

# CodeTurn for COBOL to COBOL Conversions



## About Anubex CodeTurn COBOL to COBOL Conversions

*Many of today's applications that were developed in COBOL are still mission-critical and continue to deliver significant benefits to the organizations that use and rely upon them. Nevertheless, many organizations are faced with issues of Total Cost of Ownership (TCO), skill shortage, or simply end of support of the technology that served them well for many decades. Anubex' service provides an opportunity to liberate these valuable and reliable business systems from their dependency on compiler technology that is no longer wanted, and convert them to Object-Oriented languages such as C# or Java if desired, or to another COBOL compiler technology, which also often makes good business sense.*

## Service highlights

Anubex will take any application developed in COBOL and automatically convert it to a functionally identical one, now ready to run within an alternative COBOL environment on the same platform, or on a different platform altogether.

Since both the conversion and the testing is fully automated, the outcome of the project is fully predictable, in terms of risks, costs, and duration!

The migrated application is completely free of dependencies on Anubex software and relies on industry standard technologies instead.

### Three Strong Promises

All Anubex conversions ensure three types of equivalence:

- ❖ **Functional equivalence:** the converted application's behavior is identical to that of the original one;
- ❖ **Performance equivalence:** the converted application will perform at least as well as the original one (of course, assuming adequate infrastructure); and
- ❖ **Maintenance equivalence:** maintenance of the converted application will be - after proper training provided by Anubex - comparable in effort to the original application.

### Why convert your COBOL to COBOL?

COBOL has been declared dead more than once the past decades, yet the number of COBOL lines of code in use is still growing year-by-year. While it might make a lot of sense for organizations to move away from COBOL and convert to Object-Oriented Languages such as C# or Java, for many organizations, there are good reasons to stick to COBOL, at least for now.

Yet, these organizations might benefit from converting to another COBOL flavor or compiler because:

- ❖ Their current COBOL product has reached its **end-of-life** and support is no longer available, or has become very expensive;
- ❖ In recent years, some COBOL products have evolved to offering mature and robust quality and service levels, yet still come with a very affordable price-tag, and **cost savings** alone might be a driver to consider a conversion;
- ❖ The COBOL conversion can be part of a **general platform switch** towards a less expensive computing environment;
- ❖ The COBOL conversion can be an enabler, or part of a **database or user interface modernization**;
- ❖ Or, the COBOL conversion can be a first step towards **standardization on .NET or Java**.

## COBOL to COBOL Conversion

Anubex uses its proprietary tools to automate the conversion of COBOL sources to the chosen target, guaranteeing code quality, avoiding risks, and offering full predictability.

- ❖ Embedded languages are translated or adapted (e.g. IO Statements, EXEC SQL, EXEC CICS, DML, DL1, ...);
- ❖ Dialect differences are resolved:
  - Syntactic differences, like the need for paragraphs, dots, ...;
  - Semantic differences, like arithmetic precision, error checks, ODO, ...;
  - Feature differences, like recursion, ENTRY points, bit-fields, ...
- ❖ Where applicable – when switching platforms – EBCDIC/ASCII differences are resolved.

### Automated Testing

The converted application is tested using Anubex's TestMatch tool suite. Using TestMatch reduces the time and effort needed to complete the conversion project:

- ❖ TestMatch avoids the need to manually create test scenarios for the entire application;
- ❖ TestMatch limits the end-user involvement in the project to acceptance testing only.



### COBOL Tool Architecture Characteristics

- ❖ Plugin-based architecture offering a flexible and highly customizable processing engine;
- ❖ Original source files only get changed 'locally'; all unaffected lines stay as is, including all original layout and copybook structures;
- ❖ All source and target COBOL source formats (fixed, free) are supported;
- ❖ Multiple processing 'tasks' can work simultaneously on the same source: the requested edit operations will be combined intelligently and applied in one final generation pass;

- ❖ Many customization possibilities are available (e.g. making COBOL more ANSI/ISO compliant, removing dead code,...);
- ❖ Enabling modernization of UI (e.g. using web-based, WPF or Swing UI) and data storage (using any RDBMS instead of ISAM/VSAM);
- ❖ Built to take advantage of massive parallelization resulting in even the biggest source code sets (with tens of millions of LOC) to be converted in a matter of hours.

### Parsing Library Characteristics

- ❖ The Parsing Library is highly flexible and fault-tolerant;
- ❖ It is built to support various dialects, including IBM VS II, BS2000, RM/COBOL, ACU Cobol, Wang COBOL, Enterprise COBOL, NetCOBOL, MicroFocus COBOL, ...;
- ❖ It is built to be easily extensible in case new, yet unknown syntax is encountered;
- ❖ It is continuously being tested on an ever-increasing set of COBOL sources (more than 200 million lines of code in the current test set);
- ❖ The parsing library is yet fully capable of processing in the presence of unknown syntax too;
- ❖ The parsers offer the possibility for embedded languages (or even just COBOL subsets) to register themselves with the main parser.

### Supported COBOL Flavors

While the tool is fully extensible and customizable, there are a number of source and target COBOL flavors for which conversion projects have already been executed to date:

Sources	Targets
RM/COBOL	NetCOBOL on Windows
ACUCOBOL-GT	NetCOBOL on Linux
DOS/VS COBOL	NetCOBOL for .NET
VS COBOL II	MicroFocus NetExpress
Enterprise COBOL for z/OS	MicroFocus Server Express
COBOL for OS/390 and VM	MicroFocus VisualCOBOL
COBOL2000 (BS2000/OSD)	COBOL-IT on Windows
COBOL85 (BS2000/OSD)	COBOL-IT on Linux
Wang VS COBOL	

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