Better Object Builder

Building i-Native Objects

Breaking free of the classic IBM i development model

Better Object Builder, or Bob, is a free open source development tool to build native "QSYS" objects. It works in conjunction with the popular version control system Git and build tool GNU Make, both of which are also open source and free to use. When combined with Git, an editor like Rational Developer for i (RDi), and an issue system like Trac, the result is a powerful and flexible set of tools for developing IBM i products.

Bob extends GNU Make so that it can build IBM i-native objects from source code stored in the IFS. With Bob's client tools installed, source code resides on your PC or Mac for editing, and then is quickly pushed to a personal IFS directory to be built. Compiler spool files are returned to the PC after compilation. The workflow, then, mimics standard (non-i) development: source code is stored in a centralized Git server (like GitHub), developers clone the repositories, commit and push changes, and use the i as a build server. They can even use GitHub services like pull requests and code reviews.

What is GNU Make?

Make is a popular build tool that builds objects from source code. Key to the process is a Makefile, which is simply a text file that lists out how each item is built. Key to the process is a makefile, which is simply a text file that lists how each item is built and the dependencies among the objects.

On the i, Make runs in PASE and knows nothing of ILE, RPG, modules, or service programs. Bob bridges the gap between the Linux/Unix environment with which Make is familiar and the QSYS file system in which most IBM i software lives.

Why Better Object Builder?

It understands the relationships between your objects, so if an item changes, then it and everything depending on it will be rebuilt. Bob works quickly because it only compiles those objects that need recompiling, such as new source code. Object dependencies are specified using standard makefile syntax, and the actual build engine is GNU Make -- exactly like tens of thousands of Linux and Unix software projects.

- **Speed**
- **Reliability**
- **Industry Standard**
- **Flexibility**
- **Ease of use**

Better Object Builder is flexible! Most objects defined to Bob typically build using your default values. Have a program that requires a custom activation group or a data area that needs to be created with a certain value? No problem, overriding compiler parameters is simple, and writing custom recipes for special objects is very straightforward. Then, with the Rational Developer for i integration elements installed, a single button click initiates the build. Making it easier and less costly to manipulate IBM i source code for you and your organization.

Features:

- **Open Source and Free**
Better Object Builder is free to use and free to modify.

- **At-a-glance version history**
Easily examine code from any point in time or compare code changes between any two points in time.

- **Flexible To Fit Any Development Workflow**
Work on code locally before sharing with other developers or pushing to the i to build.

- **Speedy Delta Builds**
Only new and changed code or code dependent on the changed code is compiled. Build with a single click.

- **Consistent, Repeatable Software Builds**
Many dependencies are automatically detected and maintained. Automated builds are possible.

Life Cycle Example

A developer is asked to investigate a bug that manifested after a recent code change. After making sure her local code repository contains the latest code, she gets to work. She uses her Git client to see which lines of code have changed within the past several weeks, figures out the problem, and fixes the code. She doesn't need to first check any code out, because her local repository is a complete mirror of the entire project. Using Bob, she pushes the changed code to her personal build directory on the development IBM i system, kicks off a build, tests the change, and sees that the issue is now resolved. She merges her changes into the main codeline and syncs it with the central repository so her teammates benefit from her fixes.

IBM Supports Open Source for the i

- 600+ IBM developers involved in 100+ open source projects
- IBM Information Center, an online repository for Linux and open source-oriented informtion.
- developerWorks Open provides access to current open source projects and is an open invitation to collaborate on their development

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