ANSYS Workbench & eArtius Optimization

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eArtius

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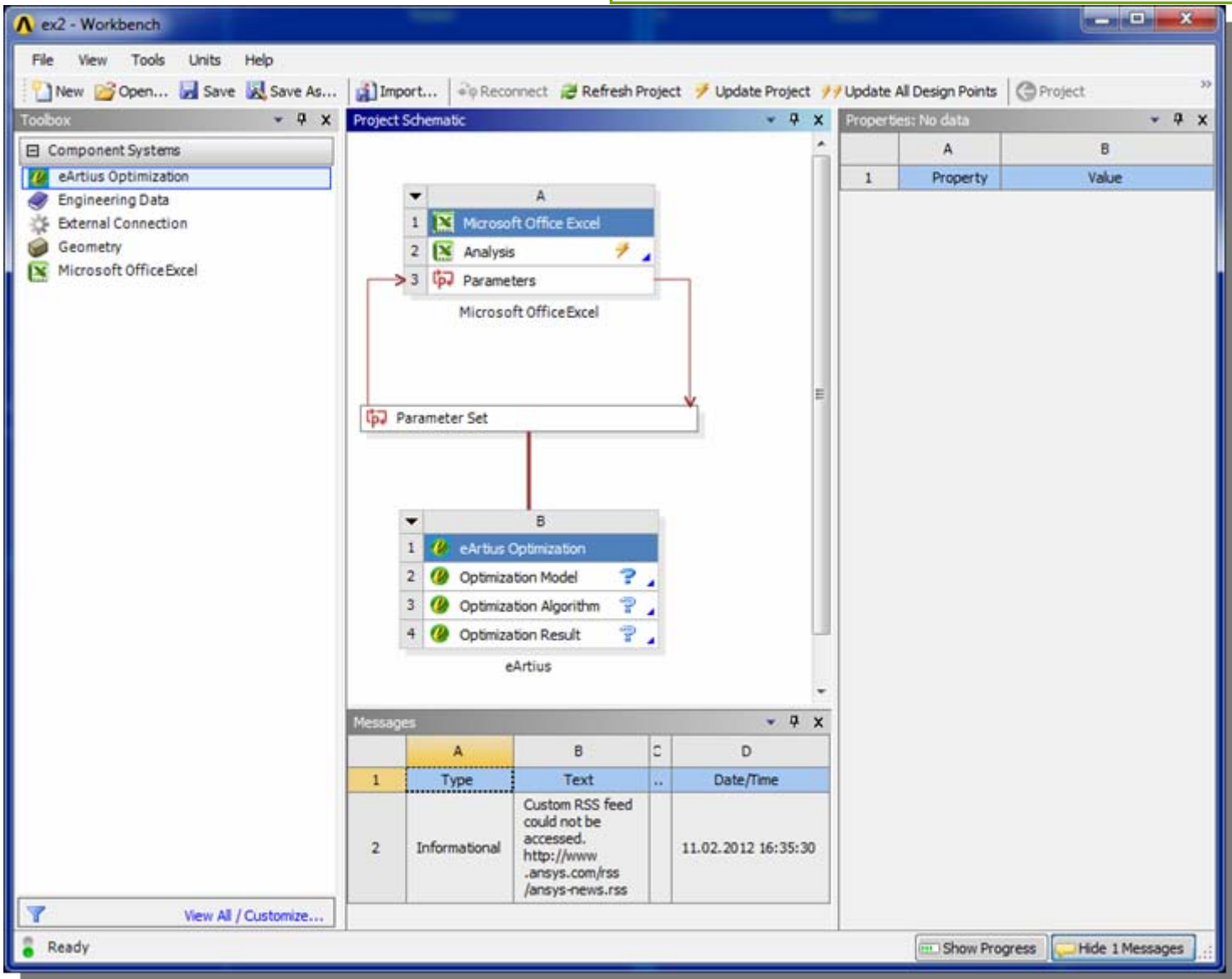
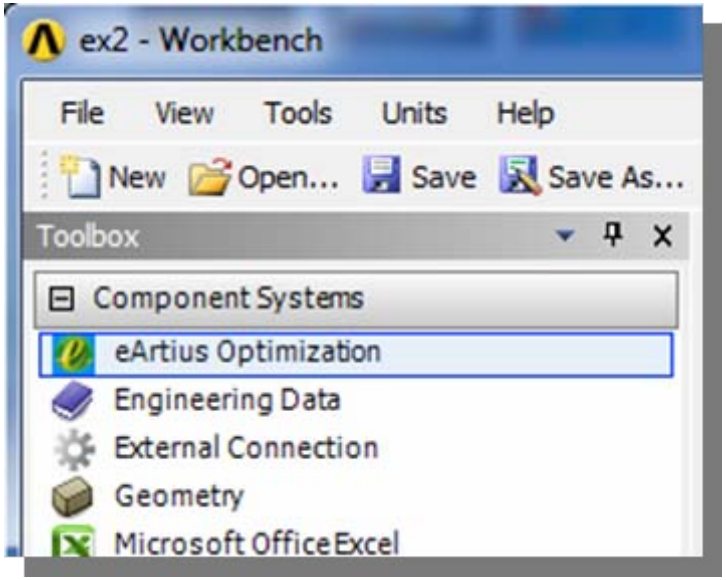
Agenda

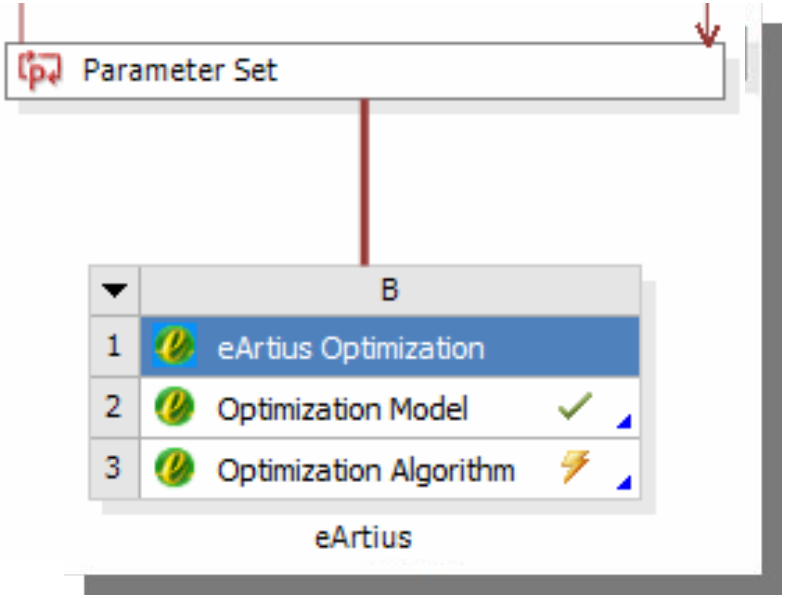
→Basic Features of eArtius Plug-in
→Interaction of ANSYS Workbench with eArtius Plug-in
→Interaction of eArtius Local Plug-in with eArtius Console Optimization Modules
→Interaction of eArtius Remote Plug-in with eArtius Pareto Explorer standalone application
→Getting Started
→Intevac Use Case

Basic Features of eArtius Plug-in

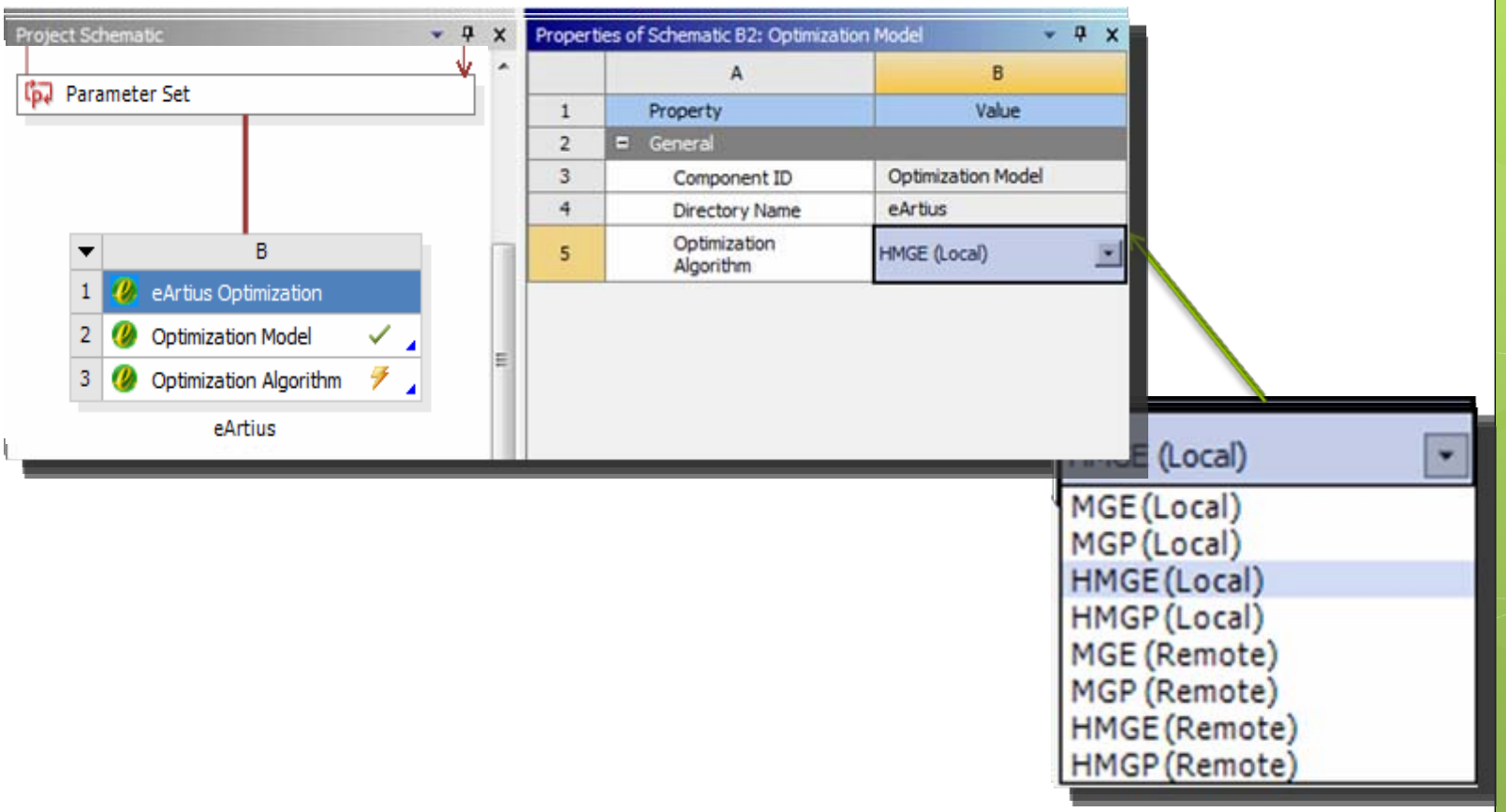


eArtius Optimization component is now available among Workbench Components

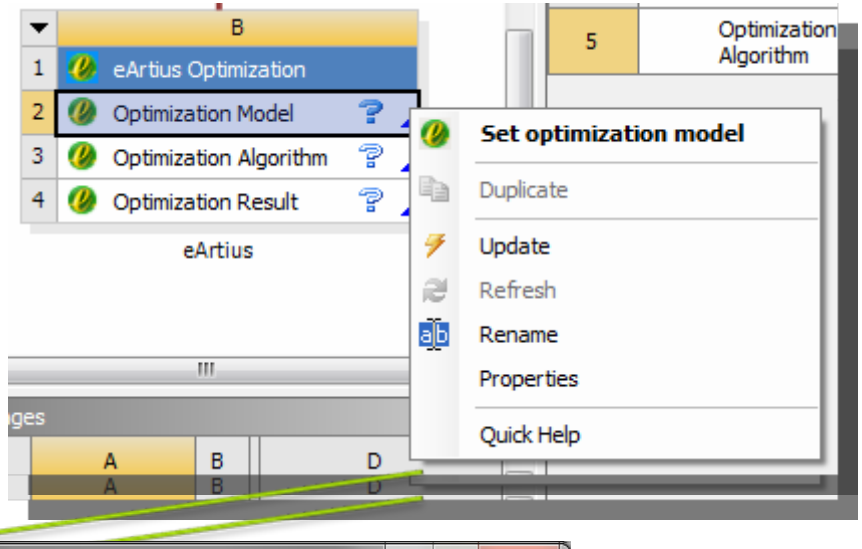


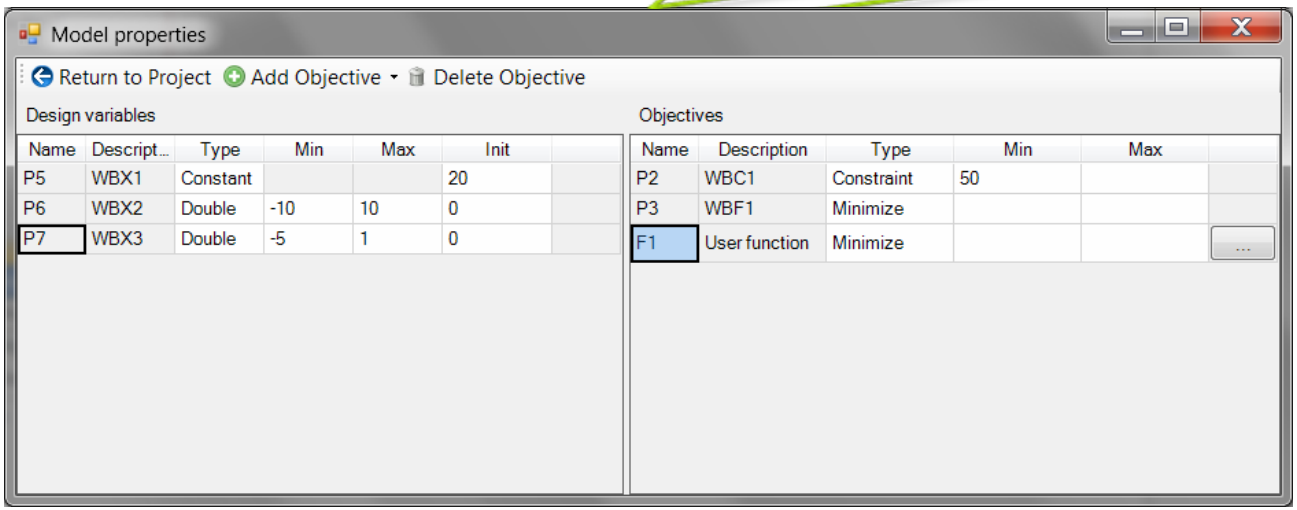


Choosing an eArtius Optimization Algorithm

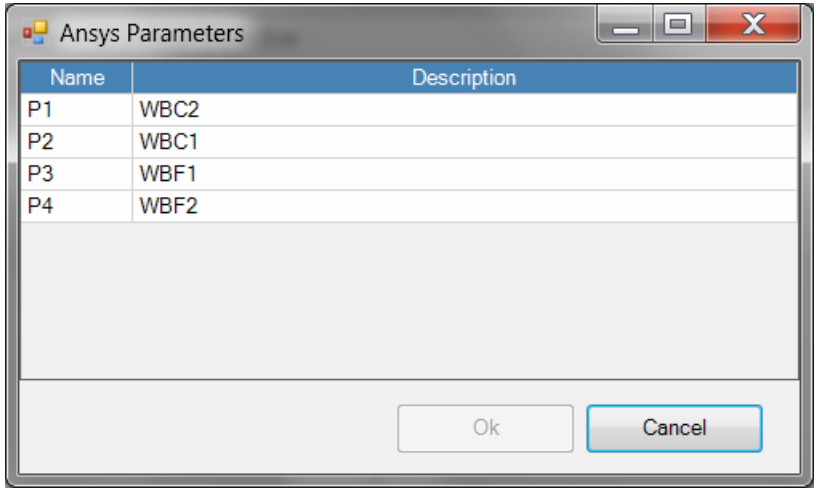


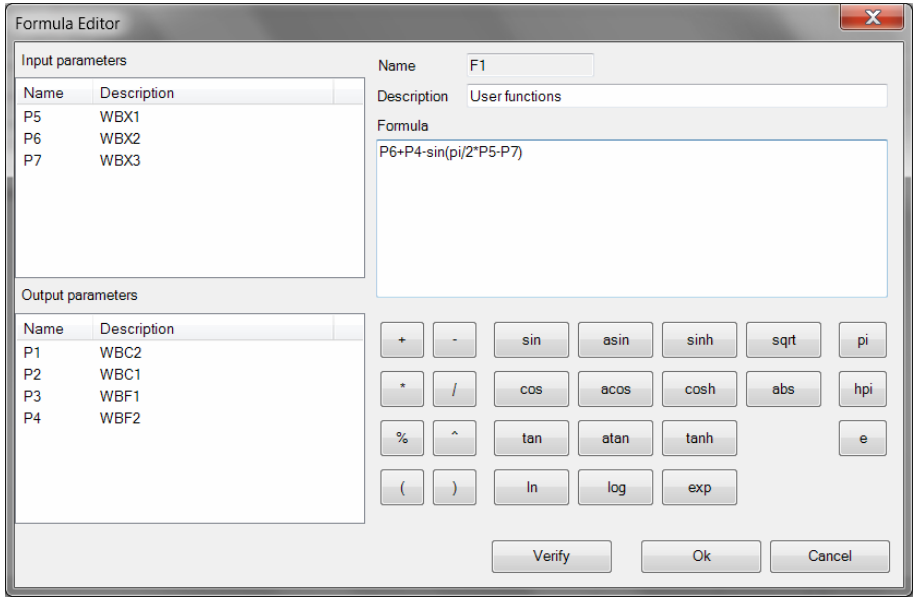
Setting up an optimization model properties





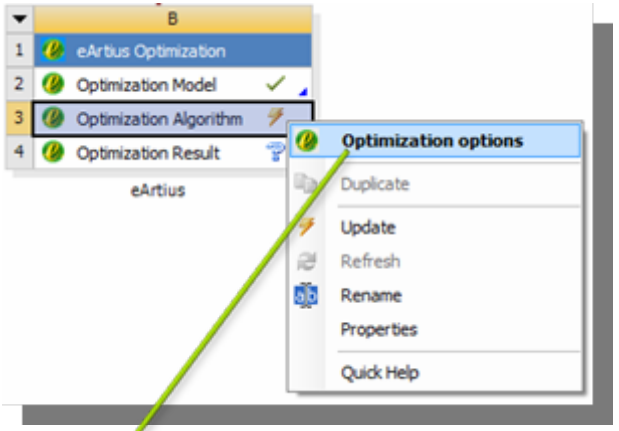
You can use ANSYS properties

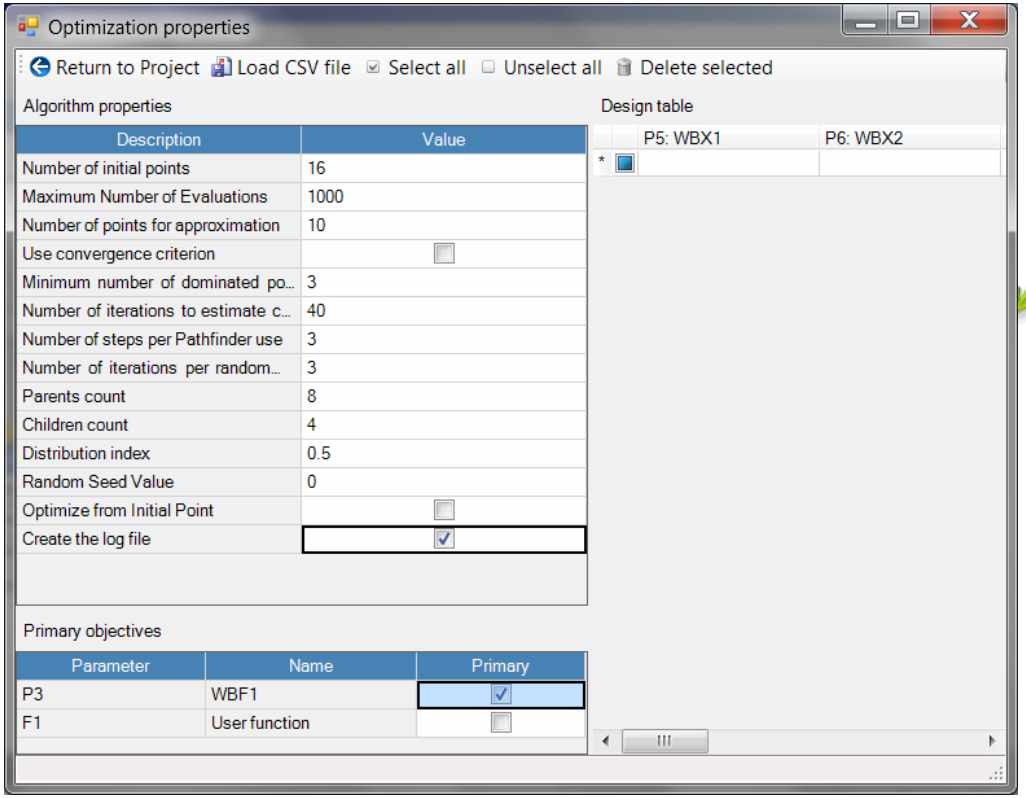




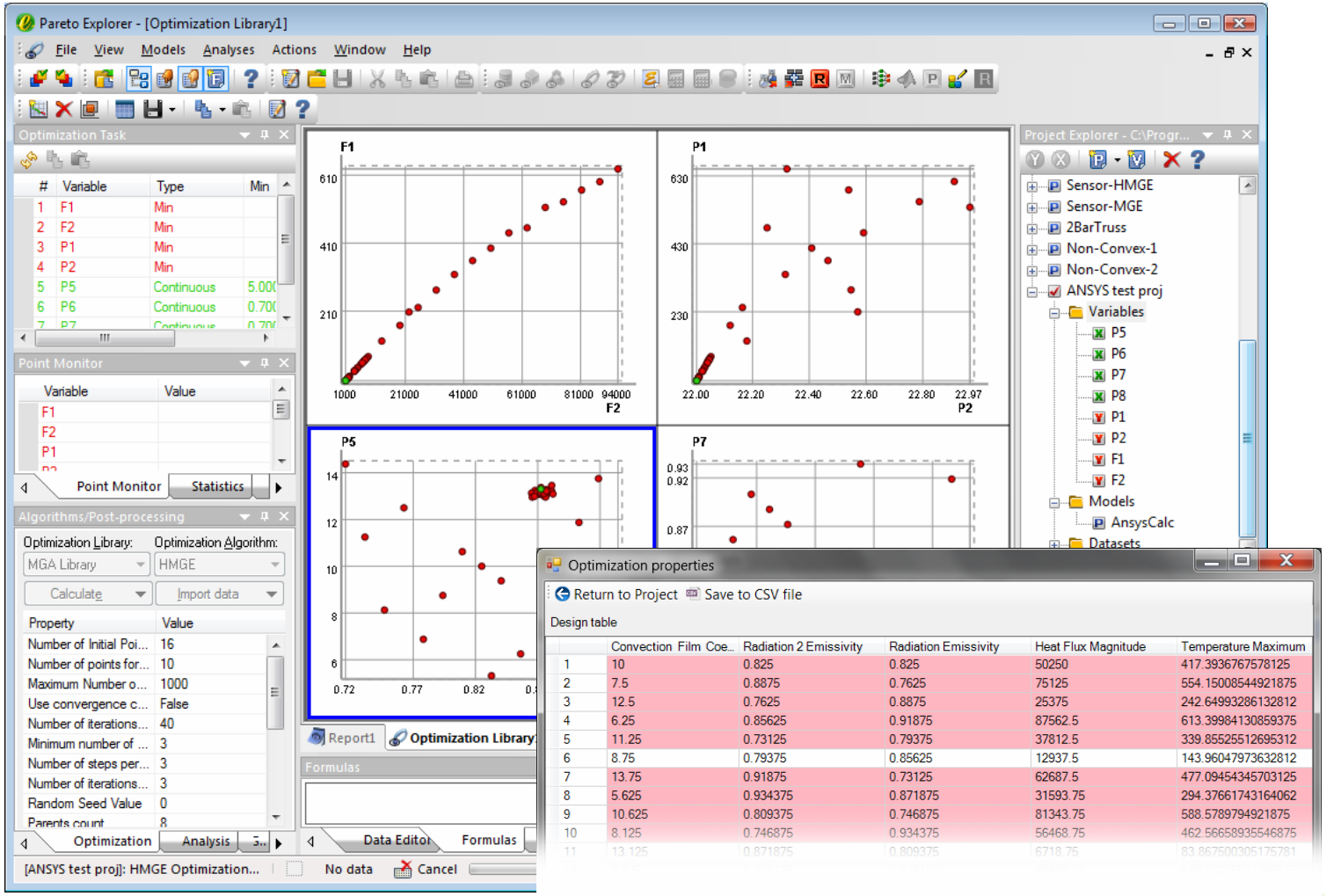
and user-defined functions

Setting up an optimization algorithm properties



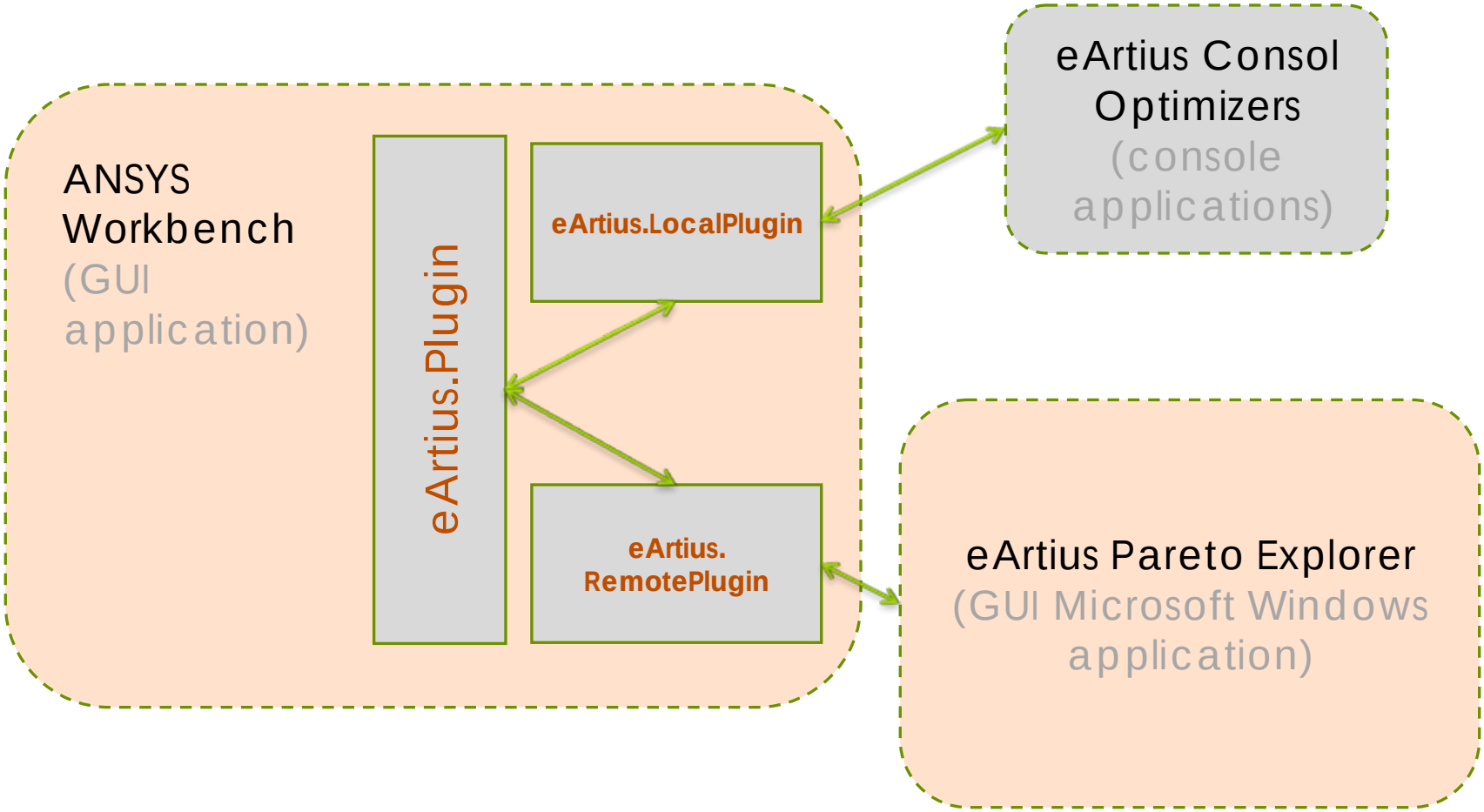


Observe optimization results in Workbench and Pareto Explorer



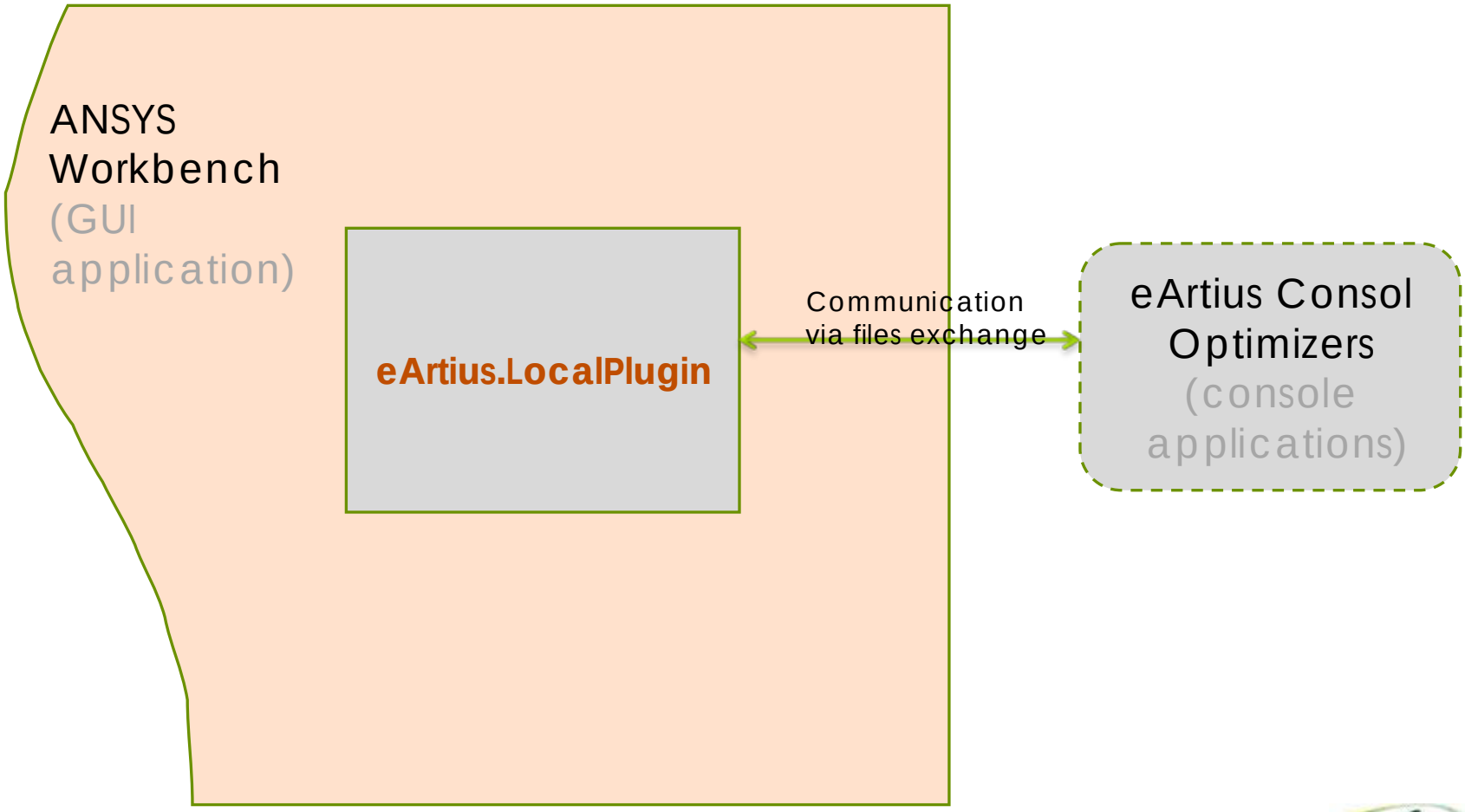
Interaction of ANSYS Workbench with eArtius Plug-ins

Overall scheme of interaction



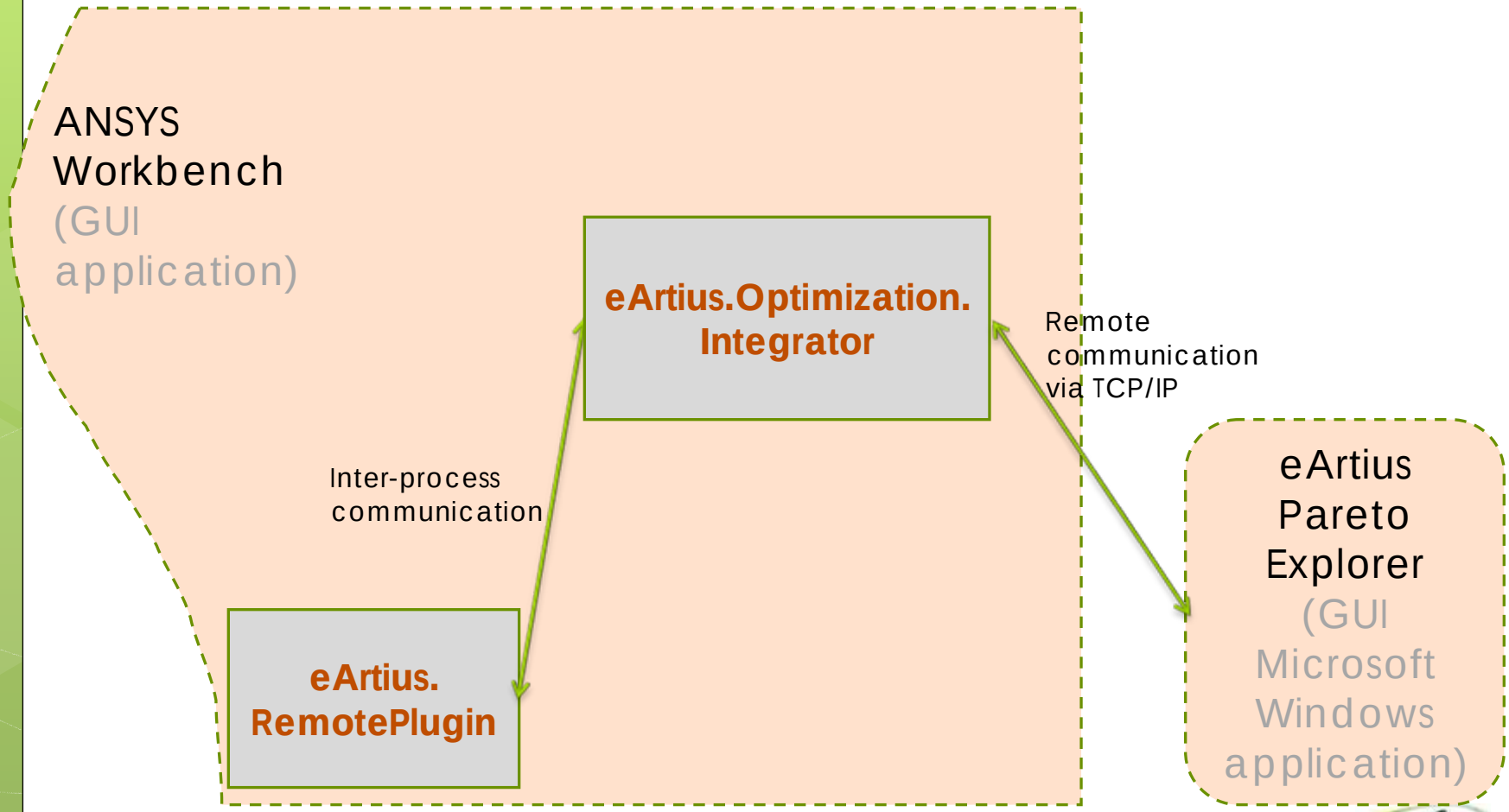
Interaction of eArtius Local Plug-in with eArtius Console Optimization Modules

Interaction of Local Plug-in



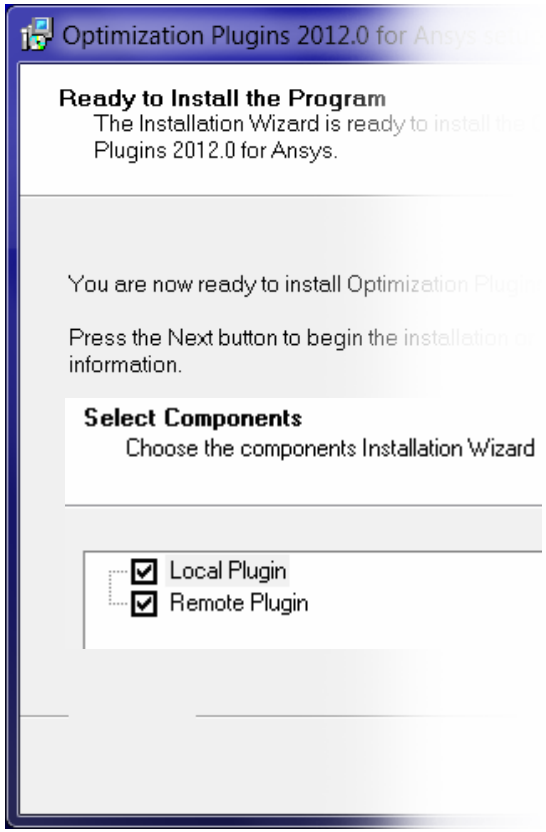
Interaction of eArtius Remote Plug-in with eArtius Pareto Explorer standalone application

Interaction of Remote Plug-in

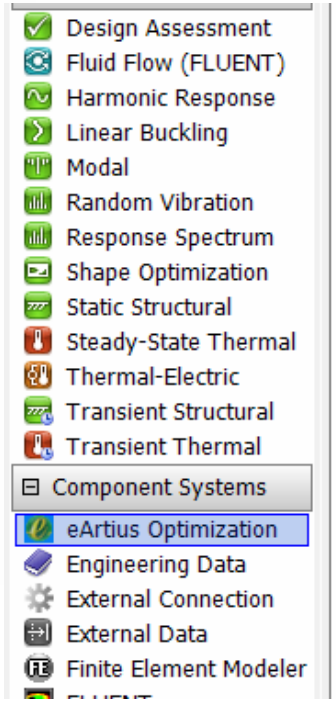


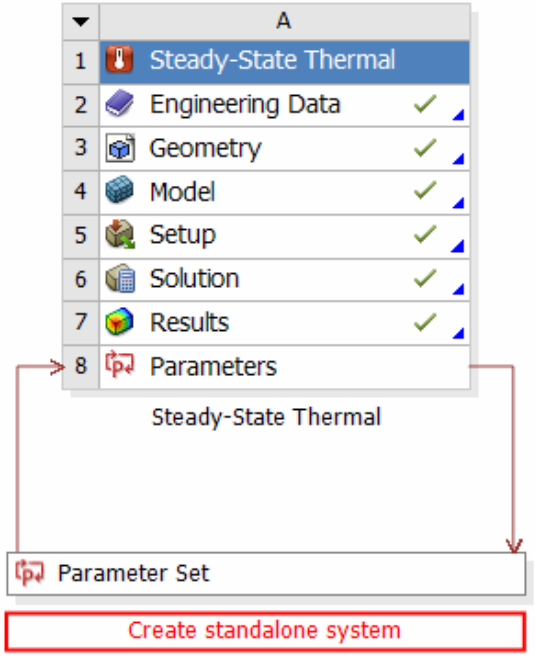
Getting started

1. Install

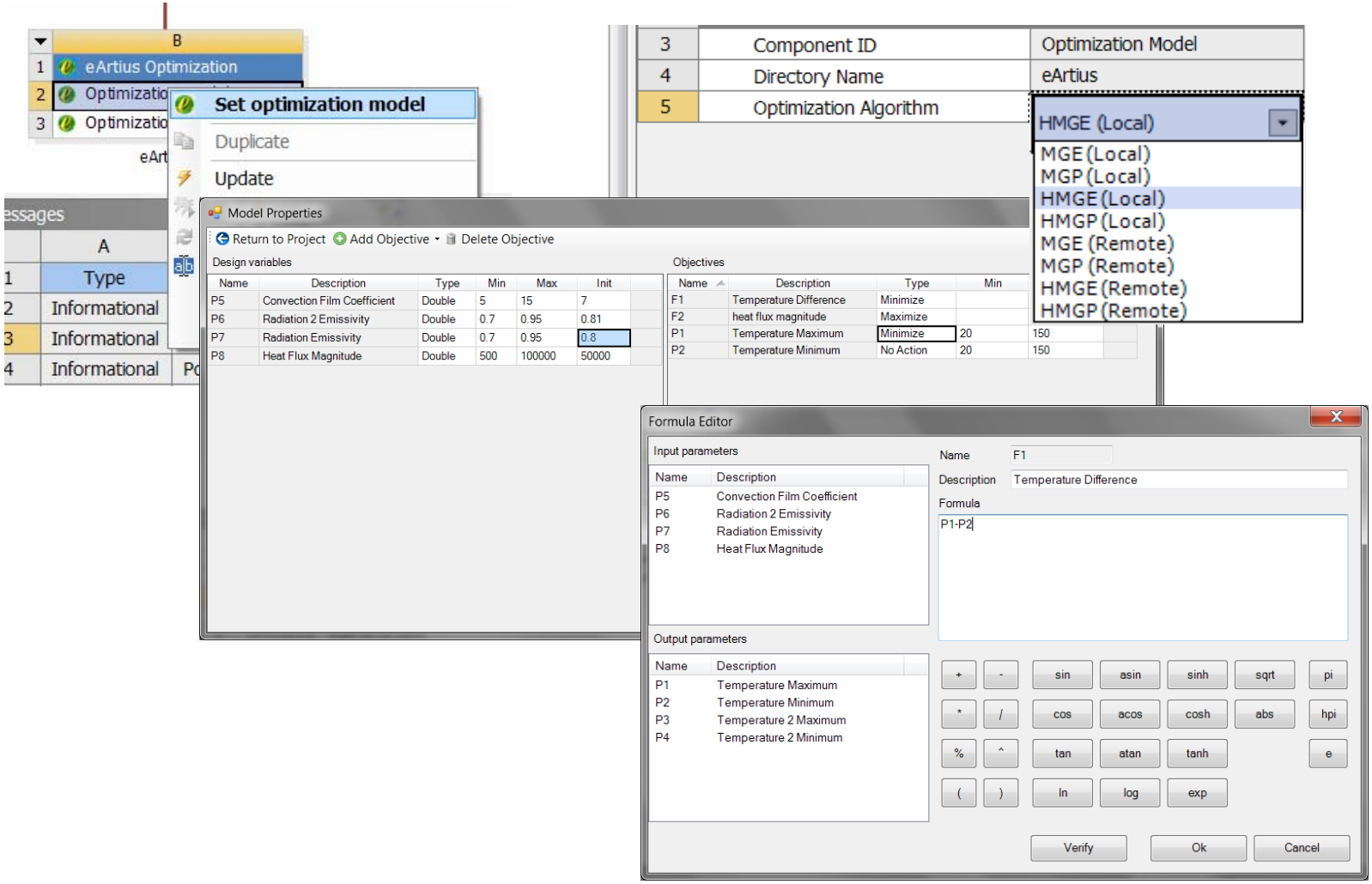


2. Add to project

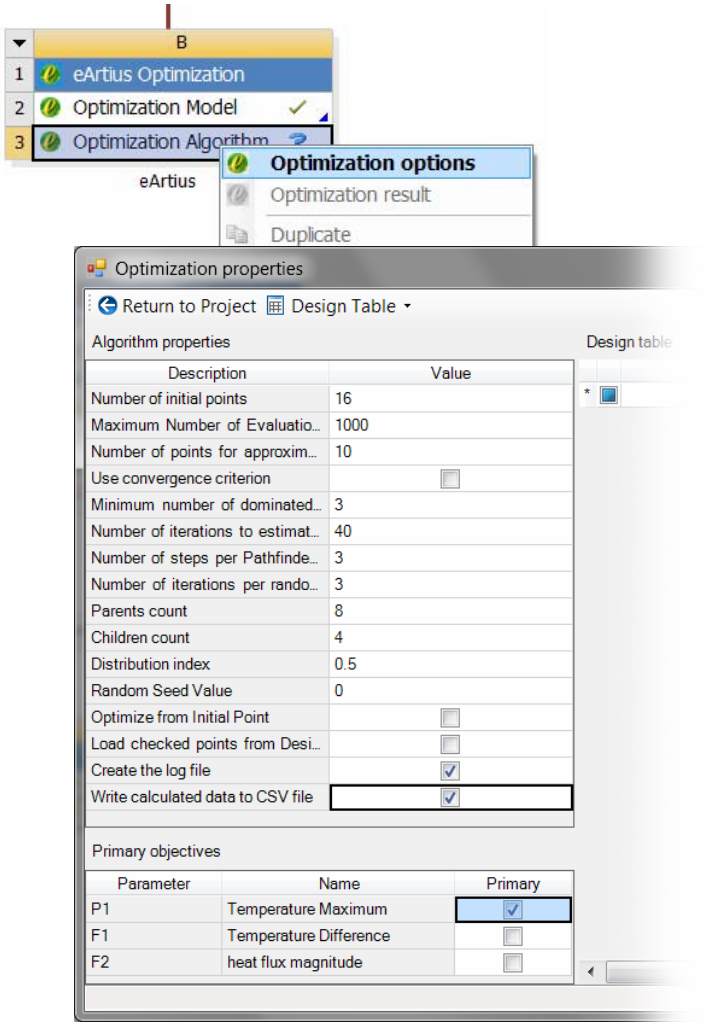




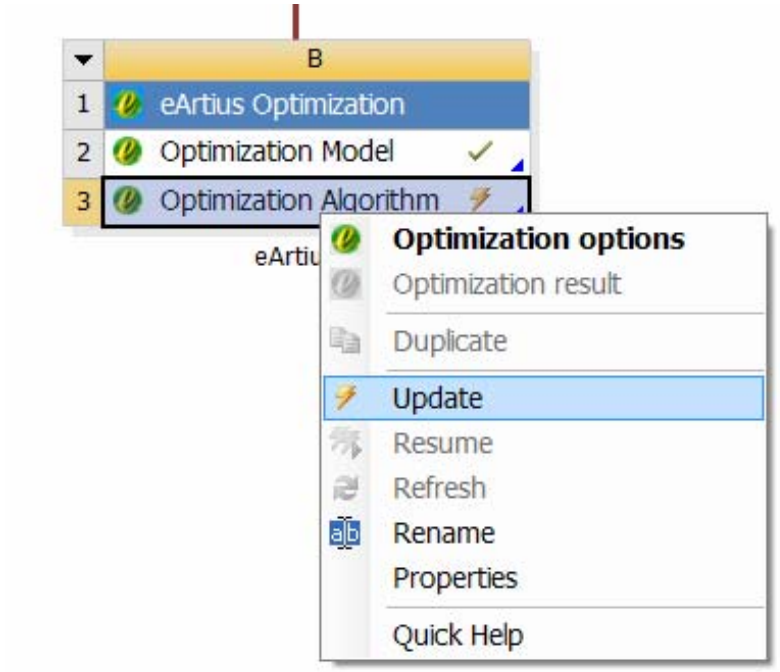
3. Define a simulation model and select an optimization algorithm



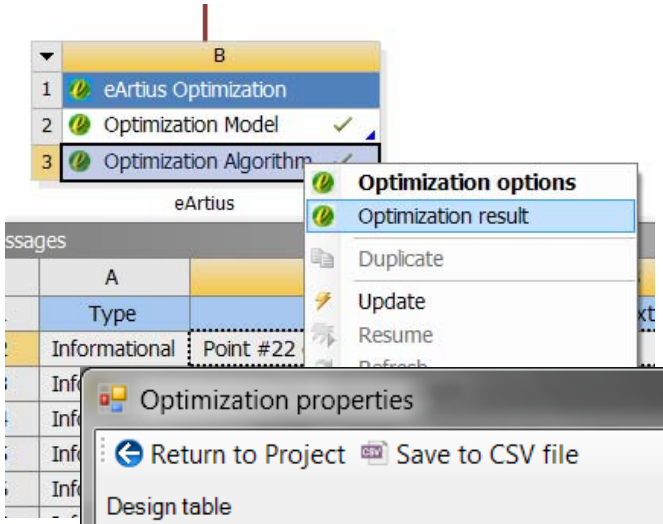
4. Specify parameters of the algorithm



5. Start optimization and wait



6. Check the optimization results in both local and remote modes



White – feasible designs
Red – infeasible designs

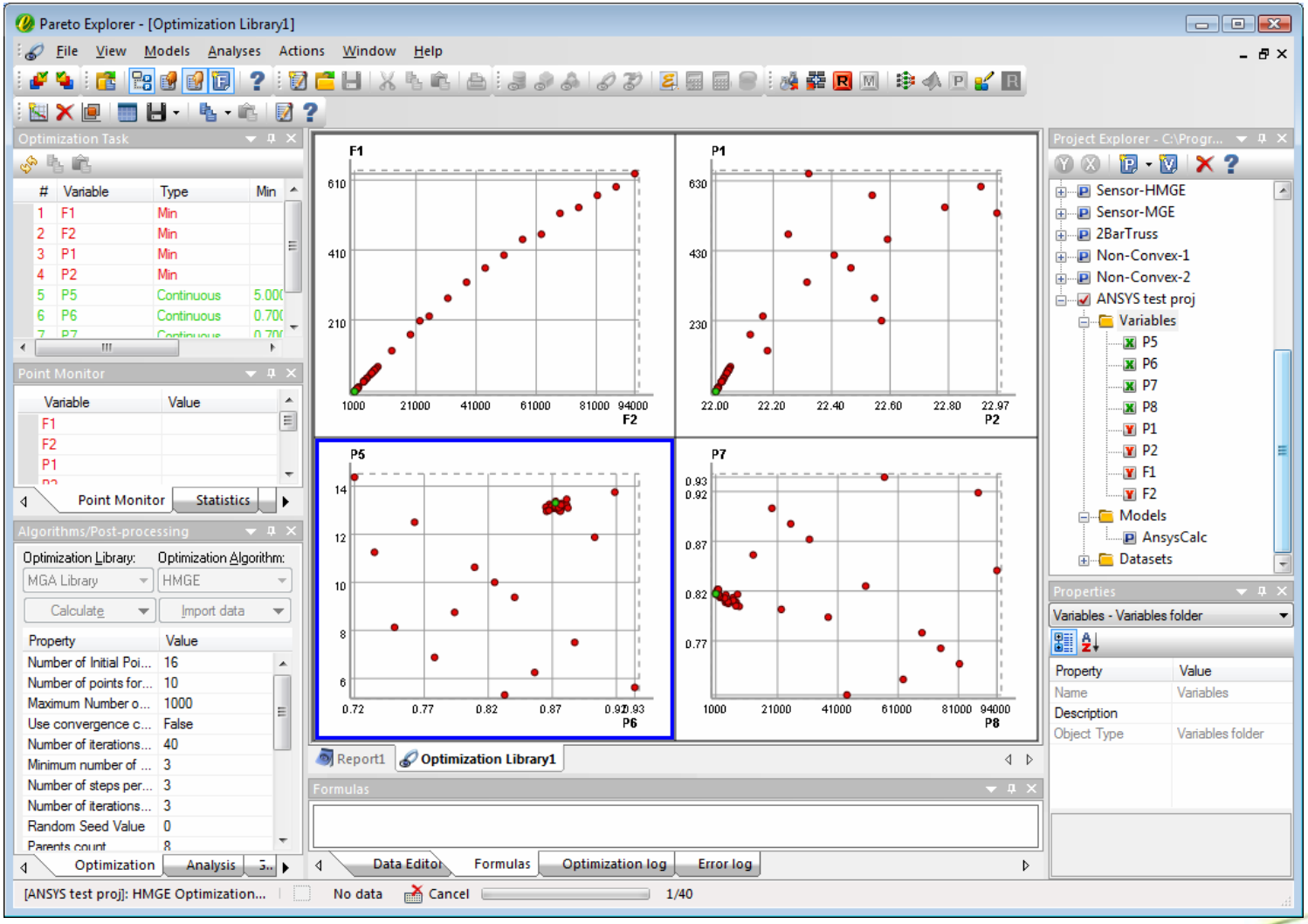
Optimization properties

Return to Project | Save to CSV file

Design table

	Convection Film Coe...	Radiation 2 Emissivity	Radiation Emissivity	Heat Flux Magnitude	Temperature Maximum
1	10	0.825	0.825	50250	417.3936767578125
2	7.5	0.8875	0.7625	75125	554.15008544921875
3	12.5	0.7625	0.8875	25375	242.64993286132812
4	6.25	0.85625	0.91875	87562.5	613.39984130859375
5	11.25	0.73125	0.79375	37812.5	339.85525512695312
6	8.75	0.79375	0.85625	12937.5	143.96047973632812
7	13.75	0.91875	0.73125	62687.5	477.09454345703125
8	5.625	0.934375	0.871875	31593.75	294.37661743164062
9	10.625	0.809375	0.746875	81343.75	588.5789794921875
10	8.125	0.746875	0.934375	56468.75	462.56658935546875
11	13.125	0.871875	0.809375	6718.75	83.867500305175781

7. Observe runtime optimization results in remote mode

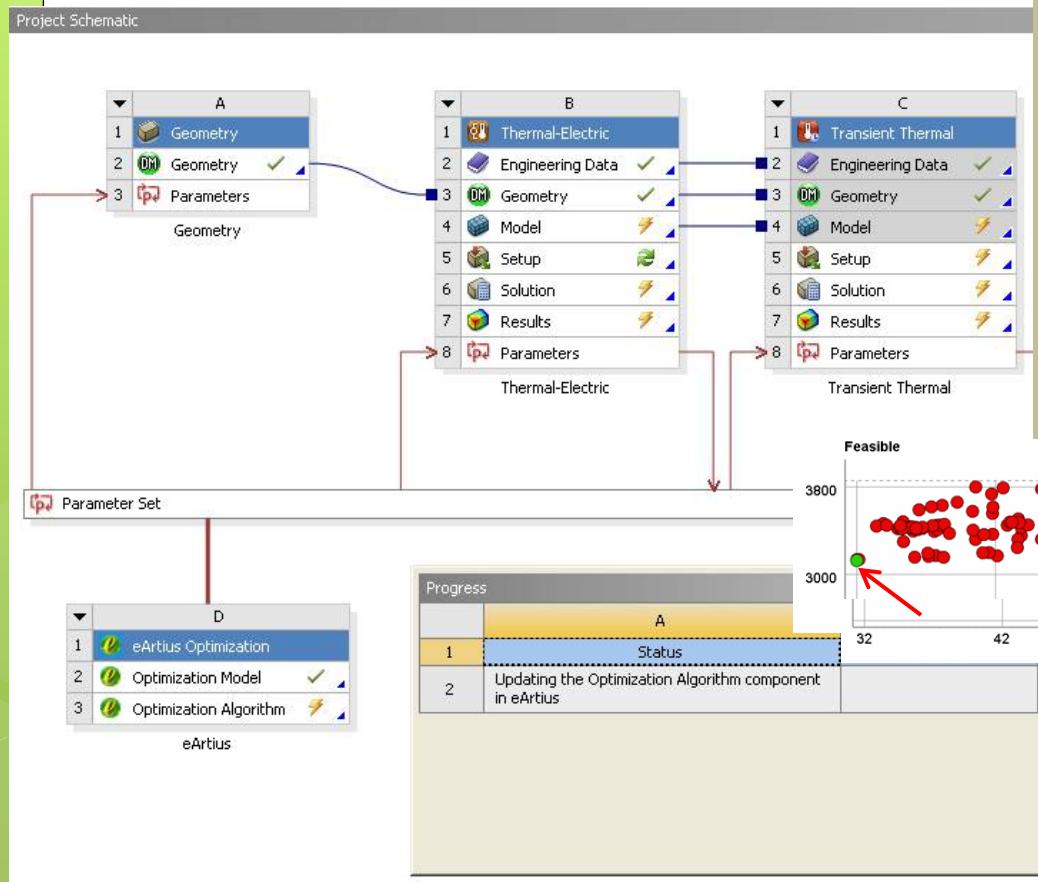


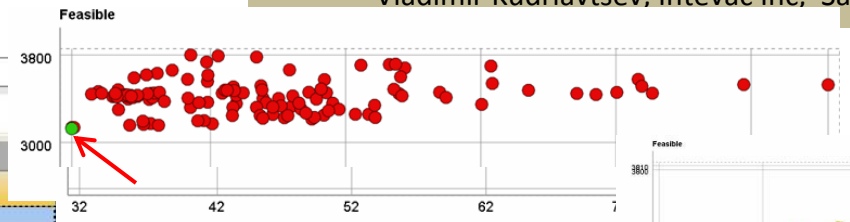
Intevac Use Case

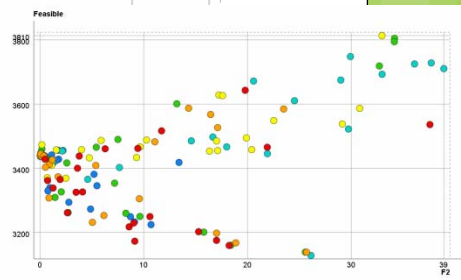
INTEVAC

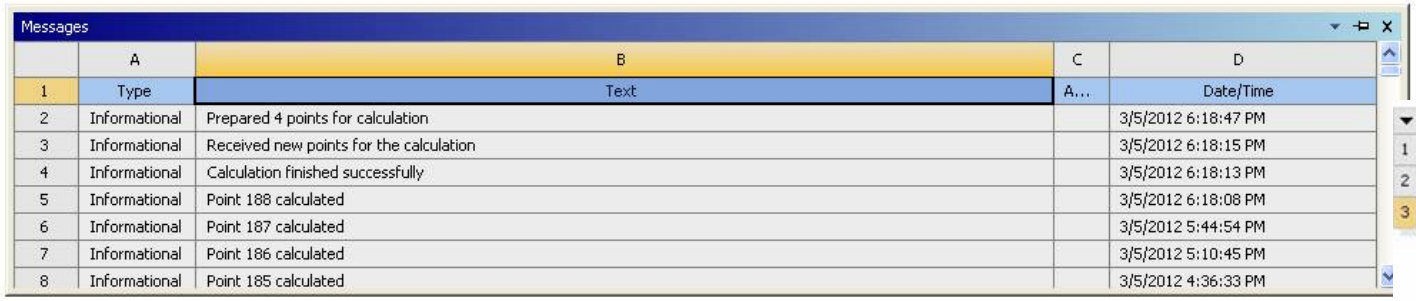
"We beta tested WB13 interface with eArtius HMGE optimization using our actual design for next generation vacuum tool product development. That included direct Solid Works parametric geometry change, Design Modeler, Thermo-Electric and Transient Thermal radiation with APDL snippets. We were able to quickly improve our designs, and product is very easy to use – absolutely no barrier in fast transition to design optimization. This ease is a unique and most attractive feature of this new product. ANSYS customers will love it!"

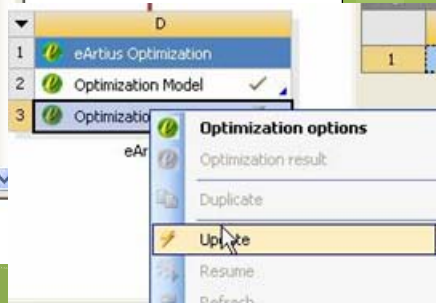
Vladimir Kudriavtsev, Intevac Inc, Santa Clara, CA











Questions?