

# +1Copybook Command Line Options for Oracle

## May 2020

### Project Directory

Most users will create a new directory as their project directory. +1Copybook configuration files, like `database_id.txt`, and “touch” files are found in the project directory.

For small projects, a `copybook.txt` file and data file(s) can be found in the project directory. The `copybook.txt` file can contain one or more COBOL copybooks. At the top of each COBOL copybook, you need to add a line like `ABC TABLE` (or `TABLE ABC`) where `ABC` is the table name to be created in the Oracle database. If a data file for the copybook exists, a copy of the data file can be stored in `ABC.txt` in the project directory.

For larger projects, the `COPYBOOKS` and `DATA` subdirectories in the project directory can be created to better organize the project.

The `COPYBOOKS` directory contains one or more COBOL copybook files. Each file has one COBOL copybook defined. Each copybook needs to start with `table_name TABLE` or `TABLE table_name` to match the Oracle table you want to create based on the copybook.

The `DATA` directory contains one or more data files to load into the Oracle database. If copybook loads `ABC TABLE`, the data file is named `ABC.txt` or `ABC.del`.

<code>COPYBOOKS</code>	The <code>COPYBOOKS</code> directory contains one or more COBOL copybooks. Each copybook has <code>table_name TABLE</code> as its first line.
<code>DATA</code>	Contains data files for copybooks.

When +1Copybook is run, the following subdirectories are created or overwritten by +1Copybook:

<code>CONTROL_FILES</code>	Contains generated Oracle control files.
<code>CREATE_TABLES</code>	Contains generated CREATE TABLE scripts.
<code>EXCEL</code>	Contains EXCEL loadable files if the <code>-x</code> option is used.
<code>html</code>	Open file <code>index.html</code> in the <code>html</code> directory to display the generated HTML output for conversions. HTML includes tables, sorted tables, copybook mapping, control files, create table, sorted create table, and row sizing for each copybook.

The HTML output is very useful and can be viewed by opening the `html/index.html` file using IE or Chrome. To view a file in Chrome, press Control-O and then select the `index.html` file.

The generated `control_files.txt` and `create_tables.txt` files can be ignored and are used by +1Data to generate the HTML output.

## Help Output

### % cb -h

To run +1Copybook for Oracle, type:

```
cb [-#]12AbCdEfFhHilLmnpPrsTvwxy]
```

where

```
-# 99 Load only n rows of data from data files. Used for testing.
-] 99 If table over 1000 columns, split table. First table 99 columns.
-1 Do not print first line of data in copybook mapping.
-2 To debug data, print column name with data values in deli file.
-A Data files are in ASCII format (default).
-b Generate output in both upper and lower case.
-C Data files are in character format.
-d dt Specify a date (dt) for data files. E.g., -d 12252020 for
DATA/<tablename>_12252020.txt file.
-E Data files are in EBCDIC format.
-f fn Specify a file name (fn) that contains a copybook.txt file.
-F Do not include FILLERS in CREATE TABLE and CONTROL FILE.
-h Display this help message on usage.
-H Display help message on +1Copybook configuration files.
-i Do not add counter 999 to FILLER column names.
-l Generate output in lower case.
-L Display copybook.txt lines as they are processed.
-M Display MAC addresses for your system.
-n Add NOT NULL constraint to each column in the CREATE TABLE script.
-p COMP-3 Packed Decimals in copybook are not compressed.
-P dir Change path before running +1Copybook. Use in cronjobs.
-r Use NUMBER data type for COMP-3 data types to avoid rounding problems.
-s Save one dated version of HTML output in index.html file.
-T fn Convert COBOL copybook files listed in file fn.
-v Display +1Copybook version and expiration date.
-w Do not print copyright notice.
-x Generate Excel output.
-y If copybook column contains DATE, DTE, or DT anywhere in its
name, define column as a DATE data type.
```

Leaving +1Copybook. Have a nice day.

```
*****
Copyright (C) 2005-2020 +1 Software Engineering LLC
All Rights Reserved
```

### % cb -H

Oracle configuration files and format used by +1Copybook and +1DataElements:

```
copybook.txt - Contains one or more copybooks. Add table_name TABLE.
database_id.txt - [Oracle SID]
date.txt - [date] - Date of data file, e.g., 12252020
external.txt - Configures Oracle external tables.
infile.txt - [APPEND | INSERT | REPLACE | TRUNCATE] for control files.
userid.txt - [userid | userid/password] for sqlldr command.
```

Leaving +1Copybook. Have a nice day.

```
*****
Copyright (C) 2005-2020 +1 Software Engineering LLC
All Rights Reserved
```

## Commonly Used Options

- b | -l**      **Generate column names in both upper and lower case (-b) or lower case only (-l).**  
Default: Column names are in upper case.
- d date**    **Specify date of data files to load.**  
Using `-d 12252016` will search for data file `CPY123_12252016.txt`.
- E**            **Data files are in EBCDIC format.**  
`+1Copybook` will convert EBCDIC data into ASCII data found in `*.deli` files (delimiter files).
- f name**    **Specify a copybook name to convert.**  
Converts named COBOL copybook.
- n**            **Add NOT NULL constraint to each column in the CREATE TABLE script.**
- r**            **Use NUMBER data type for COMP-3 data types to avoid rounding problems.**
- y**            **If copybook column contains DATE, DTE, or DT anywhere in its name, define column as a DATE data type.**

## Examples

`% cb`

`-- Converts all copybooks found in copybook.txt file. If copybook.txt file not found in project directory, converts all copybooks found in the COPYBOOKS directory.`

`% cb -f FF123A`

`-- Converts copybook FF123A.`

`% cb -b -n -y`

`-- Converts CREATE TABLE and control file in upper and lower case, assigns copybook columns with DATE, DTE, or DT in column name to a DATE data type, and appends NOT NULL to every column.`

## All Options Defined

- # 99 Load 99 rows of data from data files.**  
Generates the first 99 rows of data from each data file used for testing.
- j 99 If table over 1000 columns, split table. First table with 99 columns.**  
If a copybook defines over 1000 columns, which is Oracle's maximum, split table into table A with 99 columns and table B with the remaining columns.
- 1 Do not print first line of data in copybook map.**  
Default: If data file exists, first line of data is displayed in HTML copybook map.
- 2 To debug data, write "column name=data value" in deli files.**
- A Data files are in ASCII format (default).**  
A value of -123.45 may look like 12345{ in the data file (with an implied decimal point).
- b Generate column names in both upper and lower case.**  
Default: Column names are in upper case.
- C Data files are in character format.**  
A value of -123.45 will look like -123.45 in the data file.
- d date Specify date of data files to load.**  
Using -d 12252020, +1Copybook will search for the data file in the following order: FF0001A\_12252020.txt (current directory), DATA/FF0001A\_12252020.txt (DATA directory), and then DATA/12252020/FF0001A\_12252020.txt (DATA/12252020 directory).
- E Data files are in EBCDIC format.**  
+1Copybook will convert EBCDIC data into ASCII data found in \*.deli files (delimiter files).
- f file Specify a file name (file) that contains a copybook.txt file.**  
Default: The copybook.txt file name is used to store the copybook.
- F Do not add counter 999 to FILLER column names.**
- h Display +1Copybook options with brief description.**  
Default: Help message is not displayed.
- H Display names and basic format for configuration files.**
- i Do not include FILLER's in CREATE TABLE or CONTROL FILE.**  
Default: FILLER's are included and are numbered incrementally.

- l**      **Generate column names in lower case.**  
Default: Column names are in upper case.
- L**      **Display copybook.txt lines as they are processed.**  
Default: Copybook.txt lines are not displayed as they are processed.
- M**      **Display MAC addresses defined on system running +1Copybook.**  
Default: MAC addresses are not displayed.
- n**      **Add NOT NULL constraint to each column in the CREATE TABLE script.**  
Default: NOT NULL constraint is not added in CREATE TABLE script.
- p**      **Packed decimal values in data file are not compressed.**  
Default: Packed decimal (e.g., COMP-3) are in packed decimal format.
- P path**      **Change to specified directory path as part of running +1Copybook.**  
Default: +1Copybook runs in the directory it is started in.  
Useful if running +1Copybook in a cron job.
- r**      **Use NUMBER data type for COMP-3 data types to avoid rounding problems.**
- s**      **Save one dated version of HTML output in index.html file.**  
This option will save the current HTML output. Run `-s` again and the current version will replace the saved version.
- T fn**      **Convert copybooks listed in filename fn.**  
A "list" is one or more filenames containing copybooks. Using two or more lists, you can convert multiple copybooks and data in parallel on multiple CPU systems.  
Default: Copybooks are converted serially based on their order in the copybook.txt file.
- u userid**      **Specifies userid for sqldr command.**  
Specifies the userid or userid/password for the sqldr command.
- v**      **Display +1Copybook version and expiration date.**  
Default: Version and expiration dates are not displayed.
- w**      **Do not print warning messages or copyright notice on startup.**  
Default: Warnings and copyright notice is displayed.
- x**      **Generate Excel loadable copybook mapping output.**  
Default: Excel output is not created.  
Excel files are found in the EXCEL subdirectory.
- y**      **If copybook column contains DATE, DTE, or DT anywhere in its name, define column as a DATE data type.**
- Y**      **Display list of copybooks already converted using +1Copybook license.**

**-H**      **Display basic format of configuration files.**  
Default: Format for configuration files are not displayed.

**-?**

**-h**      **Display +1Copybook options with brief description.**  
Default: Option descriptions are not displayed.

Additional options are supported. Contact +1 Software Engineering if desired option isn't found above.

## Touch Files

A touch file is the same as specifying the option on the command line when running +1Copybook. By using touch files, you simply don't have to type the option each time you run +1Copybook.

To create a touch file, run **touch LOWERCASE**. To remove, run **rm LOWERCASE**. To group touch files together when using the ls command, touch files can begin with a '\_' characters, such as **\_NOFILLER**.

<b>ASCII or _ASCII</b>	<b>Data is in ASCII format (-A).</b>
<b>CHAR or _CHAR</b>	<b>Data is in character format (-C).</b>
<b>EBCDIC or _EBCDIC</b>	<b>Data is in EBCDIC format (-E).</b>
<b>LOWERCASE or _LOWERCASE</b>	<b>Convert column names to lower case (-l).</b>
<b>MIXEDCASE or _MIXEDCASE</b>	<b>Covert column names to be mixed case (-m).</b>
<b>NOFILLER or _NOFILLER</b>	<b>FILLER's will not be included in CREATE TABLE script. (-F)</b>
<b>TRUNCATE or _TRUNCATE</b>	<b>Truncate tables before loading data. Default: APPEND.</b>
<b>UPPERCASE or _UPPERCASE</b>	<b>Covert column names to be upper case (default, -u).</b>

## Configuration Files

A configuration file allows you to customize the generated output.

**copybook.txt**      **Contains one or more COBOL copybooks.**  
At the top of each COBOL copybook, add `<table_name> TABLE`.

**database\_id.txt**    **[Oracle SID]**  
Sets the Oracle SID. Default SID is PLUSONE.

**date.txt**            **[MMDDYYYY]**  
Specifies the date of the data files to convert.

**external.txt**        **Allows you to define external tables for one or more tables.**  
An example external.txt file for table CUSTOMER follows:

```
CUSTOMER TABLE
ORGANIZATIONAL EXTERNAL (
TYPE ORACLE_LOADER
DEFAULT DIRECTORY EXT_DIR
ACCESS PARAMETERS (
RECORDS FIXED 9999
FIELDS (
))
LOCATION ('/u01/external_tables/customer.txt')
)
REJECT LIMIT 1
;
```

The above external.txt will be used to generate a CREATE TABLE script. Column names will be added after CUSTOMER TABLE and FIELDS (. The fixed value 9999 will be replaced with the actual fixed length value of the data.

**infile.txt**            **[APPEND | INSERT | REPLACE | TRUNCATE]**  
Specifies the default action as what to do with the existing data found in a table to be loaded.

**Note: REPLACE and TRUNCATE should be used with great caution as any existing data in the table will be deleted.**

**userid.txt**            **[userid | userid/password]**  
Sets the userid or userid/password for the sqlldr command. While setting the userid/password in the userid.txt file will work, for security reasons only the userid should be found in the userid.txt file. When running the load\_all\_tables.bat command found in the CONTROL\_FILES directory, this script will prompt you for your password.

## Quick Tutorial

To run +1Copybook on your Windows-based system, you first need to install cygwin Unix. The cygwin download link is: <https://cygwin.com/install.html>

After installing cygwin and +1's cb and de programs onto your Windows system, you can then convert either one or multiple COBOL copybooks into Oracle (assuming no errors occur ;-)).

## To Convert and Load One COBOL Copybook

% **mkdir my\_directory**

% **cd my\_directory**

% **cp /path/to/your/copybook.txt copybook.txt** ← copybook.txt file has a copy of your copybook.

% **Edit copybook.txt file.** ← Add **table\_name TABLE** before the start of each copybook. You can use vi, notepad, or workpad to add table\_name TABLE line.

% **cb** ← Run +1Copybook using default settings.

% **ls** ← Should see CONTROL\_FILES, CREATE\_TABLES, and html directories.

**View html/index.html** ← In Chrome, type Control-O to view index.html.

% **sqlplus userid/password** ← Log into Oracle using your userid and password.

SQL> **@CREATE\_TABLES/table\_name.sql** ← Create table <table\_name>.

SQL> **quit**

% **sqlldr userid=<userid>/<password> control=CONTROL\_FILES/table\_name.ctl** ← Load data.

% **sqlplus userid/passwd** ← Log into Oracle.

SQL> **select count(\*) from table\_name;** ← See how many rows were loaded.

SQL> **select \* from table\_name where rownum < 10;** ← View first 9 rows of data loaded.

SQL> **quit**

## To Convert and Load Multiple COBOL Copybooks

**% mkdir my\_directory**

**% cd my\_directory**

**% mkdir COPYBOOKS**

**% mkdir DATA**

**% cp /path/to/copybooks/FF\*.txt COPYBOOKS** ← Copy all copybooks into COPYBOOKS directory.

**% cp /path/to/data/FF\*.txt DATA** ← Copy all data files for above copybooks into DATA directory.

**% cd COPYBOOKS** ← Change to COPYBOOKS directory.

**% Edit each copybook file** ← Add **table\_name TABLE** before the start of each copybook. You can use vi, notepad, or wordpad to add table\_name TABLE line.

**% cd ..** ← Change to project directory.

**% cb** ← Run +1Copybook using default settings.

**% ls** ← Should see CONTROL\_FILES, CREATE\_TABLES, and html directories.

**View html/index.html** ← In Chrome, type Control-O to view index.html. Highly recommended.

**% sqlplus userid/password** ← Log into Oracle using your userid and password.

**SQL> @CREATE\_TABLES/create\_all\_tables.sql** ← Creates all tables in Oracle.

**SQL> quit**

**% load\_all\_tables.sh <userid>/<password>** ← Using sqlldr and generated CONTROL\_FILES, load data into tables using your Oracle user id and password.

**% sqlplus userid/passwd** ← Log into Oracle.

**SQL> select count(\*) from table\_name;** ← See how many rows were loaded in tables.

**SQL> select \* from table\_name where rownum < 10;** ← View first 9 rows of data loaded.

**SQL> quit**

## Have questions?

Feel free to call +1 Software Engineering. Your point of contact is:

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