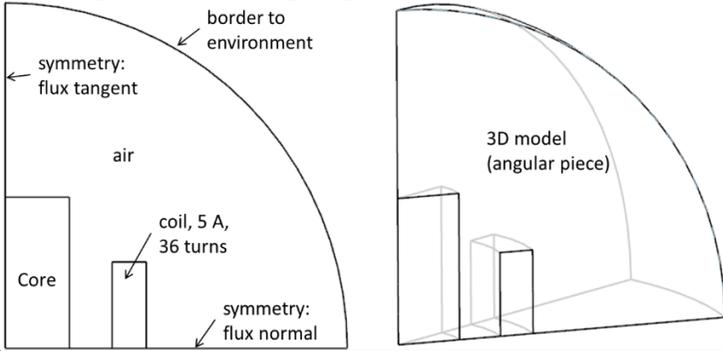
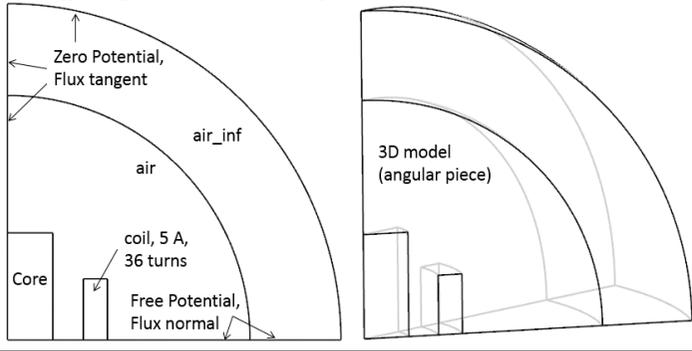
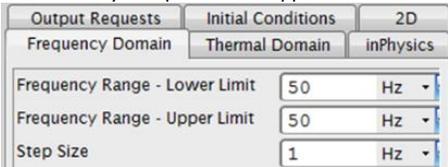
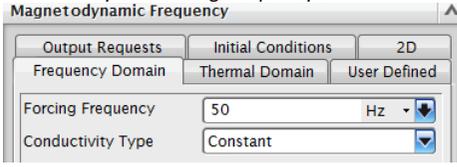
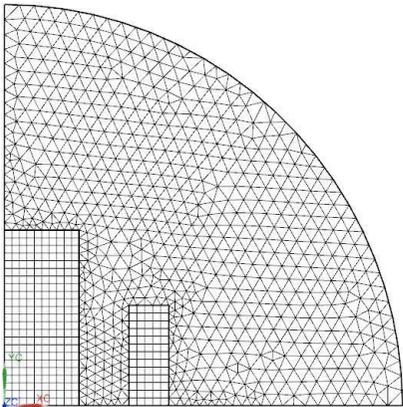
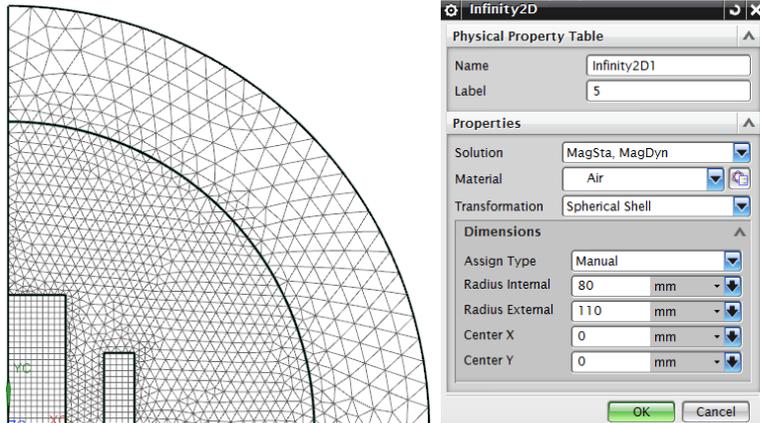


Update Document

When the latest version of the Magnetics solver is installed there are some user actions different to shown in the book. These changes are listed here.

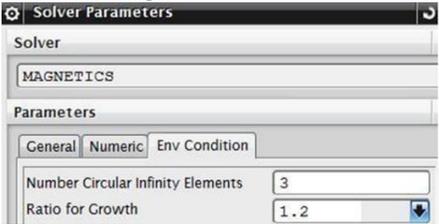
Chapter	Book version	New version (v192)
6.2 Installation and Licensing	Run the installation script as administrator: <i>InstallMagneticsForNX9.bat</i>	Run the installation script as administrator: <i>InstallMagneticsForNX.bat</i> Remark: The installation package now contains the versions NX8, NX8.5 and NX9.
6.3.1 Coil with Core, Axisym.		
6.3.1.1 Tasks	Different figure. There was no air_inf region before. 	The air_inf region is a separate CAD geometry now. 
6.3.1.3 Create a File Structure and Solutions	In solution DynFreq: There are <i>Upper</i> and <i>Lower limit</i> and <i>Step Size</i> available. 	There is only one Forcing Frequency available. 
6.3.1.4 Meshing and Physical Properties	There was no air_inf region to mesh. In this old version the infinity elements have been created internally when the user selected the constraint Env. 	Now there is an additional region to mesh: The air_inf region. Mesh it with tri elements and element size of 6 mm. In the new version the user has more control over infinity elements. He has to create the mesh and assign a Physical of type <i>Infinity2D</i> . So first thing you have to do is creating this Physical: In the 2D-collector dialog switch the <i>Type</i> from the <i>PlanePhysical</i> to <i>Infinity2D</i> . Then use the <i>Create Physical...</i> button. The following dialog appears. Set the properties as show. Ok, Ok. 

6.3.1.5 Constraints and Loads

The names of some constraints have changed:

- Symmetry-Flux tangentially
- Symmetry-Flux normal
- Environment to Infinity

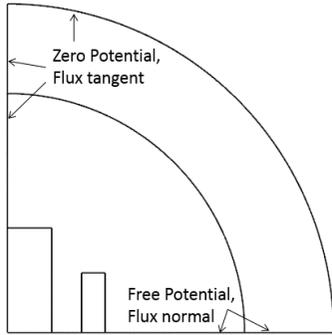
The constraint worked together with the settings under *Solver Parameters* in register *Env Condition*.



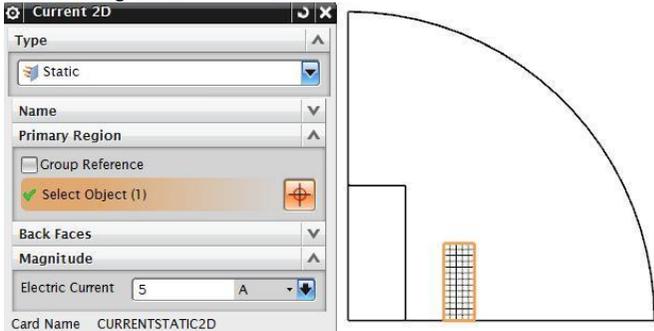
The new names are more exact. Following the new names:

- *Zero Potential – Flux tangent*
- *Free Potential – Flux normal*
- The constraint *Environment to Infinity* is not available anymore. Instead the *Physical Infinity2D* must be used together with a constraint *Zero Potential – Flux tangent* at the boundary edge.

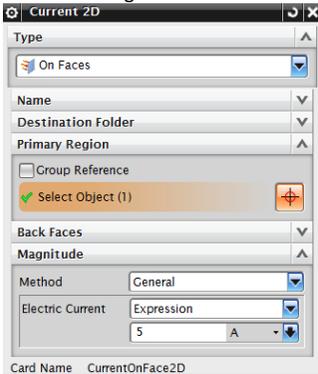
So you create the 3 constraints as shown here:

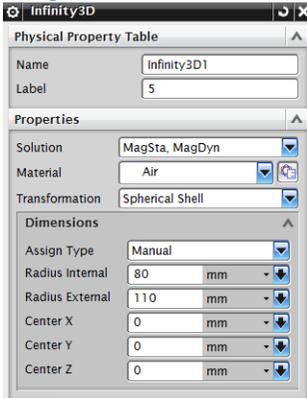
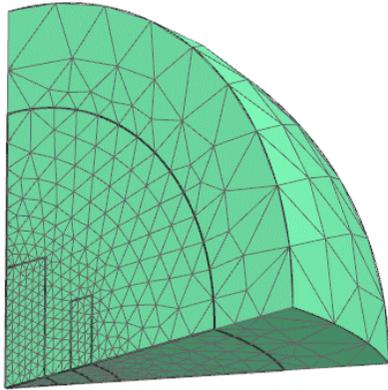
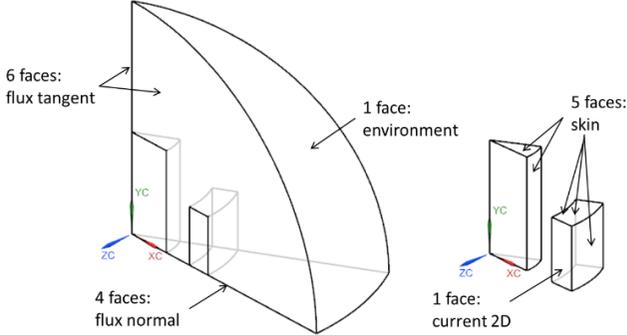
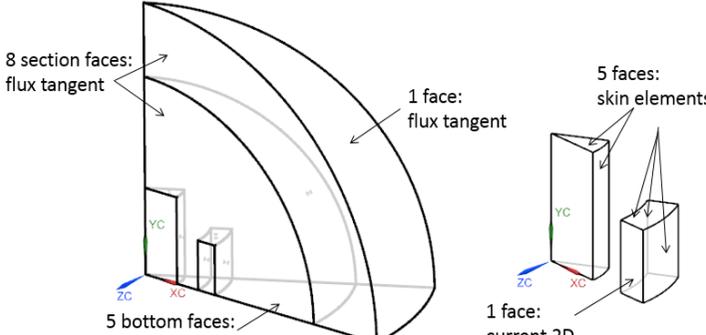


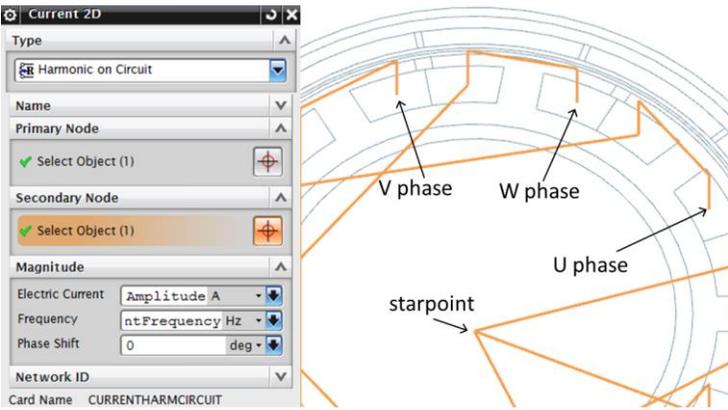
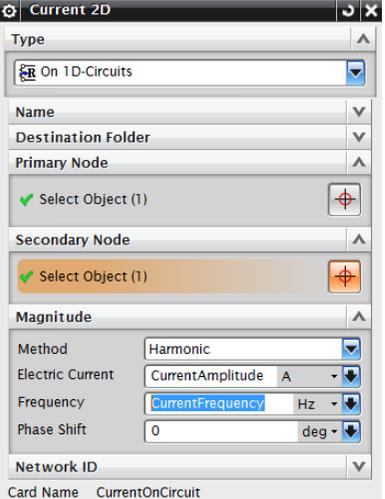
When creating the current on the coil you will find the dialog has changed a little. The old dialog is this:



The new dialog looks like this:



<p>6.3.2 Coil with Core, 3D</p> <p>6.3.2.2 Meshes and Physical Properties</p>	<p>Same as in 2D/Axisymmetric. E.g. in the old version there was no <i>air_inf</i> geometry. Instead you had to use the constraint <i>Environment to Infinity</i> to create infinity elements.</p>	<p>In the new version there is better control over infinity elements. They are now manually created and a Physical of type <i>Infinity3D</i> is assigned. So you additionally mesh the geometry <i>air_inf</i> with tetrahedral elements and the suggested element size (18.9mm). You assign a Physical of type <i>Infinity3D</i> to the <i>air_inf</i> mesh and apply the properties as given in the figure:</p>  
	<p>In the old version you had to create constraints of type <i>SkinOfConductor</i> on all faces that border the electrically conductive bodies.</p> 	<p>The constraint <i>SkinOfConductor</i> is not available in the new version any more. Instead you have to create surface-coat elements in the fem file on those surfaces.</p>  <p>So you</p> <ul style="list-style-type: none"> • blank the mesh and polygon body of <i>air_inf</i> and air. • Chose the function <i>Surface Coat</i> and select the faces marked in the above figure as <i>Skin</i>. • Ok. 2D Elements are created there. • You do not need to create or edit the Physical because the default Physical is already the desired type <i>Skin</i>.
<p>6.3.2.3 Constraints and Loads</p>	<p>The names of some constraints have changed in the same way as in 2D/Axisymmetric:</p> <ul style="list-style-type: none"> • Symmetry-Flux tangentially • Symmetry-Flux normal • Environment to Infinity <p>You don't create the constraint <i>SkinOfConductor</i>.</p>	<p>The new names are more exact. Following the new names:</p> <ul style="list-style-type: none"> • <i>Zero Potential – Flux tangent</i> • <i>Free Potential – Flux normal</i> • The constraint <i>Environment to Infinity</i> is not available anymore. Instead the Physical <i>Infinity2D</i> must be used together with a constraint <i>Zero Potential – Flux tangent</i> at the boundary edge <p>You create the constraints corresponding to the above figure (left part).</p>

6.3.3 Electric Motor		
6.3.3.6 Rotor Motion	<p>In the old version you had to use the function <i>Extract Physical</i> on both edges of the air-gap. This was a preparation for the following simulation object <i>Enforced Motion 2D</i>.</p>	<p>In the new version this preparation is not necessary anymore. You can directly create the object <i>Enforced Motion 2D</i>. You select the two edges of the air-gap inside this dialog.</p>
6.3.3.7 Define Three Phase Power	<p>The dialog for <i>Current 2D</i> has changed. In the old version you have set the <i>Type</i> to <i>Harmonic on Circuit</i>.</p> 	<p>In the new version you chose the type to <i>On 1D-Circuits</i> and set the <i>Method</i> to <i>Harmonic</i>.</p> 
6.3.3.8 Environment Condition	<p>In the old version the name of the constraint for environment was <i>Environment to Infinity</i>.</p>	<p>In the new version this constraint is named <i>Zero Potential – Flux tangent</i>. So you create the constraint on the two border edges using this constraint name.</p>