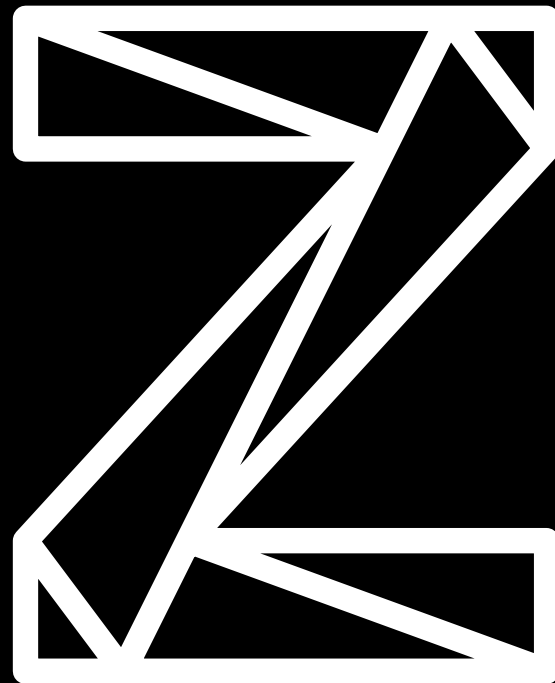


# Duplicate Code Detection - Simpler and Faster thru' out the lifecycle

**Kasturi Mohan**  
Offering Manager

**Herve LeBars**  
Architect

**Jean-Yves Rigolet**  
Architect & Release Manager



© 2020 International Business Machines Corporation. No part of this document may be reproduced or transmitted in any form without written permission from IBM.

**U.S. Government Users Restricted Rights — use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM.**

Information in these presentations (including information relating to products that have not yet been announced by IBM) has been reviewed for accuracy as of the date of initial publication and could include unintentional technical or typographical errors. IBM shall have no responsibility to update this information. **This document is distributed “as is” without any warranty, either express or implied. In no event, shall IBM be liable for any damage arising from the use of this information, including but not limited to, loss of data, business interruption, loss of profit or loss of opportunity.**

IBM products and services are warranted per the terms and conditions of the agreements under which they are provided.

IBM products are manufactured from new parts or new and used parts. In some cases, a product may not be new and may have been previously installed. Regardless, our warranty terms apply.”

**Any statements regarding IBM's future direction, intent or product plans are subject to change or withdrawal without notice.**

Performance data contained herein was generally obtained in a controlled, isolated environments. Customer examples are presented as illustrations of how those customers have used IBM products and the results they may have achieved. Actual performance, cost, savings or other results in other operating environments may vary.

References in this document to IBM products, programs, or services does not imply that IBM intends to make such products, programs or services available in all countries in which IBM operates or does business.

Workshops, sessions and associated materials may have been prepared by independent session speakers, and do not necessarily reflect the views of IBM. All materials and discussions are provided for informational purposes only, and are neither intended to, nor shall constitute legal or other guidance or advice to any individual participant or their specific situation.

It is the customer's responsibility to insure its own compliance with legal requirements and to obtain advice of competent legal counsel as to the identification and interpretation of any relevant laws and regulatory requirements that may affect the customer's business and any actions the customer may need to take to comply with such laws. IBM does not provide legal advice or represent or warrant that its services or products will ensure that the customer follows any law.

## Notices and disclaimers continued

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products about this publication and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products.

Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products. IBM does not warrant the quality of any third-party products, or the ability of any such third-party products to interoperate with IBM's products. **IBM expressly disclaims all warranties, expressed or implied, including but not limited to, the implied warranties of merchantability and fitness for a purpose.**

The provision of the information contained herein is not intended to, and does not, grant any right or license under any IBM patents, copyrights, trademarks or other intellectual property right.

IBM, the IBM logo, ibm.com and [names of other referenced IBM products and services used in the presentation] are trademarks of International Business Machines Corporation, registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at: [www.ibm.com/legal/copytrade.shtml](http://www.ibm.com/legal/copytrade.shtml).

# Please Note

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice and at IBM's sole discretion.

Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision.

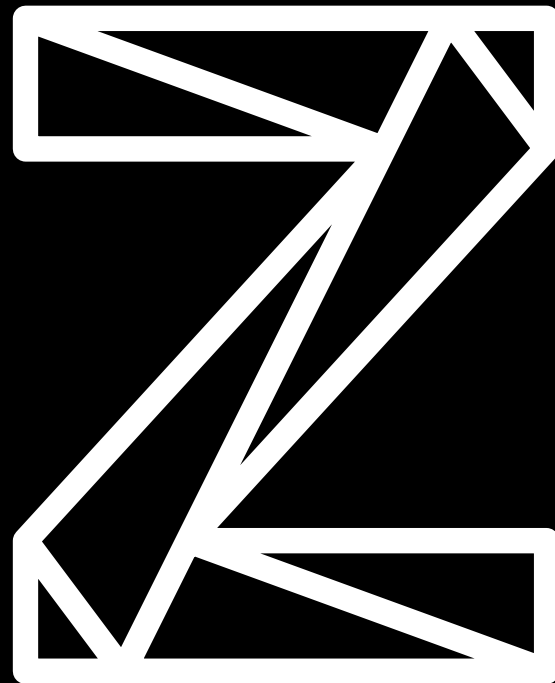
The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract.

The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.

# Agenda

- Introduction to Duplicate Code Detection
- Managing Duplicates
- Duplicates in the world of COBOL – where to start.
- Duplicate Code Detection – at a glance
- Demo
- IBM Technology Preview website details
- Resources
- Q & A



# Managing Duplicates is so difficult

Technology  
Preview



When Daylight Saving Time occurs you pick up your clock/watch and change the time, moving forward or backward an hour.

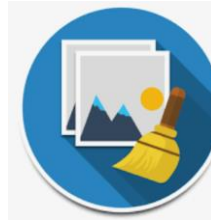


Duplicate names in a register

Duplicate DBs, email addresses and Files



Duplicate digital photos in different devices



It takes time, but becomes easy when you know where the duplicates exists



COBOL applications that have been there for years, have duplicate code for various reasons:

Technology  
Preview

- Nature of execution – Sequential
- Absence of a coding framework or best practices
- Many people handling the same set of code
- Copy & Paste !!

Identifying "Where" duplicates exist is hence very important before the decision of "What next" with the code is made..

# Where to start depends !

Technology  
Preview



In the COBOL world, this will become simpler with [Duplicate Code Detection Technology Preview](#) that's built into [IBM Developer for z/OS](#).



# IBM Duplicate Code Detection (DCD)

- Identifies code fragment duplicates
  - at speed (1/10 sec to search 100 KLoC)
- Code refactoring without changing external behavior
  - improved code readability
  - reduced complexity
  - rationalize source code
- Discovery from a large selection of source codes
  - custom fragment length & search scope
  - reliable searches
- Share duplicates with team members
  - search your Source Code Manager (SCM)
  - version & share search results



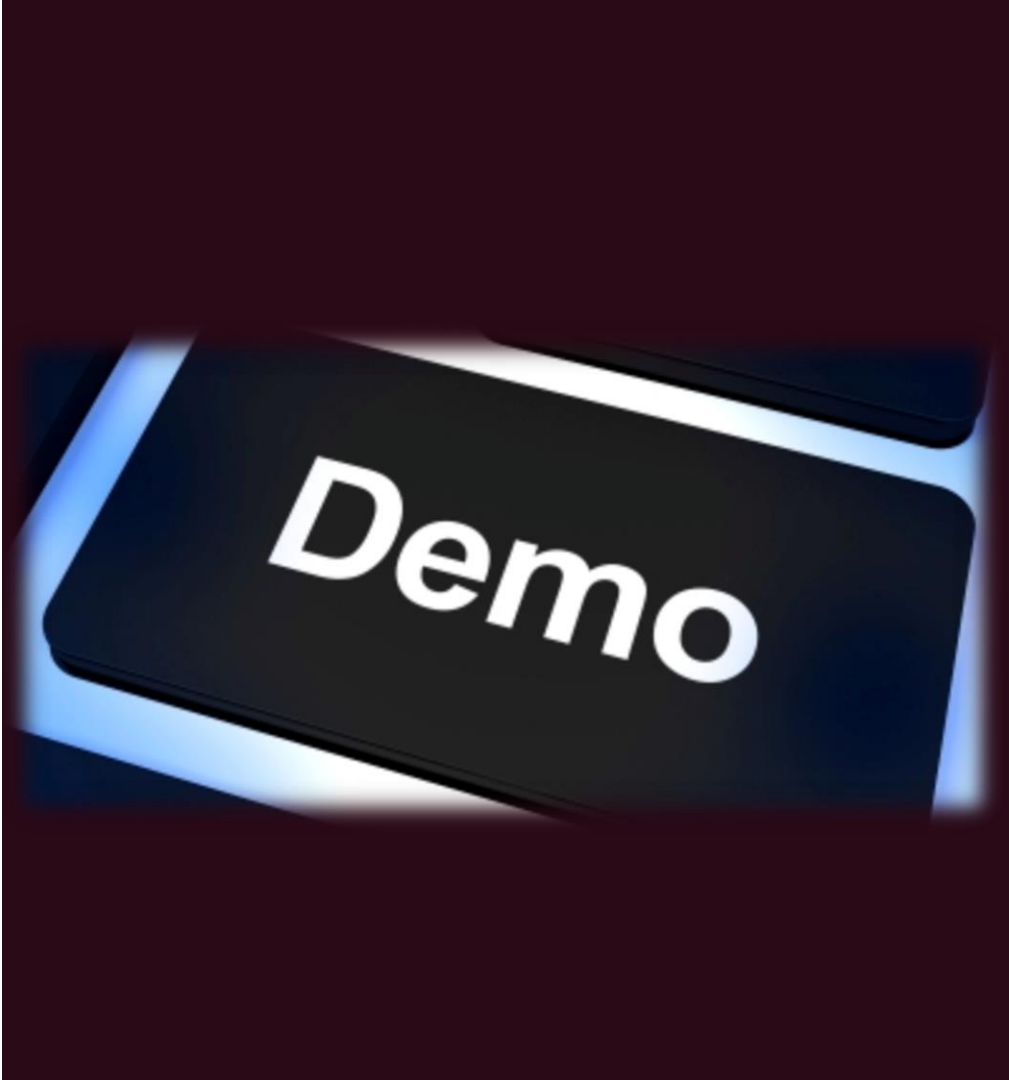
## Pre-Requisite

Duplicate Code Detection feature is integrated in IBM Developer for z/OS, starting version 14.2.2 The feature has to be selected at installation time.

Leverage enterprise developers  
Empower development teams

# IBM Duplicate Code Detection for z/OS

Technology  
Preview



# Duplicate Code Detection - website

## IBM Duplicate Code Detection Early Program

Overview

Tutorials

Download

Support

Tech  
Preview

### Welcome to the Duplicate Code Detection Tech Preview

This is Technology Preview Code for Duplicate Code Detection(DCD).

By participating in this program and providing valuable feedback for ongoing projects, you help IBM build a more durable product that better satisfies your business requirements.

Duplicate Code is a poor, but common, practice in software design where a similar/ identical set of instructions exists in several parts of the software source code. Duplicate Code Detection (DCD) helps to automatically discover the duplicate code from a large selection of source code so that redundancies are appropriately flagged, justified, or eliminated. DCD provides means for software developers to identify such redundancies, with the short-term goal of assessing the code quality of a large program, and ultimately the goal of refactoring the code. This is very applicable in the context of mainframe COBOL programming, where very large code databases (millions of code lines) have evolved over a period of time, and maintenance is becoming very demanding.

DCD\_promo\_fixed.mp4 ▾

DUPLICATE  
CODE  
DETECTION



IBM

This Tech Preview includes the below functionality

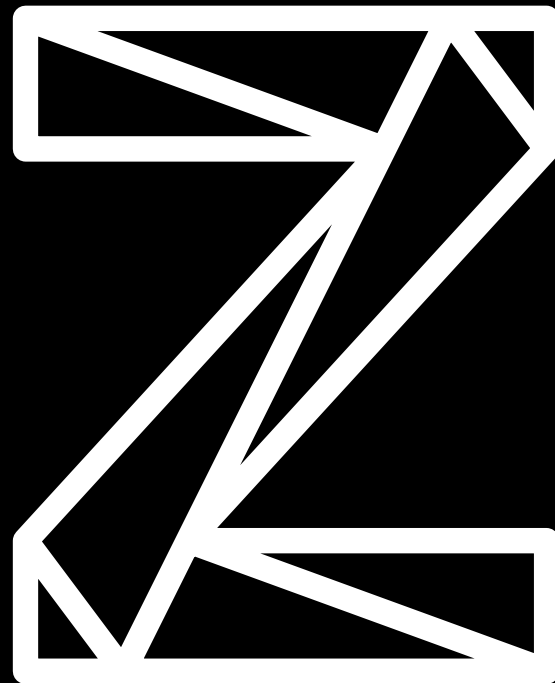
- Identifies Type 1 duplicates
  - Type1: Identical code fragments except for variations in whitespace, layout and comments.
- Works only for COBOL files.
- User interface is integrated into IBM Developer for z/OS (Eclipse-based).
- Can extract COBOL source to analyze from local workspace or GIT branches.

[Website URL](#)

- Watch video
- Reach out for support
- Vote on product priorities
- Send feedback

# Resources

- Duplicate Code Detection (DCD) tech preview [Website](#)
- IBM DCD [Blog](#)
- Blog on Devops.com – [Dry comes to COBOL](#)
- Submit future thoughts or vote on product priorities in survey [Here](#)
- Video demo [Here](#)
- Support and help [Reach out to us](#)



# Q & A Comments Suggestions



**IBM**