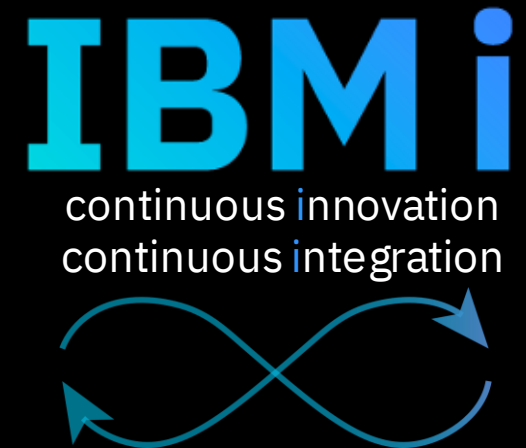


# Automating Builds

## in Git on IBM i

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# Agenda

- The Modern Development Lifecycle with Git
- Git Tooling and Automation
- Unlock Automated Builds with ibmi-ci
- ILE Dependency Analysis with Source Orbit
- Demo

# The Modern Development Lifecycle with Git

# What Does Modern Development Look Like?

- WIP



# Git Repository

- WIP

# Local Development Experience

- WIP

# Build Server

- WIP

# Git Tooling and Automation



# Available Tools

- WIP

# Unlock Automated Builds with ibmi-ci

# Overview

- WIP

# CLI Usage

- WIP

# GitHub Action Usage

- WIP

# **ILE Dependency Analysis with Source Orbit**

# Overview

- A dependency management CLI tool
  - Build dependency tree for RPGLE, DDS, SQL, CL, etc.
  - Generates impact analysis information
  - Generate scripts to automate builds
  - Clean up project

The screenshot shows the GitHub repository page for @ibm/sourceorbit. The repository is public, published 11 days ago, and has 0 dependents and 21 versions. The page includes a README, code, and settings tabs. The main content area describes Source Orbit as a dependency management tool for RPGLE/CLLE/SQL/DDS/binder sources. It lists general usage instructions, such as using --verbose to list all project objects and --init to add default compile options. A code block shows the command: so -bf make && gmake BIN\_LIB=libname.

@ibm/sourceorbit **ts**  
0.11.1 • Public • Published 11 days ago

Readme Code **Beta** 1 Dependency 0 Dependents 21 Versions Settings

## Source Orbit

Source Orbit is a dependency management tool for RPGLE/CLLE/SQL/DDS/binder sources.

### General usage

Source Orbit will scan the sources in the current working directory (CWD) and can do a few things:

- List all project objects with `--verbose`
- Show object dependencies with `-l`
- Generate a makefile based on the dependency tree to build the project
- Rename files easily ( `.rpgle / .clle / .clp -> .pgm.rpgle / .pgm.clle / .clle` ) with `-ar`
- Fix RPGLE includes if the source is found locally (useful for converting from member include style)

```
so -h
so -bf make && gmake BIN_LIB=libname
```

The screenshot shows a terminal window with the help output for the 'so' command. The output lists various options for project cleanup and options specific to the '-bf make' option. The options include: -d <dir> (To see the directory of where source code lives), --cwd <dir> (The default is the current working directory), -f <relative paths> (this option will still scan the entire working directory, but will single out these specific files when generating other files), --files <relative paths> (this option will still scan the entire working directory, but will single out these specific files when generating other files), -bf make|bob|imd|json (Create build files of a specific format), -bl <name> (Set the BRANCHLIB environment variable based on a user provided branch name), -ap (Assume that all sources are programs), --assume-programs (Assume that all sources are programs), -ar (Run the auto-rename process after scanning all code), -fi (Fix includes for RPGLE sources), --verbose (Print all the detail), -i (Add default compile options to 'iproj.json' file), --init (Should be used for project initialisation or to customize compile commands), -nc (Used with '-bf make' and won't include children of objects in the makefile), and --no-children (Used with '-bf make' and won't include children of objects in the makefile).

```
MINGW64/c/Users/SanjulaGanepola
AzureAD+SanjulaGanepola@IBM-PW0AC6C8 MINGW64 ~
$ so --help

-d <dir>
--cwd <dir>      To see the directory of where source code lives.
                  The default is the current working directory.

-f <relative paths>
--files <relative paths>
                  this option will still scan the entire working
                  directory, but will single out these specific files
                  when generating other files. If no build file is
                  specified, dependencies will be printed.

-bf make|bob|imd|json  Create build files of a specific format
                        Example: -bf make

-bl <name>           Set the BRANCHLIB environment variable based on
                        a user provided branch name, and will write it out.
                        Example: -bl feature/123-cool-idea
                        -bl bug/123-bad-move

-ap
--assume-programs    Assume that all sources are programs. This is useful
                        if your program sources do not use the .pgm notation.

Options for project cleanup:

-ar                 Run the auto-rename process after scanning all code
                        Ensure it is run inside of source control.
                        Rename program sources to have the '.pgm.' attribute in the name
                        Rename RPGLE copybooks found (based on include statements) to be '.rpgleinc'

-fi                 Fix includes for RPGLE sources
                        Ensure it is run inside of source control.
                        Fixes all include/copy directives to use local source if available

--verbose           Print all the detail.

Options specific to '-bf make':

-i
--init              Add default compile options to 'iproj.json' file
                        Should be used for project initialisation or to customize compile commands.
                        This is specific to using '-bf' with the 'make' option.

-nc
--no-children       Used with '-bf make' and won't include children of
                        objects in the makefile. Useful in conjunction with '-f'.
```

# Let's Dissect a Dependency Tree

- WIP

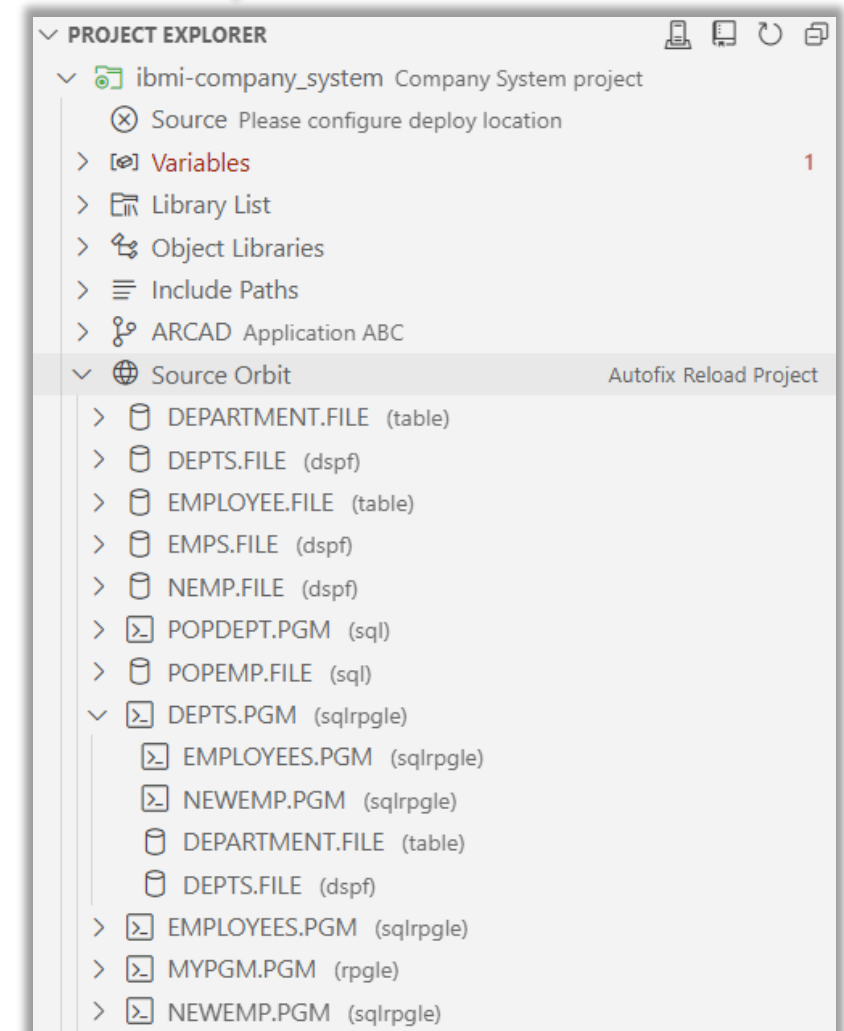


# There is a Source Orbit VS Code Extension for Visualization!

- Builds on top of IBM i Project Explorer
- Visualize dependency tree



Source Orbit



# Impact Analysis...What Objects am I Affecting?

- WIP

# Repository Cleanup

- WIP

# Integrated into IBM i Project Explorer

CVTSRCPF  
from BOB

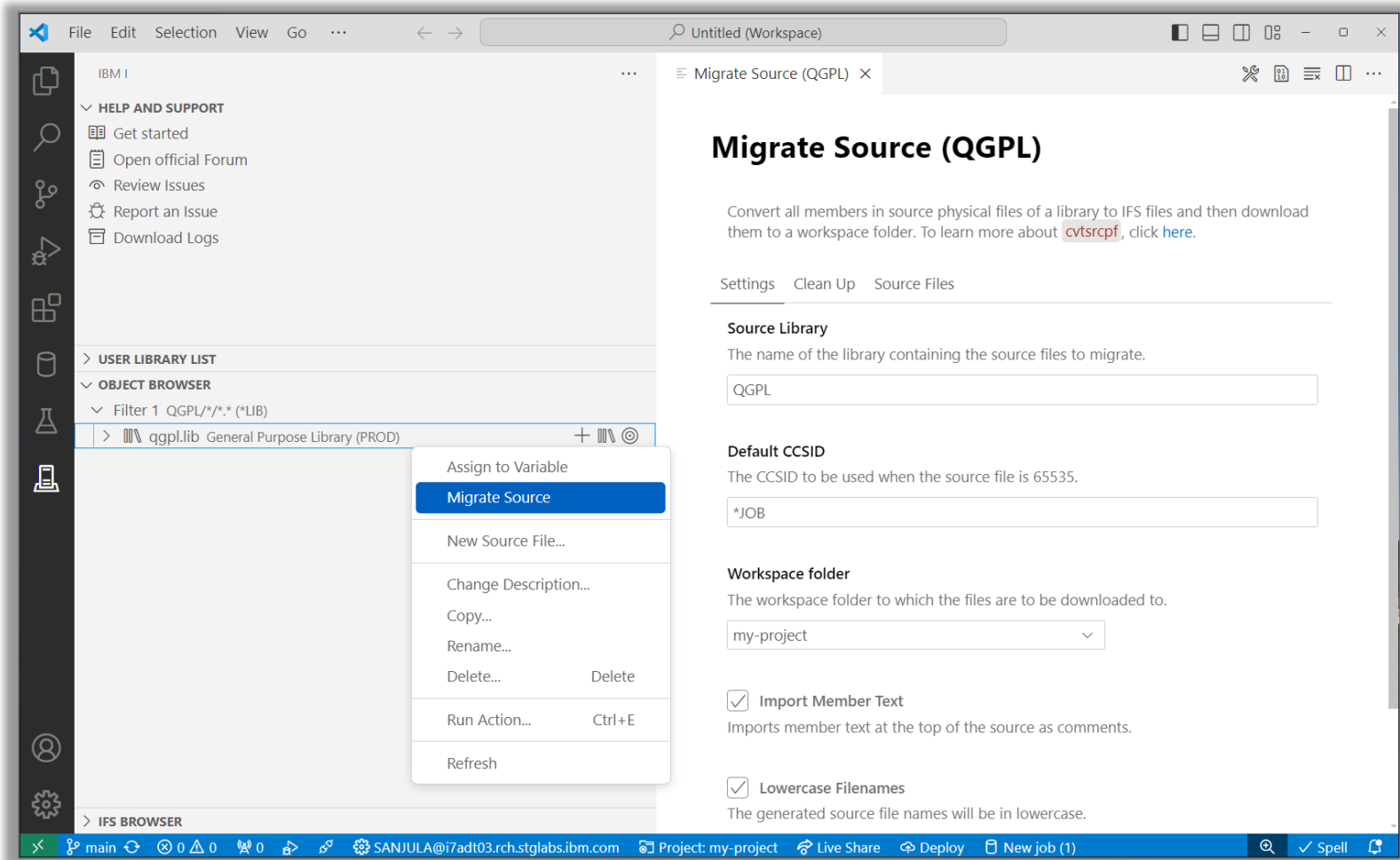


QSYS members in  
source physical files  
↓  
Properly encoded,  
terminated, and named  
source files in an IFS  
directory

↓  
Download to local  
project

↓  
Rename extensions  
↓  
Convert includes/copy  
directives to Unix style  
paths

Source Orbit



# CLI Usage

- WIP

# Usage in GitHub Action

- WIP

# Demo

# Important Links

## **ibmi-ci**


- NPM <https://www.npmjs.com/package/@ibm/ibmi-ci>
- GitHub Repository <https://github.com/IBM/ibmi-ci>

## **Source Orbit**

- Documentation <https://ibm.github.io/sourceorbit/#/>
- GitHub Repository <https://github.com/IBM/sourceorbit>



# For More Information

Links You Need	Twitter	#Hashtags
<p>IBM i Home Page: <a href="https://www.ibm.com/it-infrastructure/power/os/ibm-i">https://www.ibm.com/it-infrastructure/power/os/ibm-i</a> (find link to Forrester Study and updated IBM i Strategy Whitepaper)</p> <p>IBM Strategy Whitepaper: <a href="https://www.ibm.com/it-infrastructure/us-en/resources/power/i-strategy-roadmap/">https://www.ibm.com/it-infrastructure/us-en/resources/power/i-strategy-roadmap/</a></p> <p>IBM Client Success: <a href="https://www.ibm.com/it-infrastructure/us-en/resources/power/ibm-i-customer-stories/">https://www.ibm.com/it-infrastructure/us-en/resources/power/ibm-i-customer-stories/</a></p> <p>Support Life Cycle: <a href="https://www.ibm.com/support/lifecycle/">https://www.ibm.com/support/lifecycle/</a></p> <p>License Topics: <a href="https://www-01.ibm.com/support/docview.wss?uid=nas8N1022087">https://www-01.ibm.com/support/docview.wss?uid=nas8N1022087</a></p> <p>Fortra IBM i Marketplace Survey <a href="https://www.fortra.com/resources/guides/ibm-i-marketplace-survey-results">https://www.fortra.com/resources/guides/ibm-i-marketplace-survey-results</a></p>	  <a href="#">@IBMSystems</a> <a href="#">@COMMONug</a> <a href="#">@IBMChampions</a> <a href="#">@IBMSystemsISVs</a> <a href="#">@IBMiMag</a> <a href="#">@ITJungleNews</a> <a href="#">@SAPonIBMi</a> <a href="#">@SiDforIBMi</a>	<p>#PowerSystems</p> <p>#IBMi</p> <p>#IBMAIX</p> <p>#POWER9</p> <p>#LinuxonPower</p> <p>#OpenPOWER</p> <p>#HANAonPower</p> <p>#ITinfrastructure</p> <p>#OpenSource</p> <p>#HybridCloud</p> <p>#BigData</p>

