ARRoW Code Description/Functional Summary

The Adaptive, Reflective, Robust Workflow (ARRoW) system facilitates distributed design of Infantry Fighting Vehicles and also contains various tools that address general problems in the design of complex cyber-physical systems, bridging from requirements analysis through the delivery of designs suitable for manufacture. The software package being delivered includes all tools developed under this effort. A complete enumeration of the software being delivered is contained in the table below. Main functions being delivered are:

- AMIL – ARRoW Model Interconnection Language(AMIL) and executable graph database
- CML – A Prototype Component Model Library
- Exemplary requirements and design archetypes (SysML)
- Metrics Library and dashboard
- ECTO: The Early Concepting Tool (Ecto) is a system design and composition environment that enables design editing primarily through the hierarchical assembly and manipulation of components from the Component Model Library (CML), and rapidly assess, through a graphical interface, the qualities of system concepts and the ramifications of design decisions.
- GEAR/ESKER: The Generic Ensemble Archetype Reasoner (GEAR) provides a uniform architecture for adding logical reasoning and control to ontologically-aware knowledge sources. The GEAR tool Expert-System Knowledgebase Evaluation Reasoner (ESKER) applies multi-objective criteria for solving analysis of system and component down-selection and other optimization problems.
- Qualitative Model envisioner: Given qualitative component models, their connections, and an initial state, computes an envisionment - all operationally distinct trajectories through the qualitative state space.
- Other Models: A variety of other analysis models are included in the delivery, including multiple controller/plant models of a combat vehicle ramp actuation system implemented in Simulink, Modelica, and C++, and geometry models of combat vehicles and detailed squad ingress/egress ramp models in multiple 3D geometry formats.

Complete Description of Delivery Package Structure

build_and_run_Arrow.sh	Shell script for building and running Arrow Web Services.
copyright.txt	Contains the copyright notice for the content of the directory.
readme.txt	Quick start directions on getting set up and running.
./AmilExtern	This folder contains the current META development baseline for the AMIL external library functionality.
./AmilLib	This folder contains the current META development baseline for the AMIL library functionality.
./AmilProlog	This folder contains the current META development baseline for the ProLog AMIL query utility.
./ArrowManualArtifacts	This folder contains java archives of 3rd party software not supported by Maven automatic import.
./ArrowWebServices	This folder contains the current META development baseline for the ARRoW web services functionality.
./ComponentModelLibrary	This folder contains the current META development baseline for the ARRoW CML Server.
./DebugSysMLPlugin	This folder contains source code for debugging the SysML Magic Draw Plugin.
./GalileoWrapper	This folder contains the current META development baseline for the Galileo Wrapper functionality.
./MIT	This folder contains qualitative model source code and data files to support the MIT Reach Set Analysis tool.
./Meta-Windchill	This folder contains obsolete functionality used to support previous demos.
./QRG	This folder contains an installation of the ZGraph library suite which provides functionality for displaying and editing graphs.
./Servers	This folder contains a build environment installation of the Apache Tomcat JavaServlet and JavaServer Pages development suite.
./arrow-mvn-all	This folder contains a SpringSource project definition with a Maven Project Object Models (POM) file defining all other projects that make up the META development suite.
./arrow-mvn-init	This folder contains a SpringSource project definition with the top level Maven Project Object Models (POM) file for the META development suite.
./dashboard	This folder contains the current META development baseline for the ARRoW dashboard.
./docs	This folder contains the current META development baseline for the ARRoW documentation.
./draw	This folder contains PARC software supporting the envisioner.
./envisioner	This folder contains qualitative model source code and data files to support the Parc Envisioner tool.
./galileo	This folder contains experimental code used to test Galileo prototype functionality.
./json	This folder contains the a version of the json library with bug fixes for META.
./lang	This folder contains the current baseline of the AMIL Graph source code.
./mdplugin	This folder contains the Magic Draw plugin which is used to publish ARRoW requirements from Magic Draw into AMIL.
./metrics	This folder contains the current baseline of the metrics framework.
./models	This folder contains a repository of miscellaneous model data files and simulation executables from various modeling tools.
./ontologies	This folder contains the current META development baseline for the ARRoW ontology development.
./ontology	This directory contains a first pass at creating an Arrow ontology.
./proe-plugin	This folder contains an obsolete PRO-E support tool.
./proe-webservice	This folder contains the source for a PRO-E server that supports geometrical queries.
./proe-ws-client	This folder contains an obsolete PRO-E Client used in previous demos.
./semneo	This directory contains testing software for ontology work.
./tinkerpop	This directory contains supporting software for ontology work.
./tools	This folder contains a release of the Multi-Parametric Toolbox for MatLab (./mpt) and a release of the Visual Swing for Eclipse plugin(./vs4e). MPT is utilized by the Reach Set Analysis MatLab scripts. VS4E is used by the Magic Draw Plugin.
./tuProlog	This folder contains the current a test bed baseline used in support of the Galileo functionality. It contains build environment installations of JavaAssist, a class library for editing byte codes in Java and TuProlog a Java base light weight ProLog engine.

./uml	This folder contains the active Magic Draw development documents for the current baseline.
./videos	This folder contains videos used in the demos.
./webflow_sandbox	This folder contains experimental development work.
./webservice_sandbox	This folder contains experimental development work.