
        Activator.handleError(e);
    }
}
Caveats: **Cross-References Consistency**

Model is parseable but **not resolvable**

Either prevent it* or warn the user!
Caveats: Cross-References Consistency

Model is parseable but **not resolvable**

Either prevent it* or warn the user!

These caveats should be considered **upfront**, it either impact the user experience or your DSL itself.
Takeaways

• Sirius is there and works with Xtext
• If you want to embed: think about what you expect
• Get involved: give feedback and or patches on the embedding layer
  https://github.com/ObeoNetwork/Xtext-Sirius-integration
What Next?

Eclipse Luna
• Sirius goes 1.0
• Compartments (preview)
• API and Ecore model cleanup
• EcoreTools 2, UML Designer 4 are based on Sirius

Sirius 2.0 (*) :
• Runtime lazyness
• Compartments

(*) Model migrations are taken care of by Sirius
The easiest way to get your own modeling tool

http://www.eclipse.org/sirius/