

*CAD package for electromagnetic and thermal analysis using finite elements and PEEC method*

# Flux<sup>TM</sup>



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## Flux Student Edition



# Altair

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## Limitations of the Flux Student Edition

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**Introduction** A standalone Flux Student Edition has been released for Flux 2018.1. The source code are identical to the professional edition. The installer is dedicated. The student can read the terms of the EULA and must accept the terms. All applications and all modules (2D, 3D, Skew, PEEC) are accessible, with some limitations.

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**Number of nodes** Limitation of the number of nodes:

- 25000 nodes in 2D
- 100000 nodes in 3D and Skew

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**Number of cores** Limitation of the number of cores: 4 cores maximum

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**CAD import/export** Limitation of CAD import and export:

- Authorized import: IGES, STEP and SolidWorks
- Authorized export: IGES and STEP

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**Specific limitations for PEEC** Specific limitations for PEEC:

- Capacitive solver: 8 000 face elements
- Global RLC solver: 6500 subdivisions

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**Solving time** Limitation of solving time:

- 2D and PEEC : 10min
- 3D and Skew : 20min

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**OS System** The student version is only available on Windows OS.

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**License system** The student version is only available for a standalone version with a HWU licensing.

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## Examples available with Flux Student Edition

### Note for student users

Our base of examples is really rich (more than 150 examples). It contains simple cases to show and train the user (interesting for students), but also more complex cases and close to real cases that may meet the industry.

All proposed examples do not pass with the student version because of its limitations.

However, if you want to explore one of these limited cases, you can always adjust it by lightening the geometry, the mesh and the solving scenario (the number of steps requested).

### Not limited 2D examples

Here is the list of successful 2D examples with the Flux student version.

| Module | 2D examples                                 |
|--------|---|
| 2D     | 1Compass_Case1                              |
| 2D     | 3PhaseCable_Case1                           |
| 2D     | 4Compass_Case1                              |
| 2D     | Brushless_IPM_2D_BasicTutorial_Case1        |
| 2D     | Brushless_IPM_Tutorial_2D_Case1             |
| 2D     | Brushless_IPM_Tutorial_2D_Case2             |
| 2D     | Brushless_IPM_Tutorial_2D_Case3             |
| 2D     | Brushless_SPM_Tutorial_2D_Case1             |
| 2D     | Brushless_SPM_Tutorial_2D_Case2             |
| 2D     | BrushlessIPM_Activate_Case1                 |
| 2D     | CoaxialTubesThermalRadiation_2D_Case1       |
| 2D     | ConicalConductor_Case1                      |
| 2D     | Contactoer_HyperStudy_Case1                 |
| 2D     | Crack_Case1                                 |
| 2D     | DiskCondensator_Case1                       |
| 2D     | Ex2D_AN_BrushlessIPMMotor_Multilayers_Case1 |
| 2D     | Ex2D_AN_BrushlessIPMMotor_Multilayers_Case2 |
| 2D     | Ex2D_AN_Buried3PhaseCable_Case1             |
| 2D     | Ex2D_AN_Buried3PhaseCable_Case2             |
| 2D     | Ex2D_AN_Buried3PhaseCable_Case3             |
| 2D     | FuseCoSimulation_Case1                      |
| 2D     | GeometryMesh_Case1                          |
| 2D     | HelmholtzCoil2D_Case1                       |
| 2D     | IM_ScalarControl_Activate_Case1             |
| 2D     | InductionHeatingMultiphysics_Case2          |
| 2D     | InductionHeatingMultiphysics_Case3          |
| 2D     | InductionHeatingMultiphysics_Case4          |
| 2D     | InductionHeatingMultiphysics_Case5          |
| 2D     | InductionMotor_2_2D_Case1                   |
| 2D     | InductionMotor_2_2D_Case2                   |
| 2D     | InductionMotor_2_2D_Case3                   |
| 2D     | InductionMotor_2_2D_Case4                   |

|    |  |
|----|--|
| 2D | infiniteWire_Case1                     |
| 2D | Magnetostatic_Sensor_tutorial_2D_Case1 |
| 2D | Magnetostatic_Sensor_tutorial_2D_Case2 |
| 2D | PointSphere_Case1                      |
| 2D | RadiatorThyristor_Case1                |
| 2D | Solenoid_Case1                         |
| 2D | spire_Case1                            |
| 2D | SPM_Regulation_Activate_Case1          |
| 2D | SynchronousMotor_tutorial_Case1        |
| 2D | SynchronousMotor_tutorial_Case2        |
| 2D | SynchronousMotor_tutorial_Case3        |
| 2D | SynchronousMotor_tutorial_Case6        |
| 2D | SynchronousMotor_tutorial_Case7        |
| 2D | SynchronousMotor_tutorial_Case8        |
| 2D | Thermal_tutorial_2D_Case1              |
| 2D | Thermal_tutorial_2D_Case2              |
| 2D | Thermal_tutorial_2D_Case3              |
| 2D | TorusMH_Case1                          |
| 2D | TorusMS_Case1                          |
| 2D | Translating_motion_tutorial_2D_Case1   |
| 2D | Translating_motion_tutorial_2D_Case2   |

**Not limited 3D examples** Here is the list of successful 3D examples with the Flux student version.

| <b>Module</b> | <b>3D Examples</b>                        |
|---------------|---|
| 3D            | AxialFluxMotor_3D_Case1                   |
| 3D            | AxialFluxMotor_3D_Case2                   |
| 3D            | BrushlessSPMMotor_3D_Case1                |
| 3D            | BrushlessSPMMotor_3D_Case3                |
| 3D            | BrushlessSPMMotor_3D_Case5                |
| 3D            | Ex3D_SF_Mesh_for_CoggingTorque_3D_Case1   |
| 3D            | Flux_AcuSolve_Cable_Case_2                |
| 3D            | GeometryMesh_3D_Case1                     |
| 3D            | Magnetostatic_Contactor_Tutorial_3D_Case1 |
| 3D            | Magnetostatic_Contactor_Tutorial_3D_Case2 |
| 3D            | Magnetostatic_Contactor_Tutorial_3D_Case3 |
| 3D            | Modeler_CADImport_3D_Case1                |
| 3D            | Modeler_InductionMotor_3D_Case1           |
| 3D            | Modeler_LinearActuator_3D_Case1           |
| 3D            | Modeler_OldProjectManagement_3D_Case1     |
| 3D            | Modeler_SimpleInductionMotor_3D_Case1     |
| 3D            | ThreePhasesTransformerOverlay_Case1       |
| 3D            | ThreePhasesTransformerOverlay_Case2       |
| 3D            | TranslatingMotion_Activate_Case1          |
| 3D            | TranslatingMotion_Tutorial_3D_Case1       |
| 3D            | WoundTorus_3D_Case1                       |
| 3D            | WoundTorus_3D_Case2                       |

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**Not limited** Here is the list of successful Skew examples with the Flux student version.  
**Skew examples**

| <b>Module</b> | <b>Skew Examples</b>               |
|---------------|------------------------------------|
| Skew          | BrushlessIPMMotor_Skew_Case1       |
| Skew          | BrushlessSPMMotor_Skew_Case1       |
| Skew          | BrushlessSPMMotor_Skew_Case2       |
| Skew          | BrushlessSPMMotor_Skew_Case3       |
| Skew          | InductionMotor_Tutorial_Skew_Case1 |
| Skew          | InductionMotor_Tutorial_Skew_Case2 |

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