## Prelim Pages

Version Control /Approval etc

## Introduction

In the course of developing, needs often arise and are added to the original in a somewhat ad-hoc fashion. This document discusses the design choices made in the spreadsheets macros, how they were derived and the impact changes may have without careful planning in the future of this tool.

## Functionality vs Efficiencies

A typical trade-off in design choices comes from getting a run on the board (Functionality) versus longer term efficiency. Getting something running quickly can potentially compromise an efficient process with a choice that may not be flexible enough to enable enhancements with minimal maintenance.

## Functionality and Design Choices

### Export

Must export the columns verbatim, the algorithms here select the sheet(s) by the value of column “exeID” and regardless of the actual quantity, the data is copied, without changing leading zeros to the destination.

This is not the most efficient algorithm; it’s the most flexible in that it has virtually no maintenance if the column and/or row counts vary over time.

The spreadsheets are seen generically as a source (from) and destination (to) location for the export, and this is reflected in the choice of variable names.

### Import

Like Export functionality, the import must do a similar job. The main difference is the import has some additional detection built into the algorithm to correctly extract results from the Test Tool back to the master.

This is done by reading the master until the row has a blank cell in the control column instead of from the source file. Import correctly brings a single source data sheet back into 1 or more sheets, depending on what the algorithm detects.

While not the most efficient choice, the result is restoring the data back to its original state (with additions added by an execution), and requires almost zero maintenance.

The spreadsheets are seen generically as a source (from) and destination (to) location for the import.

### Data Column Flexibility

Data columns may need to be moved, added or removed in order to closer match the execution. During early development, this became apparent very early in the project and the capability to do this was added.

The algorithm is a simple set of actions on a list object in a user form, reflected through cut/paste operations in a macro. These are fairly simple and are not expected to require maintenance in the future.

If the user cancels the operation, all changes are not passed back into the master spread sheet; otherwise the data is mapped back by the import functions.

### Data-Structure Capability

A system, such as SAP has requirements for the ability to execute scripts in a way that develops a structure that fits a purpose in testing or even allow business to create a new area, office or department with automation.

By developing a Data-Structure mechanism, there is close binding between the structure and the resultant data set. To reduce the size of the structure file, the decision to use numerical values enables the output algorithm to be capable of generating Positions with; and without; personnel.

This choice imposed one limitation, in that the change between one group positions and the next must be delineated by a change in the value in the control column (“Level”), ie APS6 must change to another value, such as APS5 or EL1, to mark the change over point.

### Data Filling Capability

When data needs to be filled or updated, the ability to fill cells based on some specific control mechanism has given rise to a default data with an override or “force” capability.

This ability to force a change can be very handy when preparing for a new system and filling in blanks after adding new columns.

### Excel User Forms

User forms are considered to be the best interface with a user in a complex arrangement of macros and operations. Each form covers specific needs and has the algorithms (unless common) embedded with them.

### Algorithms

There are a number of algorithms in use by the spreadsheet, some are a little complex at first glance, hence are described here for the maintainer to comprehend and be able to correctly maintain the functions intent and purpose.

#### AGS

AGS are normally issued by the APSC and are a weighted-sum-modulo prime number calculation. See Document **Checksum of AGS Numbers.docx** for complete details on the underlying calculations.

#### People Details

A number of people details are artificially generated. First Name, Last Name and addresses are generated by randomly selecting some values from lists held in the spreadsheet. DOB is generated as a random birthday between 18 and 65 years.

Addresses have a preset data group of suburb, state and post code that is always generated as a group to enable system to try trapping for unknown details in addressed. However, the street number and street name are generated randomly to ensure some variance is made available for the target system.

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