



## Eclipse APP4MC – Release Review

*APP4MC 1.0.0 (OCT 2020)*

## *Outline*

- Release Review

- Requested for Wednesday, October 7, 2020  
--> Created Bug [566023](#) to track the release.

- IP Log Approval

- Submitted for Review (Required-by date: 2020-09-30)  
--> Created CQ [22484](#).

- PMC Approval (Can occur in parallel with, prior to, and after, the IP clearance)

- Requested



## Eclipse APP4MC – Graduation Review

*APP4MC 1.0.0 (OCT 2020)*

## *Outline*

- Project Websites / Download Areas
- Code repositories and build
- Contributions, Bugzilla statistics
- Code quality, Project Maturity
- Google Summer of Code Projects
- Signs of success
  - Conferences / Demo Camps
  - Online Articles, Blogs
  - Academic references

# Eclipse APP4MC – Graduation

## *Project Websites*



The screenshot shows the Eclipse APP4MC homepage. At the top is a navigation bar with links: Getting Started, Documentation, Community, Downloads, News, About, and More. The main heading is "Eclipse APP4MC". Below it, a paragraph describes the platform as a tool for engineering embedded multi- and many-core software systems. A central diagram illustrates the development process: "Constraints" (Period  $T_1 = 2\text{ms}$ , Deadline  $D_1 = 1.5\text{ms}$ , Period  $T_2 = 5\text{ms}$ , Deadline  $D_2 = 5\text{ms}$ ), "Costs" ( $T_1$  takes 10 $\mu\text{s}$  on Core0, 20 $\mu\text{s}$  on Core3), and "Decisions" (Run  $T_1$  on Core0, Run  $T_2$  on Core1, Offset of  $T_2 = 1\text{ms}$ ) all feed into the "AMALTHEA System Model". This model then feeds into a "Simulation" block, which is connected to "HW Platform" and "Application" blocks. A footer note mentions "Multi- and Many-Core Development Process Support".

**News**  
Mon, Aug 3, 2020  
**APP4MC - Release 0.9.9 published**  
We released a new version of APP4MC with a couple of new features and improvements.

Wed, May 20, 2020  
**Eclipse APP4MC accepted for GSoC 2020**  
Once again Eclipse APP4MC projects have been accepted for inclusion in the Google Summer of Code (GSoC).

Mon, May 4, 2020  
**APP4MC - Release 0.9.8 published**

<https://www.eclipse.org/app4mc/>

The screenshot shows the Eclipse APP4MC project page on the Eclipse Foundation website. The navigation bar includes links for Members, Working Groups, Projects, More, and a Download button. The page title is "Eclipse APP4MC". Below the title, there's a sub-navigation bar with links: Overview, Downloads, Who's Involved, Developer Resources, Governance, Contact Us, and Edit. The main content area features the title "Application Platform Project for Multi Core" and a description of the platform. It also lists the license as "Eclipse Public License 2.0" and provides a table of latest releases from August 1st, 2018, to October 30th, 2020.

Name	Date	Review
1.0.0	2020-10-30	
0.9.9	2020-07-31	
0.9.8	2020-04-30	
0.9.7	2020-01-31	
0.9.6	2019-10-31	
0.9.5	2019-07-31	
0.9.4	2019-04-30	

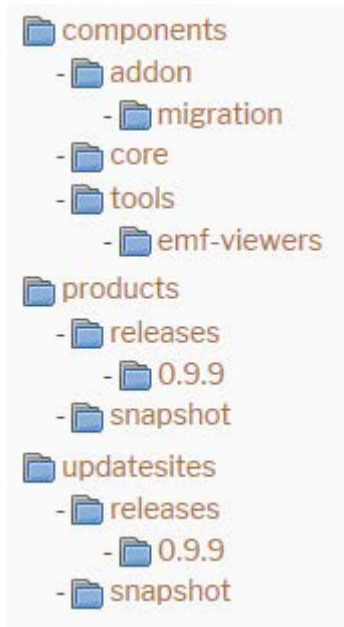
**COMMITTER TOOLS**  
The following commands are available to project committers:  
Bugzilla  
Bugzilla Manager  
Elections  
Nominate a Committer  
Nominate a Project Lead  
Intellectual Property  
Create a Contribution Question...  
Generate IP Log  
Contribution Questionnaires  
Communication  
Incubation Mailing list  
PMC Mailing list  
Send Email to the PMC...  
Send Email to the Dev List...  
Documentation  
Legal Documentation Generator  
Releases  
Create a new release

<https://projects.eclipse.org/projects/technology.app4mc>

## *Project Download Areas*

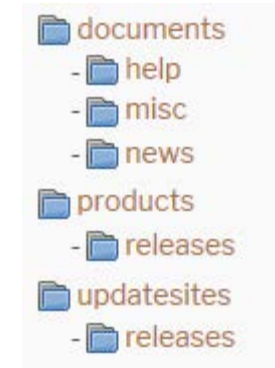
**Download** - <https://download.eclipse.org/app4mc>

- current platforms
- recent platform update sites
- update sites for components and tools



**Archive** - <https://archive.eclipse.org/app4mc>

- older platforms
- older platform update sites
- documents (online help, standards, news)



## *Code repositories and build*

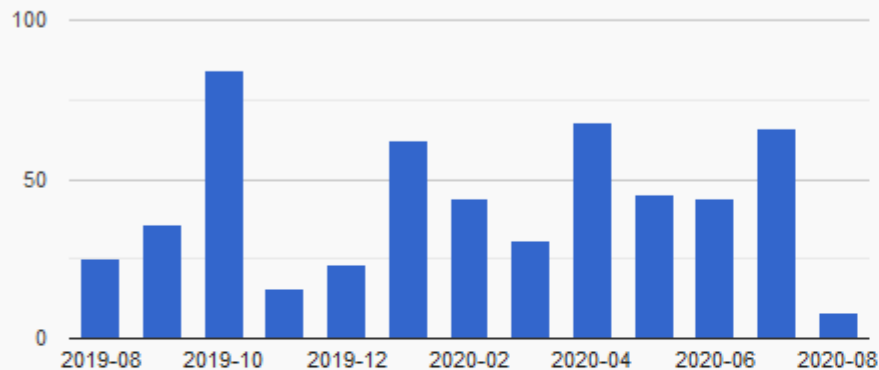
The project uses the following repositories:

- Central platform and data model  
<https://git.eclipse.org/r/plugins/gitiles/app4mc/org.eclipse.app4mc>
- Migration component  
<https://git.eclipse.org/r/plugins/gitiles/app4mc/org.eclipse.app4mc.addon.migration>
- Additional (independent) tools  
<https://git.eclipse.org/r/plugins/gitiles/app4mc/org.eclipse.app4mc.tools>
- Cloud services  
<https://git.eclipse.org/r/plugins/gitiles/app4mc/org.eclipse.app4mc.cloud>
- Example projects  
<https://git.eclipse.org/r/plugins/gitiles/app4mc/org.eclipse.app4mc.examples>

## Contributions

### Contribution Activity:

Commits on this project (last 12 months).



### Active Member Companies:

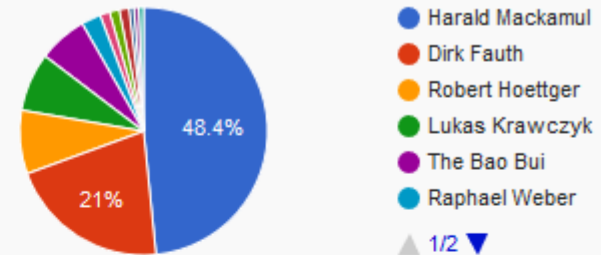
Member companies supporting this project over the last three months.

**Fachhochschule  
Dortmund**  
University of Applied Sciences and Arts



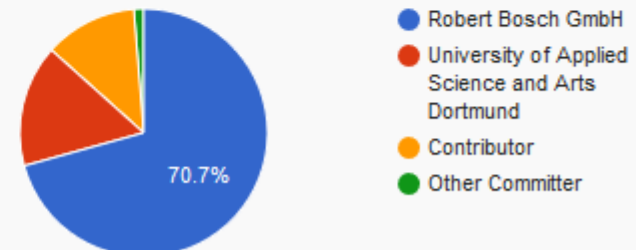
**BOSCH**

**VECTOR** ➔



### Organization Contribution Activity:

Commits on this project by supporting organization over the last three months.



## Bugzilla

- Status per component

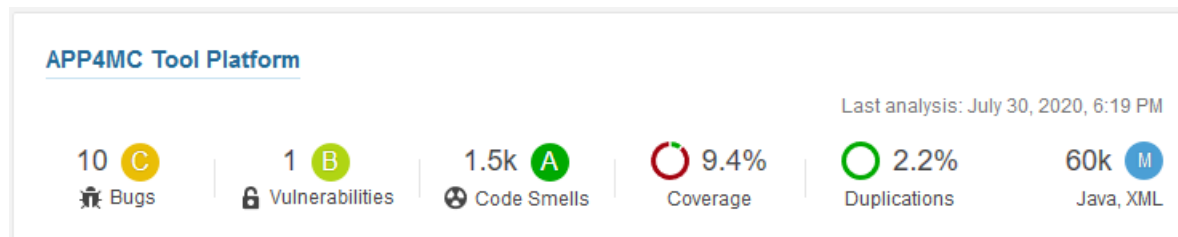
	Component						Total
	UI	Website	General	Models	Help	Model Migration	
UNCONFIRMED	<u>1</u>	.	<u>1</u>	.	.	.	<u>2</u>
NEW	.	.	<u>3</u>	<u>1</u>	.	.	<u>4</u>
ASSIGNED	.	.	<u>2</u>	<u>4</u>	.	.	<u>6</u>
RESOLVED	.	.	.	<u>2</u>	.	.	<u>2</u>
CLOSED	<u>8</u>	<u>2</u>	<u>20</u>	<u>106</u>	<u>2</u>	<u>22</u>	<u>160</u>
Total	<u>9</u>	<u>2</u>	<u>26</u>	<u>113</u>	<u>2</u>	<u>22</u>	<u>174</u>

[https://bugs.eclipse.org/bugs/report.cgi?classification=Technology&cumulate=0&product=App4mc&x\\_axis\\_field=component&x\\_labels\\_vertical=1&y\\_axis\\_field=bug\\_status&format=table&action=wrap&saved\\_report\\_id=123](https://bugs.eclipse.org/bugs/report.cgi?classification=Technology&cumulate=0&product=App4mc&x_axis_field=component&x_labels_vertical=1&y_axis_field=bug_status&format=table&action=wrap&saved_report_id=123)

## *Code quality*

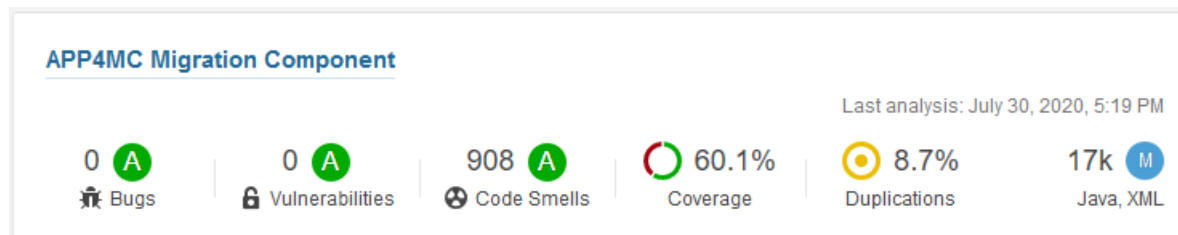
### Tool Platform

<https://sonarcloud.io/dashboard?id=org.eclipse.app4mc.build%3Aparent>



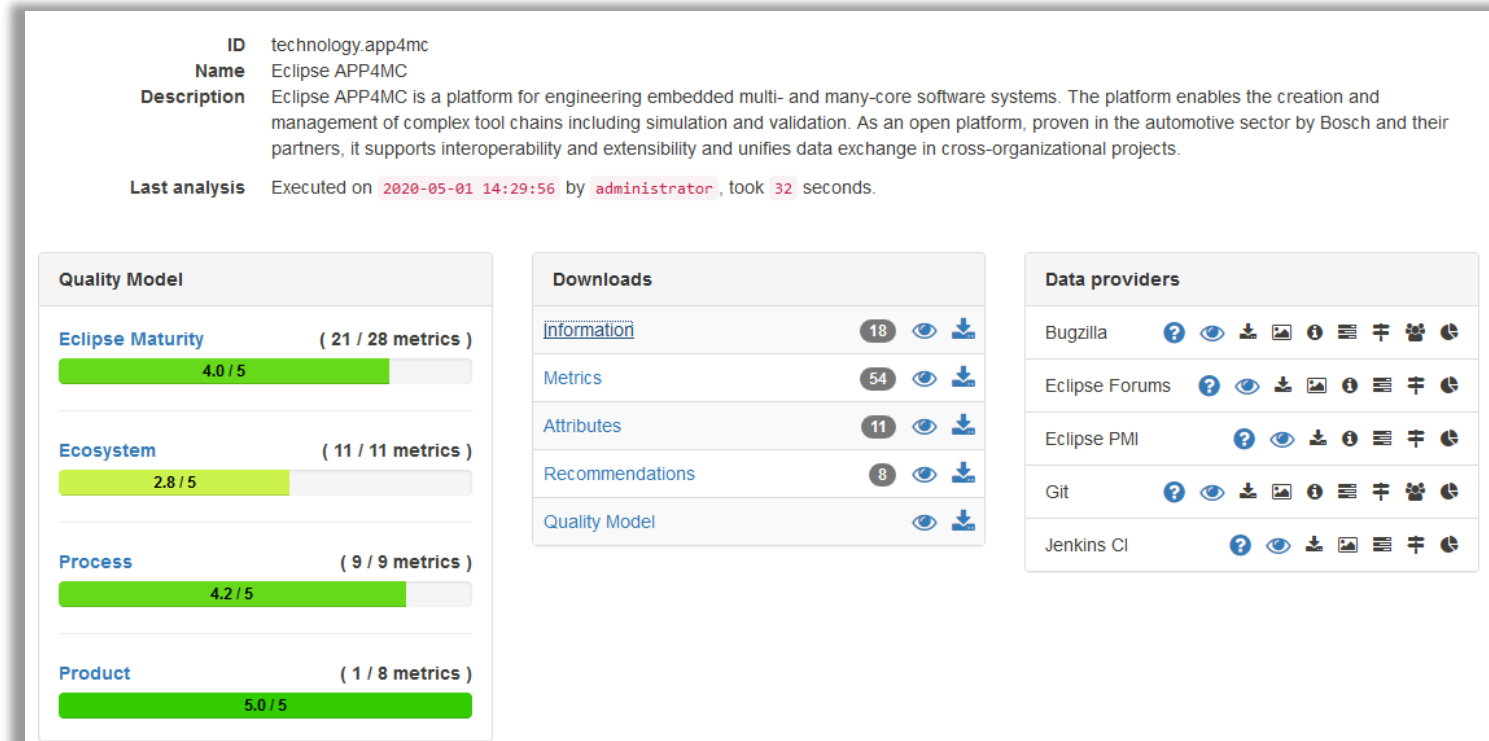
### Model Migration Component

<https://sonarcloud.io/dashboard?id=org.eclipse.app4mc.converters%3Aparent>



## *Project Maturity*

- Alambic 4 Eclipse



<https://eclipse.alambic.io/projects/technology.app4mc.html>

## *Google Summer of Code Projects*

### **2017**

- A4MCAR: A Distributed and Parallel Demonstrator for Eclipse APP4MC, *Mustafa Özçelikörs*

### **2019**

- APP4MC capable Real-Time applications on embedded Systems, *Andreas Pronosa*
- Optimizing Heterogeneous Systems through Quality Evaluation (Eclipse APP4MC Topic 5: CPU-GPU Response Time and Mapping Analysis), *Junhyung Ki*
- CDGen, *Ram Prasath Govindarajan*
- Model Visualization for APP4MC, *David Nagy*

### **2020**

- A Simulation-Visualizer for Eclipse APP4MC, *Philip Okonkwo*
- Non-Preemptive and Limited-Preemptive Response Time Analysis for Eclipse APP4MC, *The Bao Bui*
- BTF (Best Trace Format) generation on RTFParallella (Real Time Framework Parallella), *Anand Prakash*

<https://summerofcode.withgoogle.com/archive/search/?q=APP4MC>

<https://www.eclipse.org/app4mc/news/2020-05-20-gsoc-2020/>

## *Signs of success*

- *You are successful if (not an exclusive list):*
  - *A significant number of bugs raised against your project come from non-committers.*
  - *Non-committers are blogging about your project.*
  - *Articles, presentations, podcasts, webinars, etc. are being developed and presented by non-committers.*
  - *You cease to be the center of the universe for your project.*

## *Eclipse Conferences / Democamps*

- AMALTHEA - an open tool platform for embedded multicore systems  
EclipseCon Europe 2013 ( [link](#) )
- APP4MC – a new Eclipse project proposal  
Eclipse Democamp, Stuttgart, 2015 ( [link](#) )
- APP4MC - An Open Source Development Platform For Embedded Multi-and Many-Core Systems  
EclipseCon Europe 2015 ( [link](#) )
- IoT Playground - APP4MC: Developing a Multicore RC Car  
EclipseCon Europe 2016 ( [link](#) )
- Eclipse APP4MC - embedded multicore optimization  
EclipseCon Europe 2017 ( [link](#) )
- Understand complex EMF models like an expert  
EclipseCon Europe 2017, Modeling Symposium
- Modellbasierte Analyse von heterogenen Systemen - Neue Möglichkeiten der offenen Plattform Eclipse APP4MC  
Eclipse Democamp, Regensburg, 2018 ( [link](#) )
- Meet & Greet the Eclipse Research Project Community - Panorama  
EclipseCon Europe 2019 ( [link](#) )
- Unleash the power of Eclipse technologies - The benefits of modernizing your project  
EclipseCon Europe 2020 ( [link](#) )

## Conferences

- Embedded-Multicore mit AMALTHEA, *Harald Mackamul*  
Embedded Software Engineering Kongress 2015, Sindelfingen, 2015-12-02
- PLAT4MC: Multicore Performance Optimization with Open Source, *Syed Aoun Raza*  
Embedded Software Engineering Kongress 2017, Sindelfingen, 2017-12-05
- Industrievortrag: Real-time Systems Engineering at Bosch, *Arne Hamann*  
Friedrich-Alexander-Universität Erlangen-Nürnberg, 2019-01-31 ( [link](#) )
- APP4MC: An Open Source Platform for Automotive Multi-Core Systems, *Dirk Ziegenbein*  
DATE Conference, Dresden, 2019-03-23
- Modeling and analysis of heterogeneous automotive systems, *Harald Mackamul*  
Automotive Day @ MODELS Conference 2019, München, 2019-09-17
- Open Source as a Way to Collaborate in a Changing Automotive Market, *Jörg Teßmer, Andreas Riexinger*  
EUROFORUM "SOFTWARE DRIVES", Stuttgart, 2019-11-12
- From AMALTHEA to RCM and Back: a Practical Architectural Mapping Scheme, *Alessio Bucaioni, ...*  
Euromicro DSD/SEAA 2020 ( [link](#) )

## *Online Articles*

- Bosch, Eclipse & Co. arbeiten an Entwicklungsplattform für Embedded-Manycore-Systeme  
www.heise.de/developer, 2015-07 ( [link](#) )
- Embedded-Multicore mit AMALTHEA - Aktueller Stand zur offenen Tool-Plattform, *Harald Mackamul*  
www.microconsult.de, 2015-12 ( [link](#) )
- Multicore-Software mit APP4MC entwickeln, *Lothar Gamer, Simon Kramer, Franck Youk, Peter Häfele, Stephan Grünfelder*  
www.elektroniknet.de, 2018-10-12 ( [link](#) )
- AMALTHEA & AMALTHEA4public - From individual approaches to a widely accepted open platform  
ITEA Impact story, 2018-12-03 ( [link](#) )
- AMALTHEA & AMALTHEA4public - From individual approaches to a widely accepted open platform  
ITEA Success story, 2019-03-12 ( [link](#) )

## *Blogs*

### Recent blogs related to project specific work

- Add JavaFX controls to a SWT Eclipse 4 application – Eclipse RCP Cookbook UPDATE  
<http://blog.vogella.com/2019/11/15/add-javafx-controls-to-a-swt-eclipse-4-application-eclipse-rcp-cookbook-update/>
- POM-less Tycho enhanced  
<http://blog.vogella.com/2019/11/25/pom-less-tycho-enhanced/>
- Building a “headless RCP” application with Tycho  
<http://blog.vogella.com/2020/01/20/building-a-headless-rcp-application-with-tycho/>

## *Academic challenges*

### WATERS

International Workshop on Analysis Tools and Methodologies for Embedded and Real-time Systems

## Formal Methods for Timing Verification (FMTV) Challenges

The purpose of the Formal Methods for Timing Verification (FMTV) challenge is to share ideas, experiences and solutions to a concrete timing verification problem issued from real industrial case studies.

Problem descriptions in the years 2016, 2017 and 2019 are based on Eclipse APP4MC models.

- FMTV Challenge 2016: [challenge](#) [proceedings](#)
- FMTV Challenge 2017: [challenge](#)
- FMTV Challenge 2019: [challenge](#) [program](#)

## *Academic Papers*

- Wolff, Carsten & Brink, Christopher & Höttger, Robert & Igel, Burkhard & Kamsties, Erik & Krawczyk, Lukas & Jahn, Uwe. (2015). **Automotive Software Development with AMALTHEA.**
- Höttger, Robert & Jahn, Uwe & Nördemann, Phil & Heisig, Philipp & Wolff, Carsten & Kamsties, Erik & Igel, Burkhard. (2016). **Teaching Distributed and Parallel Systems with APP4MC.**
- Höttger, Robert & Mackamul, Harald & Sailer, Andreas & Steghöfer, Jan-Philipp & Tessmer, Joerg. (2017). **APP4MC: Application platform project for multi- and many-core systems.** it - Information Technology. 59. 10.1515/itit-2017-0019.
- Geismann, Johannes & Höttger, Robert & Krawczyk, Lukas & Pohlmann, Uwe & Schmelter, David. (2018). **Automated Synthesis of a Real-Time Scheduling for Cyber-Physical Multi-core Systems.** 10.1007/978-3-319-94764-8\_4.
- Krawczyk, Lukas & Bazzal, Mahmoud & Govindarajan, Ram Prasath & Wolff, Carsten. (2019). **Model-based Timing Analysis and Deployment Optimization for Heterogeneous Multi-Core Systems using Eclipse APP4MC.** 10.1109/MODELS-C.2019.00013.