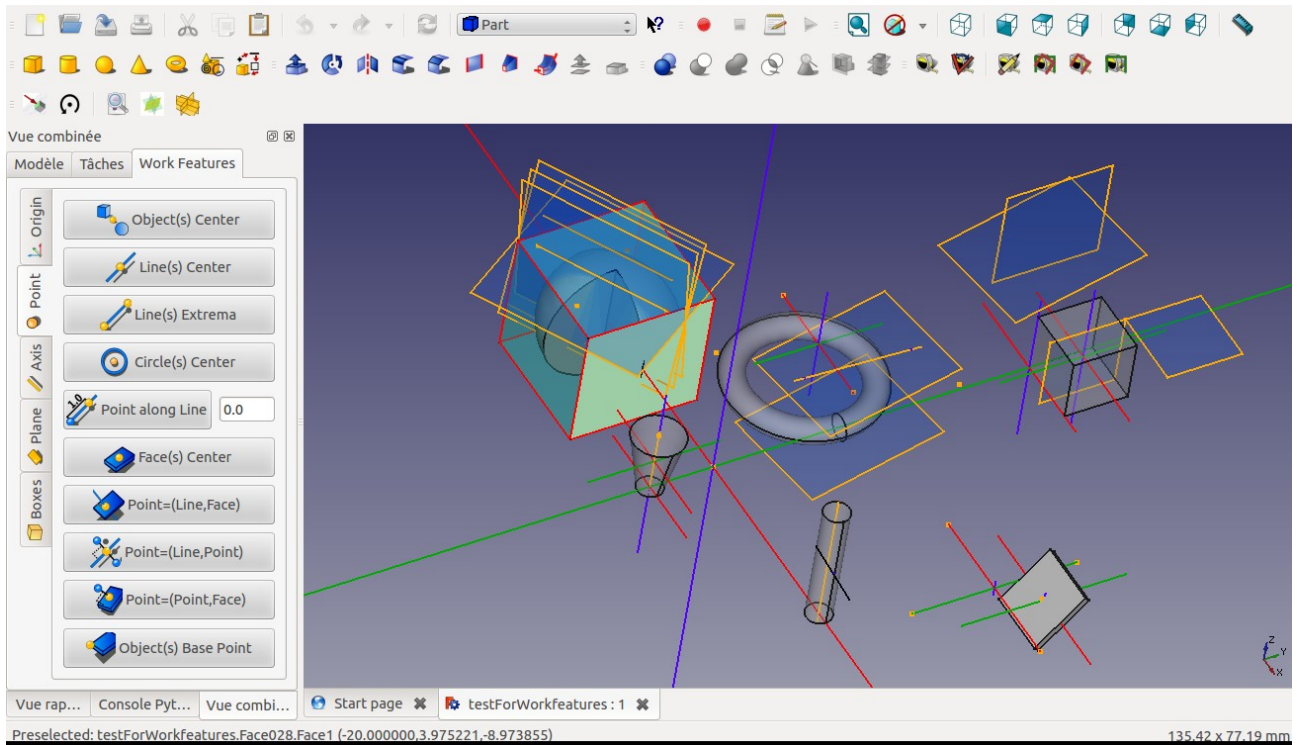


# Work features for FreeCAD : Documentation



Version 2016-09

by Rentlau\_64

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## Introduction:

Tool utility to create Points (mid points, center of circle, center of object(s), array of points...), Axes (from 2 points, Normal of a plane...), Planes (from 3 points, from one axis and a point...), Circles , Objects , Parametric curves... and many other useful features to facilitate the creation of your project.

The idea behind this python MACRO for FreeCAD was to give users some "quick" access tiny tools available with all the workbenches.

Except some complex tools like Cut, Rotate and Translate, most of the tools are few "clicks" behavior to give the user quick access to functionalities.

Up to 2016 08 31 release no parametric objects are created (but the willing is to move into this behavior in next future).

This macro was developped using original ideas, codes, and support from :

- Javier Martinez Garcia 2014, 2015 for ideas and first WF codes for tje code on parallelism of two faces, forTour camera code...
- Jonathan Wiedemann for Gui ideas and for view codes 2014 and support
- NormandC for his support
- Yorick for his support
- galou\_breizh for macro which creates a circle from 3 selected points
- Eriossoltero for macro Ellipse-Center+2Points
- Ulrich Brammer for Geodesic dome code
- Wmayer Many Thanks for active help on testing and debbuging
- Gaël Ecorchart for HighlightDifference Macro
- lorenz\_l for Beam tool Macro

Thanks to all of these people, and special thanks to Mario52 for diverse MACRO codes as FCCamera, cutCircle, cutWire, Delta xyz, bounding box ... and other diverse pieces of codes and all discussions, support, advices, help...merci Mario

Thanks also to those I forget.

## Prerequisite :

1. Install MACRO Work Feature on your system:  
<https://github.com/Rentlau/WorkFeature.git>

To learn how to install a MACRO into FreeCAD:  
see [Macro Install HowTo](#)  
see [Customize ToolsBar HowTo](#)

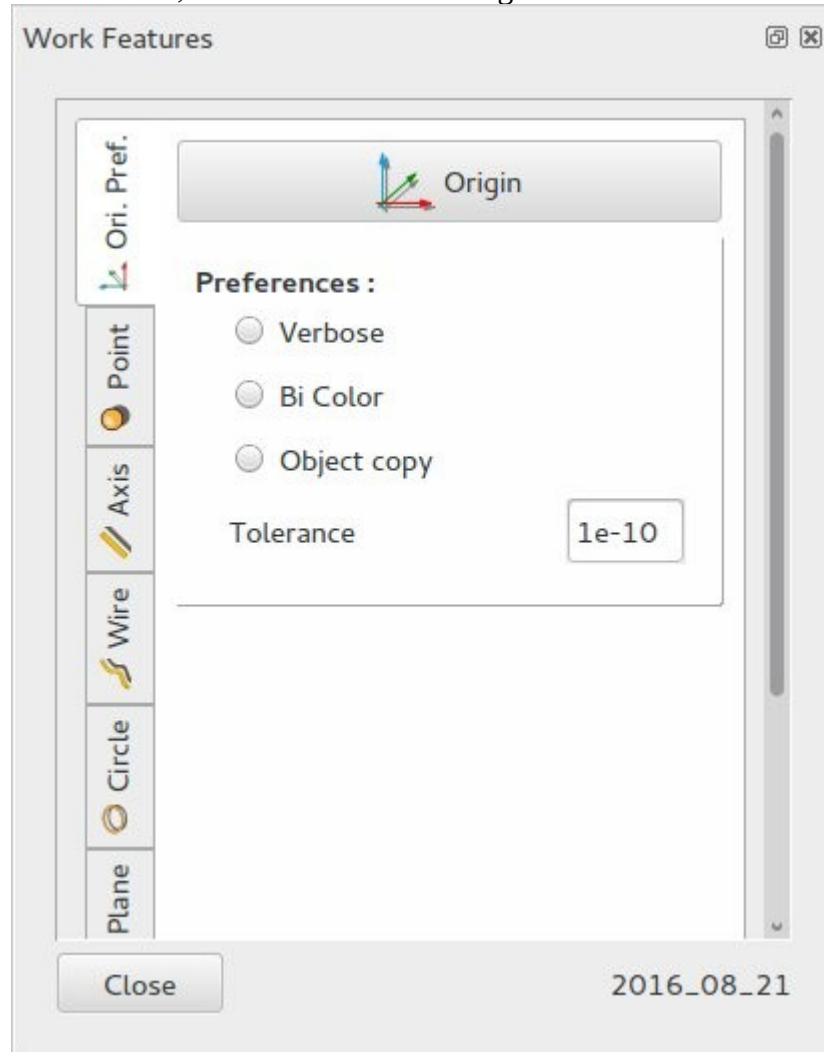
2. Or use the [Addons installer.FCMacro](#) for Customizing FreeCAD:  
<https://github.com/FreeCAD/FreeCAD-addons>

## General presentation :

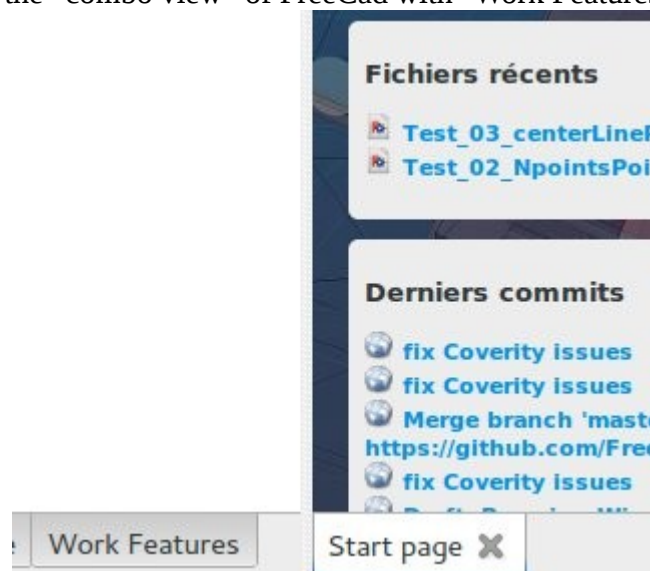
Once installed, the macro is launched by the click on the general icon button :



After activating Work Features, the tool moves in a Widget with a Tab view.



This utility is docked in the “combo view” of FreeCad with "Work Features" label.



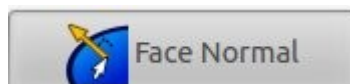
But the widget can be moved and located any place you want.

The set of tab widgets will appear, the different functions are sorted by type of output.



Most of the time a function is accessible by a few clicks:

first by selecting already existing graphic entities in graph view, then  
by a final click on one button (with icon and text).

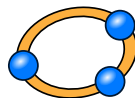


The convention used for the Icons is :

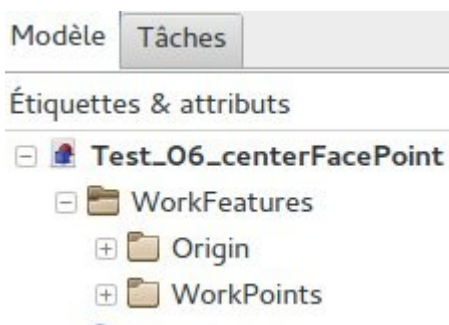
**Blue** for already existing graphics objects to select and

**Orange** for the entities to be created.

Hereafter one icon explanation:



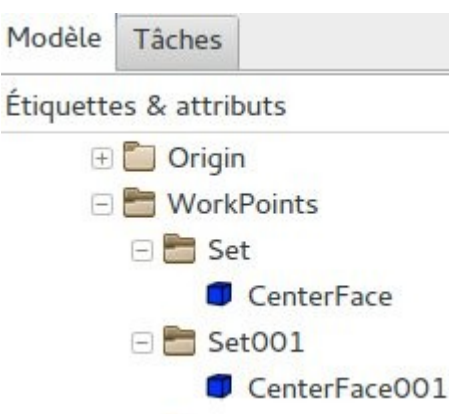
You must select **3 existing points** in order to create a **circle**.



Each new use that corresponds to a function group will result in a creation of a new subGroup below WorkFeatures Group in “Model tab” of FreeCad.

The possible sub Groups are :

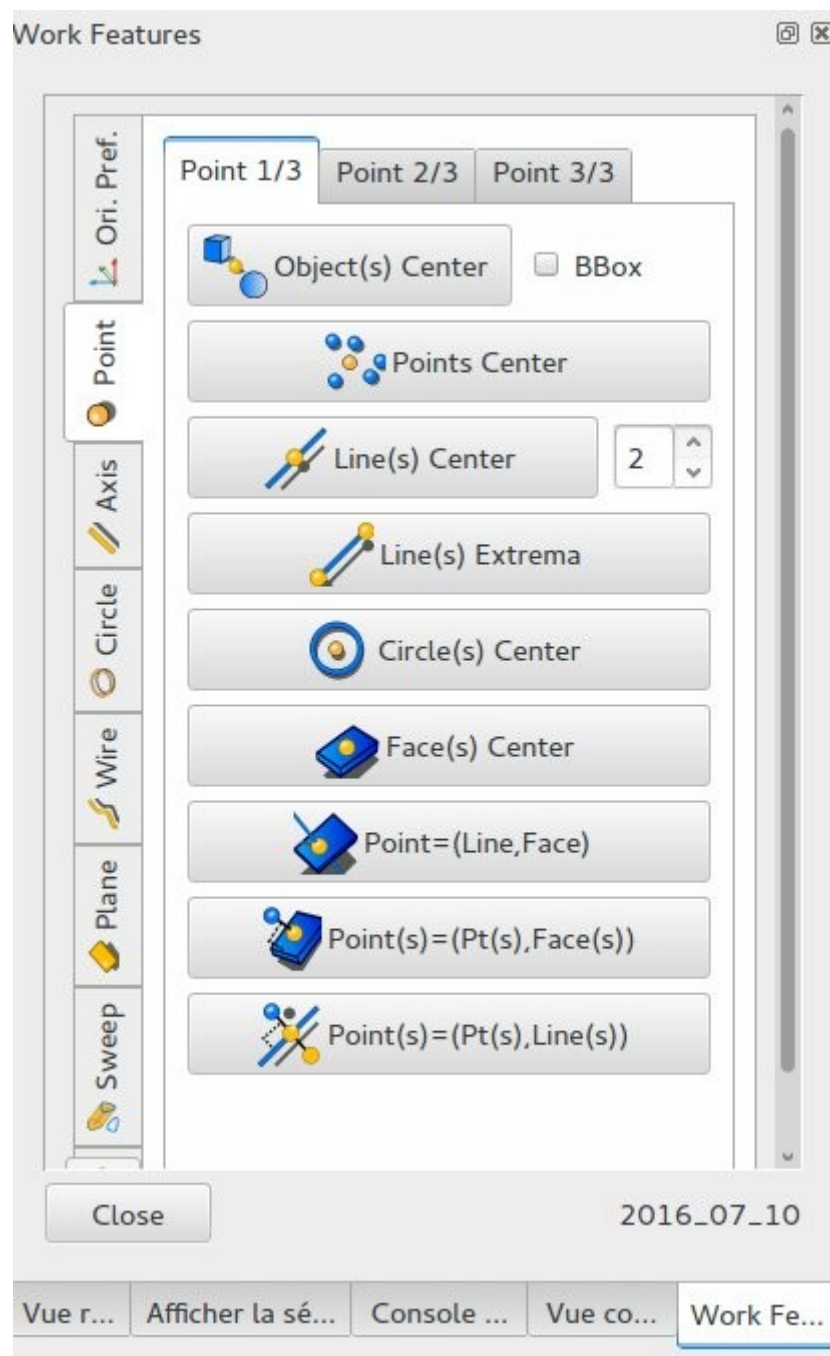
*'Origin', 'WorkPoints', 'WorkAxis', 'WorkPlanes', 'WorkCircles', 'WorkArcs', 'WorkBoxes', 'WorkWires', 'WorkImages', 'WorkObjects', 'Rot\_Trans'*



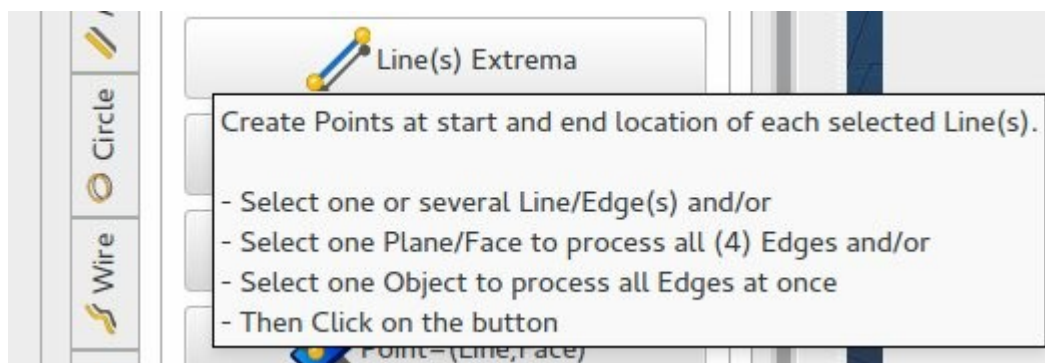
Once a sub Group created the entities will be placed below (some time in a sub set).

is a group created in the name of Tag used. The Axis, Point and Planes origin are directly keyed to hidden.

All functions regarding point creations are sorted under the “Point” tab.



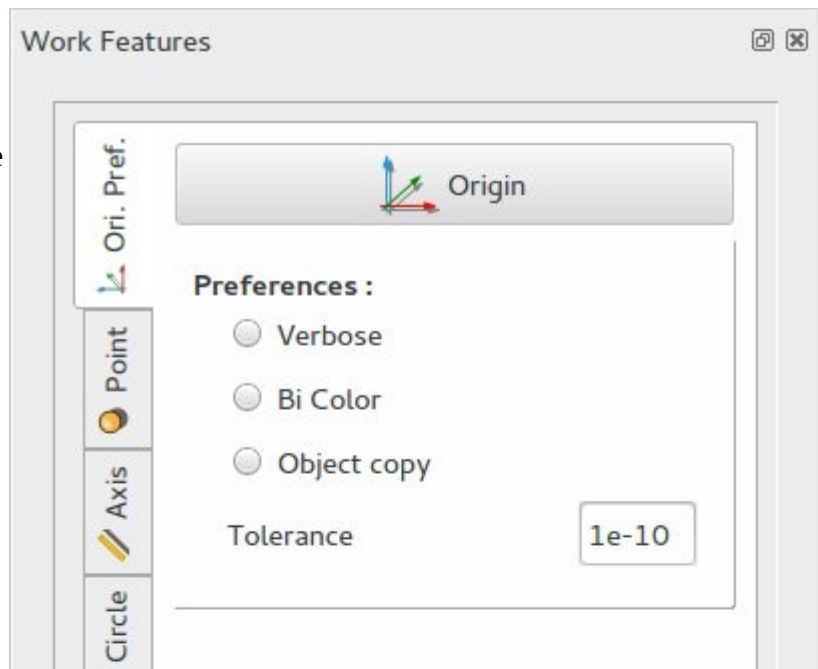
In general tool tips are visible with a short description of the function when the mouse is located above one button.



## List of TABs :

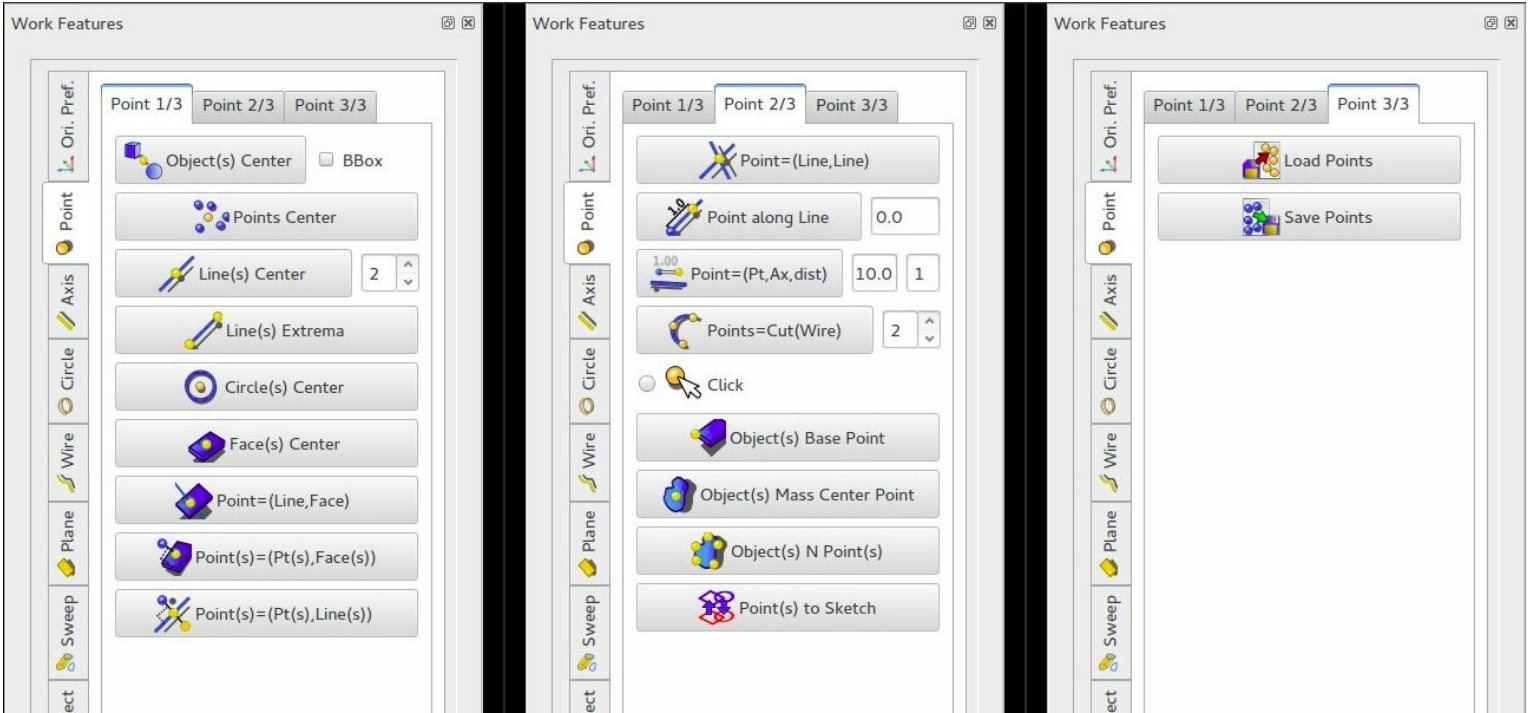
### ***Ori. Pref.***

This tab is dedicated to generate the origin point, axis and planes (X, Y, Z axis, XZ, XY, YZ planes) and to set some preferences.



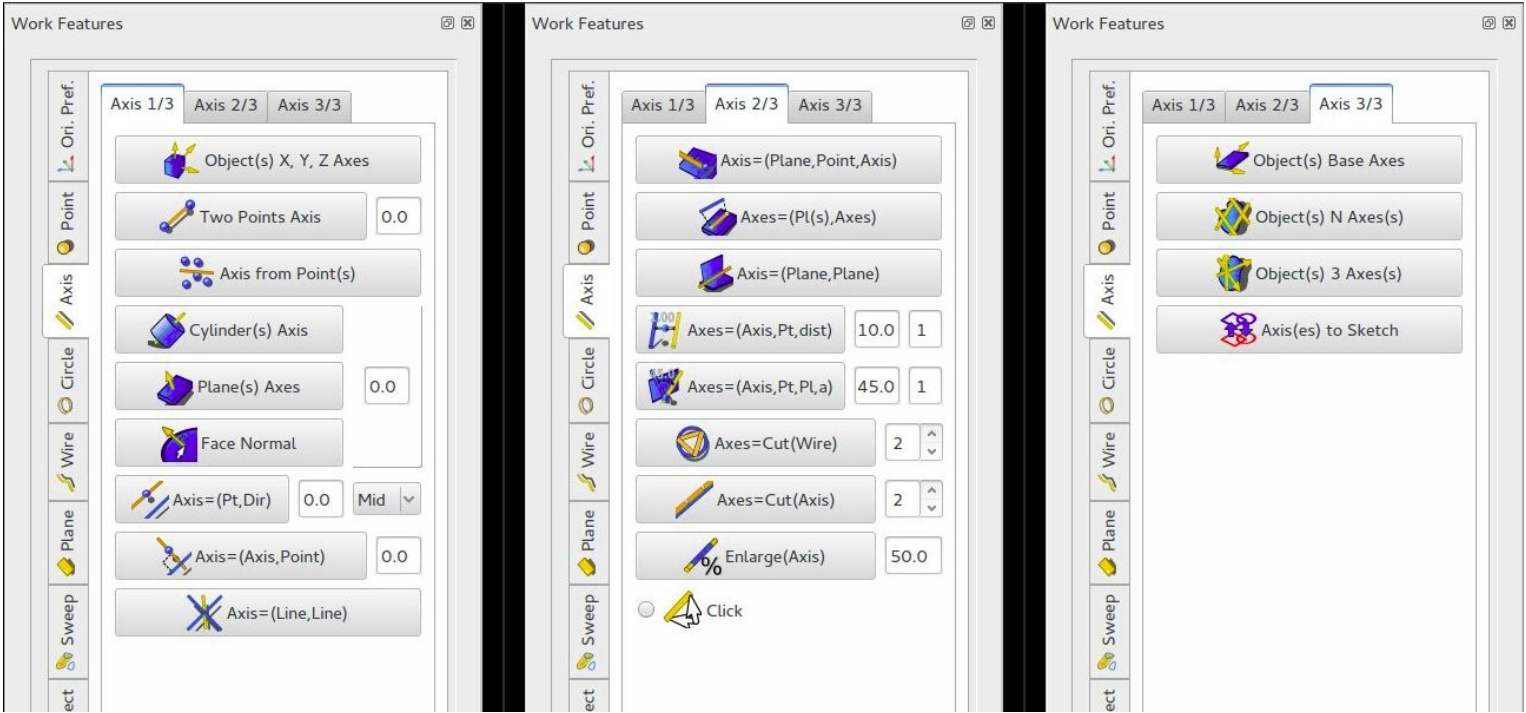
# Point

All functions to generate Points. Last tab propose to save and load points in ASCII text files.



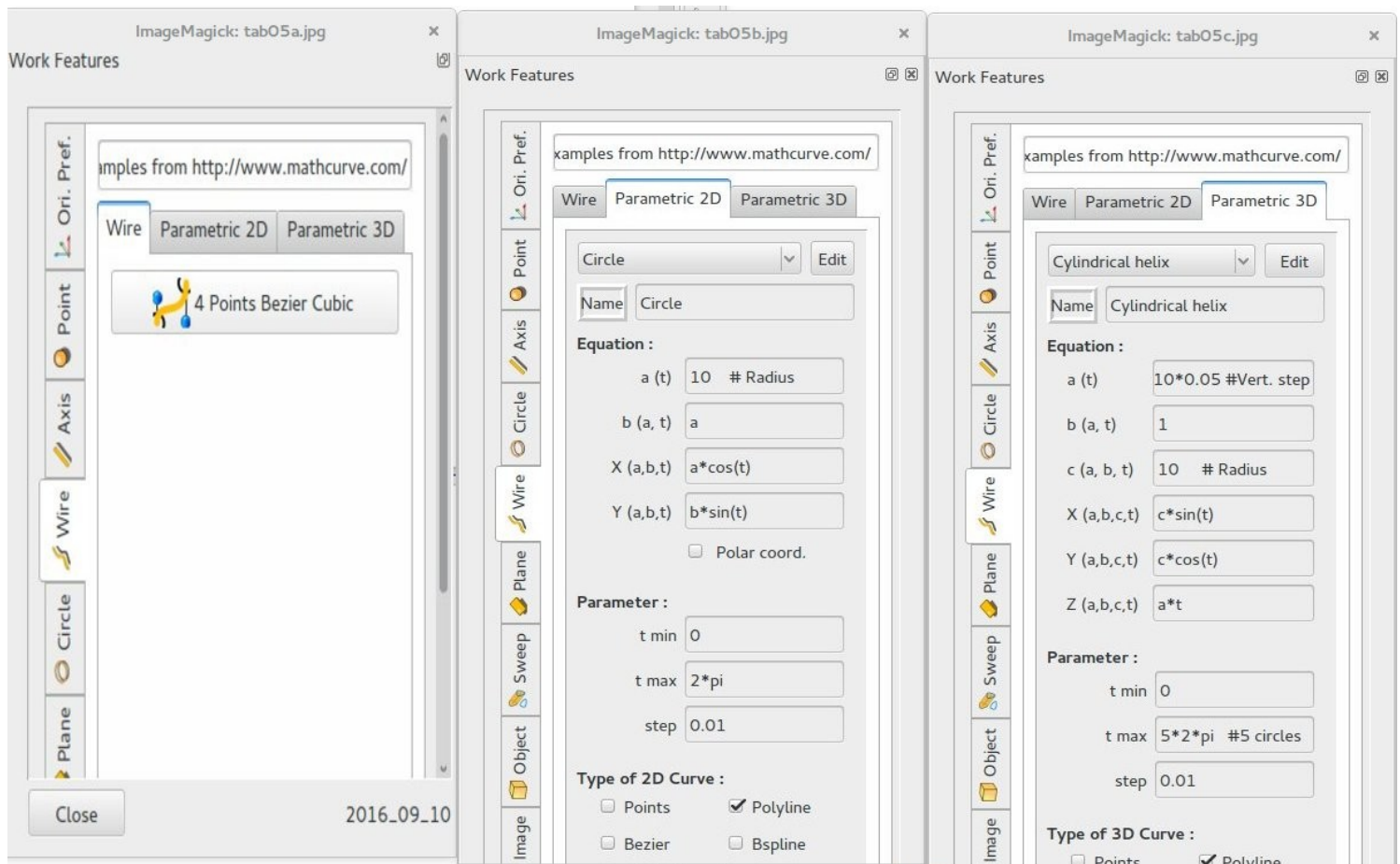
# Axis

All functions to generate Axis.



## Wire

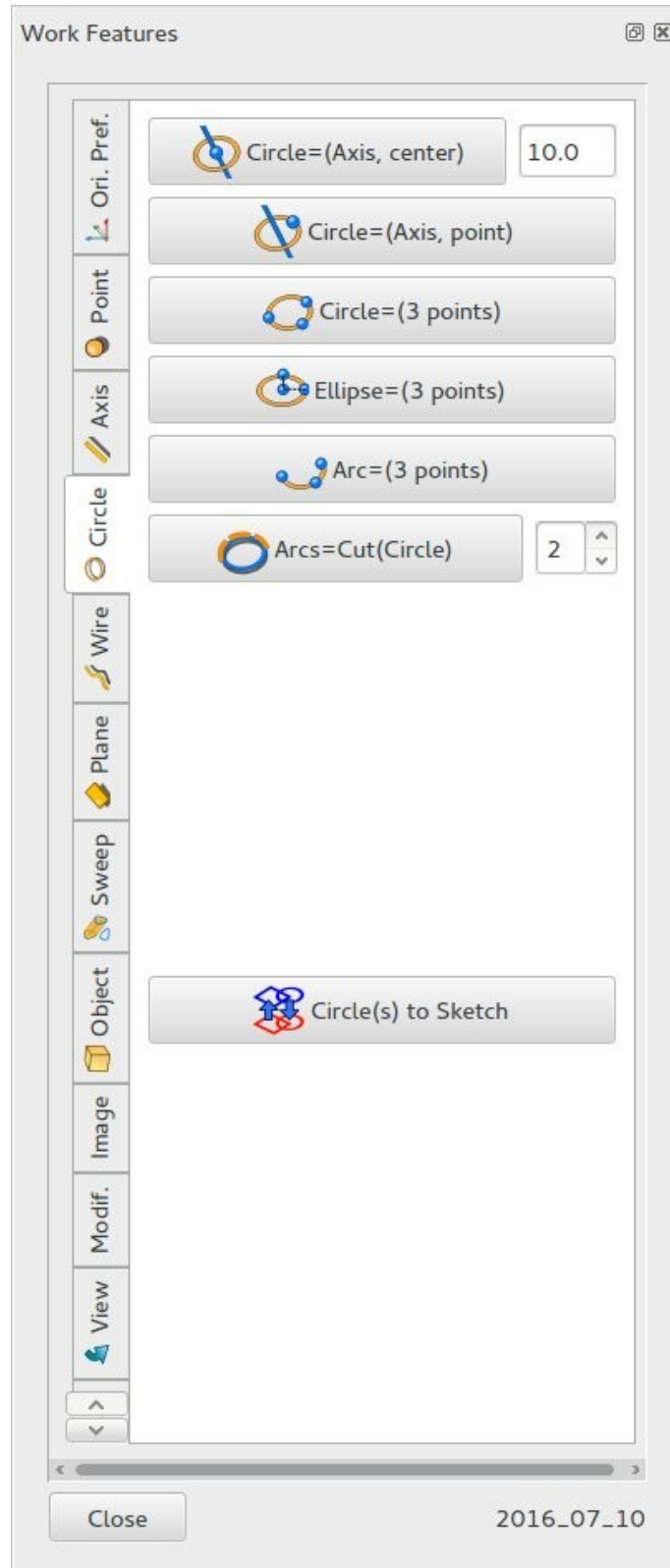
All functions to generate Wire, especially 2 last panels for Parametric curves 2D and 3D defined by formula. A set of predefined functions is available via a combo box.



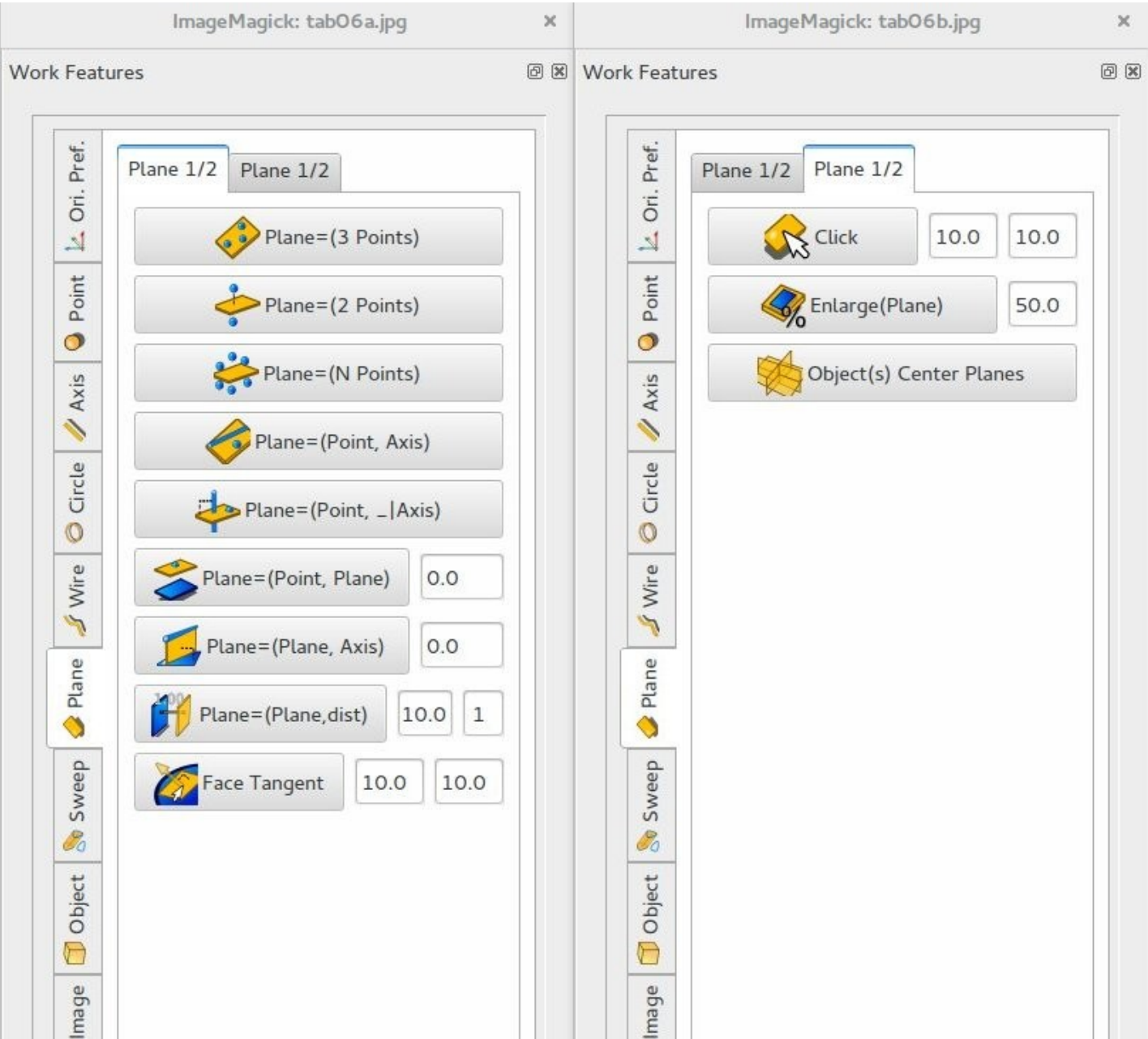
With possible saving of your parametric functions into a file in the home directory.

Circle  
Ellipse  
Double egg  
Catenary or funicular  
Sinusoid  
Dipole part1  
Dipole part2  
Tear drop  
Kulp quartic  
Lemniscate of Bernoulli  
Pascal's snail  
Archimedian spiral  
Simple folium  
Regular bifolium  
Equilateral trefoil  
Circle with Teeth  
Spiral  
transcendental butterfly curve  
Parabola  
Witch of Agnesi  
Kappa  
Trefle de Habenicht

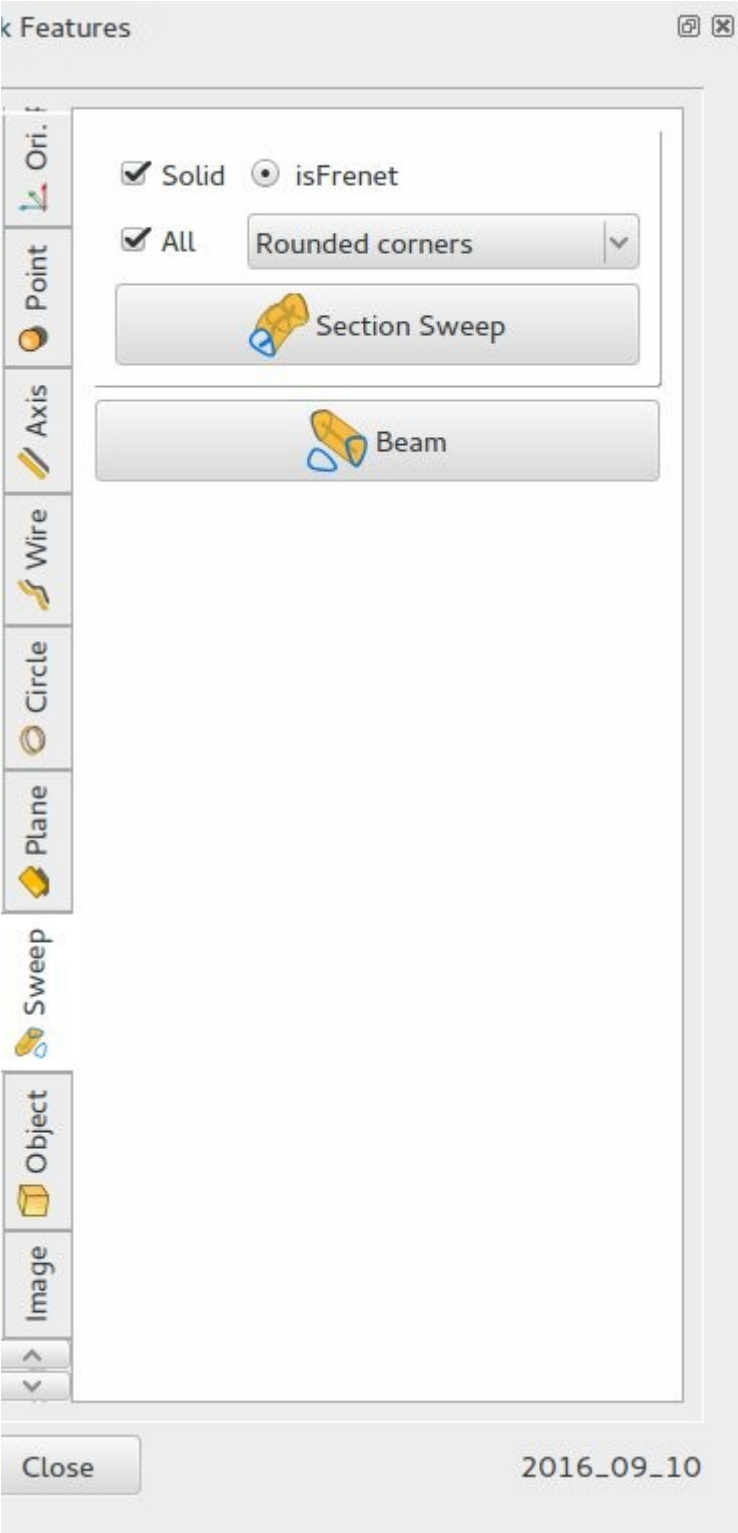
## Circle



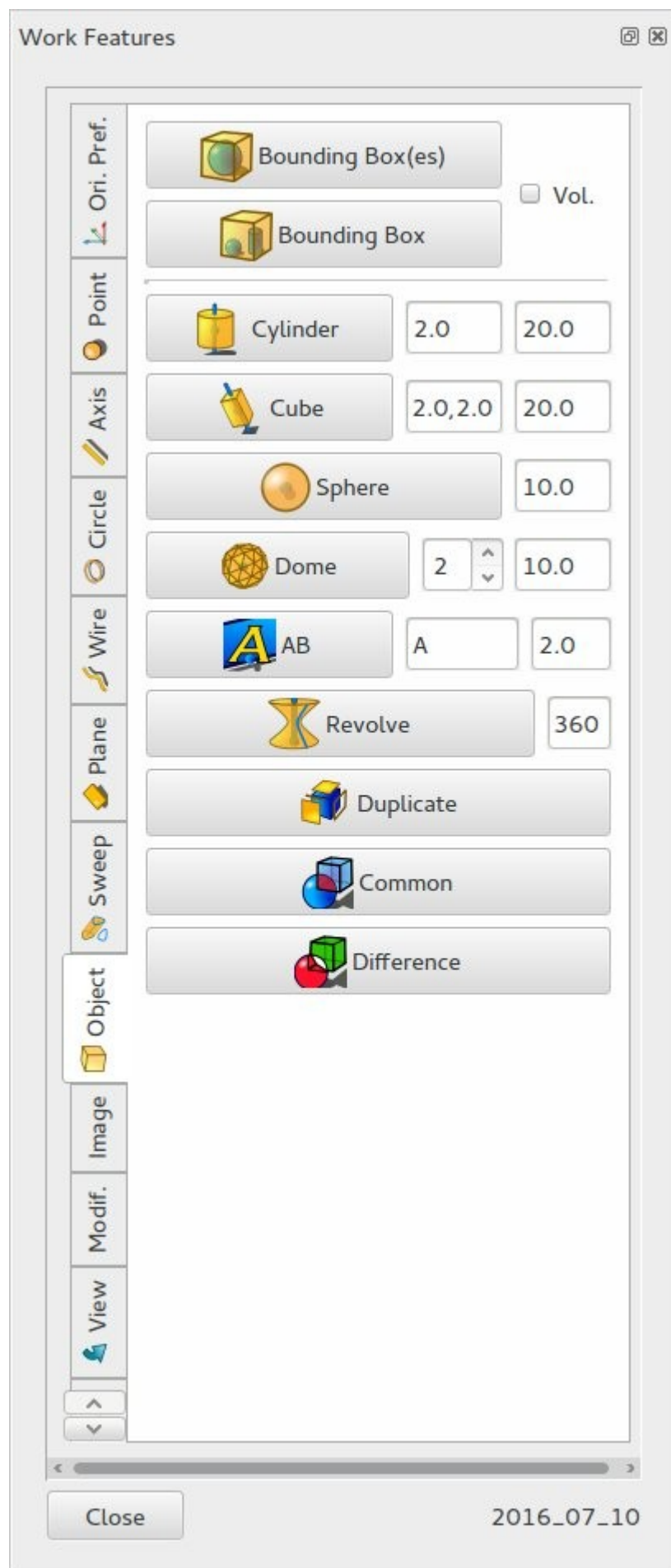
Plane



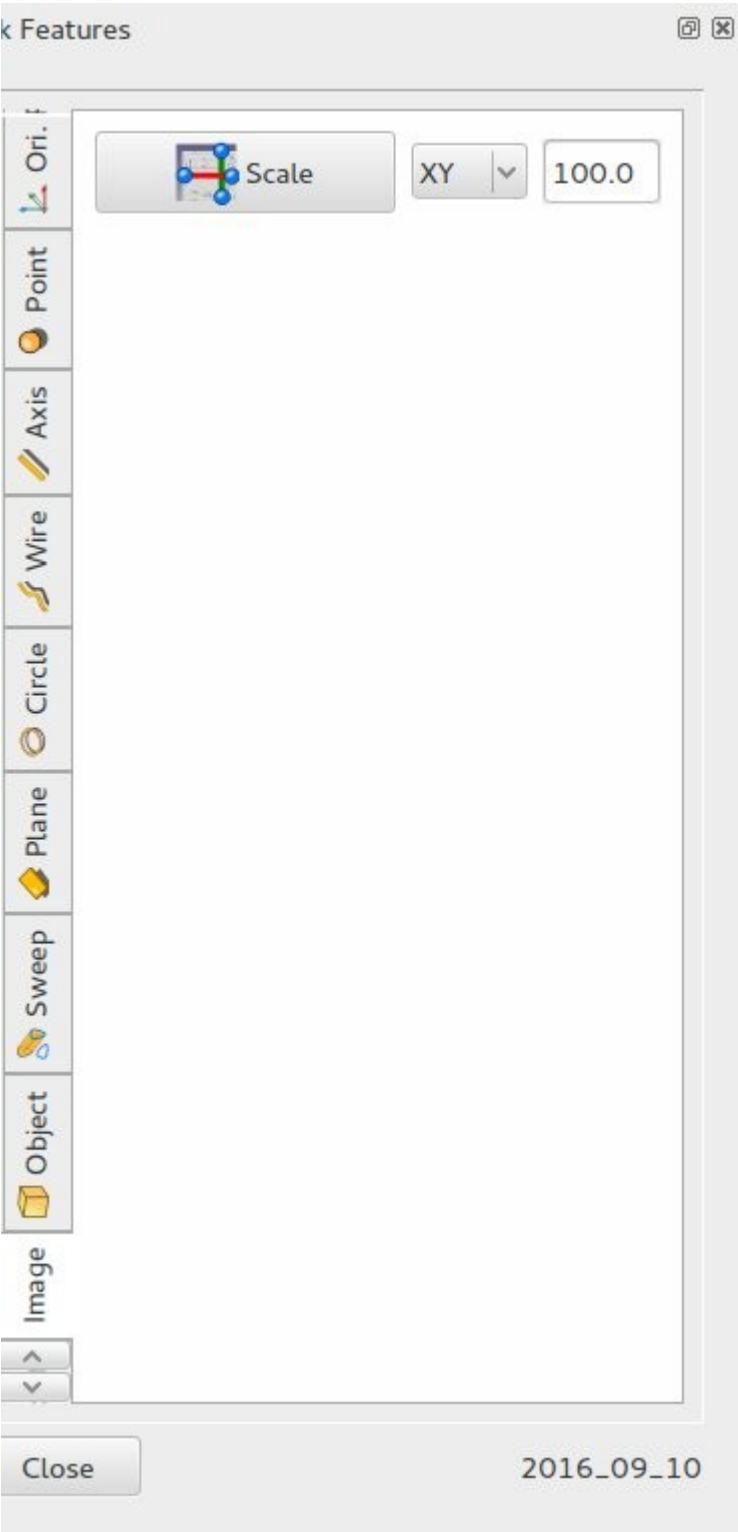
Sweep



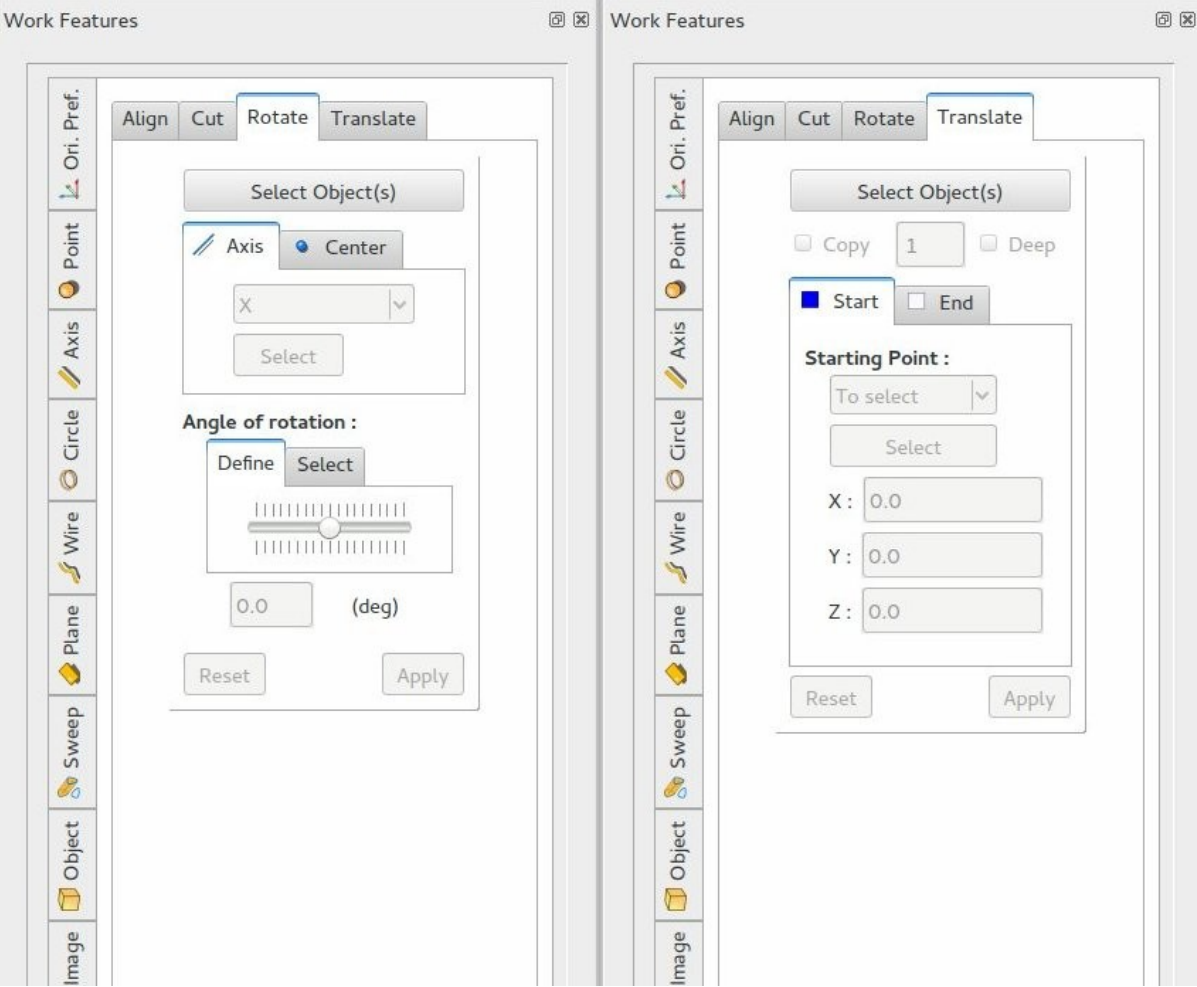
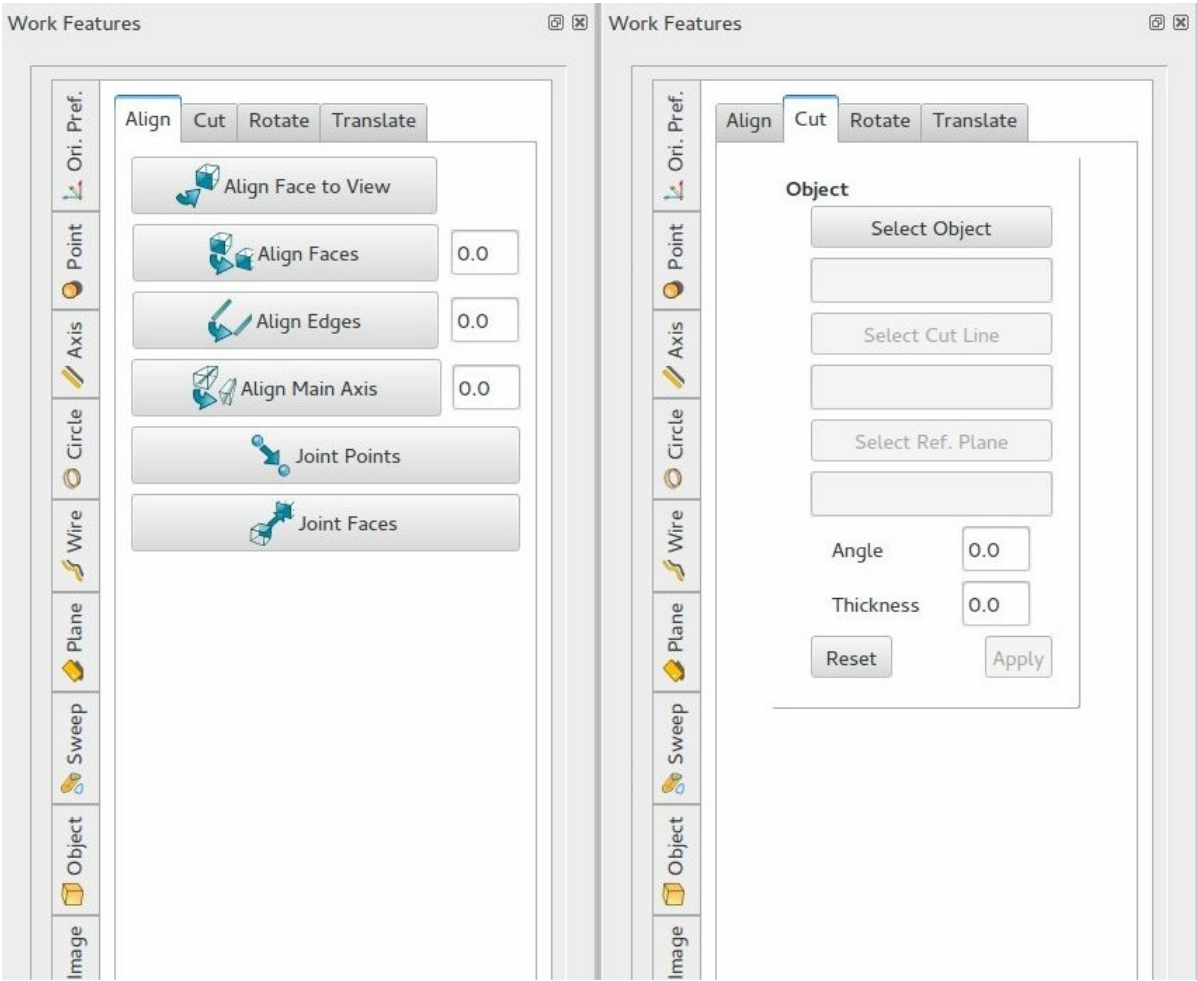
## Object



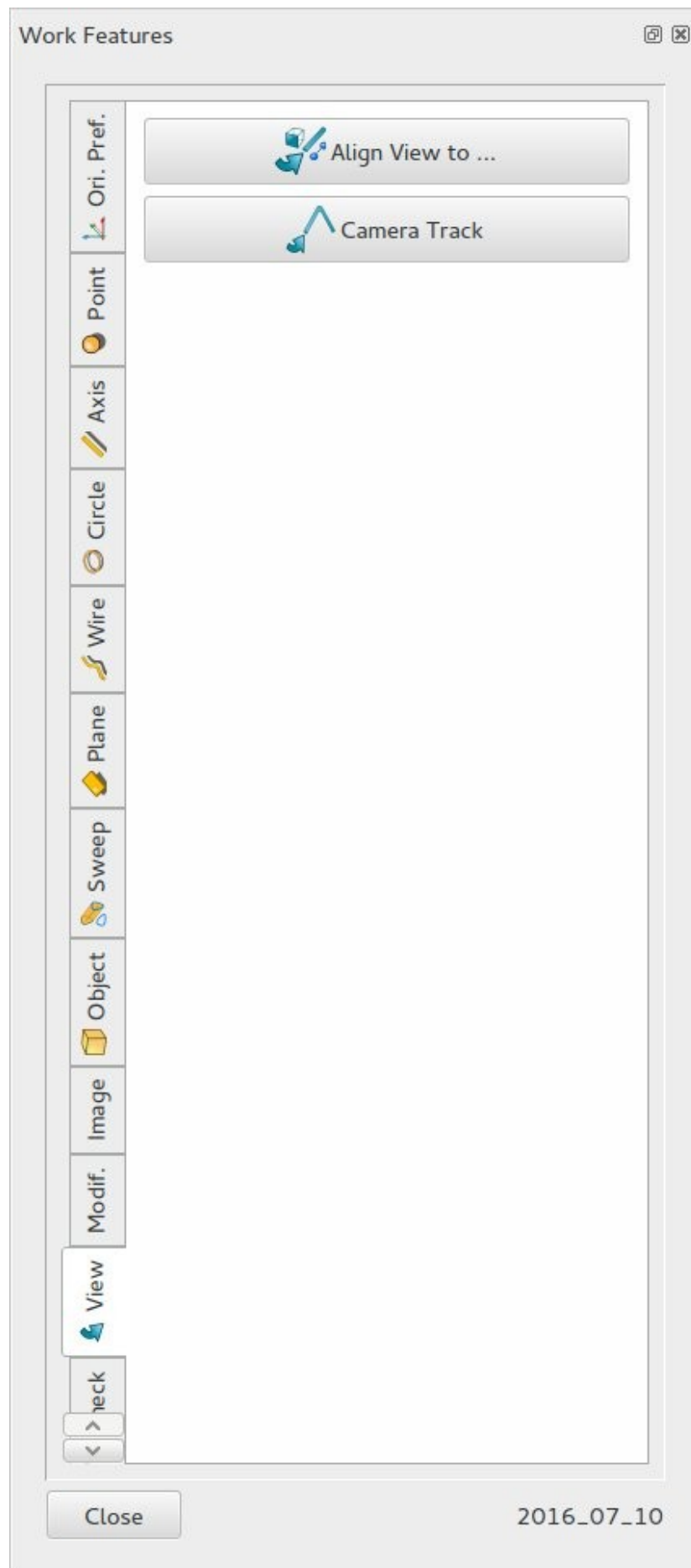
Image



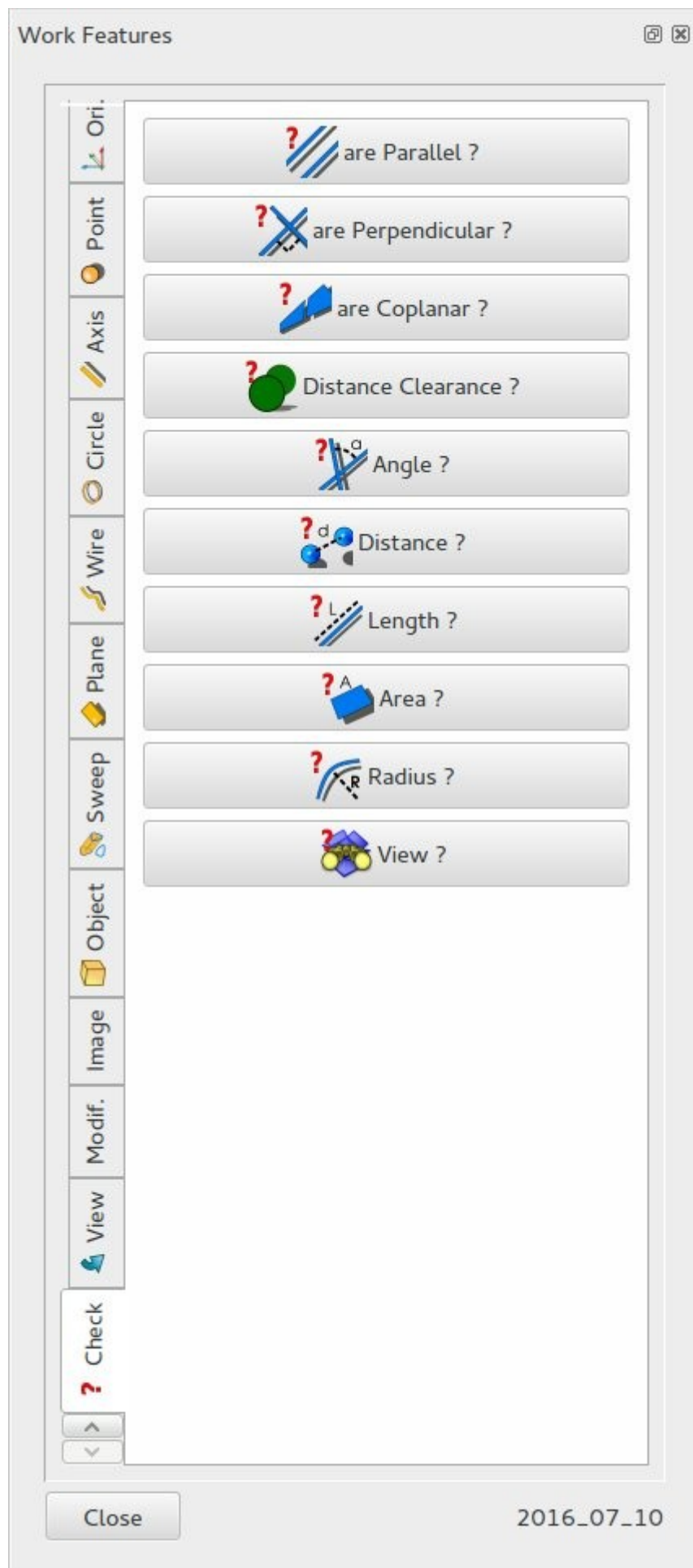
**Modif.**



## View



## Check



To be continued...