

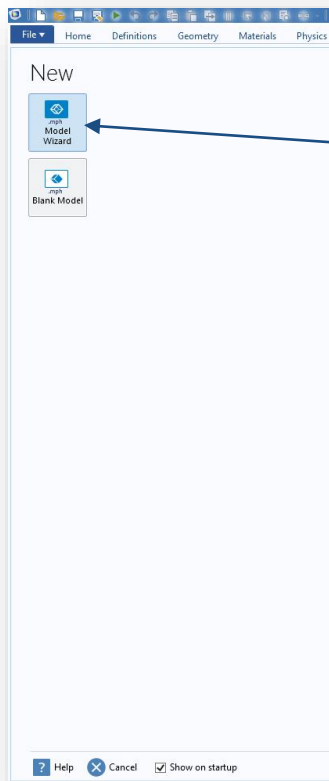
# Příklad 2: Antény

Matouš Lorenc

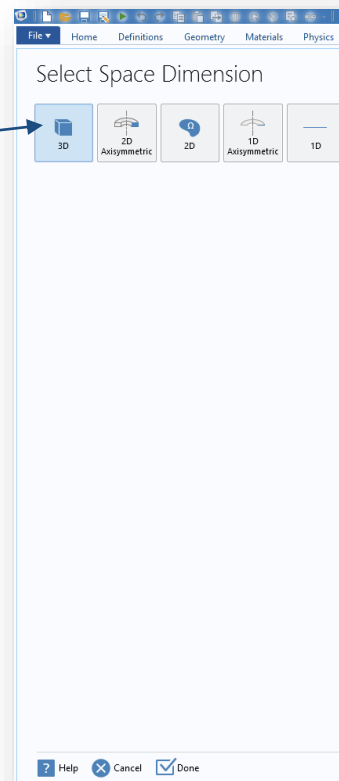
[lorenc@humusoft.cz](mailto:lorenc@humusoft.cz)

+420 284 011 730

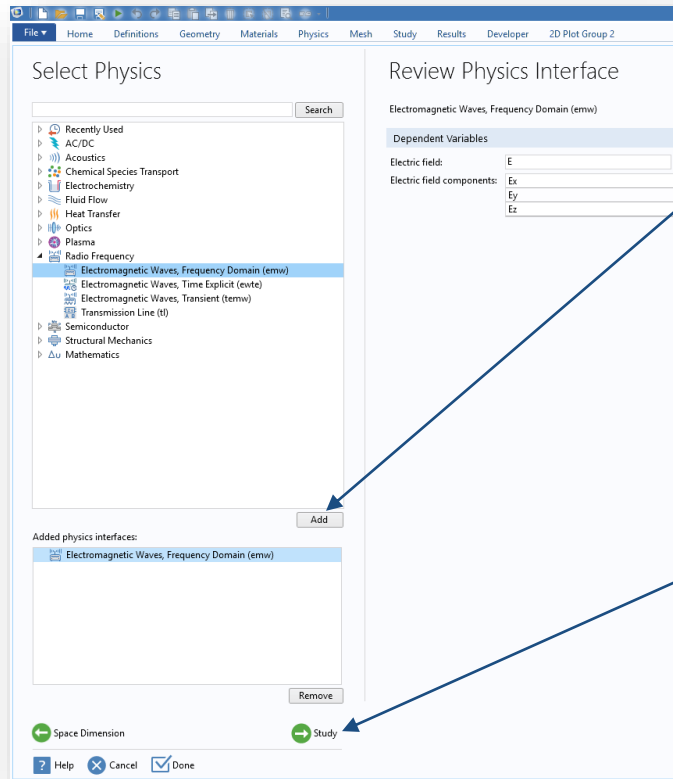
# 1) Model Wizard / 3D



Vytvořit model pomocí „*Model Wizard*“ a vybrat dimenzi řešeného problému



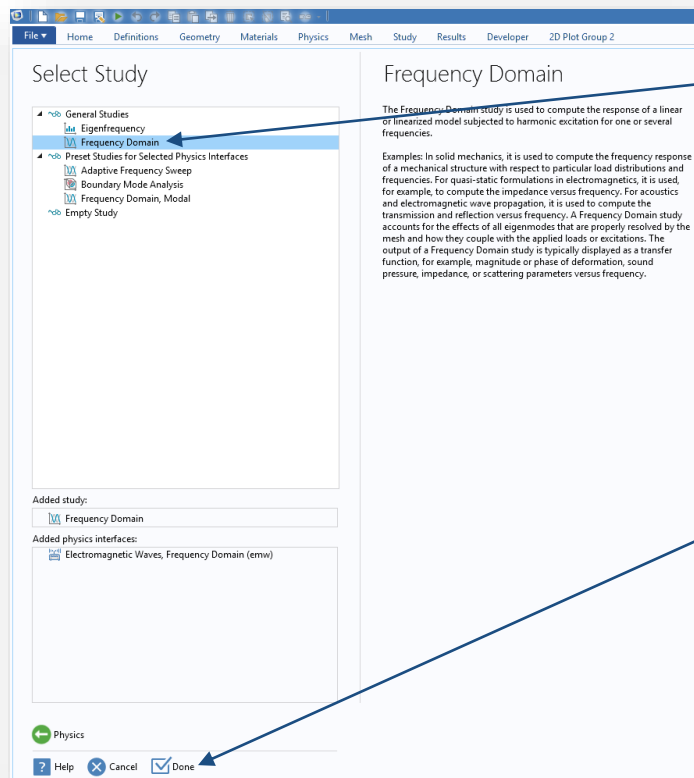
## 2) Select Physics / Radio Frequency / Electromagnetic Waves, Frequency Domain (emw)



1) Fyzikální rozhraní se přidá tlačítkem „Add“

2) Přikročit k výběru studie stiskem tlačítka „Study“

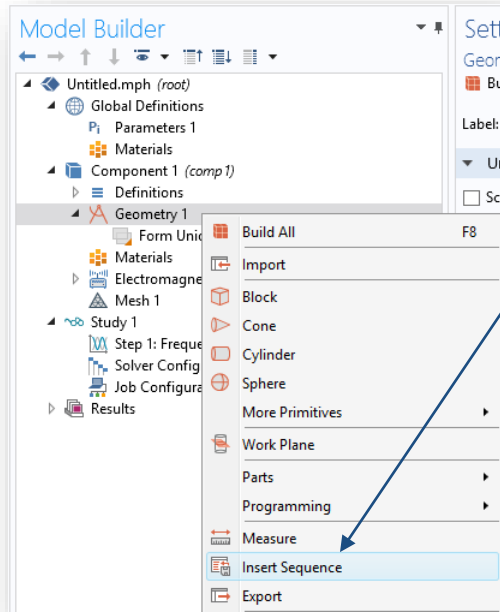
### 3) Select Study / Frequency Domain



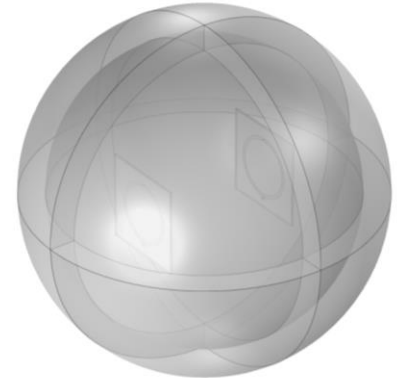
1) Označit studii typu „Frequency Domain“

2) Dokončit nastavení modelu tlačítkem „Done“

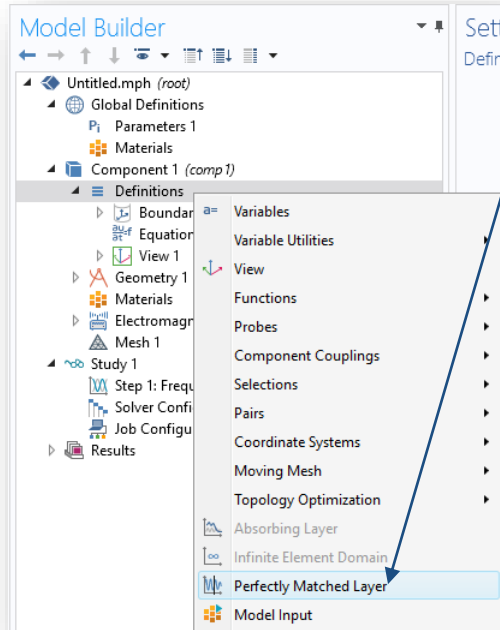
## 4) Component 1 / Geometry 1 / Insert Sequence



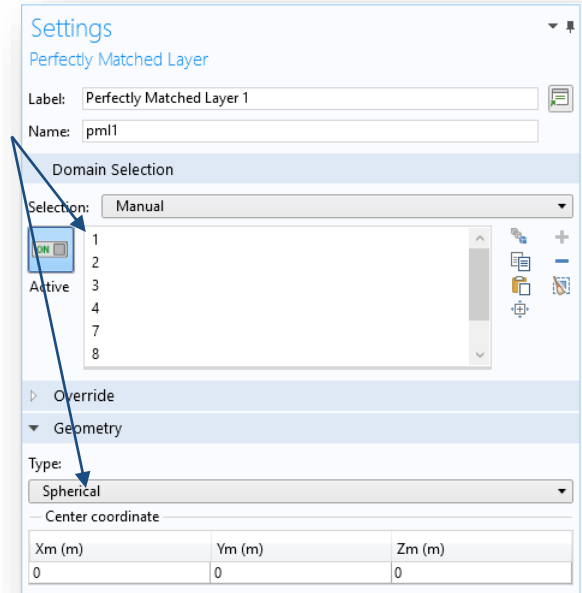
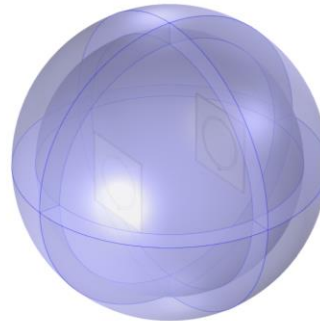
Vložit geometrickou sekvenci ze souboru 01\_anténa\_geometry.mph



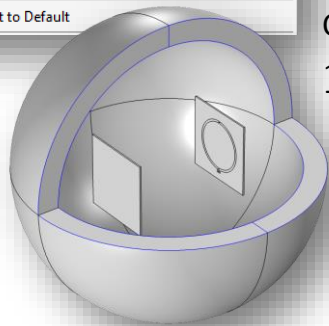
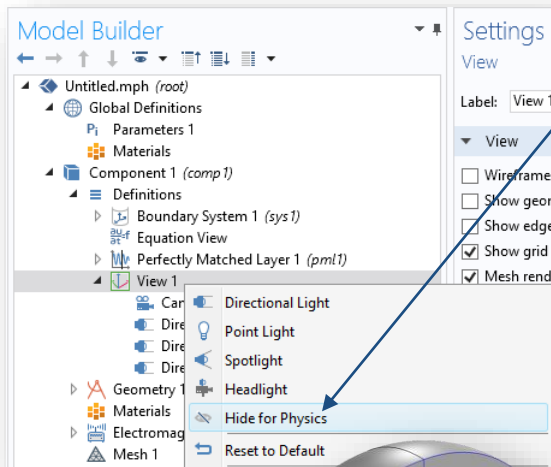
## 5) Component 1 / Definitions / Perfectly Matched Layer



Definovat „Perfectly Matched Layer“ pro domény 1-10 a změnit její souřadnice na kulové

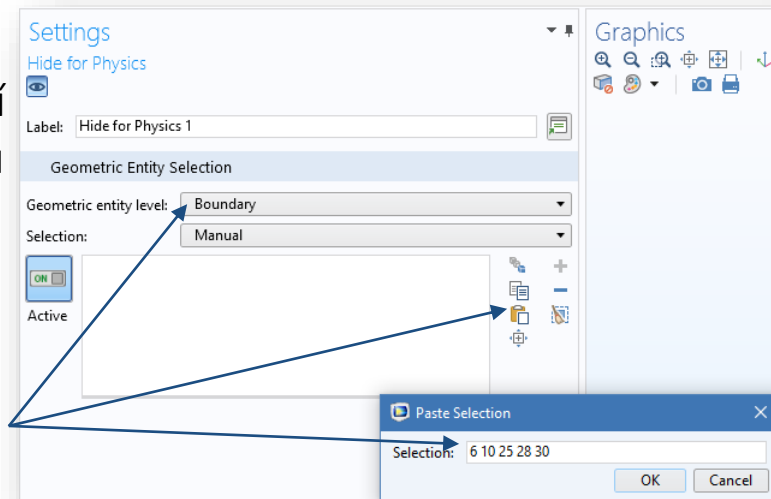


## 6) Component 1 / Definitions / View 1 / Hide for Physics

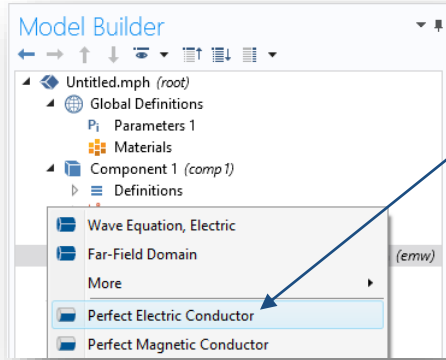


1) Odkrýt vnitřek geometrie pomocí vlastnosti pohledu „Hide for Physics“

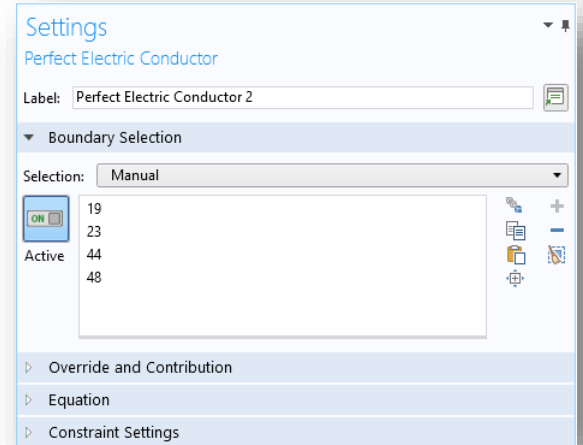
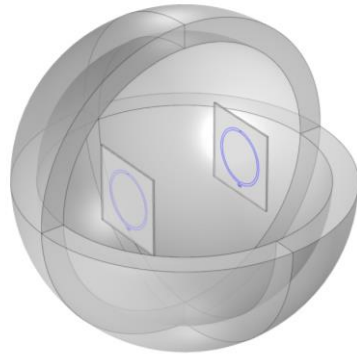
2) Pomocí volby „Paste selection“ označit plochy 6, 10, 25, 28 a 30



# 7) Component 1 / Electromagnetic Waves, Frequency Domain / Perfect Electric Conductor 2

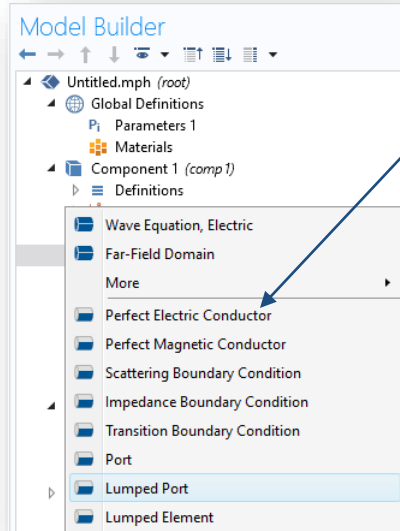


Definovat okrajovou podmínku „*Perfect Electric Conductor*“ pro plochy antén (19, 23, 44 a 48)

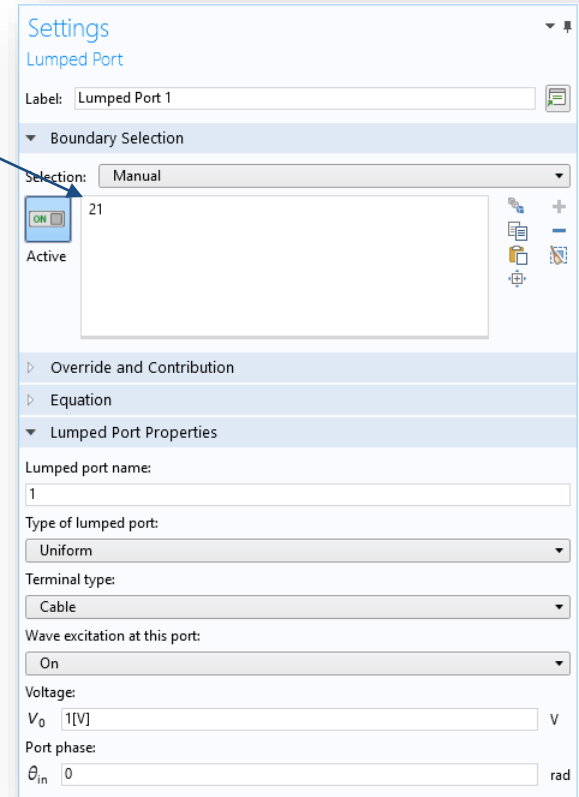
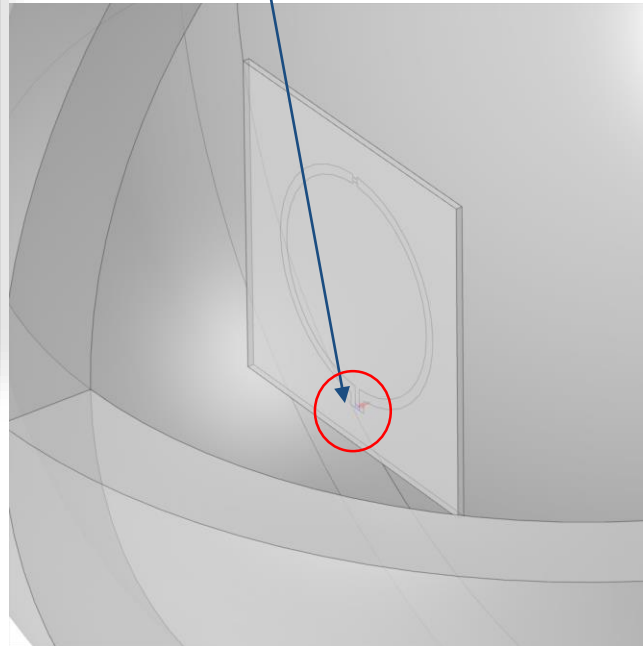




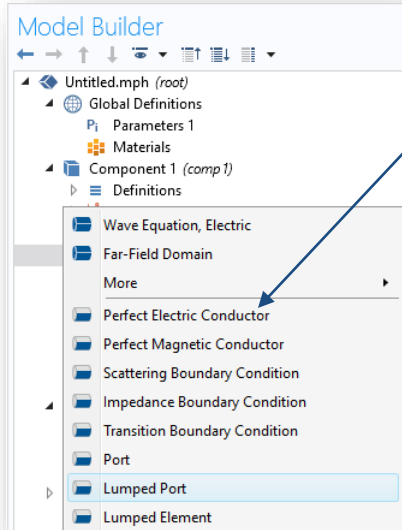
## 8) Component 1 / Electromagnetic Waves, Frequency Domain / Lumped Port 1



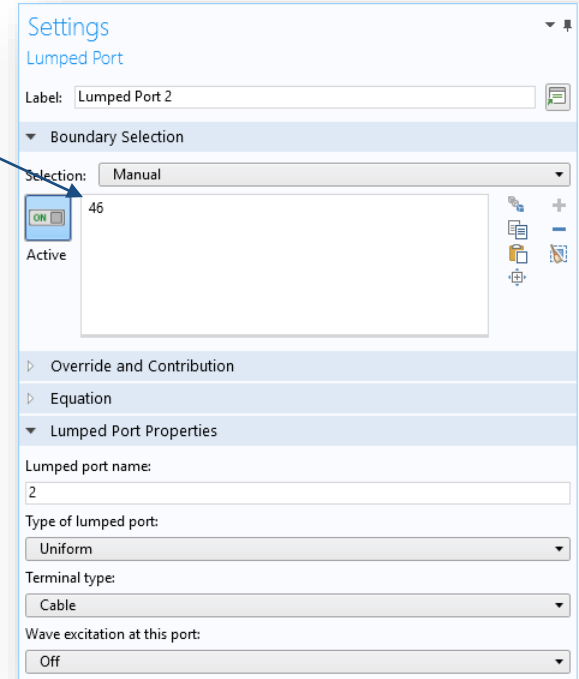
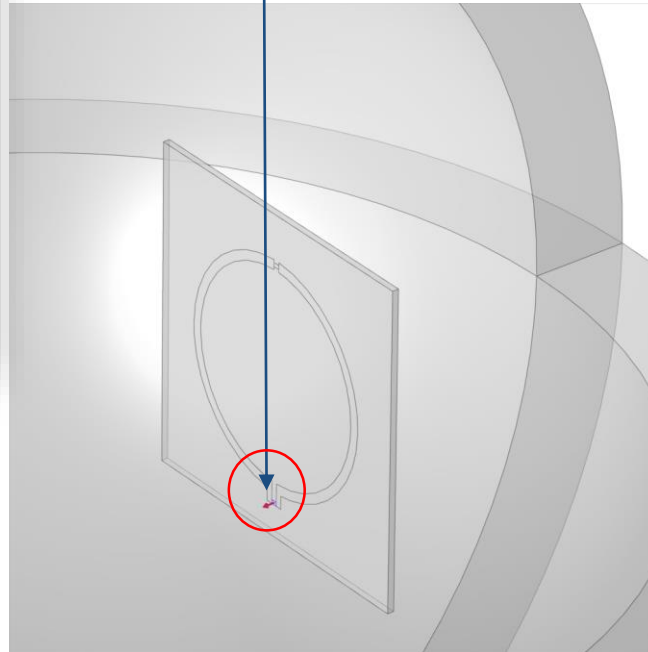
Definovat budúci port  
pro plochu 21



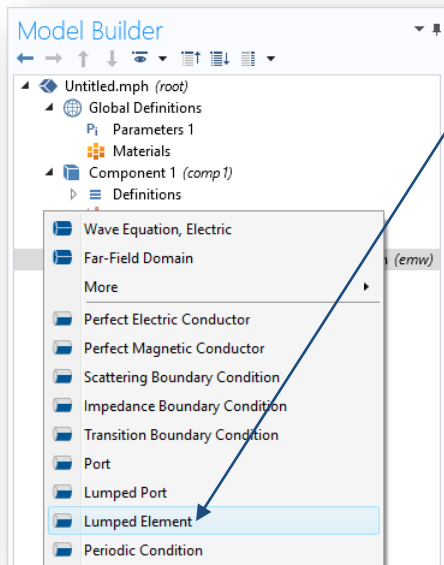
# 9) Component 1 / Electromagnetic Waves, Frequency Domain / Lumped Port 2



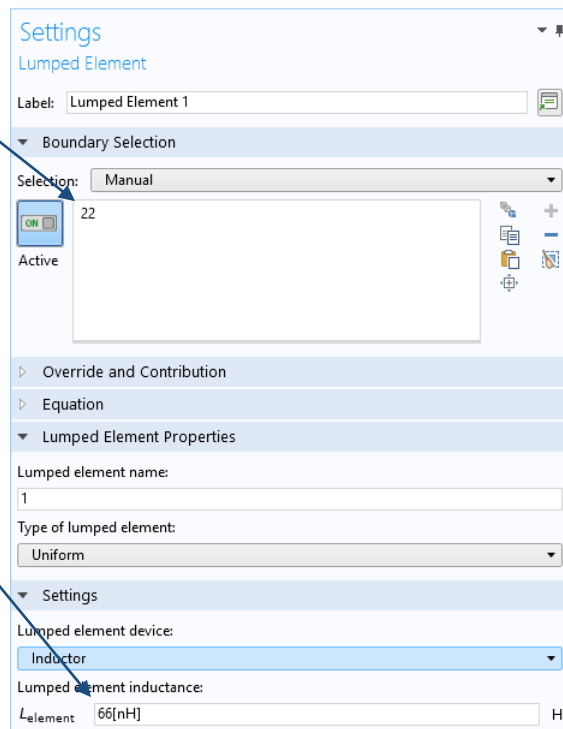
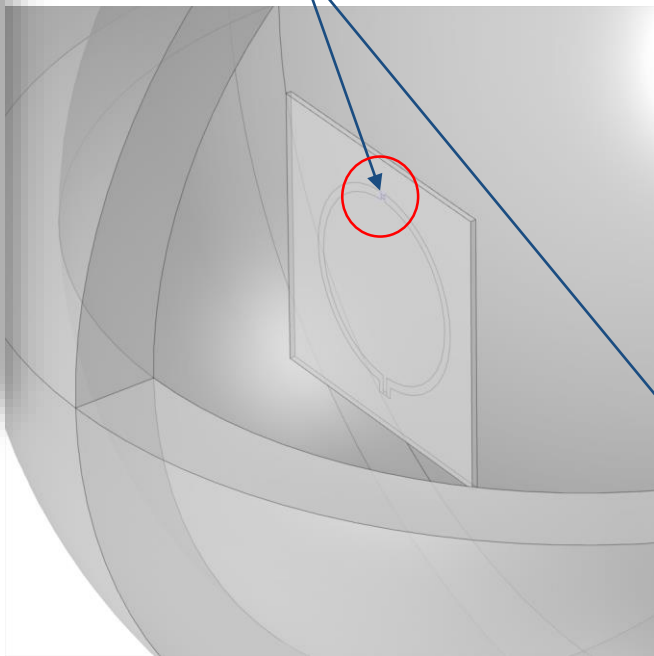
Definovat přijímací port pro plochu 46



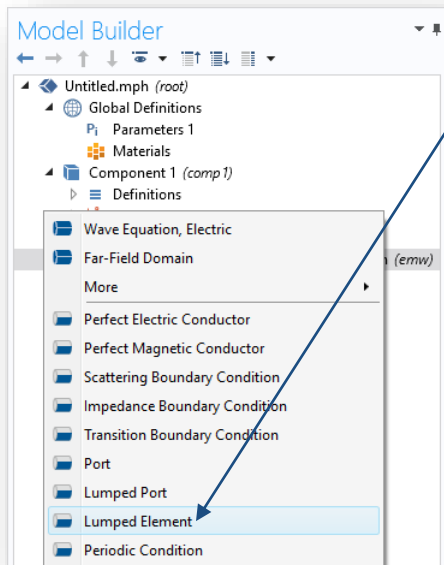
# 10) Component 1 / Electromagnetic Waves, Frequency Domain / Lumped Element 1



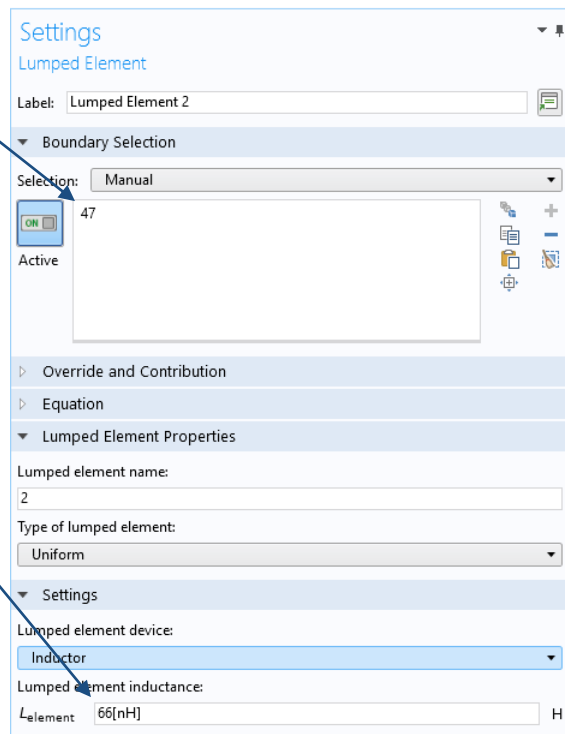
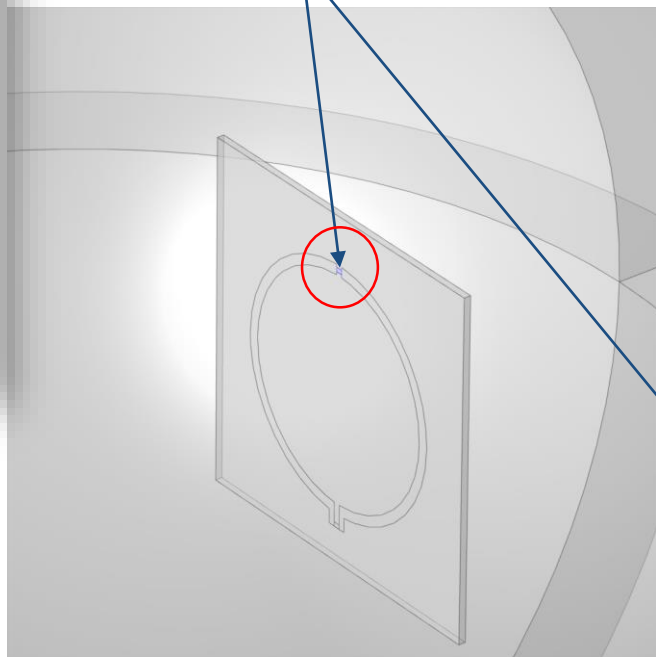
Přidat „Lumped Element“  
typu cívka pro plochu 22



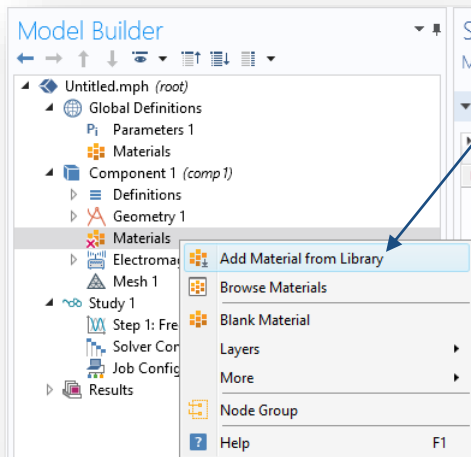
# 11) Component 1 / Electromagnetic Waves, Frequency Domain / Lumped Element 2



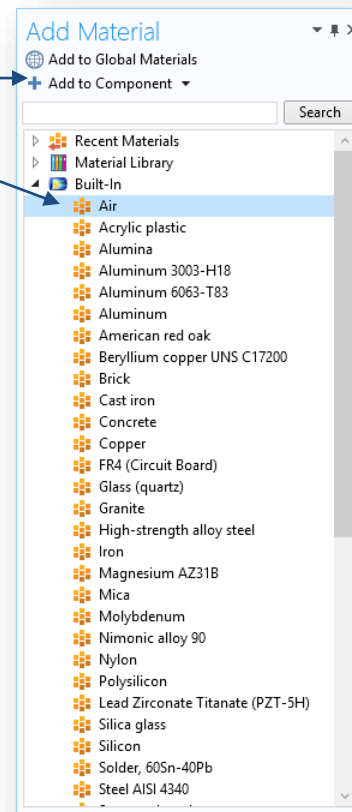
Přidat „Lumped Element“  
typu cívka pro plochu 47



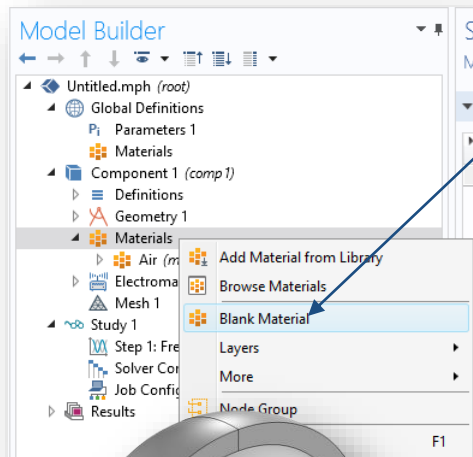
## 12) Component 1 / Materials / Air



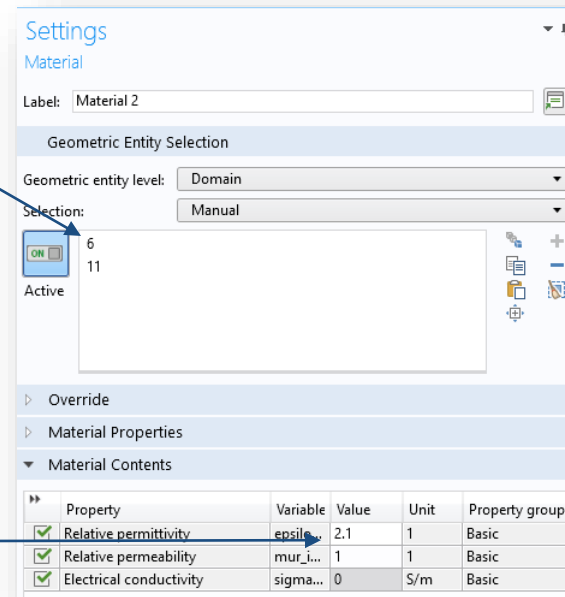
Přidat materiál vzduchu z  
materiálové knihovny



## 13) Component 1 / Materials / Blank Material 1

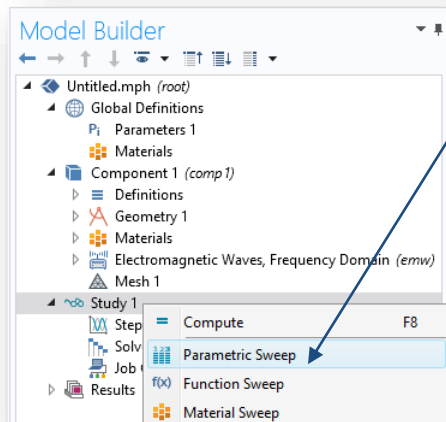


1) Přidat prázdný materiál pro domény 6 a 11



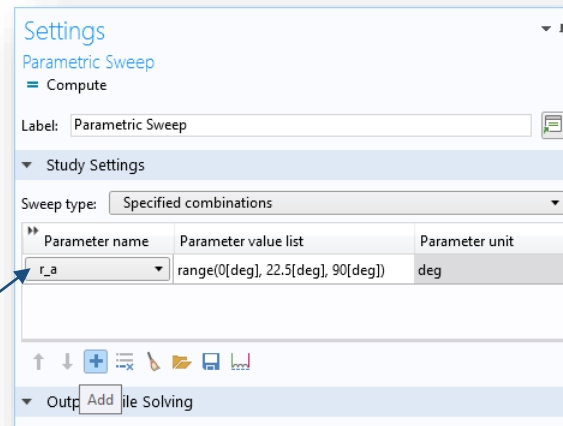
2) Definovat požadované hodnoty pro permitivitu, permeabilitu a vodivost

## 14) Study 1 / Parametric Sweep

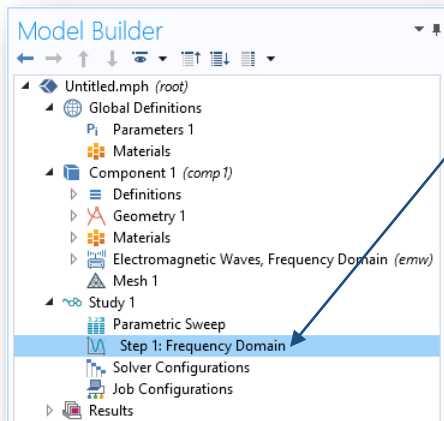


1) Rozšířit výpočet o parametrickou studii rotace přijímací antény

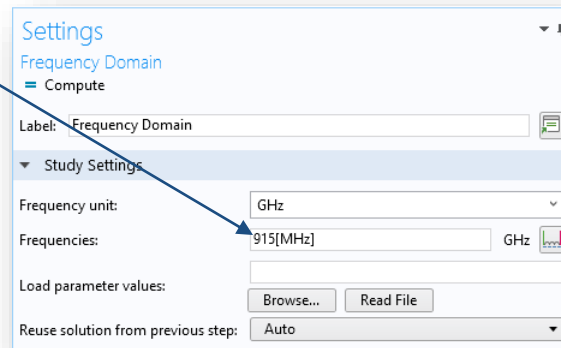
2) Definovat krok pootočení přidáním parametru „r\_a“ a definicí funkce „range“



# 15) Study 1 / Step 1: Frequency Domain

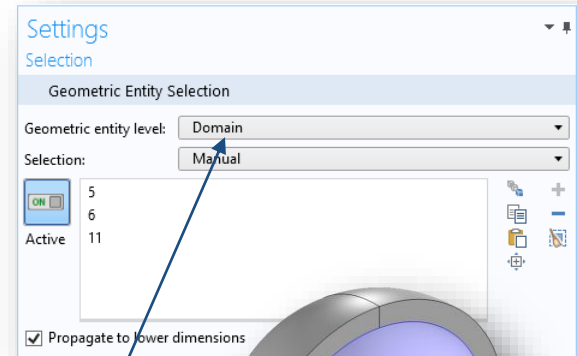
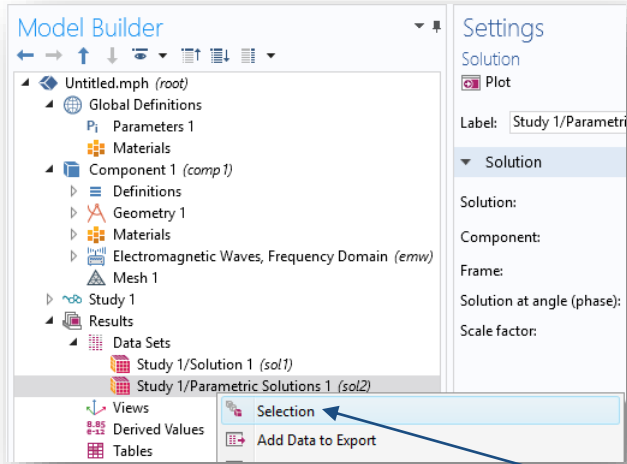


Zadat pracovní frekvenci  
915 [MHz] a spustit výpočet

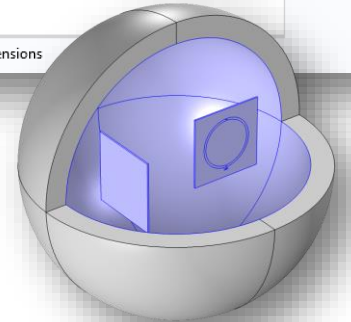




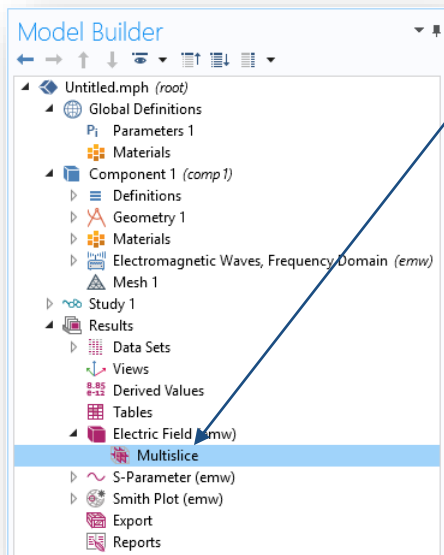
# 16) Results / Data Sets / Study 1/Parametric Solutions 1 / Selection



Definovat výběrovou množinu pro vyobrazení výsledků mimo „Perfectly Matched Layer“

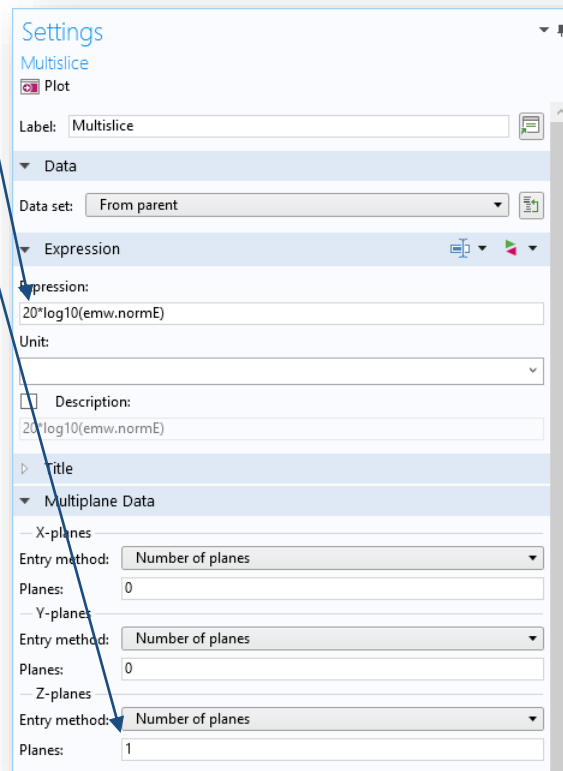
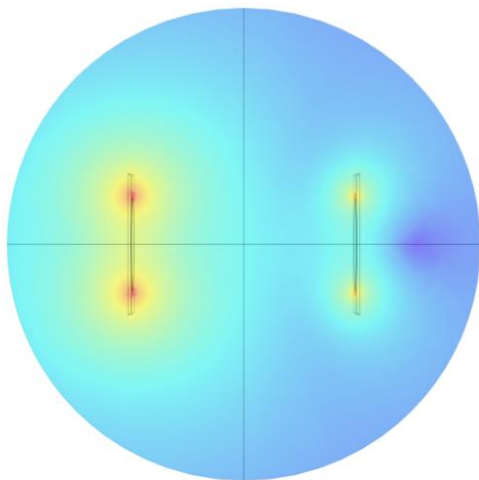


# 17) Results / Electric Field (emw) / Multislice

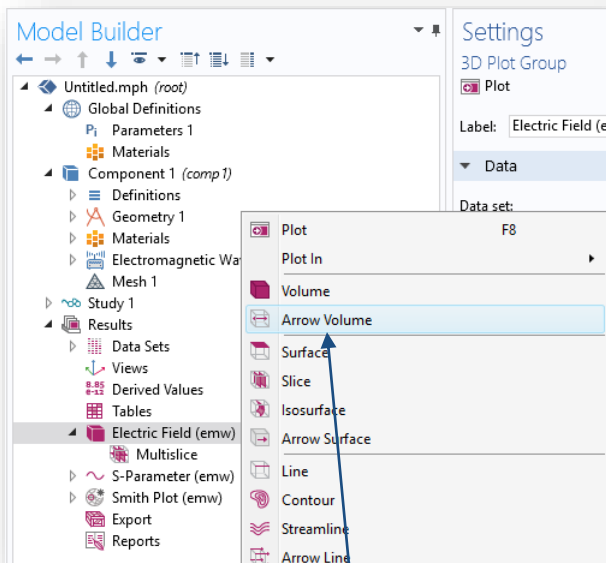


1) V grafu vykreslit elektrické pole v logaritmickém měřítku

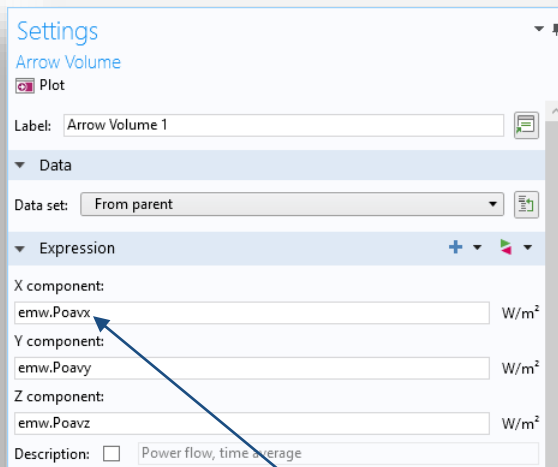
2) Definovat řez pouze v ploše Z



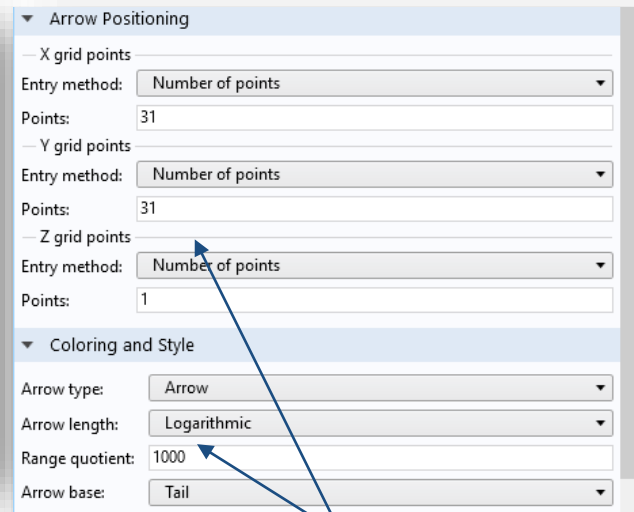
# 18) Results / Electric Field (emw) / Arrow Volume



1) Přidat vykreslení „Arrow Volume“



2) Vykreslit výkonový tok



3) Definovat počet šipek na mřížku, zvolit logaritmické měřítko šipek a změnit hodnotu jeho kvocientu na 1000

# Výsledky – Elektrické pole

