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How do I use a CAD model in Quindos?

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Attachment

Details

Overview

In Quindos, it is possible to do a lot of your programming using a CAD model. Models do several things for us. First of all, they simplify offline programming. Because we can see the part (versus having to imagine it) we can easily put in the appropriate avoidance moves and consequently get rid of a lot of the 'gotcha's' that typically come from programming a part offline. Secondly, CAD models represent nominal data. Because of this we can take points on very complex geometries and not have to worry about calculating all of the NPTs (http://quindoswiki.org/index.php?title=NPT) and the vectors (http://quindoswiki.org/index.php?title=Vector&action=edit&redlink=1). Working with CAD models implements another database, the NDB (http://quindoswiki.org/index.php?title=NDB&action=edit&redlink=1) which was previously unused.

CAD Commands

```
CadLoadModel (http://quindoswiki.org/index.php?title=CadLoadModel&action=edit&redlink=
CadLoadProf (http://quindoswiki.org/index.php?title=CadLoadProf&action=edit&redlink=1)
CadRef321 (http://quindoswiki.org/index.php?title=CadRef321&action=edit&redlink=1)
CadDrwAptLgd (http://quindoswiki.org/index.php?title=CadDrwAptLgd&action=edit&redlink=
CadDrwEvaLgd (http://quindoswiki.org/index.php?title=CadDrwEvaLgd&action=edit&redlink=
CadDrwApt (http://quindoswiki.org/index.php?title=CadDrwApt&action=edit&redlink=1)
CadCloseModel (http://quindoswiki.org/index.php?title=CadCloseModel&action=edit&redlin
CadExportModel (http://quindoswiki.org/index.php?title=CadExportModel&action=edit&red]
CadGrouping (http://quindoswiki.org/index.php?title=CadGrouping&action=edit&redlink=1)
CadTransformModel (http://quindoswiki.org/index.php?title=CadTransformModel&action=ed
CadCreBindings (http://quindoswiki.org/index.php?title=CadCreBindings&action=edit&red]
CadEleFromGroups (http://quindoswiki.org/index.php?title=CadEleFromGroups&action=edit&
CadVfyBindings (http://quindoswiki.org/index.php?title=CadVfyBindings&action=edit&red]
CadCreatePts (http://quindoswiki.org/index.php?title=CadCreatePts&action=edit&redlink=
CadCreateGear (http://quindoswiki.org/index.php?title=CadCreateGear&action=edit&redli
CadCreateBevel (http://quindoswiki.org/index.php?title=CadCreateBevel&action=edit&red]
CadCreateSprocket (http://quindoswiki.org/index.php?title=CadCreateSprocket&action=ed
CadCreateScrCmp (http://quindoswiki.org/index.php?title=CadCreateScrCmp&action=edit&re
```

Import the model

Type in the following command to import the model into Quindos:

```
CadLoadModel (http://quindoswiki.org/index.php?title=CadLoadModel&action=edit&redlink=
(NAM=Sample, FIL=C:\Program Files\Quindos7\Quindos7\Examples\CAD\Leitz Training Part.
```

Your CAD window should look similar to this:

Import Cad (http://quindoswiki.org/index.php?title=File:CADIMPORT.jpg)

Prepare the model for use

Once your model has been imported, right click on it. Notice all of the CAD options that are available. You can change the transparency, color, and other settings regarding the look of the model. At this point the model has been imported, but we need to make GROUPS (http://quindoswiki.org/index.php?title=GROUPS&action=edit&redlink=1) before it will be fully usable so in the right-click menu select the 'Prepare model' option.

PrepareModel.JPG (http://quindoswiki.org/index.php?title=File:PrepareModel.JPG)

Once there, select the 'Select Groups Automatically' option. Save your model and it is now ready for use.

Manipulating the CAD Viewer

In addition to selecting transparency, color, etc., there are six standard views that can be selected from the right-click menu. Alternatively you can hold down the 'Shift' key on your keyboard and manipulate the model that way. Shift-Leftclick will pan the model while shift-right click will rotate the model. Quindos also supports use of a spaceball for independent manipulation of the model view.

Binding to a model

In order to make a part program from CAD, it is first necessary to Bind (http://quindoswiki.org/index.php?title=Bind&action=edit&redlink=1) the model to the physical part. This simply matches up the virtual (model) part to the real part spatially so that Quindos has some sense of orientation with respect to the part.

Double-click on the first feature that you will use in the coordinate system (on the model). Notice that the rest of the model gets transparent.

CADBLDCSY.jpg (http://quindoswiki.org/index.php?title=File:CADBLDCSY.jpg)

Next, type in the command to measure a plane (for this example)

```
MEPLA (http://quindoswiki.org/index.php?title=MEPLA&action=edit&redlink=1)
```

Activate this command by double-clicking on it. Once inside the measurement window you can right-click on the model and select 'Generate' and then the sub-menu 'Points on Plane.' Choose whatever form of points you wish, select 'Put Points' then press the 'Continue' button in the lower left corner.

Repeat these same steps for the other features that make up your coordinate system. The next step is to create a coordinate system from these elements. The following code is from a program written to measure three surfaces and create a coordinate system from them.

```
MEPLA (http://quindoswiki.org/index.php?title=MEPLA&action=edit&redlink=1)
MEPLA (http://quindoswiki.org/index.php?title=MEPLA&action=edit&redlink=1)
MEPLA (http://quindoswiki.org/index.php?title=MEPLA&action=edit&redlink=1)
```

```
BLDCSY (http://quindoswiki.org/index.php?title=BLDCSY&action=edit&redlink=1)
```

Notice the last parameter for the BLDCSY command 'CAD=Y'. You now have a CAD coordinate system and can create the rest of the program from it. To relate the CAD model a physical part, simply run the code up to this point. Once done, you can program either online from the part or offline from the CAD. Also notice that the coordinate system has moved to the proper location on the CAD model.

CADBLDCSY1.jpg (http://quindoswiki.org/index.php?title=File:CADBLDCSY1.jpg)

Sample program to bind to CAD

The program below is the Quindos code that will bind the part from the how-to to its CAD model.

```
!INITIALIZE THE PROGRAM
START (http://quindoswiki.org/index.php?title=START&action=edit&redlink=1)
```

```
!SET SOME VARIABLES REGARDING CAD MODELS
SET (http://quindoswiki.org/index.php?title=SET)          (NAM=Always$UseCad, SVL=`
SET (http://quindoswiki.org/index.php?title=SET)          (NAM=CreateEmbd$APt, SVL=
SET (http://quindoswiki.org/index.php?title=SET)          (NAM=UseNomFromCad, SVL=`
```

```
!IMPORT THE MODEL
!This model should be installed when Quindos installs
CadLoadModel (http://quindoswiki.org/index.php?title=CadLoadModel&action=edit&redlink=
(NAM=Sample, FIL=C:\Program Files\Quindos7\Quindos7\Examples\CAD\Leitz Training Part.:
```

```
!MEASURE 3 PLANES TO BUILD COORDINATE SYSTEM
MEPLA (http://quindoswiki.org/index.php?title=MEPLA&action=edit&redlink=1)
MEPLA (http://quindoswiki.org/index.php?title=MEPLA&action=edit&redlink=1)
MEPLA (http://quindoswiki.org/index.php?title=MEPLA&action=edit&redlink=1)
```

```
!BUILD COORDINATE SYSTEM
BLDCSY (http://quindoswiki.org/index.php?title=BLDCSY&action=edit&redlink=1)
(NAM=CADCSY(1), TYP=CAR, SPA=TOP(1), SDR=+Z, PLA=SIDE(1), PDR=-Y, XZE=BACK(1), YZE=SII
```

(Topic ID 16101-16)

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