

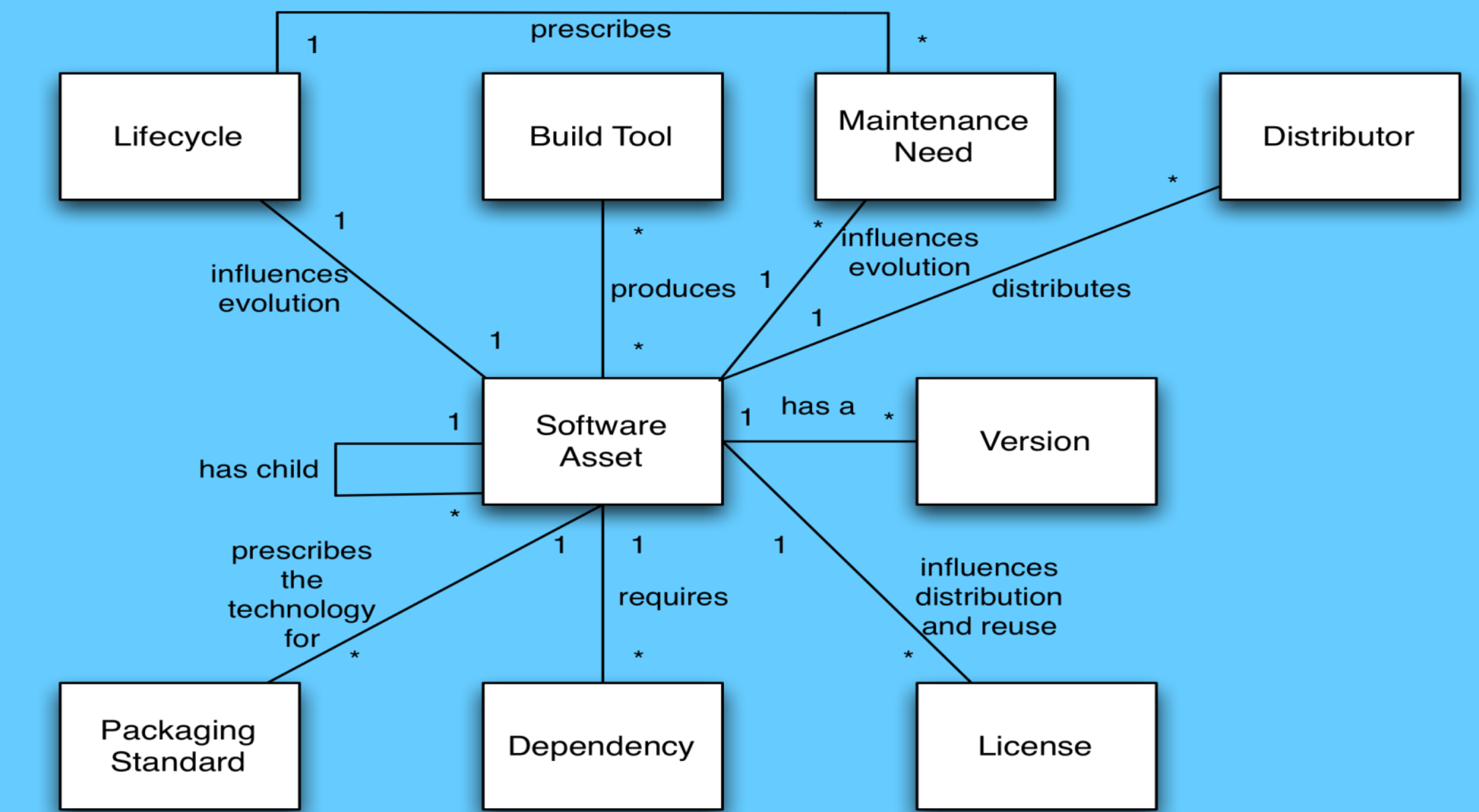
## Helping to define NASA Open Source Strategy

- Oral Session accepted for 2011 Fall AGU Meeting and poster session accepted for 2011 Fall AGU Meeting, which includes papers and posters by ESDS SRWG members. Co-Chairs: Mattmann CA and Downs RR
- Gave one of only 2 agency talks at the 1st ever NASA Open Source Summit
- Working strategy with F. Lindsay and S. Berrick for Open Source and Reuse
- Coordinating with NASA CIO's Office Including T. Lee, N. Skytland.
- Co-convened poster session on software reuse and open source software at the 2010 Fall AGU Meeting

## Packaging Reusable Assets

### Software Packaging Domain Information Model

Boxes at right represent concepts (attributes) relevant to the software packaging. Lines show their relationships and \*/1 indicates each relationship's cardinality.



Developed and released Software Packaging for Reuse, Version 1.0 February 25, 2011, [http://www.esdswg.com/sotwarereuse/Resources/guidelines/SRWG-Packaging\\_v\\_1.0.pdf](http://www.esdswg.com/sotwarereuse/Resources/guidelines/SRWG-Packaging_v_1.0.pdf)

## Reuse Readiness Levels (RRLs)

Level	Reuse Readiness Level (RRL) Summary
RRL 1	<b>Limited reusability</b> ; the software is not recommended for reuse.
RRL 2	<b>Initial reusability</b> ; software reuse is not practical.
RRL 3	<b>Basic reusability</b> ; the software might be reusable by skilled users at substantial effort, cost, and risk.
RRL 4	<b>Reuse is possible</b> ; the software might be reused by most users with some effort, cost, and risk.
RRL 5	<b>Reuse is practical</b> ; the software could be reused by most users with reasonable cost and risk.
RRL 6	<b>Software is reusable</b> ; the software can be reused by most users although there may be some cost and risk.
RRL 7	<b>Software is highly reusable</b> ; the software can be reused by most users with minimum cost and risk.
RRL 8	<b>Demonstrated local reusability</b> ; the software has been reused by multiple users.
RRL 9	<b>Demonstrated extensive reusability</b> ; the software is being reused by many classes of users over a wide range of systems.

The Software Reuse WG continues to identify improvements for the RRLs ([http://www.esdswg.com/softwarereuse/Resources/rrls/RRLs\\_v1.0.pdf/view](http://www.esdswg.com/softwarereuse/Resources/rrls/RRLs_v1.0.pdf/view))

## Publications and Presentations

- Mattmann CA. Open Source Software in the Sciences. ESIP Fed Summer Mtg. Santa Fe, NM, July 12-15, 2011.
- Mattmann CA. Open Source at NASA. 1st NASA Open Source Summit, NASA Ames Res Ctr, Mar 29-31, 2011
- Crichton D. Open Source Plenary Presentation. NASA 9th ESDSWG Mtg. New Orleans, LA, Oct 20-22, 2010
- Mattmann CA. Open Source Breakout Session NASA 9th ESDSWG Mtg. New Orleans, LA, Oct 20-22, 2010
- Marshall JJ, Mattmann CA, Downs RR, Most NF, Gilliam L. Packaging Software Assets for Reuse to Improve the Impact of Earth Science Information. ESIP Fed Winter Mtg. Washington, DC, Jan 4-6, 2011
- Marshall JJ, Downs RR, Mattmann CA. Software Reuse Methods to Improve Technological Infrastructure for e-Science. Proceedings of the 2011 IEEE Int Conf on Information Reuse and Integration. 528-532. <http://dx.doi.org/10.1109/IRI.2011.6009611>
- Mattmann CA, Downs RR, Marshall JJ, Most, NF, Samadi, S. Tools to Support the Reuse of Software Assets for the NASA Earth Science Decadal Survey Missions. The IEEE Geoscience and Remote Sensing Society Newsletter, March 2011, 158, 17-22. [http://www.grss-ieee.org/wp-content/uploads/2011/03/ngrs\\_NL\\_0311-Web.pdf](http://www.grss-ieee.org/wp-content/uploads/2011/03/ngrs_NL_0311-Web.pdf)
- Mattmann CA, Downs RR, Marshall JJ, Most, NF, Samadi, S. Reuse of Software Assets for the NASA Earth Science Decadal Survey Missions. Proceedings of the 2010 IEEE IGARSS. 1687-1690. <http://dx.doi.org/10.1109/IGARSS.2010.5653018>
- Marshall JJ, Downs RR, Mattmann CA. Progress Towards a NASA Earth Science Reuse Enablement System (RES). Proceedings of the 2010 IEEE International Conference on Information Reuse and Integration. <http://dx.doi.org/10.1109/IRI.2010.5558912>

## Decadal Survey Missions

- **SMAP**
  - Using RRLs to improve the procedure and template for making RRL assessments in conjunction with CMMI process
  - RES Evaluation
- **ICESat-2**
  - Developed initial draft of a procedure and template for making RRL assessments
  - Use case document development with ICESAT-2, including ICESAT-2 participation in Reuse WG
- **DESDynI**
  - Continuing discussions
- **OCO-2/ACOS**
  - Continuing discussions

### Authors:

Chris A. Mattmann (WG Chair), NASA JPL / USC  
Robert R. Downs (WG Co-Chair), CIESIN, Columbia University  
Paul Ramirez, NASA JPL  
Cameron Goodale, NASA JPL  
Andrew Hart, NASA JPL

For more information, please visit <http://www.esdswg.com/softwarereuse>

## Social Networking Sites



- **Twitter** feed – [http://twitter.com/esdswg\\_reuse](http://twitter.com/esdswg_reuse)
- 4 followers, 3 from the Reuse WG



- **Facebook** group – <http://www.facebook.com/group.php?gid=117453644936920>
- 21 members, 6 from the Reuse WG



- **LinkedIn** group – <http://www.linkedin.com/groups?gid=2964349>
- 8 members, 7 from the Reuse WG