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SOME EXCEL MACROS FOR PC-BASED LOGS

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The burgeoning data inherent in the new controls of the PS Complex preclude the practice of blindly printing all parameters and properties of all the relevant equipment to obtain a log of a working-set or super-set. However, such paper logs have hitherto proved invaluable in identifying corrupt data and in revealing trends in control values. The gap has been filled for the low-level RF equipment of the PS machine by exploiting existing PC tools which rely on the so-called "passerelle" or Remote Procedure Call (RPC) Server.

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1. Motivation

The desire for a substitute for the archaic printed logs of RF parameters is born out of a healthy scepticism of computer controls. Rather than let this basic diagnostic tool pass away with the introduction of the new PS control system, it was decided to implement a "quick-and-dirty" PC-based facility by exploiting existing software. The aim is to log specific control parameters of the low-level RF and associated equipment pertinent to each user. There is no question of accessing acquisition values and thereby supplanting the alarms program. Nor is it intended to replace, in any measure, the archiving facility which is being developed within the new controls system.

Specialist and operators alike may use the logs to confirm that what is demanded of the low-level RF hardware is meaningful before undertaking the more difficult task of checking that the same hardware is performing correctly.

2. RPC Server

The "passerelle" is available to certain registered users of the NICE network. It provides a gateway from a PC to the disparate world of the PS control system. The reading/writing of data from/to equipment modules via the "passerelle" is greatly facilitated by a series of four Excel macros[1]. These macros are maintained by the CO Group and are available from the (unfortunately named) "Archive" toolbar upon opening the file h:\database\archives\macros\archive.xls. The "Archive Example" icon in the "PS Controls" program group provides a summary of their use.

3. RF Logs

Figure 1 shows part of an Excel worksheet containing tables of controls data for the user SFTPRO. The list of equipment and the choice of parameters and properties is entirely flexible. Indeed, this is the principal advantage of the new log and we can only encourage the OP Group to use it to produce similar files for the injection, low-energy, high-energy and ejection processes of each user. The equipment are grouped together according to their class of equipment module. "Table" and "PLSLine" are keywords for the "Archive" macros while "Log" is recognised by the "RF Logs" macros. These macros are available from the toolbars which appear floating in the example of Figure 1. The purpose of the three "RF Logs" macros is outlined below.

3.1 "Varilog"

The following steps are all that are required to identify any discrepancy between the current control settings and their logged values:

- load Excel;
- open the workbook g:\home\r\rfll\rflogs.xls;
- select the worksheet of the user of interest;
- click on the third "Archive" button to read all the current values via the "passerelle";
- click on the first "RF Logs" button to compare all the data cell by cell with those of the last log (which is simply a previous copy of the worksheet).

Any differences are counted and marked with a red fill colour.

3.2 Update

The second "RF Logs" button serves to update the reference log worksheet by making a hidden copy of the active worksheet. The time and date are automatically recorded.

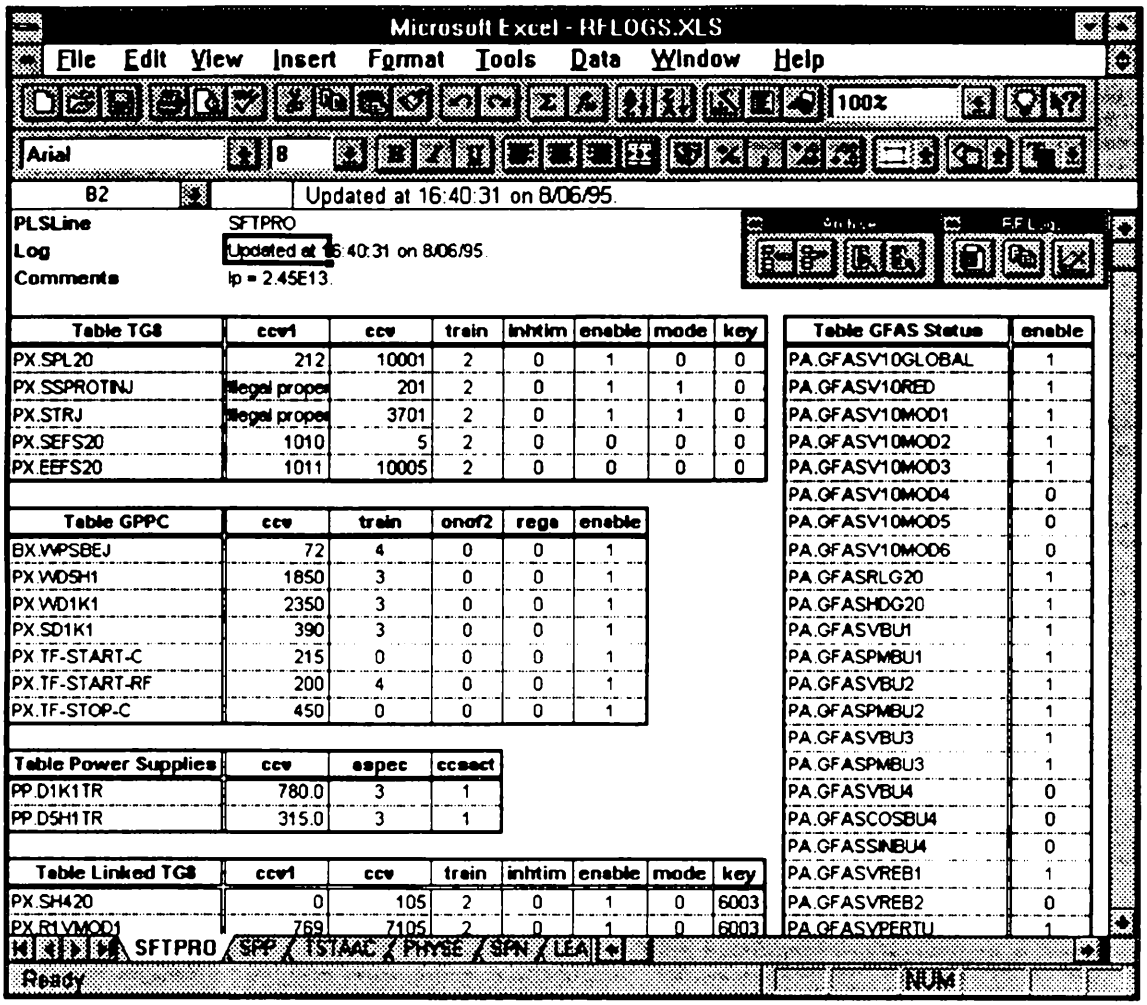

Figure 1

3.3 GFAS Plot

Since the ccv data of a GFAS is a series of absolute times and amplitudes, any slight modification of the function can cause the "varilog" macro to find many differences. The third "RF Logs" macro is intended to reveal the true extent of such differences by plotting the data of both the active and log worksheets in the same Excel chart. It is merely necessary to select the cell containing the OB-name of the GFAS of interest before clicking on the third "RF Logs" button. Internal stops are treated but are not plotted. However, the possibility of different clock trains is not considered so the macro is unsuitable for GFAD's.

Acknowledgements

The original idea to provide logs under Excel via the RPC Server is Gabriel Metral's. I shamelessly stole more than just his concept when I wrote my macros. And I would have been unable to write them so swiftly without the assistance of Ivan Deloose.

Reference

[1] I. Deloose, "PS Control System Access from the Office Network", PS/CO Note 95-24 (in preparation).

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