

## Assigning WoodWOP Layer Names to DXF Geometry

### General Information

In the CNC machining industry, designs may be produced in various file formats. Creating panel designs in WoodWOP is very simple, however at times designs may be received from an Architect or designer in a DXF file format. These designs may be imported into WoodWOP using a post processing program provided with the machine. Any design software program may create the panel designs providing the files can be exported as a DXF format. Importation into WoodWOP is driven by specific layer names and not the creation of the geometry.

### Required Weeke/Homag Layer Names

The initial concern will not be creating the geometry itself, but understanding the necessary layer names that the Weeke or Homag post processing programs require. Early versions of WoodWOP (4.0 and 4.5) used a BPP post program that contained very specific layer names. These are less descriptive than the layer names for in BPP 5 program. In the BPP 5 Basic Post Processor program, the layer names are restricted to specific structures and must be followed or the importation will fail in WoodWOP.

If the BPP 5 Professional version has been installed, then the layers may be created with customized names. The Weeke and Homag machine manuals contain a section devoted to these layer names and brief descriptions of how the layers may be used. These layers are listed in English and German versions, either may be used.

When using WoodWOP 4.0 and 4.5, the software restricts the use of the original BPP layer names. These are listed below:

<b>FK&lt;Z position&gt;&lt;tool number&gt;&lt;comp&gt;</b>	Contour Router R-right, L-left, Blank-center
<b>FP&lt;depth&gt;&lt;tool number&gt;&lt;comp&gt;</b>	Polygon Router R-right, L-left, Blank-center
<b>HO&lt;Z position&gt;</b>	Horizontal Drills Defines Z axis position
<b>LA</b>	Multiple Line Holes (through) SFS
<b>LB</b>	Multiple Line Holes (through) SFF
<b>LC</b>	Multiple Line Holes (through) FFS
<b>LD</b>	Multiple Line Holes (through) SFS
<b>LE&lt;depth&gt;</b>	Multiple Line Holes (depth) FF
<b>LF&lt;depth&gt;</b>	Multiple Line Holes (depth) SF
<b>NZ&lt;depth&gt;</b>	Grooving Saw ( <i>Always center compensation</i> )
<b>S_&lt;thickness&gt;</b>	Panel Size Defines panel thickness
<b>ZA</b>	Single Line Holes (through) FFF
<b>ZB</b>	Single Line Holes (through) SFF
<b>ZC</b>	Single Line Holes (through) SFS
<b>ZD</b>	Single Line Holes (through) FFS
<b>ZE&lt;depth&gt;</b>	Single Line Holes (depth) FF
<b>ZF&gt;depth&gt;</b>	Single Line Holes (depth) SF

Once the geometry has been created (ie: in AutoCAD), the layer names are then attached to each different geometric shape. A contour routing design would then have an FK-3T128R layer assigned. Each portion of this layer name is a function or command. The “FK” lists this as a contour routing function. The “-3” commands the machine to position the end of the router tooling to the required position in the Z axis (-3 mm below the panel bottom edge). “T128” lists the required tool number and the “R” defines the tooling compensation. The tooling compensation options are: L for left, R for right and blank space for center compensation.

When using WoodWOP 5.0, the programmer has the option of using the original layer names or the names specific to the BPP 5 post program. The layer names for the BPP 5 are listed below:

<b>ProcPart_&lt;thickness&gt;</b>	Processed part thickness	
<b>V_Saw&lt;mode&gt;_&lt;depth&gt;</b> <b>Note:</b> Groove Saw Auto width	Mode 0: Desired depth at start and end Mode 1: Desired length of groove Mode 2: Desired length and safety clearance	
<b>V_Saw&lt;mode&gt;D_&lt;depth&gt;</b> <b>Notes:</b> Specify Groove Width using 2 parallel <u>lines</u> <b>Cannot Use PLINES</b>	Mode 0: Desired depth at start and end Mode 1: Desired length of groove Mode 2: Desired length and safety clearance	
<b>Uni_Saw&lt;mode&gt;_&lt;depth&gt;A&lt;angle&gt;</b>	Mode 0: Desired depth at start and end Mode 1: Desired length of groove Mode 2: Desired length and safety clearance	
<b>V_Trim_&lt;Z Dimension&gt;_&lt;Ttool number&gt;_(L, R or blank for tool compensation)</b>		
<b>V_Drill&lt;mode&gt; (through)</b>	Mode: SFS and FFF	
<b>V_Drill&lt;mode&gt;_&lt;depth&gt;</b>	Mode: SF and FF	
<b>H_Drill_&lt;Z position&gt;</b>	Horizontal drilling	Block: H_Drill
<b>Poly_&lt;depth&gt;NM&lt;name&gt;</b>	Polygon definition	
<b>V_Pocket_&lt;depth&gt;</b>	Vertical pocket	Block: V_Pocket
<b>F_Pocket_&lt;depth&gt;</b>	Free form pocket	
<b>H_Pocket_&lt;Z position&gt;H&lt;height&gt;</b>	Horizontal pocket	Block: H_Pocket
<b>Uni_Drill_A&lt;swivel angle&gt;</b>	Universal drilling	Block: Uni_Drill
<b>U_Drill_&lt;depth&gt;</b>	Under floor drilling	Block: U_Drill
<b>U_Pocket_&lt;trimming depth&gt;</b>	Under floor pocket	Block: U_Pocket

The Weeke and Homag manual BPP 5 sections describe each layer and how they may be used. Some layers require the use of “blocks” which have already been created and are contained in the BPP 5 software.

Although this article will not discuss the use of blocks they may be located at:

WW4\Programs\BPP5\Samples\Blocks and are listed as DWG (drawings) or DXF

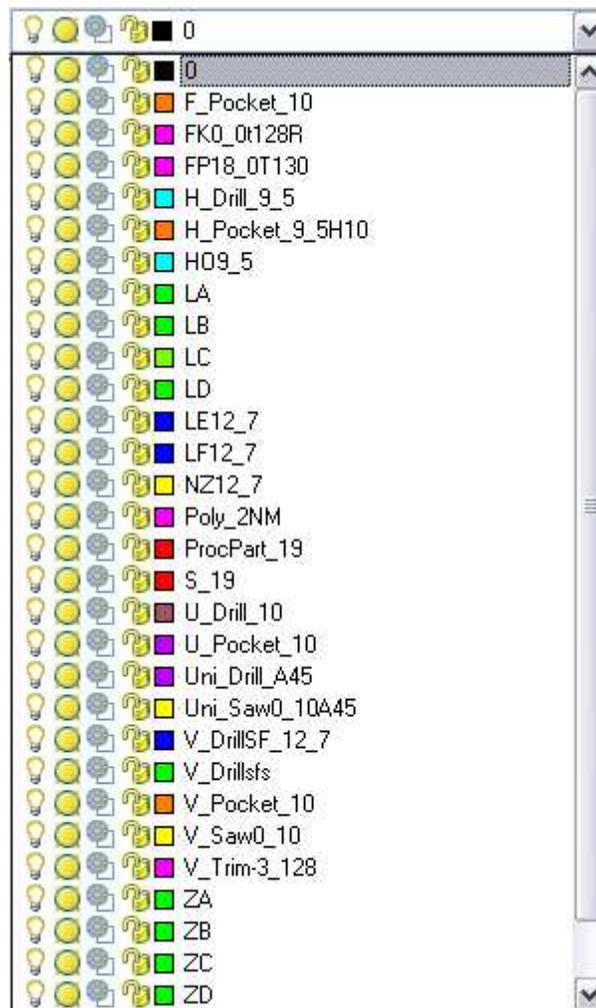
This article will use AutoCAD for the following example:

- 1.) Open AutoCAD and using the menu for Format
- 2.) Create a list of all the layer names that will be used on a regular basis.
- 3.) In the Format menu, select Layer and this will open the Layer Properties Manager.
- 4.) Locate the Create New Layer icon.
- 5.) Enter the layer name and a color for this layer.  
**Note:** The colors will not affect the program they just separate geometry visually.
- 6.) Click Apply and continue.



Once all the standard layer names have been created, save this as a layer file and it will not be necessary to re-create the layers each time a new design is created. (See example of layer list next page.)

This is an example of a layer list that incorporates the layers from early BPP and BPP5:



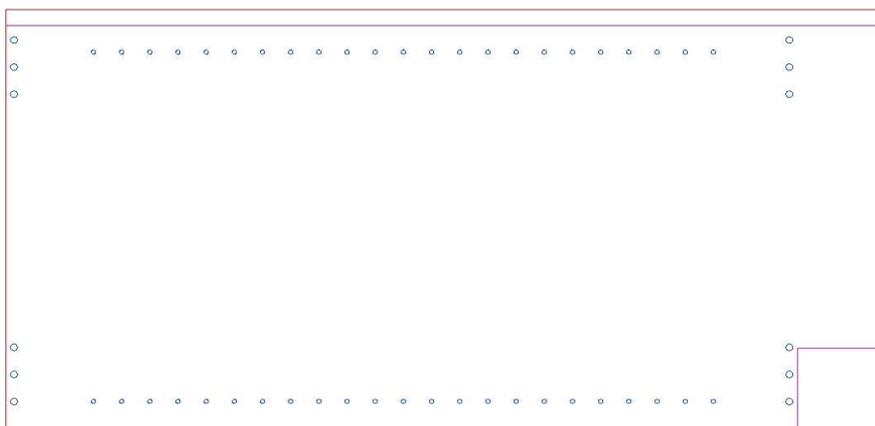
The groundwork has been laid to start creating panel designs and necessary geometry.

Using this file, create the design from scratch or import the designs that have been created as DXF or DWG files. This article will demonstrate the steps to creating a basic cabinet side panel with a toe kick, system holes, construction holes and a groove for the back panel. The required layers are:

<b>S_19 or ProcPart_19</b>	<b>Panel Size</b>
<b>FK-3T128R or V_Trim_-3_T128_R</b>	<b>Toe Kick Contour</b>
<b>LE or V_DrillSF_12</b>	<b>Multiple System Holes (geometry specifies diameter)</b>
<b>LE or V_DrillSF_15</b>	<b>Multiple Construction Holes</b>
<b>NZ_12 or V_Saw3_12</b>	<b>Groove Saw (always center compensation)</b>

**Note:** When the geometry for the saw is programmed, the layer will always set the saw with center compensation. The groove of the saw blade will straddle the line geometry. The saw compensation may be changed to the left or right side in WoodWOP after the importation is complete.

Any WoodWOP MPR may be manipulated after the DXF file has been imported.

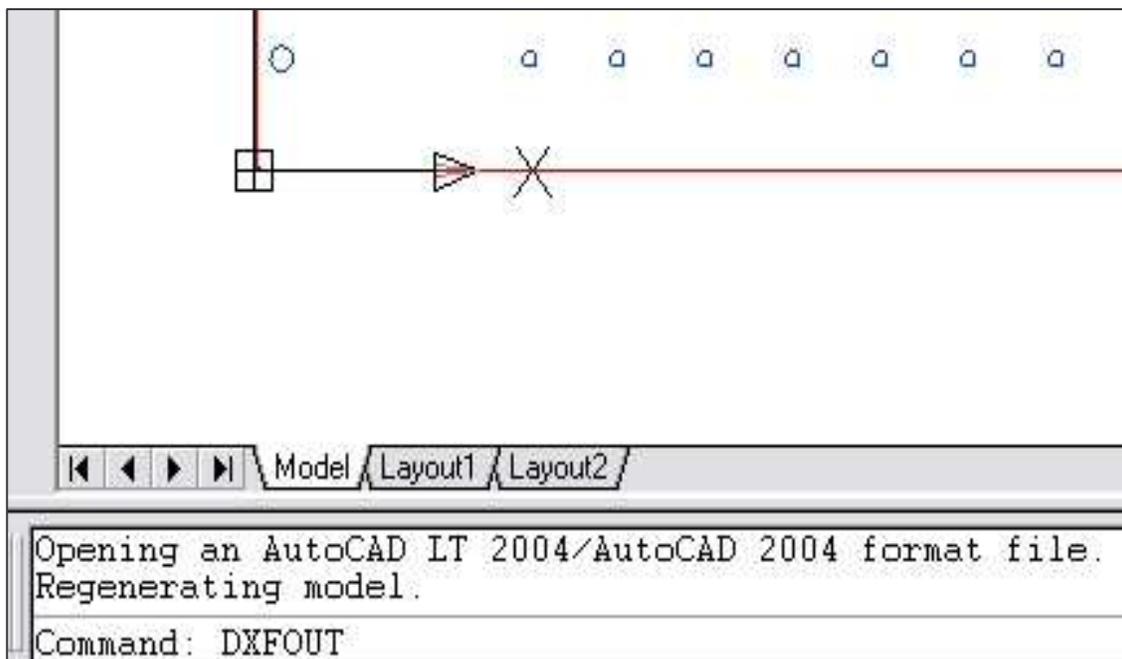


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## WoodWOP Layer Names to DXF Geometry

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This image illustrates the panel size, system holes, construction holes, grooving saw geometry and the layer colors. Once this has been completed and the drawing saved, the next step is transferring the DXF file into WoodWOP for machining. This process involves a command line of “**DXFOUT**”. This process will define where the DXF file will be stored, usually, in a DXF folder within the WoodWOP folder, (WW4 \DXF).



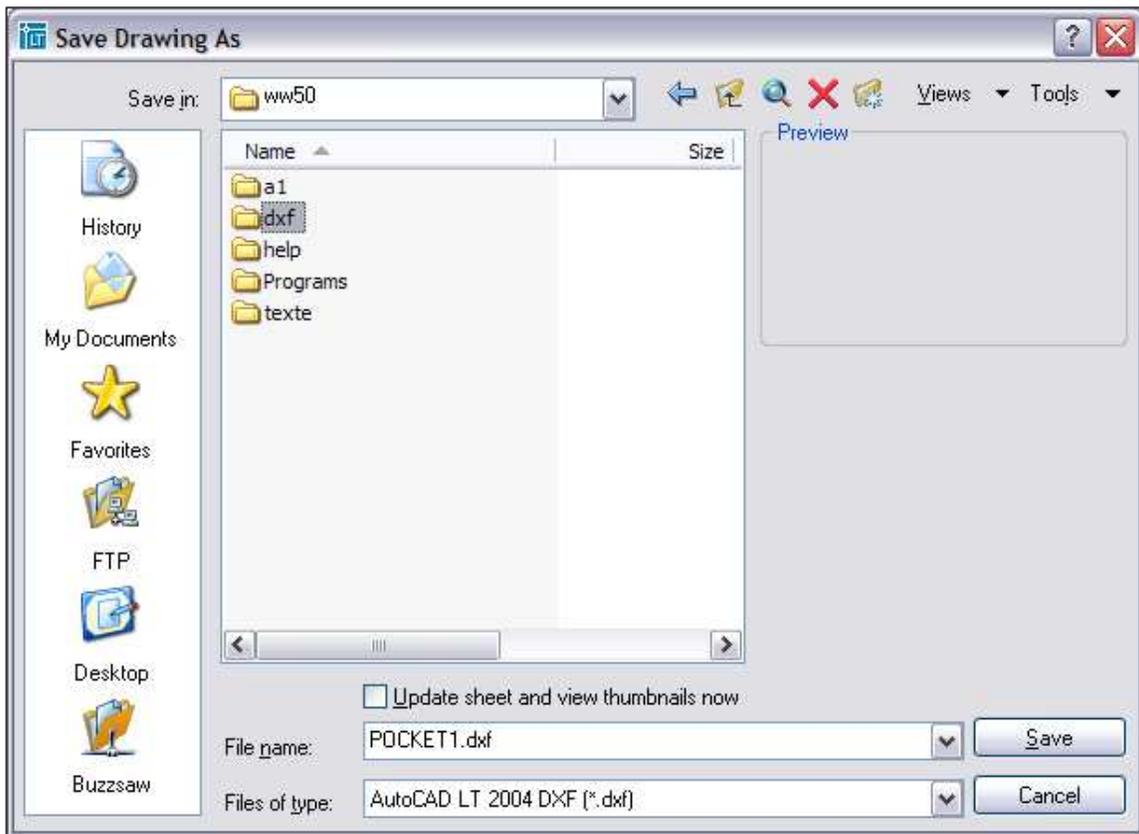
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## WoodWOP Layer Names to DXF Geometry

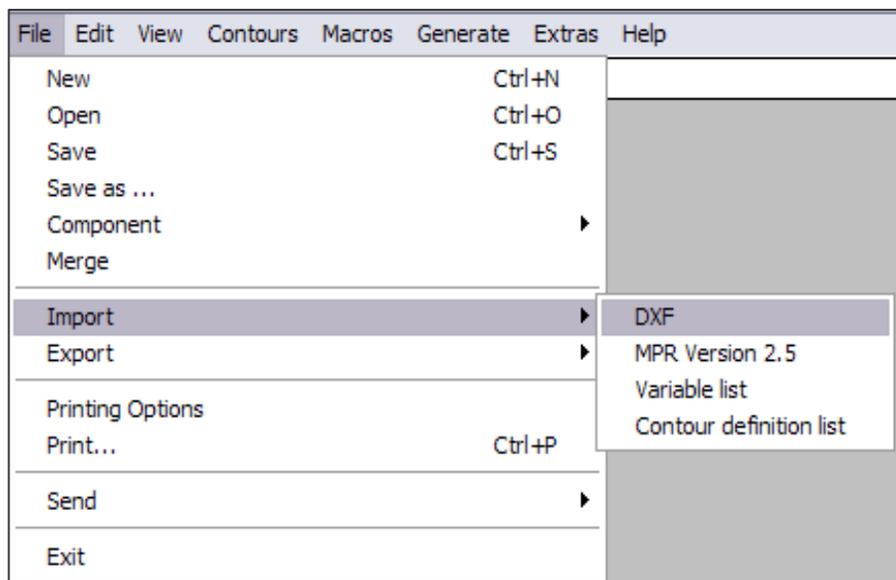
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This will open a selection menu box and will allow the designation for the storing location of this file.

Name the file and click the Save icon.

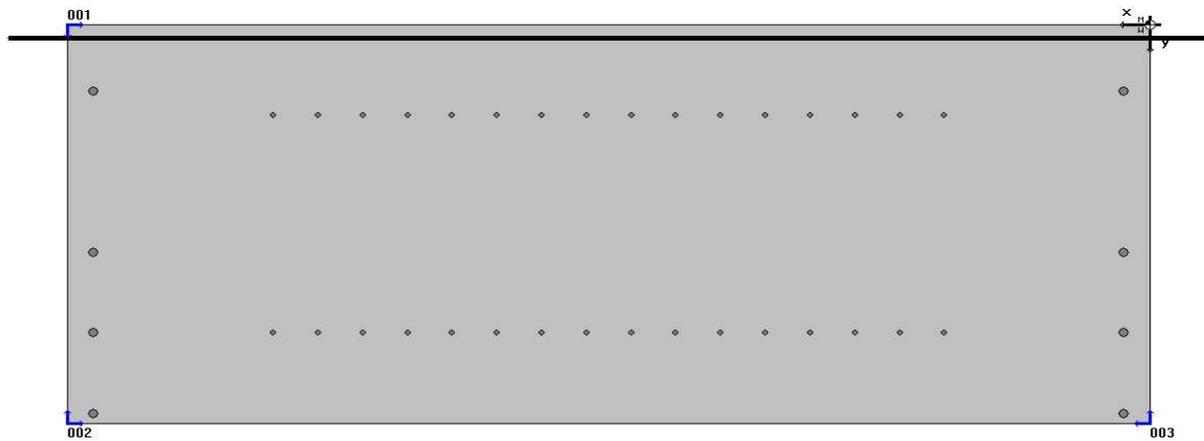


After the layer names have been defined in AutoCAD, the geometry has been created and the applicable layer names have been applied, the file has been saved and transferred to a WoodWOP folder; open WoodWOP and Import the DXF file.





The Conversion Display lists the machining functions that have been converted. This display will always list the machine functions in German.

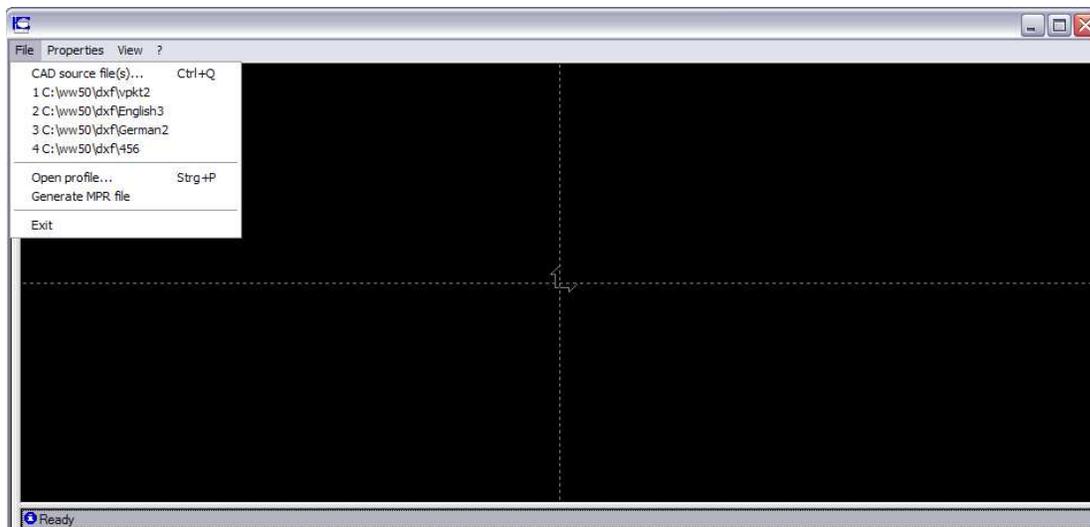


Once the conversion has been created, click on the OK icon and the WoodWOP MPR will be displayed.

This design may now be manipulated in WoodWOP by adding Variables and inserting additional machine functions that the DXF Post Processor program does not recognize.

### Importation into WoodWOP 5.0

Select the CAD source files, and then select the desired DXF file to convert.



Once the DXF file has been selected, the program will display the design image with the layers by color.

Next, select the Generate MPR file; if the file is error free, an MPR image will be created in WoodWOP.

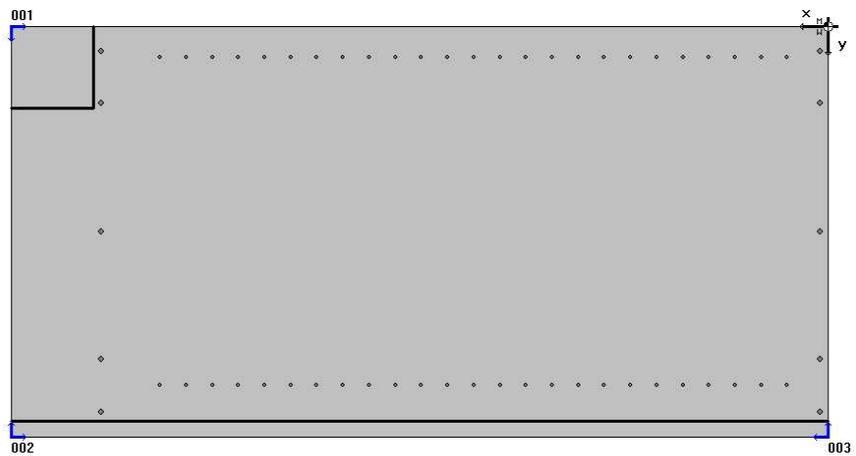
This design may now be manipulated as any other WoodWOP MPR image.

Images that have been imported or converted:

BPP5 importation image

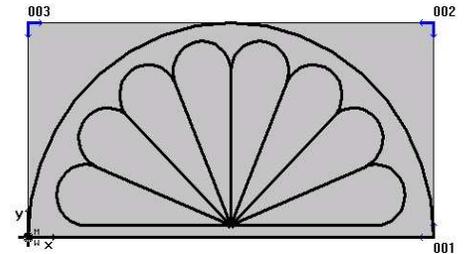


WoodWOP converted MPR



### MC300 Advanced WoodWOP

The main topics of MC300 address the use of algebra and trigonometry equations used in creating complex *parametric* WoodWOP designs. The course addresses the use of various C-axis aggregates and the necessary steps to program the aggregate functions. These functions may include vector routing, vector boring and the vector saw, horizontal contour routing, pocket operations and many more. The process of layer creation, assigning layer functions to geometry and DXF importation are also discussed.



Complex Parametric Design



C-Axis Aggregates

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