

# Introduction

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This Quick Start guide will guide you through installing OpenPnP, seeing the major components of the interface and running a sample job in the OpenPnP simulator. This will allow you to quickly understand how OpenPnP works and give you a foundation to begin hooking it up to your own machine.

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# A Quick Tour

## User Interface

This image shows the major components of the user interface. We'll reference the names of these components throughout the rest of the guide, so take a moment to get familiar with them.

The screenshot displays the OpenPnP software interface with several key components highlighted by red callouts:

- Camera View:** Located in the top-left pane, showing a live camera feed of the work area with a red crosshair and a 'FID1' label.
- Jog Controls:** Located in the bottom-left pane, featuring a grid of directional buttons (Home, Stop, Jog, Special) and a speed/distance control slider.
- Digital Read Outs (DROs):** Located at the bottom right of the interface, displaying real-time coordinates: X:0.000, Y:0.000, Z:0.000, C:0.000.
- Tabs:** Located at the top right, showing a menu of tabs including 'job', 'Parts', 'Packages', 'Feeders', 'Machine Setup', and 'Log'.

The main workspace is divided into two tables:

Board	Width	Length	Side	X	Y	Z	Rot.	Enabled?	Check Fids?
pnp-test.bo...	37.000	0.000	Top	5.139	62.744	0.000	0.000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
pnp-test.bo...	37.000	0.000	Bottom	64.490	7.248	0.000	0.605	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
pnp-test.bo...	37.000	0.000	Bottom	84.336	46.650	0.000	36.609	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
pnp-test.bo...	37.000	0.000	Bottom	59.177	120.839	0.000	-28.179	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
pnp-test.bo...	37.000	0.000	Top	155.018	151.332	0.000	157.093	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
pnp-test.bo...	37.000	0.000	Bottom	183.955	146.597	0.000	-140.607	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
pnp-test.bo...	37.000	0.000	Top	38.020	100.912	0.000	76.646	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

  

Id	Part	Side	X	Y	Rot.	Type	Status	Check Fids
R1	R0805-1K	Top	31.000	6.000	0.000	Place	Ready	<input type="checkbox"/>
R2	R0805-1K	Bottom	6.000	6.000	0.000	Place	Ready	<input type="checkbox"/>
R3	R0201-1K	Top	12.000	22.000	315.000	Ignore	Ready	<input type="checkbox"/>
R4	R0201-1K	Bottom	6.000	17.000	270.000	Ignore	Ready	<input type="checkbox"/>
R5	R0402-1K	Top	25.000	22.000	45.000	Place	Ready	<input type="checkbox"/>
R6	R0402-1K	Bottom	31.000	22.000	0.000	Ignore	Ready	<input type="checkbox"/>
R7	R0402-1K	Top	31.000	17.000	90.000	Place	Ready	<input type="checkbox"/>
R8	R0603-1K	Top	6.000	11.000	270.000	Ignore	Ready	<input type="checkbox"/>
R9	R0603-1K	Top	12.000	6.000	315.000	Ignore	Ready	<input type="checkbox"/>
R10	R0603-1K	Top	6.000	6.000	0.000	Ignore	Ready	<input type="checkbox"/>
R11	R0603-1K	Bottom	6.000	6.000	0.000	Place	Ready	<input type="checkbox"/>
R12	R0201-1K	Bottom	31.000	22.000	0.000	Ignore	Ready	<input type="checkbox"/>
R13	R0201-1K	Bottom	25.000	22.000	315.000	Ignore	Ready	<input type="checkbox"/>
R14	R0201-1K	Bottom	31.000	17.000	270.000	Ignore	Ready	<input type="checkbox"/>
R15	R0402-1K	Bottom	12.000	22.000	45.000	Ignore	Ready	<input type="checkbox"/>
R16	R0402-1K	Bottom	6.000	22.000	0.000	Place	Ready	<input type="checkbox"/>
R17	R0402-1K	Bottom	6.000	17.000	90.000	Place	Ready	<input type="checkbox"/>
R18	R0603-1K	Bottom	31.000	11.000	270.000	Place	Ready	<input type="checkbox"/>
R19	R0603-1K	Bottom	31.000	11.000	270.000	Ignore	Ready	<input type="checkbox"/>
R20	R0603-1K	Bottom	6.000	6.000	0.000	Ignore	Ready	<input type="checkbox"/>
R21	R0603-1K	Bottom	6.000	6.000	0.000	Place	Ready	<input type="checkbox"/>
R22	R0603-1K	Bottom	6.000	6.000	0.000	Ignore	Ready	<input type="checkbox"/>
FID1	FIDUCIAL-1X2...	Top	2.000	2.000	0.000	Fiducial	Ready	<input type="checkbox"/>
FID2	FIDUCIAL-1X2...	Top	34.500	26.500	0.000	Fiducial	Ready	<input type="checkbox"/>
FID3	FIDUCIAL-1X2...	Top	34.500	2.000	0.000	Fiducial	Ready	<input type="checkbox"/>
FID4	FIDUCIAL-1X2...	Bottom	0	0	0	Fiducial	Ready	<input type="checkbox"/>
FID5	FIDUCIAL-1X2...	Bottom	0	0	0	Fiducial	Ready	<input type="checkbox"/>
FID6	FIDUCIAL-1X2...	Bottom	0	0	0	Fiducial	Ready	<input type="checkbox"/>

## Moving Around

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OpenPnP is set up out of the box so that you can use it right away; you don't even need to connect a machine!

When you start OpenPnP for the first time you will see a simulated pick and place table in the camera view. Try following along with the items below to get a feel for how OpenPnP works:

1. Press the green power button to start the virtual "machine".
  2. Use the jog buttons in the jog controls to move the camera around. You can change the distance each click moves by changing the value of the Distance slider.
  3. Visit each of the tabs along the bottom of the window to see how Jobs, Parts, Packages, Feeders and the Machine is configured. Right now it's best not to change anything.
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# Your First Job

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Now that you've seen the user interface a bit, it's time to try running a pick and place job. Follow along with the instructions below:

1. Select the Job tab at the bottom of the main OpenPnP window.
2. From the File menu, select Open Job.
3. Using your computer's file dialog, find the `samples` directory that came with OpenPnP. It should be in the same directory you installed OpenPnP into.
4. In the `samples` directory, find the `pnptest` directory and open the `pnptest.job.xml` file inside it.
5. You'll see the job has loaded and there are now boards and placements listed. You can browse the boards and placements to see what the job will be doing.
6. If you haven't already, press the green power button  to start the machine.
7. Press the green play button  to start the job and the camera will start moving.

OpenPnP will now simulate a full pick and place job. It will use computer vision to align the boards using fiducials, find parts in virtual feeders, and then place the parts on virtual boards. You can follow along by watching the camera view.

When the job is complete, congratulations! You've run a job in OpenPnP! The next step is to dive into the [User Manual](#) and start learning how to hook OpenPnP up to a real machine.

## What's Next

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Next you should start reading the [User Manual](#) to get a better feel for the more advanced features of OpenPnP, and to learn how start integrating the software with your machine.