Master Interpreter

User Tutorial for the Master Interpreter

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1.0 Purpose

The Master Interpreter is a tool in CyPhy that allows the user to generate simulation files from multiple interpreters using the workflow definition created previously.

2.0 Procedure

The process of using the Master Interpreter is as follows:

1. Run the Master Interpreter.

Step 1: Running the Master Interpreter

Ensure that you are still in your test bench window. Click on the icon for the Master Interpreter in the toolbar as shown in Figure 1.

Figure 1: Master Interpreter Icon

Check the box "**Post to META Job Manager**". **Be sure to select which configurations you wish to run from those that have been exported.** Figure 2 shows all the boxes that should be selected. **Click OK.**

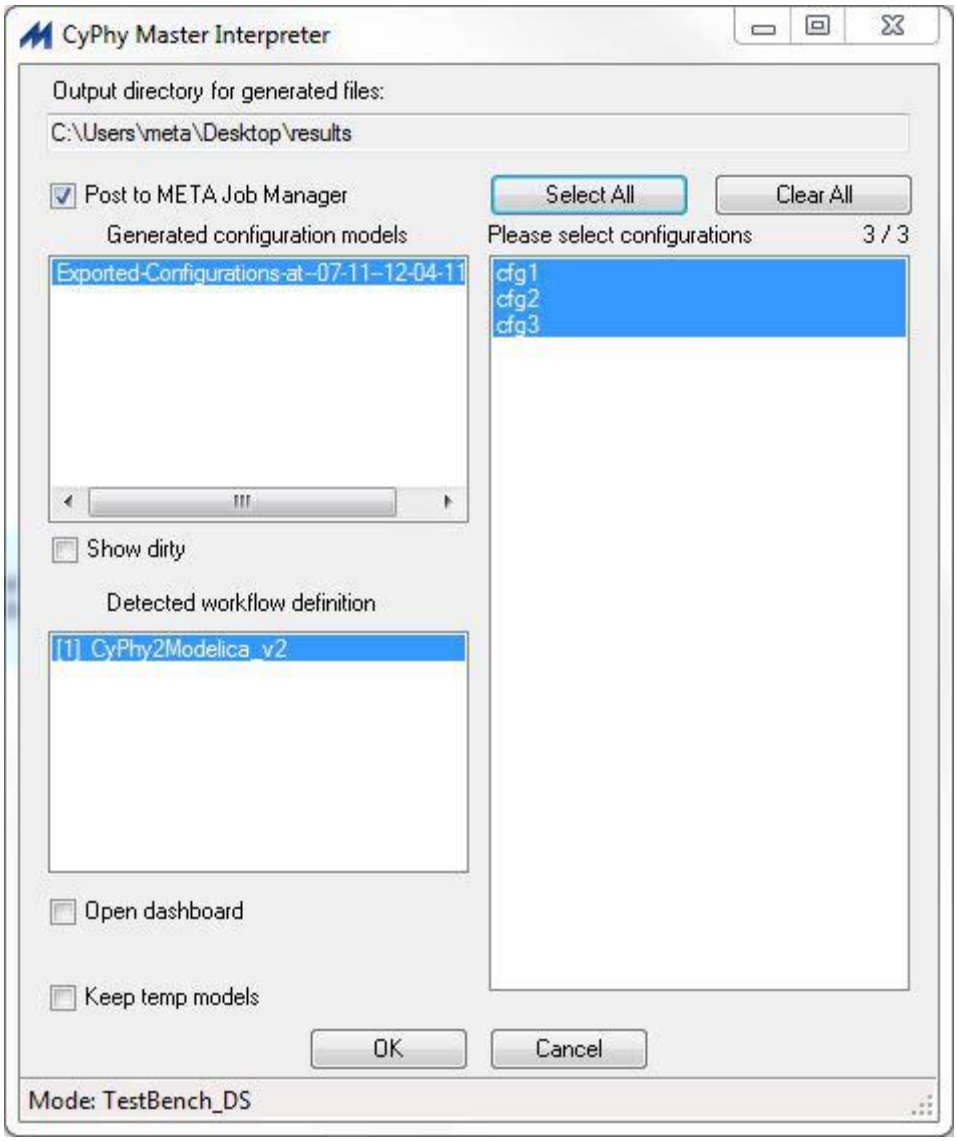

Figure 2: Open META-CyPhy Master Interpreter

The next window will look like Figure 3. This screen allows you to select which Modelica libraries you will use to simulate your design. The Modelica Standard Library (MSL) 3.2 is already included and therefore you will not need to load a package for this tutorial. **Click OK.**

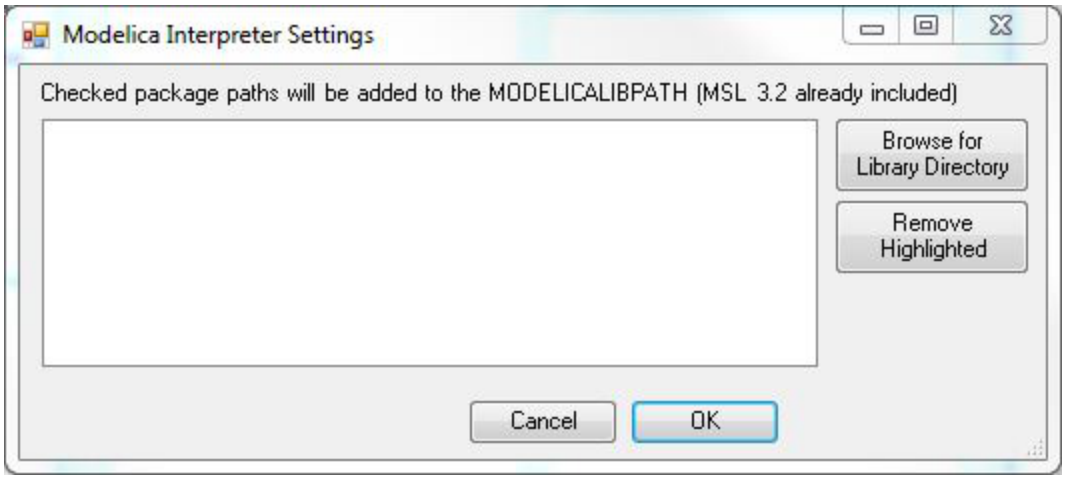

Figure 3: Modelica Interpreter Settings

A new window for the Job Manager will appear as shown in Figure 8.4 after a minute or two of loading.
There are two execution modes the Job Manager can run: Remote execution and local execution. Remote execution will send the information for the simulation to servers on VehicleForge for analysis and then download the results to your computer once the analysis is complete. Local execution runs the simulation directly on the user's machine.

Make sure the Remote Execution box is not checked, as seen in Figure 4. Click Save and the simulations will run locally.

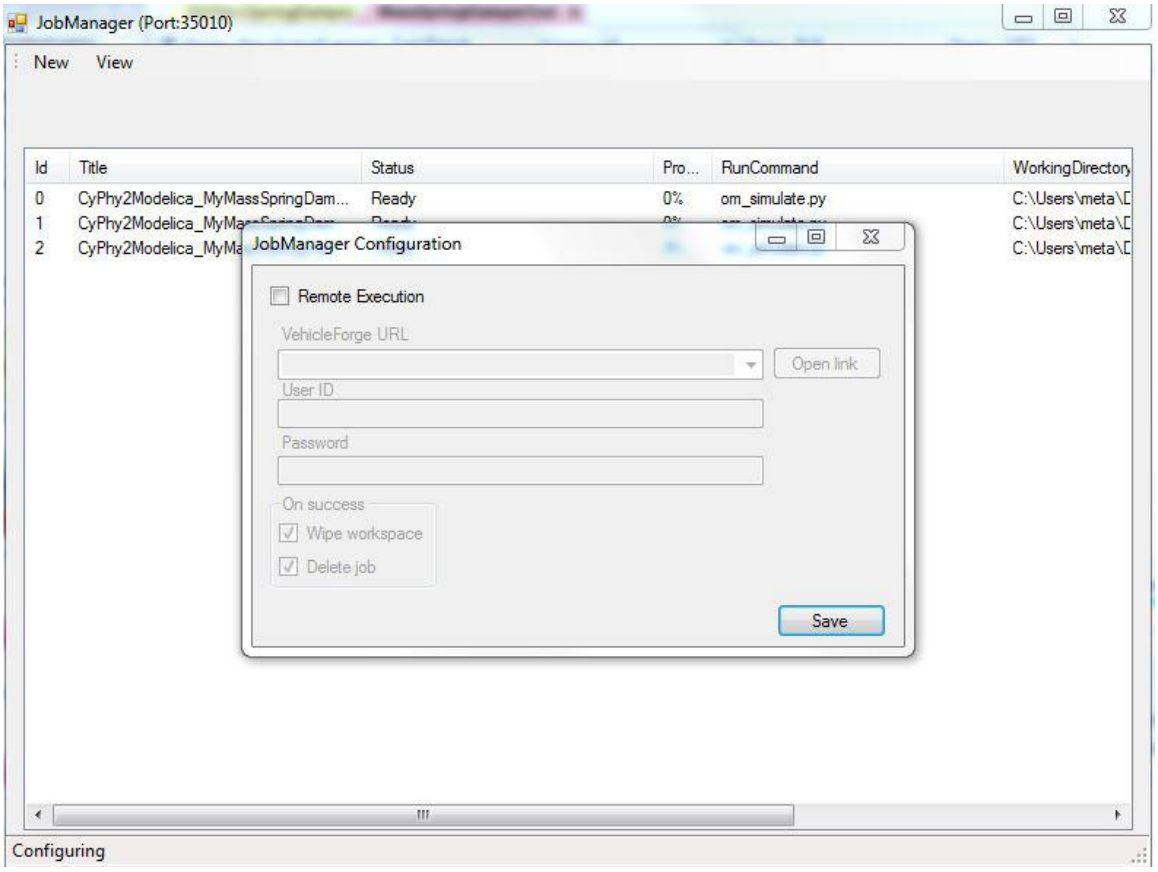

Figure 4: Job Manager

After a few moments, the three jobs you ran should change from blue to green and the status should change from Running to Succeeded as shown in Figure 8.5. If this does not happen, go through and check that you created the model, per the tutorials specifications.

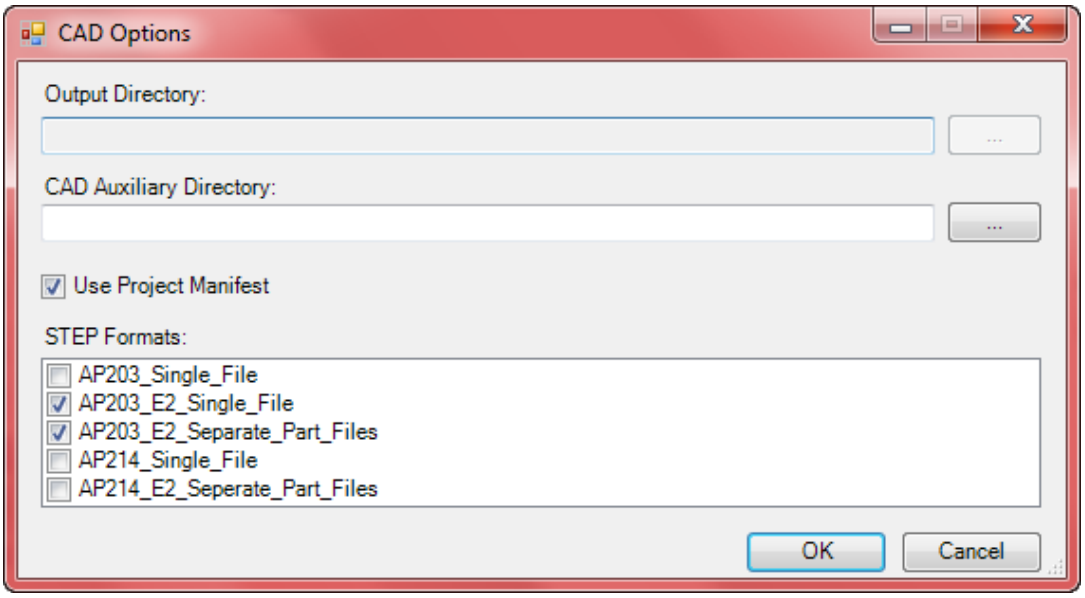

Figure 5: CAD Options Window

The "Use Project Manifest" option tells the interpreter to use the CAD files provided with the components when building the assembly.
Make sure the "Use Project Manifest" button is checked as well as the step files button and click Ok to continue. Successful runs are shown in Figure 6.

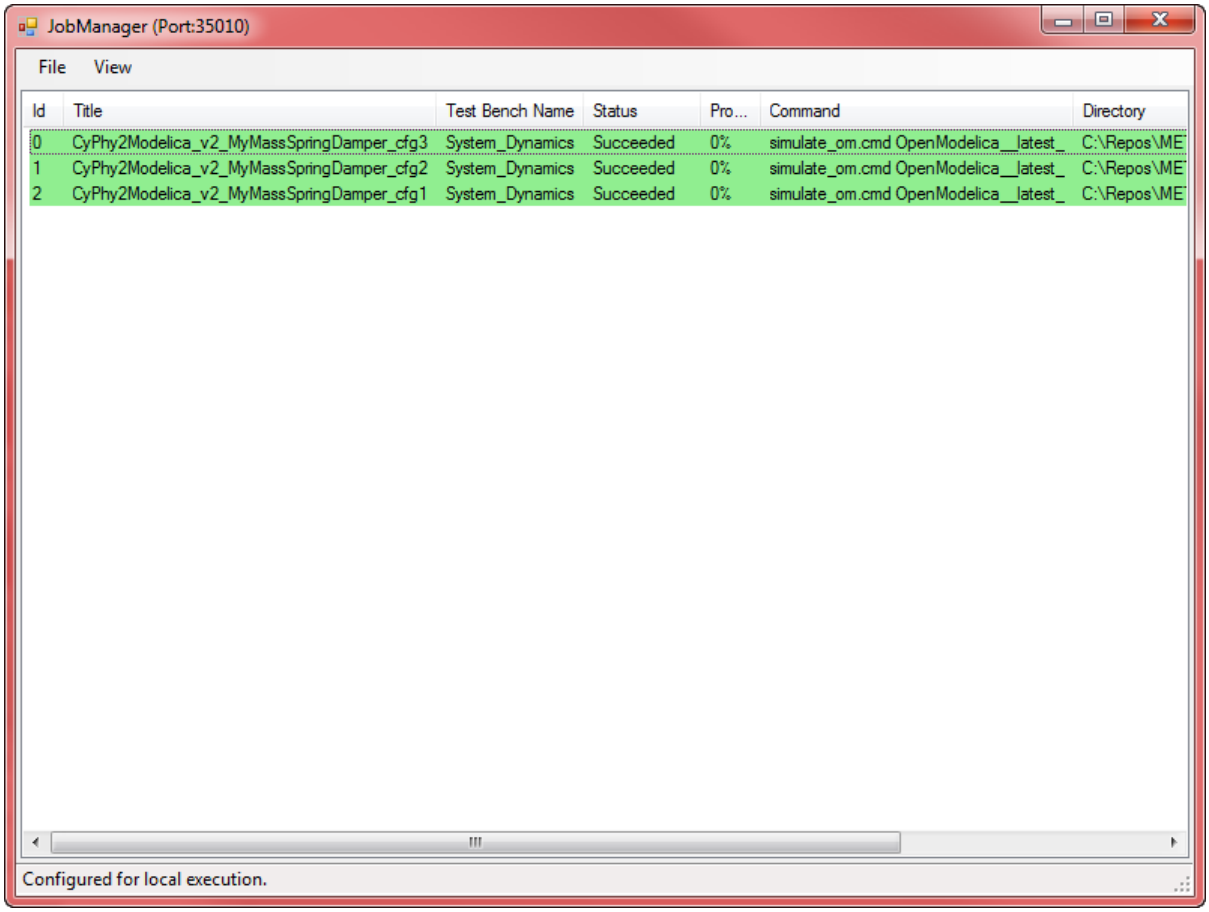

Figure 6: Job Manager showing successful job runs

3.0 Model Error Checking

The table below show a list of examples of errors that will be displayed in the GME console, if an error is detected:

Implemented	Valid	Context	Assumption
True	False	BallisticTestBench	Ballistic has test injection point
True	False	BallisticTestBench	Ballistic target not descendant of system under test
True	False	BallisticTestBench	Ballistic target null ref
True	False	BallisticTestBench	Critical component not descendant of system under test
True	False	BallisticTestBench	Critical component null reference
True	False	BallisticTestBench	More than one predefined ballistic suite
True	False	BallisticTestBench	More than one reference plane
True	False	BallisticTestBench	No predefined ballistic suite
True	False	BallisticTestBench	No reference plane
True	False	BallisticTestBench	No shot line model
True	False	BallisticTestBench	One shot line model and one predefined ballistic suite with ballistic target
True	False	BallisticTestBench	One shot line model and one predefined ballistic suite with critical component
True	True	BallisticTestBench	Custom one ballistic target
True	True	BallisticTestBench	Custom two ballistic targets
True	True	BallisticTestBench	More than one shot line model
True	True	BallisticTestBench	No critical component
True	True	BallisticTestBench	Predefined one critical component
True	True	BallisticTestBench	Predefined two critical components
True	False	BlastTestBench	Blast has test injection point
True	False	BlastTestBench	Has no blast model nor predefined blast suite
True	False	BlastTestBench	More than one blast model
True	False	BlastTestBench	More than one predefined blast suite
True	False	BlastTestBench	More than one reference plane
True	False	BlastTestBench	No reference plane
True	True	BlastTestBench	Has blast model
True	True	BlastTestBench	Has predefined blast suite
True	False	CADTestBench	Component assembly tip points to component ref points to null
True	False	CADTestBench	Component assembly tip points to component ref points to test component
True	False	CADTestBench	Design space tip points to component ref points to null
True	False	CADTestBench	Design space tip points to component ref points to test component
True	False	CADTestBench	No test injection point
True	False	CADTestBench	Test injection point not aDescendant of system under test
True	False	CADTestBench	Test injection point null ref

Implemented	Valid	Context	Assumption
True	False	CADTestBench	Test injection point points to component
True	False	CADTestBench	Test injection point points to test component
True	True	CADTestBench	Component assembly tip points to component ref points to component
True	True	CADTestBench	Component assembly tip points to component ref points to component assembly
True	True	CADTestBench	Design space tip points to component ref points to component
True	True	CADTestBench	Design space tip points to component ref points to component assembly
True	True	CADTestBench	Has one test injection point
True	True	CADTestBench	More than one test injection point
True	True	CADTestBench	More than test injection point points to the same component
True	True	CADTestBench	Test injection point points to alternative design container
True	True	CADTestBench	Test injection point points to component assembly
True	True	CADTestBench	Test injection point points to compound design container
True	True	CADTestBench	Test injection point points to optional design container
True	False	CADTestBench	Structural fEATest bench_TIP_Invalid
True	False	CFDTestBench	Calm water and correlation
True	False	CFDTestBench	Calm water and wave resistance
True	False	CFDTestBench	Calm water and wave resistance and correlation
True	False	CFDTestBench	Has test injection point
True	False	CFDTestBench	More than one calm water
True	False	CFDTestBench	More than one correlation
True	False	CFDTestBench	More than wave resistance
True	False	CFDTestBench	No calm water nor wave resistance nor correlation
True	False	CFDTestBench	Wave resistance and correlation
True	True	CFDTestBench	One calm water only
True	True	CFDTestBench	One correlation only
True	True	CFDTestBench	One wave resistance only
True	False	CFDTestBench	CFDTest bench_DS_Invalid
True	False	CFDTestBench	CFDTest bench_Invalid
True	False	ParametricExploration	Empty
True	False	ParametricExploration	Has no driver
True	False	ParametricExploration	More than one pCCDriver
True	False	ParametricExploration	More than one test bench ref
True	False	ParametricExploration	No test bench ref
True	False	ParametricExploration	Optimizer and parameter study
True	False	ParametricExploration	PCCDriver and optimizer
True	False	ParametricExploration	PCCDriver and optimizer and parameter study
True	False	ParametricExploration	PCCDriver and parameter study
True	False	ParametricExploration	PCCDriver one test bench ref instance

Implemented	Valid	Context	Assumption
False	False	ParametricExploration	PCCDriver one test bench ref read only
True	False	ParametricExploration	PCCDriver one test bench ref subtype
True	False	ParametricExploration	Test bench ref null
True	True	ParametricExploration	Optimizer one test bench ref
True	True	ParametricExploration	Parameter study one test bench ref
True	True	ParametricExploration	PCCDriver one test bench ref
True	False	TestBench	Component ref top level system under test points to component
True	False	TestBench	Component ref top level system under test points to component assembly
True	False	TestBench	Component ref top level system under test points to test component
True	False	TestBench	Has component
True	False	TestBench	Has component ref top level system under test points to component
True	False	TestBench	Has test injection point
True	False	TestBench	Has test injection point null reference
True	False	TestBench	More than one system under test
True	False	TestBench	No system under test
True	False	TestBench	System under test null reference
True	False	TestBench	System under test points to component
True	False	TestBench	System under test points to component assembly ref
True	False	TestBench	System under test points to component ref
True	False	TestBench	System under test points to component ref points to test component
True	False	TestBench	System under test points to compound design container instance
False	False	TestBench	System under test points to compound design container read only
True	False	TestBench	System under test points to compound design container subtype
True	False	TestBench	System under test points to non root design container
True	False	TestBench	System under test points to test component
True	True	TestBench	No test injection points
True	True	TestBench	System under test points to alternative design container
True	True	TestBench	System under test points to component assembly
True	True	TestBench	System under test points to component assembly for sot
True	True	TestBench	System under test points to compound design container
True	True	TestBench	System under test points to optional design container
True	False	TestBenchSuite	Non unique test bench references
True	False	TestBenchSuite	No test bench ref

Implemented	Valid	Context	Assumption
True	False	TestBenchSuite	One test bench ref instance
False	False	TestBenchSuite	One test bench ref read only
True	False	TestBenchSuite	One test bench ref subtype
True	False	TestBenchSuite	Test bench ref null
True	False	TestBenchSuite	Test bench ref points to different designs
True	True	TestBenchSuite	More than one test bench references point to same design
True	True	TestBenchSuite	One test bench ref