

[illegible]

**504**  
**gcb**

# Time to Update ICPI Tools

How long does it take to update your tool (other than time to download and upload tool to PEPFAR Sharepoint?)

Tool/Tool Set Name

Your answer

Time to update

- ☐ <0.5 hours
- ☐ 0.5 - 2 hours (quarter day)
- ☐ 2-4 hours (half day)
- ☐ 4-8 hours (full day)
- ☐ 8+ hours (more than one day)

**Take a minute to  
complete this form for  
any tools you update**

**[goo.gl/ihm75v](https://goo.gl/ihm75v)**

**results**

# AUTOMATE THE BORING STUFF

PRACTICAL PROGRAMMING  
FOR TOTAL BEGINNERS

AL SWEIGART



## Purpose:

Discuss what automating a tool and its production looks like and how to improve “things”



**What is automation?**



**What parts of the  
tool building  
process slow  
things down?**



# Dashboard Population Instructions

Q3 SIMS POART Dashboard

(As of 31 Aug 2017)

All Files Saved [Here](#): pepfar.net > ICPI > Shared Documents > WORKSTREAM > SIMS > SIMS Working Folder

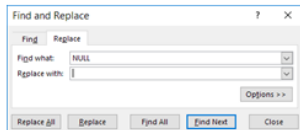
> "EXAMPLE" folder [here](#) (for practice/reference)

## PHASE I:

1. Josh will email team once DATIM extracts are trimmed and posted to folder (saved [here](#))

## PHASE II:

1. Open "Data SETUP" Excel template (saved [here](#))
2. Open OU's DATIM extract csv file (file from Josh, saved [here](#))
3. **NEW STEP: Select all data in the extract file and use find/replace to REPLACE ALL "NULL" values with " " <-single space**



4. Copy table and paste as values into **1\_SIMS DATIM EXTRACT** tab, cell Q5  
*Note: Delete row with previous table's column headers if needed*
5. Click "Refresh All" data
6. Go to **2\_SIMS PIVOT** tab and select entire table
7. Copy table and paste as values into **3\_SIMS POART Dataset** tab, cell R5  
*Note: Delete row with previous table's column headers if needed*
8. Select and copy entire table, including column headers
9. Open new Excel file and paste as values the table from Tab 3
10. Save new file using following naming convention: SIMS POART Dataset\_OU NAME\_FY17 Q3\_20170822  
*Note: Use the same date "20170822" which is the date Abe extracted the data from DATIM*
11. Upload dataset [here](#)

## PHASE III:

1. Open the "SIMS\_POART Dashboard\_OU\_FY17 Q3" Excel template (saved [here](#))
2. On the **SIMS Dashboard Dataset** tab, select all rows in the table and click to "clear contents"  
*Note: Data loaded into template is a placeholder that helps prevent us from have to "reset/reselect" filters on remaining tabs. Clear the data on the tab and do not click "refresh all" data before pasting in actual dataset (i.e., follow Steps 3-5)*
3. Open the OU's Dashboard Dataset (new file you created in Phase II, saved [here](#))
4. Copy entire table and paste into the **SIMS Dashboard Dataset** tab in the Dashboard template into cell A5  
*Note: Delete row with previous table's column headers if needed*
5. Click "Refresh All" data

# SIMS: a case study

**AUTOMATE**



25%

50%

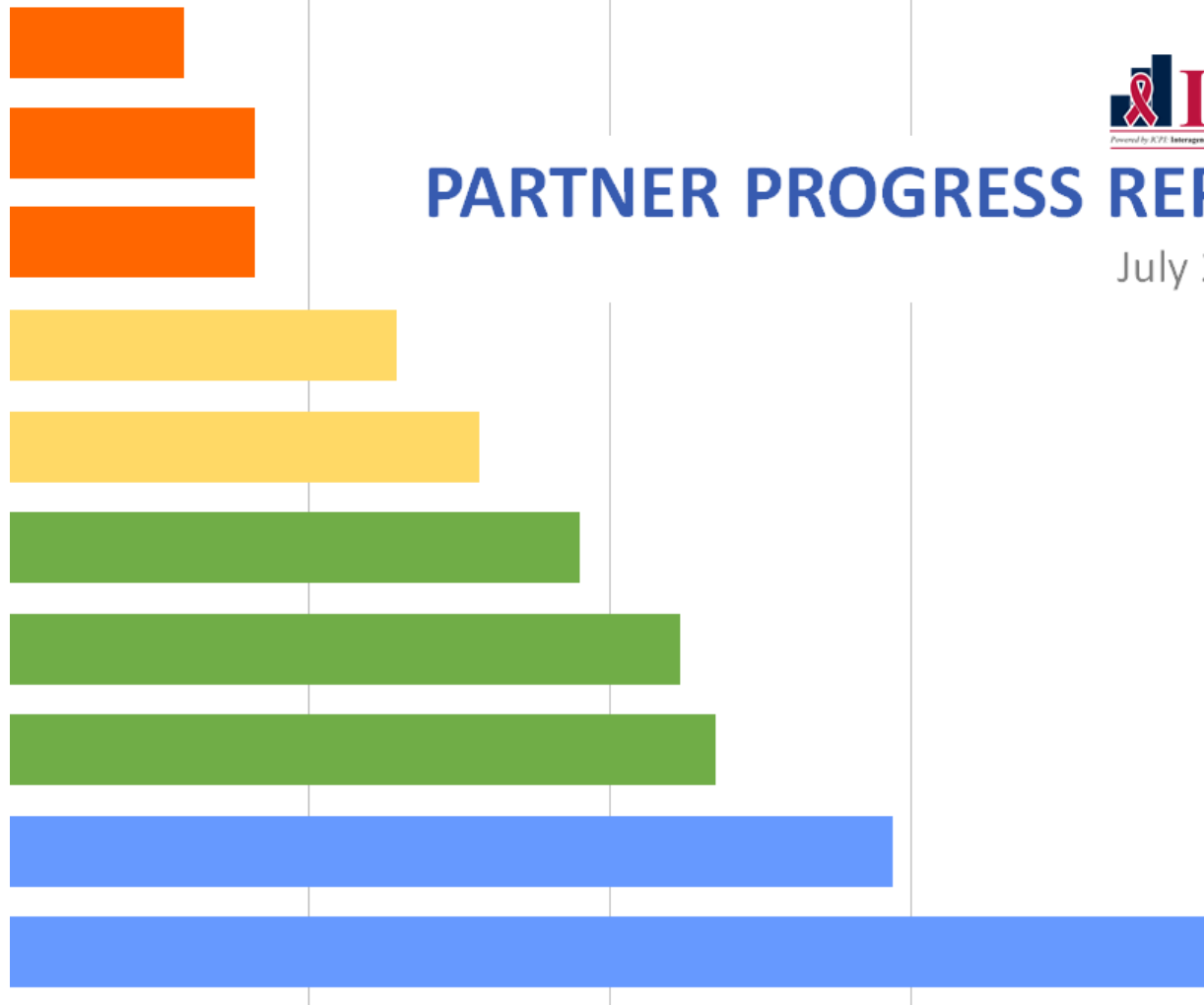
75%

100%



# PARTNER PROGRESS REPORT

July 28, 2016





```

2 #load package
3 #library("devtools")
4 #install_github("achafetz/PartnerProgress")
5 library(genPPR)
6
7 #import MER Structured Data to Rds format
8 read_msd("ICPI_MER_Structured_Dataset_PSNU_IM_20180323_v2_1.txt",
9         path = "~/ICPI/Data/",
10         remove_txt = TRUE)
11
12 #generate PPR data - global and country specific
13 genPPR("~/ICPI/Data")

```

## Use of R

- **Package/function to work in any period, no updating necessary**
- **Apply official names**
- **Create TX\_NET\_NEW & cumulative variable**
- **Subsetting & aggregation to limit dataset size**
- **Generate csv for each OU (seconds per OU)**
- **1 line of code:**  
`genPPR("~/ICPI/Data")`

|                 | D                       | E                    | F            | G |
|-----------------|-------------------------|----------------------|--------------|---|
|                 | Complete fields in gold |                      | Selected OUs |   |
| data_qtr_date   |                         | 10/1/2017            |              |   |
| curr_qtr        |                         | 1                    |              |   |
| curr_fy         |                         | 18                   |              |   |
| curr_pd         |                         | FY18 Q1              |              |   |
| pd              |                         | FY2018Q1             |              |   |
| dataset_date    |                         | March 23             |              |   |
| dataset_release |                         | clean                |              |   |
| release_type    |                         | c                    |              |   |
| proj_path       |                         | C:\Users\achafetz\De |              |   |
| updated_date    |                         | Updated: 2018-04-25  |              |   |
| sel_ous_cnt     |                         | 0                    |              |   |

**RUN**

# Automated/Auto-Updating Excel Template

- ~ 90% formulas, 10% hard coded
- Reliance on reference tables and Pivot tables
- Dynamic ranges
- Generic column headers for periods
- Change 3 cells in the tool to update

```
Application.ScreenUpdating = False
```

```
'set directory
Set proj_path = Range("proj_path")
compl_fldr = proj_path & "Reports\"
' set template
Set tplWkbk = ActiveWorkbook
'unhide sheets
Sheets("RawData").Visible = True
Sheets("rs").Visible = True
'add dates for saving and release type (initial or clean)
Sheets("rs").Activate
Set pd = Range("pd")
Set release_type = Range("release_type")
'for each OU
rng = Range("sel_ous_cnt").Value + 1
Set SelectedOpUnits = Sheets("rs").Range(Cells(2, 7), Cells(rng, 7))

For Each OpUnit In SelectedOpUnits
    OpUnit_ns = Replace(Replace(OpUnit, " ", ""), "'", "")
'create OU specific folder
    OUpath = compl_fldr & "PPR_" & OpUnit_ns & pd
    If Len(Dir(OUpath, vbDirectory)) = 0 Then MkDir OUpath
    OUcompl_fldr = OUpath & "\"
' open csv
    Workbooks.Open Filename:= _
        proj_path & "ExcelOutput\PPRdata_" & OpUnit & "_" & pd & ".csv"
    Set dataWkbk = ActiveWorkbook
'count rows to import over
    LastRow = Range("A1").CurrentRegion.Rows.Count
    LastCol = Range("A1").CurrentRegion.Columns.Count
'copy over rows to bring in from csv to template
    Range(Cells(2, 1), Cells(LastRow, LastCol)).Select
    Selection.Copy
    tplWkbk.Activate
    Sheets("RawData").Activate
    Range("A2").Select
    ActiveSheet.Paste
'hide background tabs
    Sheets("RawData").Visible = False
    Sheets("rs").Visible = False
'refresh all pivot tables
    ActiveWorkbook.RefreshAll
'open to main page
    Sheets("Info").Select
    ActiveSheet.Unprotect
'hard code date updated & protect
    Range("C57").Value = "Updated: " & VBA.Format(Now, "yyyy-mm-dd")
    Application.CutCopyMode = False
    Range("C1").Select
    ActiveSheet.Protect DrawingObjects:=True, Contents:=True, Scenarios:=True
    ActiveSheet.EnableSelection = xlNoSelection
```

# VBA to populate individual tools

- GUI form to interact with
- No updating to code necessary
- Generates & zips reports by operating unit (seconds per OU)

A complex illustration featuring various blue and grey gears, mechanical components, and icons representing different aspects of business and industry, such as charts, a car, a person, and a lightbulb. The design is a dense collage of mechanical and business-related symbols. At the top left, there are three bar charts of increasing size. Next to them is a line graph showing an upward trend. Below these are three small grey gears. In the top center, a large blue gear is prominent. To its right is a grey gear, a blue checkmark, a blue car icon, and a gear shift icon with numbers 1, 3, 5 and R, 2, 4. Further right is a circular icon divided into four quadrants, each with a different symbol: a person, a trash can, a gear, and a person. Below the car icon is a blue hand icon pointing at a screen. In the center, there are three brown trash can icons. To the right of the trash cans is a blue robotic arm with a circular head. Below the arm is a blue gear with a four-leaf clover-like shape inside. At the bottom, there are several large blue gears of different sizes, some with internal patterns. A blue pipe with a valve is at the bottom right. On the left side, there is a blue lightbulb icon, a blue fan-like icon, and a blue gear with a four-leaf clover-like shape inside. A blue line graph is also on the left. The background is a light beige color with various dashed lines and arrows indicating movement and flow.





## Notes and Attribution

- Prepared for the ICPI/DIV “Show and Tell” on “Tool Building Automation” (DC), April 26, 2018
- Image Sources
  - Cover - <http://www.globalfreepress.com/why-implementing-automation-tools-will-change-your-business/>
  - Automate the boring stuff - <https://www.amazon.com/Automate-Boring-Stuff-Python-Programming/dp/1593275994>
  - The New Yorkers - [www.newyorker.com/magazine/2016/12/19/our-automated-future](http://www.newyorker.com/magazine/2016/12/19/our-automated-future)
  - Snail - <https://pawelurbanek.com/slow-rails-queries>
  - Automate all the Things - <https://engineering.upside.com/upside-engineering-diary-14-automate-all-the-things-e66ddf4a8637?gi=998fa3523149>