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Developing Custom Picking Software Using the Genetix SDK

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Automated colony picking has allowed DOE's Joint Genome Institute to inoculate upwards of 215 384-well plates per day. JGI currently attains a ratio of about 2.5 destination plates per bioassay tray (~1000 colonies per bioassay tray) and 2 or fewer failed wells per plate. The picking setup screen can also be overwhelming for new users that do not know how to navigate the user interface.

The Genetix software developer's toolkit (SDK) allows programmers to create imaging and picking routines that suite the specific needs of their clients. The JGI has taken advantage of the SDK by creating a program that shows the machine operators only what they need to see on a plate to plate basis, uses a special calibration routine and implementing a background subtraction routine that increases the contrast between the agar media and the colonies. Used together, the JGI will stabilize the number of failed wells and increase the number of colonies that are imaged per bioassay tray.

With the implementation of the custom software, JGI hopes to reduce reagent and plastics costs, increase picking efficiency and streamline the picking process.

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