DownStream BluePrint 6.0 Release Notes

Build: 1476
Date: 10/22/2018

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What's New?

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This document describes the new features, enhancements and defect fixes in this Release:

Release Summary

BluePrint 6.0 is a major update.   BluePrint 6.0 has been converted to 64 bit and now uses a new common database which it can share with CAM350 14.0.   Both products now render design data in 3D.   BluePrint 6.0 has added several new 3D drawing elements to improve PCB documentation.   There is a new Stack Up Visualizer, 3D PDF export, and many other new features.

Installation and Licensing

There is a new 64-bit License Manager and License required to run the CAM350 14.0 and BluePrint 6.0 license.

The installer for the client software (CAM350 14.0 and BluePrint 6.0) will create new folders and you can run both your previous release (CAM350 12.2 and BluePrint 5.2) and your new Release software side by side on the same PC if you wish.

For many users your installation should be as simple as this:

1. Run the installation executable
2. Choose "Install License File" to install the new License Manager.
   a. If you are an existing customer on maintenance, choose "Install license from media" to install your new license file.
   b. If you are a new user or your license is not found on media, get your new license from DownStream, copy it to your PC and then choose "browse to select" you license file.
3. Choose "Install DownStream Products" to install the new CAM350 14.0 and BluePrint 6.0 Beta software on your PC.

If you are installing to a Virtual Machine or have any questions, reference our DownStream Installation Guide or contact us at support@downstreamtech.com.

System Requirements

Your PC should meet or exceed the following requirements:

- OS: Windows 8, 8.1, 10 (64 bit only)
- Processor: 2GHz or faster
- Memory: 8GB+
- Disk Space: 1GB available
- Graphics: Discrete graphics card with on-board memory preferred (for best 3D performance)

Note: Please be aware that CAM350 14.0 and BluePrint 6.0 are 64 bit applications and will ONLY run on 64 bit Windows 8 and 10. DownStream has discontinued support of Windows 7.

BluePrint 6.0 New Functionality

- ✓ 64 bit database
- ✓ 4K resolution support
- ✓ 2D Graphics - New net name and pin number visibility when zoomed in
- ✓ New 3D Graphics engine and Features
- ✓ New 3D drawing elements (3D PCB Views, 3D Stack Up, Scrollable Note Blocks and PL)
- ✓ New 2D/3D PDF Export
- ✓ New 3D STEP Import
- ✓ Screentips for Menu ribbons
- ✓ Updated 2013/2016 UI backstage
- ✓ Updated palettes, ribbons and icons
- ✓ Format Painter
- ✓ Enhanced BluePrint Viewer with 3D viewing
- ✓ Table drawing element improvement for tabbing and edit selection
- ✓ Stack Up Visualizer
- ✓ Dielectric support

BluePrint 6.0 New Feature Details

64 bit database

CAM350 and BluePrint now share a 64 bit database.   Our products can now import and work with very large CAD databases with the only restrictions being the processor and physical memory in your PC.   You can also create a database with CAM350 that can be opened by BluePrint and vise a versa.   If you import CAD data in CAM350 and same to our common database format (DPD), then you can open that file in BluePrint and work with the imported CAD data without having to re-import the data.

Note: CAM350 14.0 and BluePrint 6.0 are 64 bit ONLY.   We have discontinued support for 32 bit.   Microsoft's 64 bit OS was introduced on Vista in 2006.   All new PC's and laptops are installed with 64 bit processors and Windows OS.   CAM350 14.0 and BluePrint 6.0 take full advantage of today's PC power and performance.

4K resolution support

CAM350 and BluePrint now support 4K resolution screens.   "4K" refers to a horizontal screen display resolution in the order of 4,000 pixels (for instance, 4096x2160).   4K is used by many of today's most popular laptops.   4K support in a software program requires smaller, high resolution icons and modifications to dialogs and panes that are too large for a smaller screen.

2D Graphics – New net name and pin number visibility when zoomed in

BluePrint display of CAD data now displays net name and pin numbers when you are zoomed in to the design.
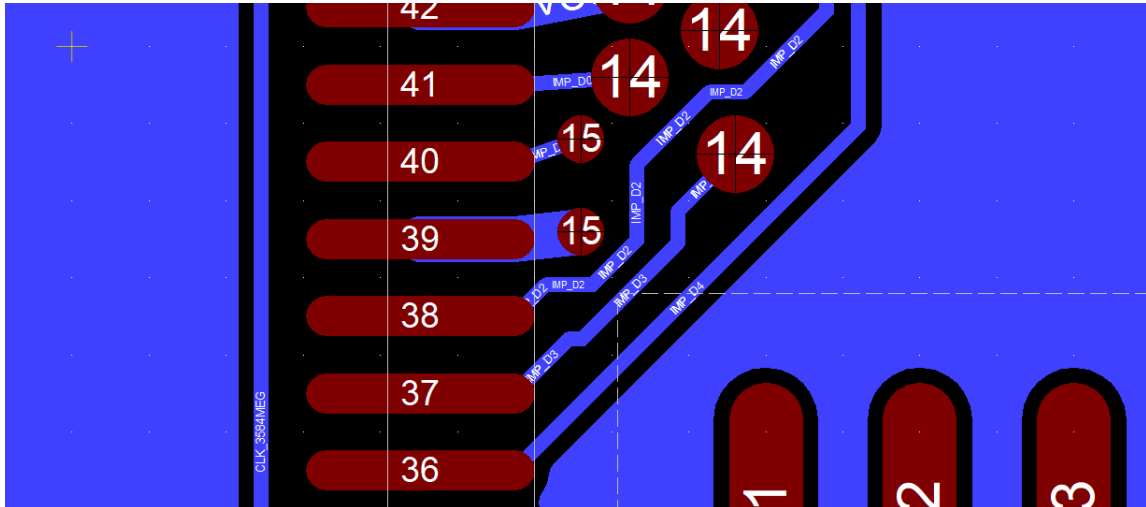
New 3D Design View

BluePrint's 3D Design View lets you visualize a 3D model of your imported design data. The 3D Design View is rendered automatically from your imported ODB++, IPC2581, or PADS ASCII design data.   Components are rendered based on their silkscreen outline and height information.   The board, components, pins, drills, vias, nets and copper are all rendered in 3D. Because the 3D visualization is rendered directly from your imported CAD data it is updated in real time when a design ECO occurs and new data is imported.

You can interact with your 3D Design visualization by changing the rotation, zoom, camera angles and other features found on the 3D ribbon and by using your mouse.

Mouse Commands	Rotate, Zoom, Move
Zoom large increments Center Mouse Button Scroll	Zoom in and Zoom out. Uses large increments to zoom in/out.
Zoom small increments Ctrl-Center Mouse Button Scroll	Zoom in and Zoom out. Uses small increments to zoom in/out.

Move Select Right Mouse Button in 3D Design View, hold down and drag cursor	Moves 3D image.

3D Ribbon - Perspective	Home, View, Flip Board, Previous View, Next View
Home	Brings 3D image back to Home position in 3D View. Typically centered on first layer.
View	If you think of the 3D PCB image as a cube, you can use the View command to display the Top, Bottom, Front, Back, Right, and Left sides of the cube.
Flip Board	Flips the Board
Previous View	Shows the 3D image before your most recent change was made
Next View	If you have selected Preview View, Next View will bring your display back to the state before your Previous View command.

3D Ribbon - Axis Cut	The 3D image can be cut by X, Y and Z planes or any combination.
X Plane	Select the X plane button on the Axis Cut group of the 3D ribbon. A rectangle representing the plane will display next to the 3D image. Select and drag the plane into the 3D image to cut the image.
Y Plane	Select the Y plane button on the Axis Cut group of the 3D ribbon. A rectangle representing the plane will display next to the 3D image. Select and drag the plane into the 3D image to cut the image.
Y Plane	Select the Z plane button on the Axis Cut group of the 3D ribbon. A rectangle representing the plane

	will display next to the 3D image. Select and drag the plane into the 3D image to cut the image.

3D Ribbon - Camera	Commands that reflect the view as if you were looking through the lens of a camera.
Move	The display of the 3D image changes based on the position of the camera. For instance, if you move the camera Forward towards the 3D image, the image will get larger as you would expect. If you move the camera Backward from the 3D image then the image will appear smaller.
Pitch	Camera Pitch is the rotation of the camera around the 3D image up/down and right/left.
Field of View	The field of view is the extent of the 3D image that can be viewed through a pre-defined camera lens angle, 90, 45 or 22.5 degrees.
Level	Level brings the camera level (90 degrees) to the Home surface. Level removes pitch, but retains zoom and rotation.

3D Ribbon - Display	Commands that change the display of the 3D rendering
Configure - Wireframe	A 3D wireframe model is an edge or skeletal representation of the 3D image
Configure - Hollow Planes	Displays "see through" planes
Configure - Thickness	Displays planes with thickness from design data, no plane thickness or only the thickness of copper (pcb layer) planes.
Spread	The Spread command creates distance between the layers so that you can see between them. Selecting the Spread button on the 3D ribbon "spreads" one layer at a time. The Spread command is disabled once all layers have been spread.
Squeeze	The Squeeze command "un-spreads" (squeezes) the distance between the layers, one layer at a time. The Squeeze command becomes available when any layer is Spread.
Peel	The Peel command "peels" one layer at a time off

	the 3D PCB image and places it to the side.
Reapply	The Reapply command "un-peels" one layer at a time and places it back onto the 3D PCB image.
Colors Preset	You can define colors and transparency levels for different layer types.
Colors by Layer	When this command is selected your Color Presets are displayed. When this command is not enabled, the colors defined in the PCB View Format pane are displayed.

3D Ribbon - Components	Actions that can be performed on components.
Show	This command toggles Components on/off in the 3D PCB view

3D Ribbon - 3D Source	These commands control the display of the 3D source for the 3D design window (the native rendered PCB image or STEP files)
Native Render	The Native Render button displays imported CAD design data in the 3D Design View
STEP File	The STEP file command displays the selected STEP file (from the STEP file button drop-down) in the 3D Design View.
STEP Explorer	Displays a Task Pane with the imported STEP file data in a tree format. When you select nodes in the tree, the corresponding STEP data will highlight in the 3D Design window.

3D Ribbon - Dimensioning	These commands allow you to measure and dimension a 3D STEP image. These tools cannot measure and dimension 3D Native rendered images.
Measure - Point to Point	Select the first point and then select the second point. A dimension representing the length between the two points is created.
Measure - Length	Select a circular object and move the cursor to create a radius dimension. Select a rectangular object and move the cursor to create a dimension of the side of that rectangle.

Measure - Feature to Feature	Select two objects in the 3D STEP image and a dimension will be created of the distance between the two objects.
Measure - Face Angle	Select the face of two objects and a dimension will be created of the angle between those two faces. For instance, an angle between the side of a component and the surface of the board might be 90 degrees.

3D Ribbon - Utilities	
Screen Shot	The screen shot command will create a bitmap of the image in the 3D Design View window. You can define the name, location and file type to save the bitmap.

New 3D Drawing Elements

In addition to standard two dimensional PCB documentation, BluePrint provides 3D functionality which allows you to:

- Create and place 3D PCB Views in your documentation
- Add scrollable and interactive Parts List and Noteblocks to your documentation
- Import and place 3D STEP files

BluePrint automatically renders 3D views of the design data using component height information.   This 3D data can be viewed, edited and placed on your documentation to better communicate the fabrication and assembly of your design.   You can also import 3D STEP files to augment your documentation with a 3D rendering of your PCB from your CAD system or adjacent assemblies (such as EMI shields, heat sinks, and enclosures) from your mechanical system.   Your 3D documentation can be reviewed in BluePrint's standalone viewer or exported to 3D PDF where the 3D PCB views, scrollable Parts List and Noteblocks can be examined interactively. BluePrint's 3D drawing elements are found on the Common, Fabrication and Assembly tool palettes. After import, 3D STEP models are found in the Imported Task Pane and can be drag and dropped onto your documentation sheet.

PDF Export has been updated to include 3D drawing elements

In BluePrint, you can create high-quality 3D content in your documentation. When you export that document to PDF, you can then view and interact with the 3D content in the Adobe Acrobat Reader. For example, in BluePrint you can place a 3D PCB View on a sheet and interact with that view to change the rotation, camera position and zoom level. When this document is exported to PDF you can also interact with that 3D PCB View using Adobe Acrobat Reader. The ability to create 3D PDF where you can not only view your design data, but interact with it in Adobe Acrobat Reader is very powerful when reviewing the design with your team or communicating the fabrication or assembly to a third party.

File – Export – PDF. Both 2D and 3D drawing elements are exported to a single PDF document for viewing.
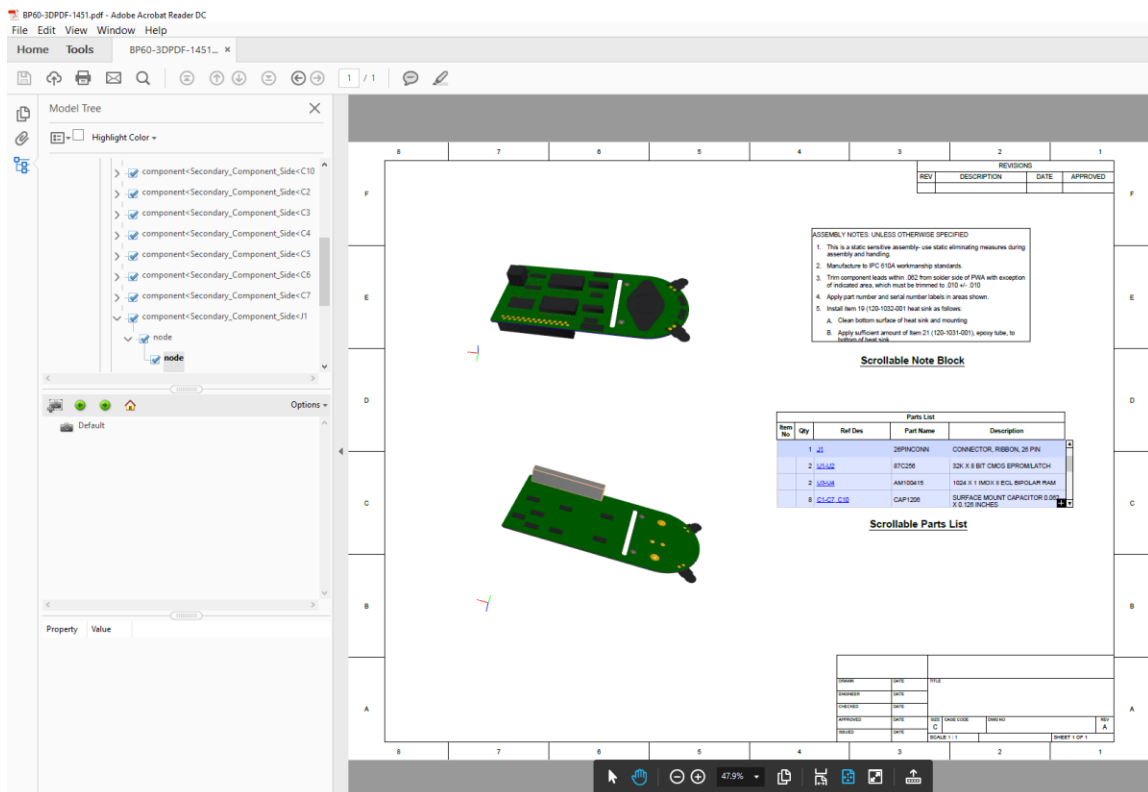
New 3D STEP Import

STEP files are the most widely used data exchange format for 3D CAD objects. The STEP format is an ISO standard (ISO 10303) and is exported by many PCB and Mechanical CAD systems. The STEP protocol most commonly supported by CAD systems is AP214 whose scope covers core data for Automotive Mechanical Design. Even so, a STEP file can represent any 3D representation.   For documentation purposes, you may want to import a realistic view of your completed PCB from your PCB CAD system, or a mechanical part or assembly from your Mechanical CAD system.   Any number of realistic 3D models can be imported into BluePrint and added to enhance your fabrication, assembly and panel documentation.

File – Import – STEP model.   The imported STEP model will appear in BluePrint's imported Task pane. From there it can be dragged and dropped onto your sheet.

New Ribbon Tooltips

As you move your cursor over the Ribbons a tooltip will appear with information about the command under your cursor.
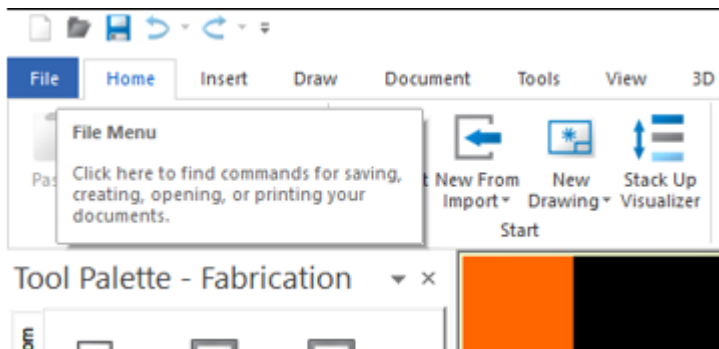
Format Painter

The Format Painter command on the Home ribbon allows you to quickly apply the same formatting from one shape to another "like" shape.   Think of it as copy and paste for formatting.   Format Painter only works with "like" shapes and objects. For instance, you can copy all formatting from one circle to another circle, but you cannot copy formatting from a circle to a rectangle.

BluePrint 6.0 Viewer and Pack and Release Viewer functionality

Both the BluePrint 6.0 Viewer and the Pack and Release Viewer have been updated to view documents created with 3D drawing elements and to view the imported design data the 3D Design view.

We have updated both BluePrint and the BluePrint viewer so that if either application opens a Pack and Release document that has a maximum limit set, that it will not allow the user to view that file after the limit has been reached. The same message that appears in the BluePrint 5.2 PNR Viewer will now appear in BluePrint when the maximum limit has been reached.

We have removed the BluePrint "Pack and Release" creation option to include the PNR Viewer in the PNR file (exe).   The original intent was to create a single exe with viewer and document that could be emailed to a coworker. However, the viewer makes the resulting exe so large that it cannot be emailed to most email servers.   Any user can instead download and install a free BluePrint Viewer from our website. The Pack and Release exe now includes only a self-extracting BluePrint document.

Note: The BluePrint 5.2 Web Publisher functionality is NOT available in the BluePrint 6.0 release.   The Web Publisher is a HTML browser that allows users to view BluePrint documents using Internet Explorer.   This technology is old and needs to be updated for the newer Windows 10 platform and to support multiple web browsers. We expect to release the Web Publisher in a future BluePrint 6.0 release.

Table drawing element improvements

Tabbing now allows the user to move through cells and immediately place the cursor in selection mode for editing. This is more like Microsoft Excel behavior. In BluePrint 5.2 this was a two-step process.

New Stackup Visualizer

The Stackup Visualizer in BluePrint allows the user to view or modify the PCB stack up. Layer stackups can be exported to an IPC-2581 format file and shared with fabricators for a pre-design stackup review. Changes to a stackup can be imported through the same IPC-2581 format.

The Materials table can be used to create a materials library of often used materials and assign the materials to layers in the stackup. Assign material properties to enhance the layer definition for stackup passing between fabricators and designers.

Stackup Visualizer presents layer stackup details in three visualization modes (the Stackup Table, 2D Stackup Graphics and a 3D Stackup visual).   The Stackup Visualizer also presents statistical data for the stackup and relevant design details including via drills.

Below is a pictorial of the Stack Up Visualizer user interface.
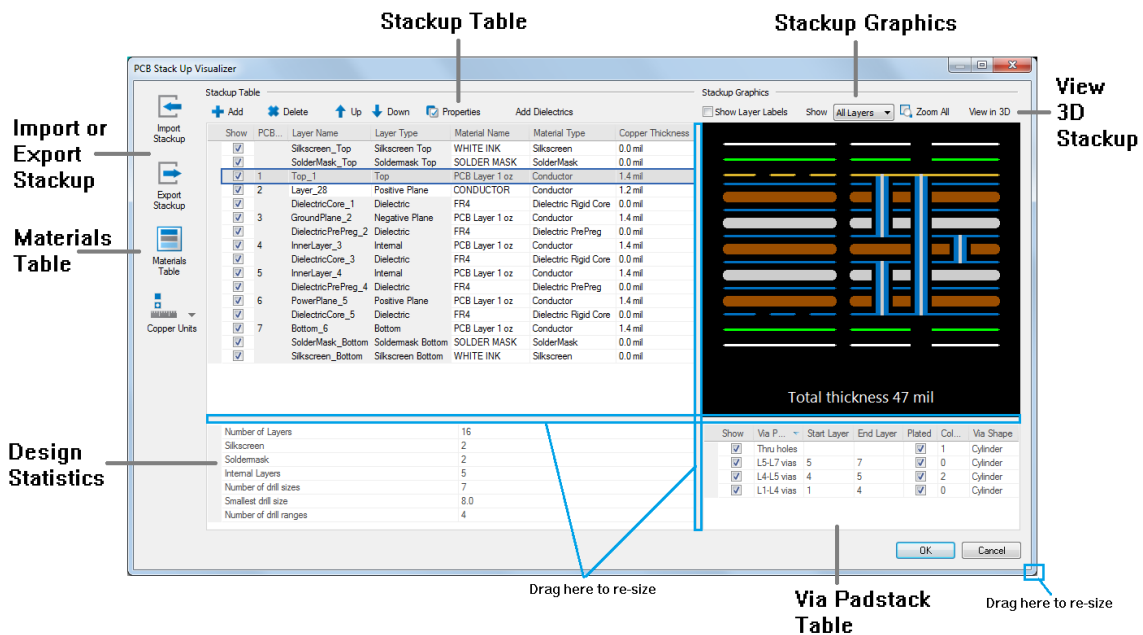
Stackup Table

The Stackup Table presents the stackup as a table. Layers in the stackup are presented in top to bottom order and include Solder Mask, Silkscreen, PCB and Dielectric layers.

Here you can Add Layers, Delete Layers, Move Layers, View Layer Properties, Show Layer Labels, Automatically Add Dielectric Layers, Assign Layer Material

Stackup Graphics
The Stackup Graphics presents a cross section of the layer stackup. Layers are presented in top to bottom order with layer color coding and via drills.

Via Padstack Table
The Via Padstack Table presents one row for each layer set in the design and one row for through drills. Each row is identified by a layer set name.

Design Statistics
The Design Statistics area presents stackup relevant data from the design. Statistical data includes Number of Layers in the stackup, Number of Silkscreen and Soldermask layers, Number of Internal layers, Number of drill sizes, smallest drill size and the number of drilling ranges (or layer sets).

View 3D Stackup
Select View in 3D to view the layer stackup in 3D.

Materials Table
The Materials Table is for managing a library of materials used in the creation of layer stackups. The materials table is a library of PCB fabrication materials and other layer types like soldermask and silkscreen.

Import or Export Stackup
Use Import and Export Stackup to share and collaborate on stackup design. Layer stackups can be exported, reviewed, modified and then imported to update design materials, stackup layers, layer properties and so on.

BluePrint 6.0 Issues Resolved

Defect ID	Description
59985	Unable to import this customer IPC2581 file
59874	Error when attempting to add a new spell checker dictionary
59767	Copper weight for .attr file in microns when units=MM
59837	DXF import fails on this customer file
59629	Dimension font incorrectly changes after reopen of this customer document
59768	PCB Views cannot be scaled more than 20x
59961	Import of this ODB++ file is dropping components
59512	Stack up "dual dimension" value is being displayed incorrectly for this design
55547	Enhancement requested to tab through table cells
57151	Expedition ODB++ import memory limit error on this design
53327	Enhancement to table editing
59960	Issue clipping PCB View to parts and exporting to PDF
59213	Error opening document with very small exploded views

How to Contact Us

Please send any defects, feedback or questions to blueprint@downstreamtech.com.

Defects: Please include a detailed description with steps on how to reproduce the defect and attach any media necessary to reproduce the issue.

Feedback: If you have feedback for us about what we could improve or add to the product, even if not a defect, we still want to hear from you.   Please send description.

Questions: If you have any questions about the Release software, please contact us through blueprint@downstreamtech.com or support@downstreamtech.com.

Patents, Copyrights, and Trademarks

Patents

"AUTOMATED PCB MANUFACTURING DOCUMENTATION RELEASE PACKAGE SYSTEM AND METHOD", United States Patent No. 7,409,666 B2

"ADAPTIVE TEMPLATE SYSTEM FOR AN AUTOMATED PCB MANUFACTURING RELEASE PACKAGE SYSTEM", United States Patent No. 8,875,072 B2

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