SD Quick Report

SD Quick Report is a simple spreadsheet based report design and creation package. The original intent was to test SD's embedded python. The package was modified to also work without embedded python (should work with QM, ScarletDME and SD without embedded python).

The package is made up of the following programs:

SD_QWK_RPT_DSGN - Program that creates the report definition file. This program is written in python and requires FreeSimpleGUI (https://pypi.org/project/FreeSimpleGUI/). Created report definition file must be saved in a directory accessible to the SD user who will create the report.

SD_QWK_DICT - This program is a helper program executed by SD_QWK_RPT_DSGN. It provides database file dictionary item names and descriptions to the designer during query creation. This program resides on the SD server, and is written in BASIC.

SD_QWK_RPT - Program that reads the report definition file and creates the report xlsx file. This program resides on the SD server, and is written in BASIC. SD_QWK_RPT can be compiled to run in two different modes: If SD is installed with embedded python support and SD_QWK_RPT is compiled to utilize embedded python, SD_QWK_RPT builds the spreadsheet report directly. If embedded python is not available (or you prefer to not utilize embedded python) SD_QWK_RPT can be compiled to write a python script file to a temporary location and execute the python script via a shell process, SD_QWK_RPT depends on the python module openpyxl being installed. https://pypi.org/project/openpyxl/

SD_QWK_RUN - Program to allow command line execution (from within an SD session) of a pre defined report. This program resides on the SD server, and is written in BASIC.

```
COMMAND LINE: SD_QWK_RUN SD_QWK_RPT_FLDR SD_QWK_RPT_ID WRT_FLDR_PATH
WRT_RPT_FNAME OPTS {OFF}

 SD_QWK_RPT_FLDR  - FULLY QUALIFIED PATH SD_QWK_RPT REPORT DEFINITION FILE

 SD_QWK_RPT_ID    - SD_QWK_RPT REPORT DEFINITION FILE NAME (RECORD)

 WRT_FLDR_PATH    -  PATH TO FOLDER TO WRITE REPORT TO (MUST HAVE
PERMISSION TO WRITE)

 WRT_RPT_FNAME    -   FILE NAME FOR REPORT

 OPTS             - OPTIONS (FOR NOW 'XLSX')

 OFF              - Logoff SD session on program completion.
```

Installation

Copy the following programs into sdsys GPL.BP folder or a local users BP folder (depending on desired install type).

SD_QWK_RPT
SD_QWK_DICT
SD_QWK_RUN

SD_QWK_TEST – Program to test sd_qwk_rpt
- creates dummy db file CUSTOMERS
- CUSTOMERS populated with data found in BP/cm_csv
- creates report definition record
- runs sd_qwk_rpt attempting to write created report to
    home/<username>/Documents/cm_report.xlsx

Compile and catalog the programs.

Install Python

Install FreeSimpleGUI, https://pypi.org/project/FreeSimpleGUI/#files download freesimplegui-5.1.1.tar.gz
    Extract and copy the FreeSimpleGUI folder into the folder containing the sd_qwk_xxx.py scripts. Installation of FreeSimpleGUI is done in this manner (not with pip) on Ubuntu systems because python on Ubuntu is an “externally-managed-environment”
see:
https://askubuntu.com/questions/1465218/pip-error-on-ubuntu-externally-managed-environment-%C3%97-this-environment-is-extern

Install openpyxl
    for ubuntu - sudo apt-get install python3-openpyxl

Copy the following python scripts to the folder containing FreeSimpleGUI:

sd_qwk_rpt_dsgn.py
sd_qwk_rpt_layouts.py
sd_qwk_rpt_constants.py

Create a report definition by running the sd_qwk_rpt_dsgn.py script.

From sd run SD_QWK_RUN to create the .xlsx report file.

SD_QWK_RUN /home/sd/user_accounts/<account name>/report_def_folder
 report_def_name /home/sd/user_accounts/<account name>/reports_folder cm_report.xlsx xlsx {off}

To Do:

add page format

add number formatting (or default to directory info and add in sd_qwk_rpt??)

add Image

add user default settings dialog

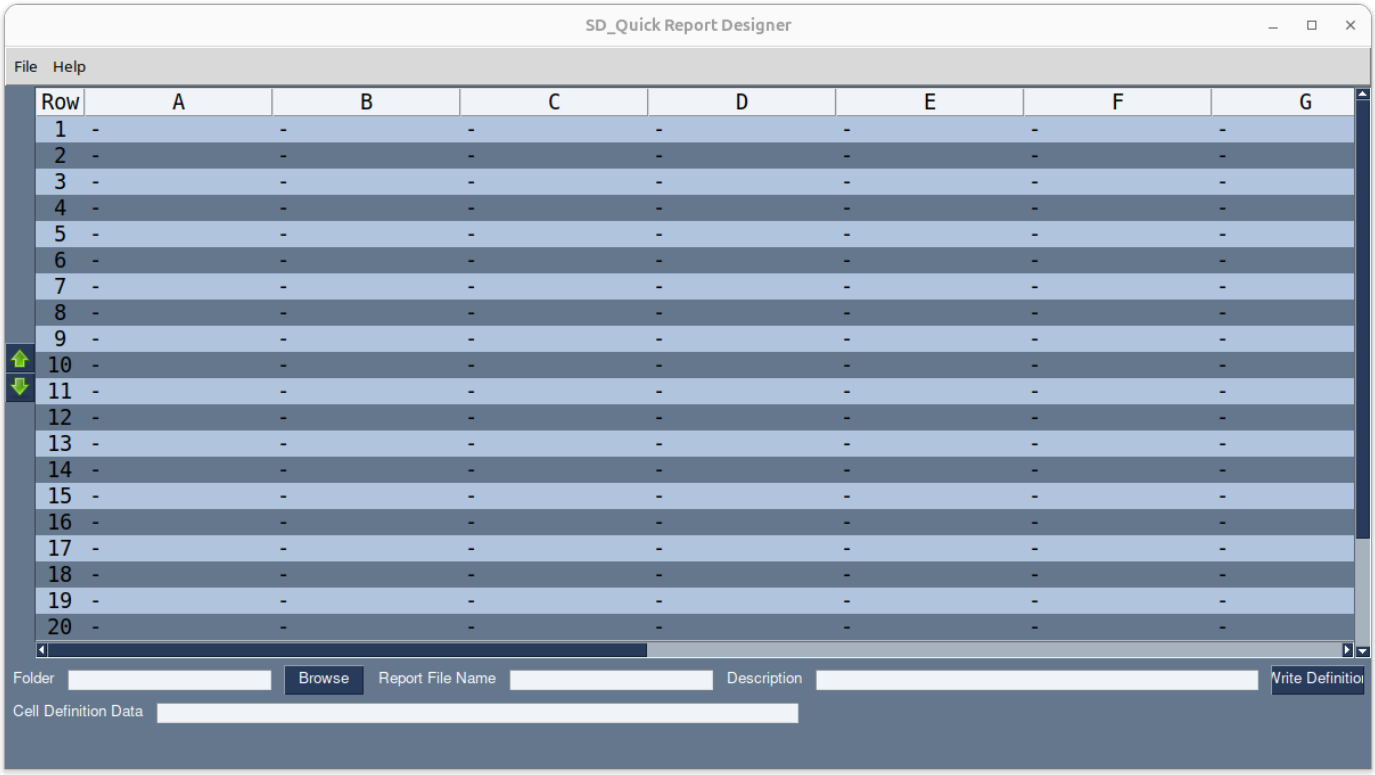
test sd_qwk_rpt without $define usecsv

Report Creation Example

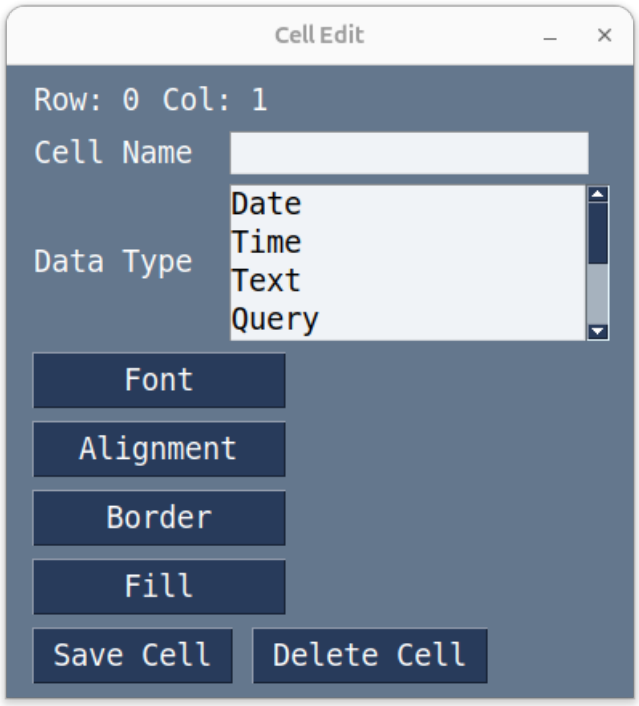
SD_Quick_Reports are a spreadsheet based reports. Report data is defined with in cells. These definitions can be made up of Text, Queries, Data lookup, or Data replacement.

Reports are created with python script sd_qwk_rpt_dsgn.py. Executing the program brings up the empty report design window.

The File menu option allows for saving and continuing previous report designs. Work is saved as a .json file. The folder and file name prefix is entered in fields "Folder" and "Report File Name". The Browse button will bring up a folder selection dialog and populate the folder field.



User clicks on cell to define cell data, The cell edit dialog is displayed.



User selects the Data Type for the cell:

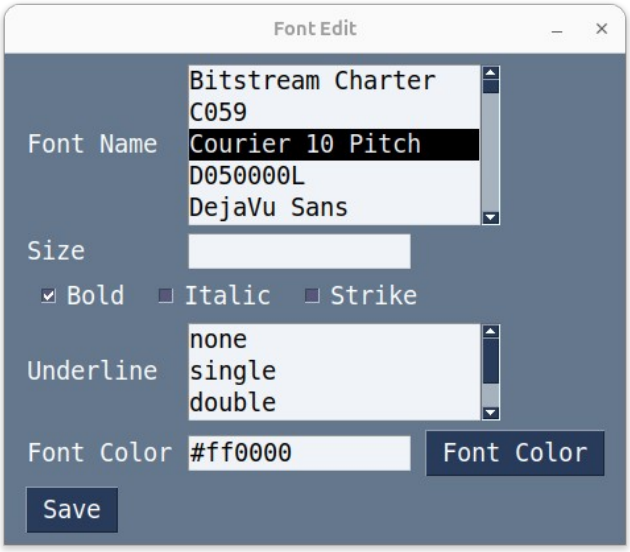
Current Data Types:

Date Insert current date, uses sdReplace(%%RUNDATE%%)
Time Insert current time, uses sdReplace(%%RUNTIME%%)
Worksheet Insert new worksheet
Text Insert static text
Query Query SD database (see query below)
Query Column Place holder for Query Column
Replace Replace token with a program know values (as passed in Text Replacement Array in call to SD_QWK_RPT (sdReplace)
Lookup Look up data item from SD database (sdLookup)
Image TBD

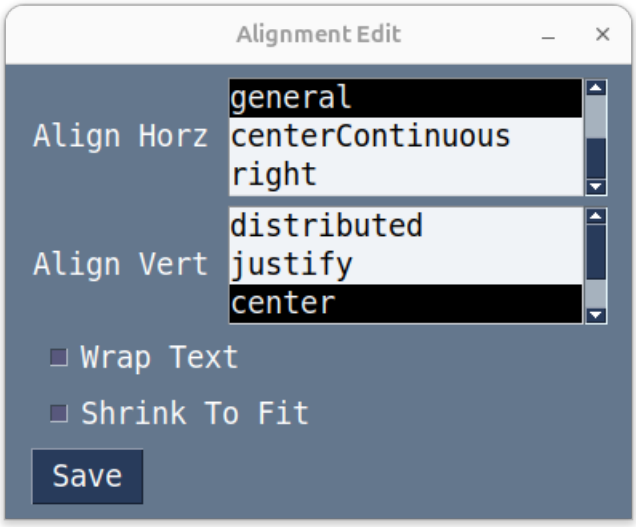
Cell formatting.

The following dialogs serve to modify the way the data is displayed on the created spreadsheet report. If no formatting is specified the report data will be display based on the default settings for the installed openpyxl module (varies by installation).

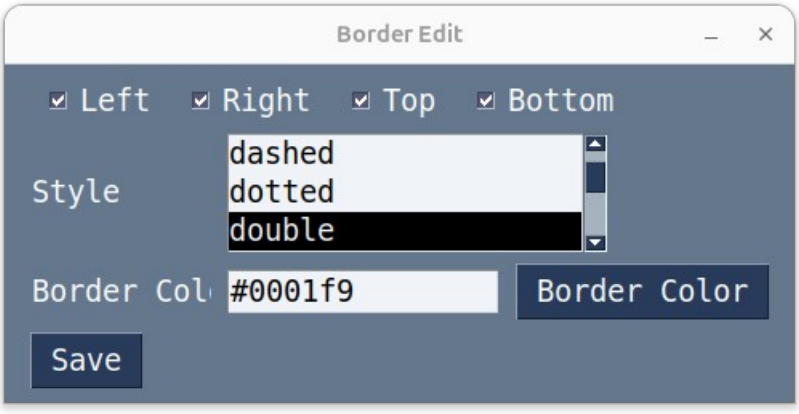
Font:



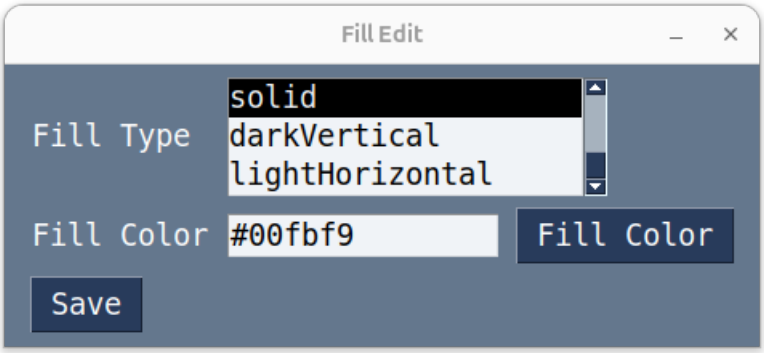
Alignment



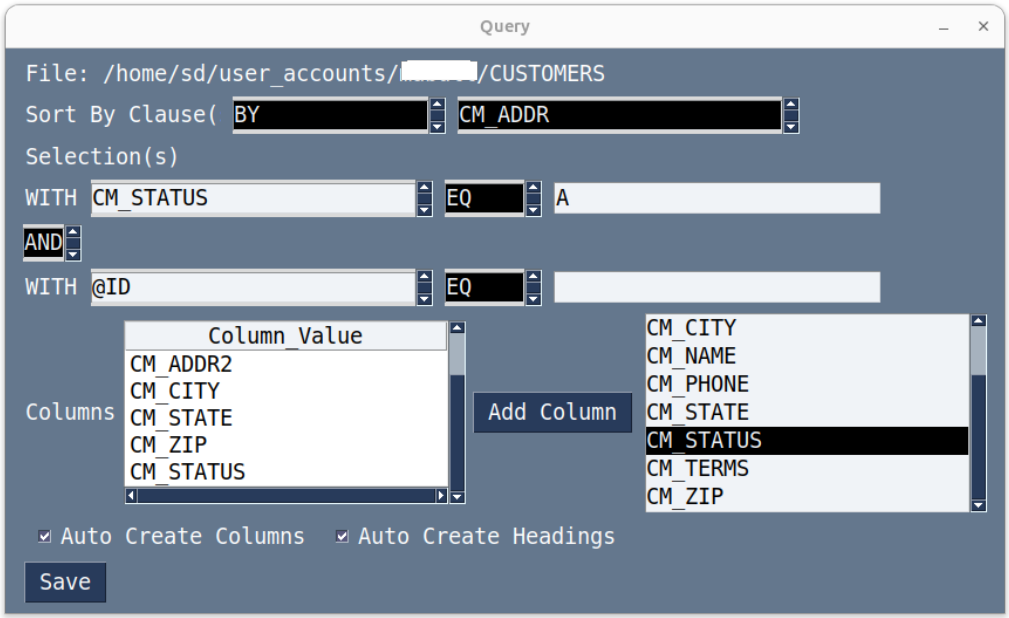
Border



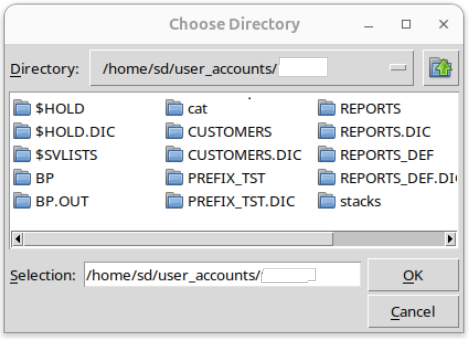
Fill



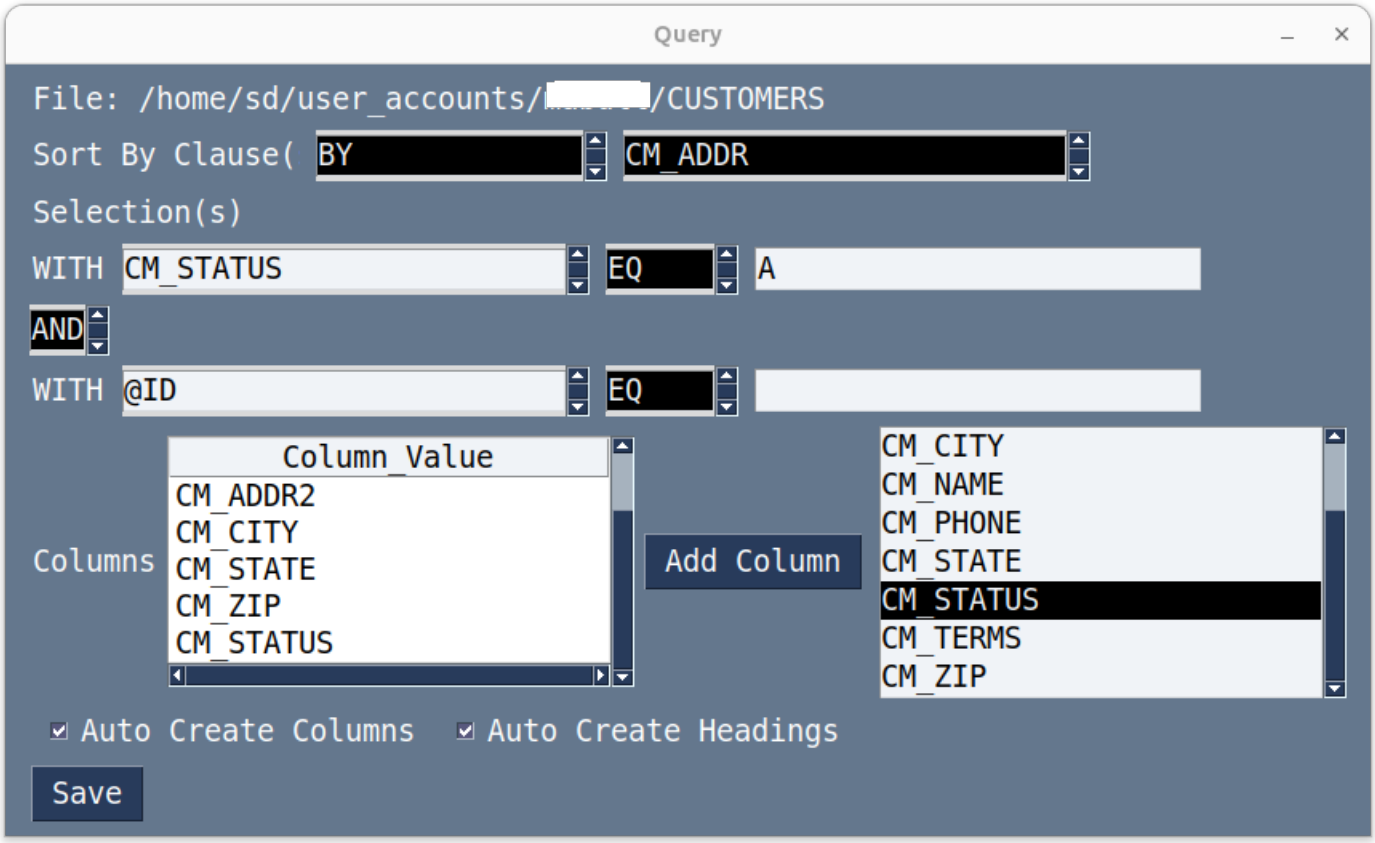
Query Dialog



The Query Dialog defines a database query used to populate spreadsheet cells. When selected the first dialog displayed is a database file selector:



Once a database file is selected, the query dialog is displayed, with the dropdown lists populated with dictionary item names.

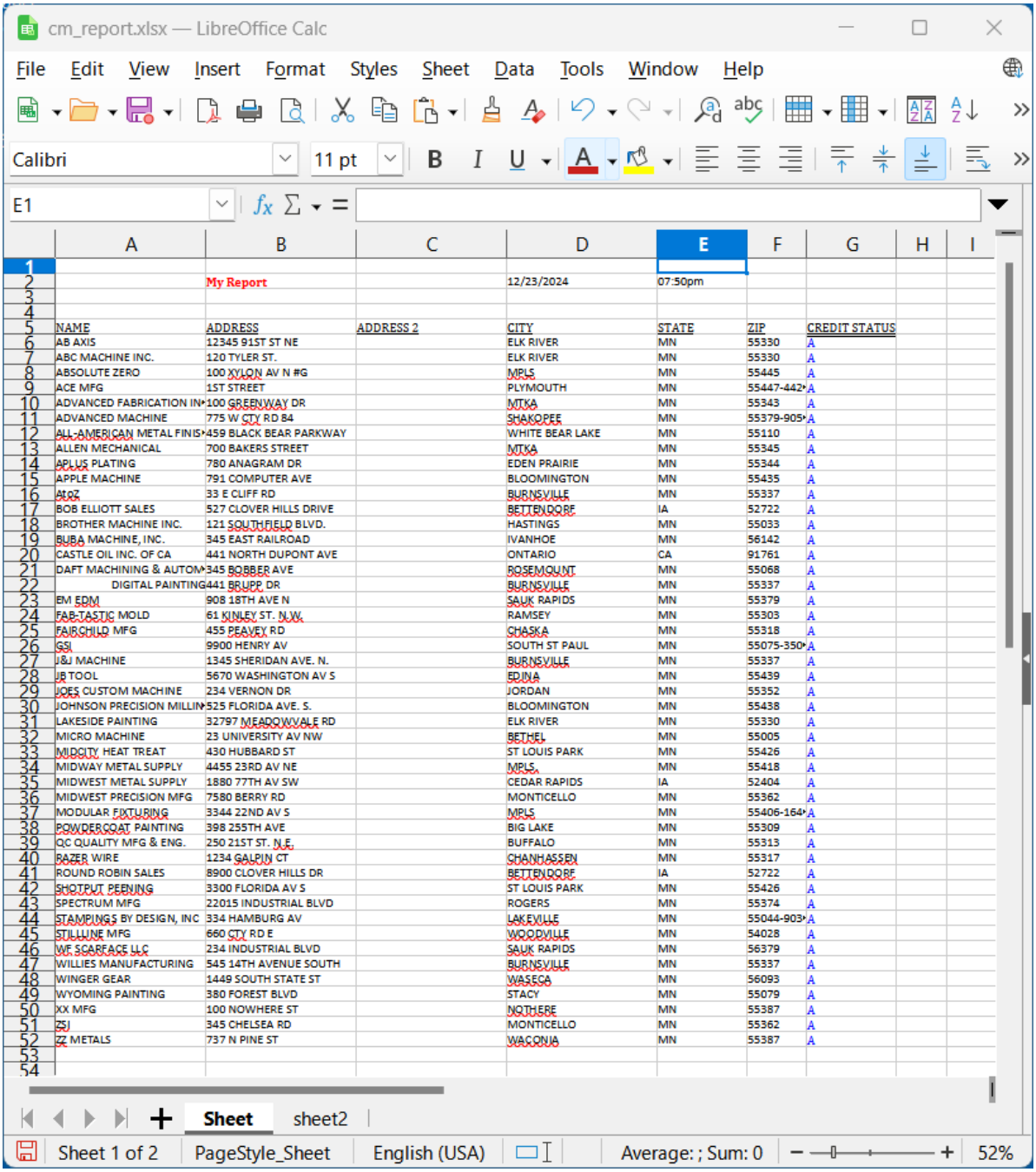


Notes: The GUI system utilized (FreeSimpleGUI) requires the list entries be selected (clicked on, will highlight with black background).

The program will attempt to auto create report data cells and headings if the associated check boxes are clicked.

Currently the dialog only supports 2 selection criteria. If you desire a more complicated report, you must manually edit the report definition created by sd_qwk_rpt_dsgn.

Sample report:



cm_report.xlsx — LibreOffice Calc

File Edit View Insert Format Styles Sheet Data Tools Window Help

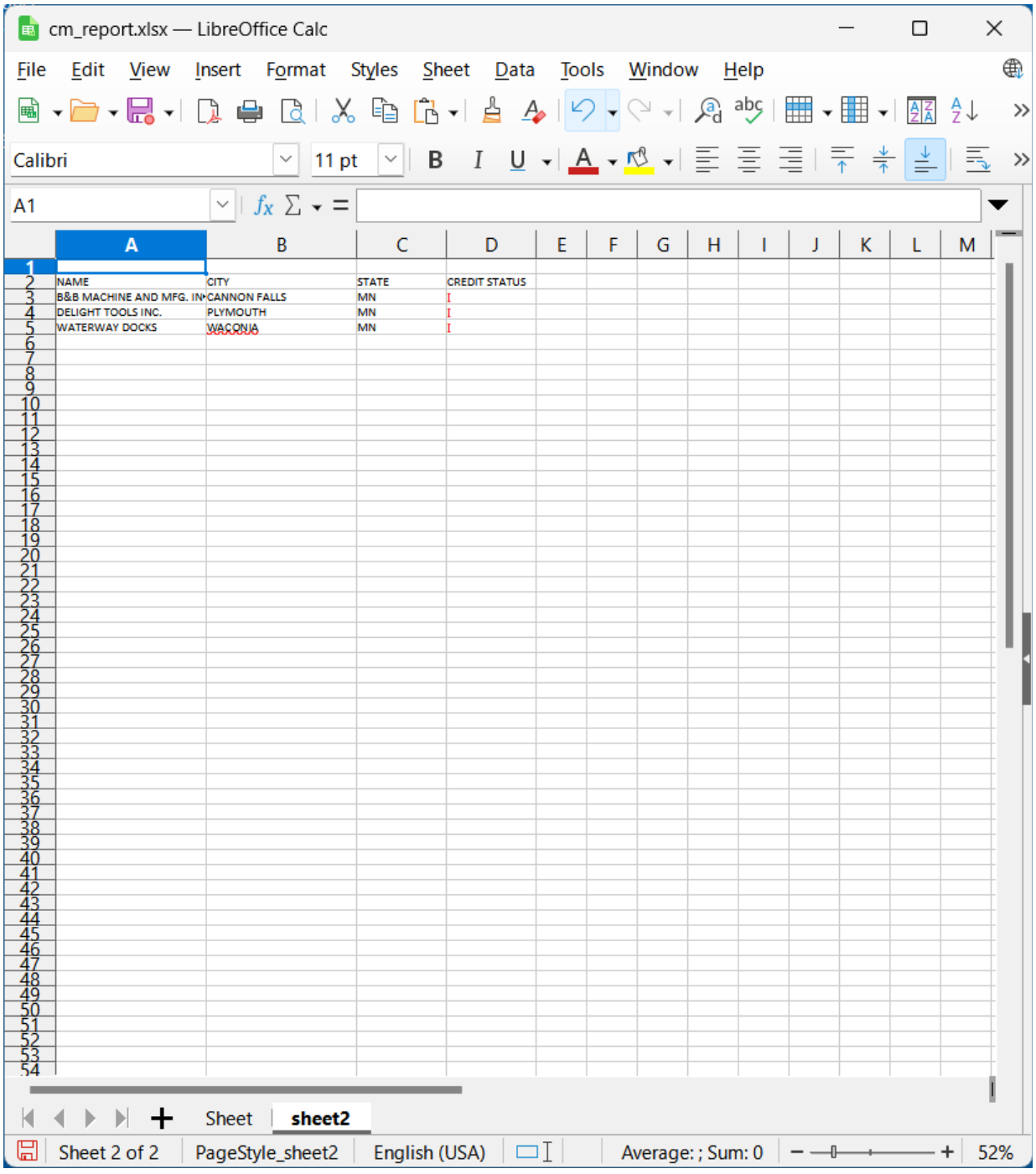
Calibri 11 pt

E1

	A	B	C	D	E	F	G	H	I
1									
2		My Report		12/23/2024	07:50pm				
3									
4									
5	NAME	ADDRESS	ADDRESS 2	CITY	STATE	ZIP	CREDIT STATUS		
6	AB AXIS	12345 91ST ST NE		ELK RIVER	MN	55330	A		
7	ABC MACHINE INC.	120 TYLER ST.		ELK RIVER	MN	55330	A		
8	ABSOLUTE ZERO	100 XYLON AV N #G		MPLS	MN	55445	A		
9	ACE MFG	1ST STREET		PLYMOUTH	MN	55447-442	A		
10	ADVANCED FABRICATION IN	100 GREENWAY DR		MTKA	MN	55343	A		
11	ADVANCED MACHINE	775 W CTY RD 84		SHAKOPEE	MN	55379-905	A		
12	ALL-AMERICAN METAL FINIS	459 BLACK BEAR PARKWAY		WHITE BEAR LAKE	MN	55110	A		
13	ALLEN MECHANICAL	700 BAKERS STREET		MTKA	MN	55345	A		
14	APLUS PLATING	780 ANAGRAM DR		EDEN PRAIRIE	MN	55344	A		
15	APPLE MACHINE	791 COMPUTER AVE		BLOOMINGTON	MN	55435	A		
16	AtoZ	33 E CLIFF RD		BURNSVILLE	MN	55337	A		
17	BOB ELLIOTT SALES	527 CLOVER HILLS DRIVE		BETTENDORF	IA	52722	A		
18	BROTHER MACHINE INC.	121 SOUTHFIELD BLVD.		HASTINGS	MN	55033	A		
19	BUBA MACHINE, INC.	345 EAST RAILROAD		IVANHOE	MN	56142	A		
20	CASTLE OIL INC. OF CA	441 NORTH DUPONT AVE		ONTARIO	CA	91761	A		
21	DAFT MACHINING & AUTOM	345 BOBBER AVE		ROSEMOUNT	MN	55068	A		
22	DIGITAL PAINTING	441 BRUPP DR		BURNSVILLE	MN	55337	A		
23	EM EDM	908 18TH AVE N		SAUK RAPIDS	MN	55379	A		
24	FAB-TASTIC MOLD	61 KINLEY ST. N.W.		RAMSEY	MN	55303	A		
25	FAIRCHILD MFG	455 PEAVEY RD		CHASKA	MN	55318	A		
26	GSI	9900 HENRY AV		SOUTH ST PAUL	MN	55075-350	A		
27	J&J MACHINE	1345 SHERIDAN AVE. N.		BURNSVILLE	MN	55337	A		
28	JB TOOL	5670 WASHINGTON AV S		EDINA	MN	55439	A		
29	JOES CUSTOM MACHINE	234 VERNON DR		JORDAN	MN	55352	A		
30	JOHNSON PRECISION MILLIN	525 FLORIDA AVE. S.		BLOOMINGTON	MN	55438	A		
31	LAKESIDE PAINTING	32797 MEADOWVALE RD		ELK RIVER	MN	55330	A		
32	MICRO MACHINE	23 UNIVERSITY AV NW		BETHEL	MN	55005	A		
33	MIDCITY HEAT TREAT	430 HUBBARD ST		ST LOUIS PARK	MN	55426	A		
34	MIDWAY METAL SUPPLY	4455 23RD AV NE		MPLS.	MN	55418	A		
35	MIDWEST METAL SUPPLY	1880 77TH AV SW		CEDAR RAPIDS	IA	52404	A		
36	MIDWEST PRECISION MFG	7580 BERRY RD		MONTICELLO	MN	55362	A		
37	MODULAR FIXTURING	3344 22ND AV S		MPLS	MN	55406-164	A		
38	POWDERCOAT PAINTING	398 255TH AVE		BIG LAKE	MN	55309	A		
39	QC QUALITY MFG & ENG.	250 21ST ST. N.E.		BUFFALO	MN	55313	A		
40	RAZER WIRE	1234 GALPIN CT		CHANHASSEN	MN	55317	A		
41	ROUND ROBIN SALES	8900 CLOVER HILLS DR		BETTENDORF	IA	52722	A		
42	SHOTPUT PEENING	3300 FLORIDA AV S		ST LOUIS PARK	MN	55426	A		
43	SPECTRUM MFG	22015 INDUSTRIAL BLVD		ROGERS	MN	55374	A		
44	STAMPINGS BY DESIGN, INC	334 HAMBURG AV		LAKEVILLE	MN	55044-903	A		
45	STILLUNE MFG	660 CTY RD E		WOODVILLE	MN	54028	A		
46	WF SCARFACE LLC	234 INDUSTRIAL BLVD		SAUK RAPIDS	MN	56379	A		
47	WILLIES MANUFACTURING	545 14TH AVENUE SOUTH		BURNSVILLE	MN	55337	A		
48	WINGER GEAR	1449 SOUTH STATE ST		WASECA	MN	56093	A		
49	WYOMING PAINTING	380 FOREST BLVD		STACY	MN	55079	A		
50	XX MFG	100 NOWHERE ST		NOTHERE	MN	55387	A		
51	ZSJ	345 CHELSEA RD		MONTICELLO	MN	55362	A		
52	ZZ METALS	737 N PINE ST		WACONIA	MN	55387	A		
53									
54									

Sheet sheet2

Sheet 1 of 2 PageStyle_Sheet English (USA) Average: ; Sum: 0 52%


cm_report.xlsx — LibreOffice Calc
File Edit View Insert Format Styles Sheet Data Tools Window Help
Calibri
11 pt
A1
NAME CITY STATE CREDIT STATUS
B&B MACHINE AND MFG. IN CANNON FALLS MN I
DELIGHT TOOLS INC. PLYMOUTH MN I
WATERWAY DOCKS WACONIA MN I
Sheet sheet2
Sheet 2 of 2 PageStyle_sheet2 English (USA) Average: ; Sum: 0 52%

Sample report definition item for the above report:

test2

My ReportýB2ýTýüüTrueüüüüff0101ýüüüüüýüüüüüýüüýMy Report
DateýD2ýRýüüüüüüýüüüüüýüüüüüýüüý%%RUNDATE%%
TimeýE2ýRýüüüüüüýüüüüüýüüüüüýüüý%%RUNTIME%%
Q1_NAMEýA5ýTýüüüüsingleüüýüüüüüýüüüüüýüüýNAME
Q1_ADDRESSýB5ýTýüüüüsingleüüýüüüüüýüüüüüýüüýADDRESS
Q1_ADDRESS 2ýC5ýTýüüüüsingleüüýüüüüüýüüüüüýüüýADDRESS 2
Q1_CITYýD5ýTýüüüüsingleüüýüüüüüýüüüüüýüüýCITY
Q1_STATEýE5ýTýüüüüsingleüüýüüüüüýüüüüüýüüýSTATE
Q1_ZIPýF5ýTýüüüüsingleüüýüüüüüýüüüüüýüüýZIP
Q1_CREDIT STATUSýG5ýTýüüüüdoubleüüýüüüüüýüüüüüýüüýCREDIT STATUS
QueryýA6ýQýüüüüüüýüüüüüýüüüüüýüüý"CUSTOMERS","BY CM_NAME","WITH CM_STATUS EQ
'A'"," CM_NAME CM_ADDR CM_ADDR2 CM_CITY CM_STATE CM_ZIP CM_STATUS"
Q1_CM_ADDRýB6ýQCýüüüüüüýüüüüüýüüüüüýüüý
Q1_CM_ADDR2ýC6ýQCýüüüüüüýüüüüüýüüüüüýüüý
Q1_CM_CITYýD6ýQCýüüüüüüýüüüüüýüüüüüýüüý
Q1_CM_STATEýE6ýQCýüüüüüüýüüüüüýüüüüüýüüý
Q1_CM_ZIPýF6ýQCýüüüüüüýüüüüüýüüüüüýüüý
Q1_CM_STATUSýG6ýQCýüüüüüü0001ffýüüüüüýüüüüüýüüý
sheet2ýA8ýWýüüüüüüýüüüüüýüüüüüýüüý
Q2_NAMEýA10ýTýüüüüüüýüüüüüýüüüüüýüüýNAME
Q2_CITYýB10ýTýüüüüüüýüüüüüýüüüüüýüüýCITY
Q2_STATEýC10ýTýüüüüüüýüüüüüýüüüüüýüüýSTATE
Q2_CREDIT STATUSýD10ýTýüüüüüüýüüüüüýüüüüüýüüýCREDIT STATUS
Query1ýA11ýQýüüüüüüýüüüüüýüüüüüýüüý"CUSTOMERS","BY CM_NAME","WITH CM_STATUS NE
'A'"," CM_NAME CM_CITY CM_STATE CM_STATUS"
Q2_CM_CITYýB11ýQCýüüüüüüýüüüüüýüüüüüýüüý
Q2_CM_STATEýC11ýQCýüüüüüüýüüüüüýüüüüüýüüý
Q2_CM_STATUSýD11ýQCýüüüüüüff0000ýüüüüüýüüüüüýüüý

Report Definition Record Layout

Quick Report Designer is used to create a spreadsheet report definition file record (stored as a Directory file item the SD file system).

Record Layout

FLD 1 - Report Description

FLD 2 - Page Layout

FLD 3 - FLD 10 tbd

FLD 11 and on - data item definition, each field defines a data type display on the report.

Current Data Types:

Date	Insert current date, uses sdReplace(%%RUNDATE%%)
Time	Insert current time, uses sdReplace(%%RUNTIME%%)
(W) New Worksheet	Insert new worksheet
(T) Text	Insert static text
(Q) Query	Query SD database
(QC) Query Column	Place holder for Query Column
R Replace	Replace token with a program know values (as passed in Text Replacement Array in call to SD_QWK_RPT)
(L) Lookup	Look up data item from SD database (sdLookup)
(I) Image	TBD

```
# define report definition line layout (elements within list)
DF_ITEM_NAME  = 0
DF_CELL_REF   = 1
DF_DATA_TYPE  = 2
#
DF_FONT_STYLE = 3
# list element within list element of DF_FONT_STYLE
DF_FONT_NAME  = 0
DF_FONT_SZ    = 1
DF_FONT_BOLD  = 2
DF_FONT_ITLC  = 3
DF_FONT_UNLN  = 4
DF_FONT_STKE  = 5
DF_FONT_COLOR = 6
#
DF_ALIGNMENT  = 4
# list element within list element of DF_ALIGNMENT
DF_ALIGN_HORZ = 0
DF_ALIGN_VERT = 1
DF_ALIGN_ROT  = 2
DF_ALIGN_WRAP = 3
DF_ALIGN_SHRK = 4
DF_ALIGN_IDNT = 5
#
DF_CELL_BORDER  = 5
# list element within list element of DF_CELL_BORDR
DF_BORDER_LEFT   = 0
DF_BORDER_RIGHT  = 1
DF_BORDER_TOP    = 2
DF_BORDER_BOTTOM = 3
DF_BORDER_STYLE  = 4
DF_BORDER_COLOR  = 5
#
DF_CELL_FILL  = 6
# list element within list element of DF_CELL_FILL
DF_FILL_TYPE   = 0
DF_FILL_FGCLR  = 1
DF_FILL_BGCLR  = 2

#
DF_DATA_PARAM = 7
```

Notes:

- Item Name / Ref used as dictionary key in Quick Report Designer

- Cell Ref is assigned at time of report definition file record creation (allows for simple editing / movement of cells in Quick Report Designer).

– Only supply font / style info if it differs from their defaults.

Supported Styles

The supported parameters (at least this is the goal for SD_QWK_RPT) and their defaults:

* from https://www.blog.pythonlibrary.org/2021/08/11/styling-excel-cells-with-openpyxl-and-python/

Font:

- name='Calibri'
- size=11
- bold=False
- italic=False
- vertAlign=None
- underline='none' or one of ['double', 'doubleAccounting', 'single', 'singleAccounting']
- strike=False
- color='FF000000'

Alignment:

- horizontal='general'
- vertical='bottom'
- text_rotation=0
- wrap_text=False
- shrink_to_fit=False
- indent=0

Border styles:

- 'dashDot'
- 'dashDotDot'
- 'dashed'
- 'dotted'
- 'double'
- 'hair'
- 'medium'
- 'mediumDashDot'
- 'mediumDashDotDot',
- 'mediumDashed'
- 'slantDashDot'
- 'thick'
- 'thin'

Cell Fill:

- patternType=None
- fgColor=Color()
- bgColor=Color()
- fill_type=None
- start_color=None
- end_color=None

Supported Fill types:

- ‘none’
- ‘solid’
- ‘darkDown’
- ‘darkGray’
- ‘darkGrid’
- ‘darkHorizontal’
- ‘darkTrellis’
- ‘darkUp’
- ‘darkVertical’
- ‘gray0625’
- ‘gray125’
- ‘lightDown’
- ‘lightGray’
- ‘lightGrid’
- ‘lightHorizontal’
- ‘lightTrellis’
- ‘lightUp’
- ‘lightVertical’
- ‘mediumGray’

Cell Data Types

SdQuery: DF_DATA_TYPE = “Q” 4 parameters (File_Name, Sort_By, Qualifiers, Data_Fields)

File_Name - SD File Name to generate report from ie CUSTOMERS

Sort_By - Sort Criteria ie by cm.name

Qualifiers - Selection Clause ie with cm.status='ACTIVE'

Data_Fields - Field Names to report as defined in the SD File Dictionary ie cm.name, cm.address, cm.phone

DF_DATA_PARA = "CUSTOMERS","BY CM.NAME","WITH CM.STATUS='ACTIVE'","CM.NAME CM.ADDRESS CM.PHONE"

Note: sdQuery function in a cell, results in a Query Column DATA_TYPE being placed in adjacent cells. This serves to inform the SD program SD_QWK_RPT where to place the fields requested by the sdQuery.

Ie if this sdQuery is found in cell B4:

DF_DATA_PARA = "CUSTOMERS","BY CM_NAME","WITH CM_STATUS = 'A'","CM_NAME CM_ADDR CM_PHONE CM_STATUS"

The following will be inserted

C4: = DF_DATA_TYPE = “QC " for CM_ADDR

D4: =DF_DATA_TYPE = “QC " for CM_PHONE

E4: =sDF_DATA_TYPE = “QC " for CM_STATUS

Define sdLookup: DF_DATA_TYPE = “L” 3 parameters DF_DATA_PARA = ‘‘File Name, Record Name/key, Field# or Dictionary Name”

File_Name - SD File Name to generate report from ie “SYSTEM_FILE”

Record Name/Key – Record to retrieve from File Name ie “COMPANY_RECORD”

Field# or Dictionary Name – Identifies the Field to return, value is displayed in Spreadsheet cell.

DF_DATA_PARA = ‘‘SYSTEM_FILE","COMPANY_RECORD","F1"

DF_DATA_PARA = ‘‘SYSTEM_FILE","COMPANY_RECORD","1")

Define sdReplace: DF_DATA_TYPE = “R single parameter DF_DATA_PARA = ”Token”

This function creates a place hold for data (text) that is supplied by a SD program that calls the SD subroutine SD_QWK_RPT (via the Replace_String parameter, see below). The Token value is known to the SD Program which places the value in CELL REF